

A complete range for metering,  
monitoring & power quality

2021  
2022



POWER  
MONITORING

When **energy** matters





# Energy measurement & management

|                                                                                         |        |
|-----------------------------------------------------------------------------------------|--------|
| Integrated technologies .....                                                           | p. 12  |
| Measurement and monitoring system for electrical installations AC selection guide ..... | p. 14  |
| Active energy meters and pulse concentrators selection guide .....                      | p. 56  |
| Multifunction meters selection guide .....                                              | p. 82  |
| Current transformers selection guide .....                                              | p. 114 |
| Software solutions selection guide .....                                                | p. 130 |

## Multi-circuit metering & measurement

### DIRIS Digiware AC



**DIRIS Digiware D et C**  
p. 20



**DIRIS Digiware M**  
p. 26



**DIRIS Digiware U**  
p. 32



**DIRIS Digiware S**  
p. 34



**DIRIS Digiware I**  
p. 38

### DIRIS Digiware DC



**DIRIS Digiware IO**  
p. 54

## Single-circuit metering, measurement & analysis



**COUNTIS E**  
p. 56



**COUNTIS M**  
p. 70



**MULTIS M50**  
p. 78



**DIRIS A**  
p. 82



**DIRIS B**  
p. 102

## Software suite

### Embedded web server WEBVIEW



p. 132

### Configuration software Easy Config System



p. 134

## Current sensors



AC current sensors  
**TE, TR, iTR, TF**  
p. 42

## Quality analyser



**DIRIS Q800**  
p. 110

## Measurement devices



Current transformers  
5 to 6000 A  
p. 116



# Ensuring the energy performance of electrical installations, wherever it is critical

When **energy** matters





SYDIN 534

**For almost 100 years, Socomec has continued to design and manufacture its core products in Europe. Notably solutions for its primary mission: the availability, control and safety of low voltage electrical networks.**

As an independent manufacturer, the group is committed to constant innovation to improve the energy performance of electrical installations in infrastructures as well as industrial and commercial sites. Throughout its history, Socomec has constantly anticipated market changes by developing cutting-edge technologies, providing solutions that are adapted to customer requirements and fully in keeping with international standards. “Optimising the performance of your system throughout its life cycle” - this is the commitment carried out every day by the Socomec teams around the world, wherever your business is located.

**1**  
**independent**  
**manufacturer**

**3,500 m<sup>2</sup>**  
**of test platforms**

One of the leading independent power testing labs in Europe

**10 %**  
**of turnover invested in R&D**

Always at the cutting-edge of technology for innovative, high quality products

**110,000**  
**on-site interventions per year**

Nearly 400 experts in commissioning, technical audit, consultancy and maintenance



# Your energy, our expertise



## Power switching

### Managing power and protecting people, equipment and installations

Active in the industrial switching market since its foundation in 1922, Socomec is today an undisputed leader in the field of low voltage switchgear, providing expert solutions that ensure:

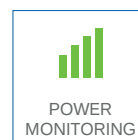
- isolation and on load breaking for the most demanding switching applications,
- continuity of the power supply to electrical facilities via manual remotely operated or automatic transfer switching equipment,
- protection of persons and assets via fusebased and other specialist solutions.

## Power monitoring

### Improving energy performance and monitoring installations

Socomec solutions - from current sensors to power meters and from IOT to energy management software - are driven by experts in energy performance. They meet the requirements of facility managers and operators of commercial, industrial and critical buildings to enable and facilitate:

- the measurement of energy consumption, the identification of sources of excess consumption and the generation of awareness amongst occupants as to their impact,
- the utilisation of the best available tariffs, utility bill checks and the accurate distribution of energy billing between consumer entities,
- the limitation of reactive energy and avoidance of associated tariff penalties,
- capacity management and the evolution of the electrical installation,
- improvements to power availability by monitoring and detecting insulation faults.





# Power conversion

## Ensuring the availability and storage of high quality power

With its wide range of continuously evolving products, solutions and services, Socomec are recognised experts in the cutting-edge technologies used for ensuring the highest availability of the electrical power supply to critical facilities and buildings, including:

- static uninterruptible power supplies (UPS) for high-quality power free of distortions and interruptions occurring on the primary power supply,
- changeover of static, high availability sources for transferring the supply to an operational back-up source,
- permanent monitoring of the electrical facilities to prevent failures and reduce operating losses,
- energy storage for ensuring the proper energy mix of buildings and for stabilisation of the power grid.

# Expert services

## Enabling available, safe and efficient energy

Socomec is committed to delivering a wide range of value-added services to ensure the reliability and optimisation of end-users' equipment:

- prevention and service operations to lower the risks and enhance the efficiency of operations, for high-quality power free of distortions and interruptions occurring on the primary power supply,
- measurement and analysis of a wide range of electrical parameters leading to recommendations for improving the site's power quality,
- optimisation of the total cost of ownership and support for a safe transition when migrating from an old to a new generation of equipment,
- consultancy, deployment and training from the project engineering stage through to final procurement,
- performance assessment of the electrical installation throughout the life cycle of the products via analysis of data transmitted by connected devices.







# Your partner in expert services

**Socomec is committed to delivering a wide range of value-added services to ensure the reliability and optimisation of end-users' equipment during its life cycle**

- Prevention and service operations to reduce risk and enhance equipment efficiency.
- Measurement and analysis of a wide range of electrical parameters leading to recommendations for power quality improvement.
- Consultancy, deployment and training from the project engineering stage to the final procurement stage.



## Specialists - at your service

Our Services team comprises qualified engineers whose mission is to ensure the correct operation of your equipment. We offer a comprehensive support service package which gives you complete peace of mind: commissioning, on-site testing, preventive maintenance visits, 24-hour call out and rapid on-site repairs, original spare parts, power quality and energy efficiency audits, consultancy, design and implementation of installation modifications and updates.

Our Services team is the most reliable partner when it comes to advising you on the maintenance of Socomec equipment and providing resolution to any problems in accordance with current environmental standards and procedures.



## Professional tools

Our Services team is provided with the latest essential equipment including:

- Personal Protective Equipment (protective goggles, helmet, insulated gloves, fireproof jacket, safety shoes, earplugs...),
- laptop embedded with all software required to optimise equipment performance,
- measuring equipment calibrated annually by our metrology department (multimeter, digital scope, current clamps, infra-red camera, power analyser).



## Reports

An exhaustive report is generated for each intervention (including commissioning, preventive maintenance and troubleshooting) which is then automatically sent to the customer and synchronised with our systems.



## Remote diagnostics

In case of any anomaly, an automatic notification is sent to a local call centre for proactive online troubleshooting.



## Availability of original spare parts

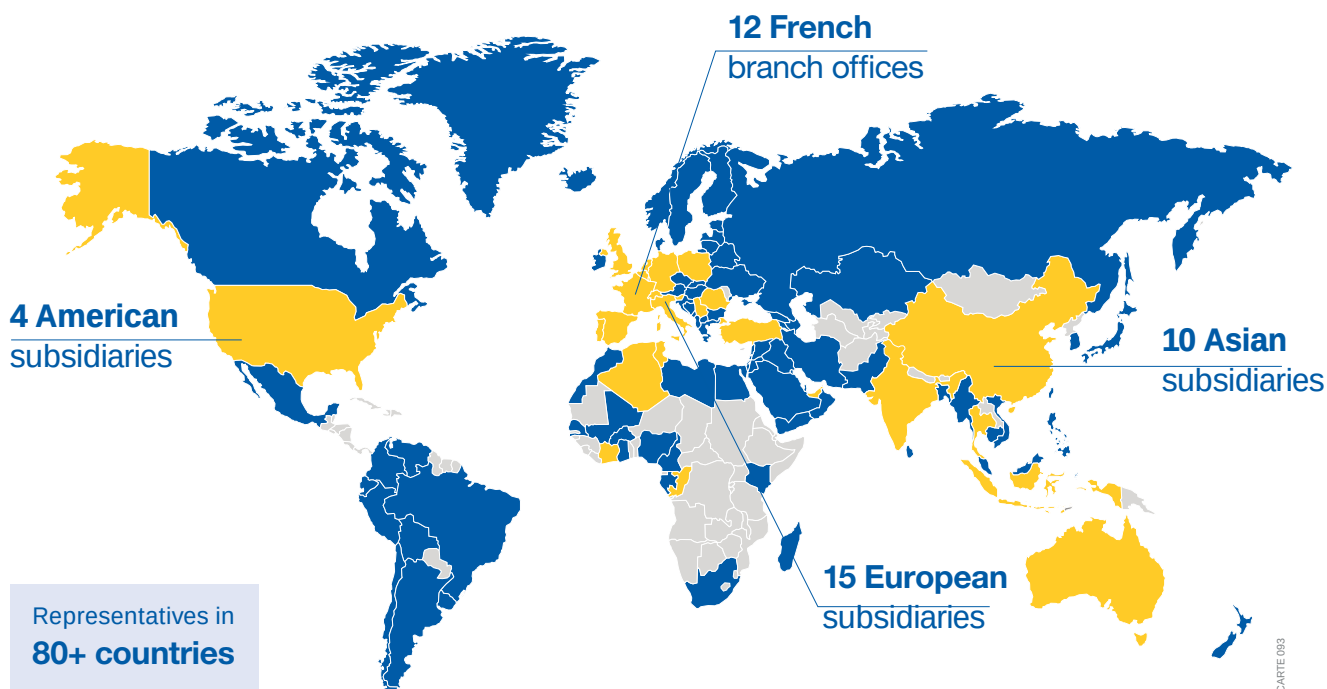
The various original parts and components that we stock guarantee that any faulty equipment can be rapidly brought back online, whilst maintaining its original performance and reliability.



## Key figures

Nearly 400 Socomec experts - supported by 200 engineers and technicians from across our distributor network - can provide the solutions to your specific needs.

- Subsidiaries
- Distributors
- Contact us



### On-site service management



**110,000**

service operations per year  
(mainly preventive visits)

**98 %**

Service Level Agreement  
compliance rate

### Technical hotline network



**25+**

languages spoken

**3**

advanced technical support centres

**110,000+**

incoming calls handled per year

### Certified expertise



**8,000**

hours of technical training  
undertaken every year  
(product, methodology and safety)

# Socomec in India

## State of the art facility to meet local demands

Founded in 1990, SOCOMEC India is a wholly owned subsidiary of Socomec France. An ISO certified company presence across 14 locations, having a skilled and dedicated workforce over 275 people.



CORPO 425 A

### A flexible manufacturing structure

Socomec India a state of the art manufacturing facility spread in 2100 square meter for the production of load break switches and manual changeover switches ranging from 63 to 3200 A. It also manufactures Uninterruptible Power Supply (UPS 100 to 200 kVA). The plant equipped with advanced manufacturing technology has embraced lean manufacturing principles by implementing a system of continuous improvements. Our objective is to provide high levels of product quality to meet our valuable customer demands at affordable cost.

### Solutions to meet every need

Thanks to our substantial R&D resources, our product range is continuously evolving based on our contact with clients.

Our solutions have been approved by the most demanding users. It caters to the application such as Critical Building, Building, Industrial, OEM, Infrastructure & Renewable energy, etc.

### The expert touch

Certified quality products, continuous dialogue to understand customer requirements, maximum flexibility and dedication right by your side. Our experience at your service.

### Our specialists at your disposal

Trusting us with your project means you benefit from pre- and after-sales technical support. Socomec has well qualified and trained sales, service and project management team deployed across the country. Since the team is involved in sales and after sales support, the customer requirements are well understood and suitable solutions are provided. Our qualified and dedicated maintenance engineers and technicians in India assure the peace of mind of our customers.



REGAR 103 B



SOCOMEC is fully compliant with ISO 9001 certification discerned by TÜV NORD for the quality of its manufacturing and sale of low voltage, switchgears, UPS and spares.



# A cutting-edge laboratory

## the backing of an expert

Created in 1965, SOCOMEC's laboratory brings its expertise to guarantee the reliability and the conformity of our products and solutions.

Since 2015, the laboratory renamed Tesla Lab – Power Testing and Certification in 2015, offers its testing and certification services to all its customers.



CORPO 441 A

### Proven expertise

Tesla Lab is an independent laboratory specialised in testing of LV switchgear, components and switchgear assemblies.

4 M€ has been invested since 2011 in this 2000 m<sup>2</sup> laboratory, where 30 experts guarantee the quality of the performed tests, making the Tesla Lab one of the most modern laboratories in Europe.

### Vast range of tests

The laboratory has a 100 MVA ( $I_{cc}$  100 kA rms 1 s) short-circuit platform, three 10 kA overload platforms and many other test facilities covering 2000 m<sup>2</sup> for:

- functional tests,
- mechanical tests: endurance,
- dielectric tests,
- environmental tests: vibration,
- Ingress Protection (IP),
- temperature rise tests up to 60 °C ambient.

### International partnership

The laboratory is recognised by the major certification bodies worldwide: member of ASEFA and LOVAG, it is accredited by COFRAC, UL (CTDP), CSA (shared certification) and DEKRA (WMT).

The partnership with many international certification bodies guarantees the quality and safety requirements in each country.

## Implementation of standard IEC / EN 61439

### Electrical switchgear manufacturers

IEC / EN 61439 standards define the requirements of "Low voltage switchgear assemblies" as well as the tests necessary to ensure the achievement of the specified levels of performance. The compliance with these standards gives a guarantee of safety and performance to the user of the equipment



### An original manufacturer according to IEC / EN 61439 standards

Socomec offers a wide range of original manufacturer solutions complying with IEC 61439 standards.

- FLEXYS and CADRYS cabinet systems designed for distribution panel applications.
- Local switching and equipment cabinets covering requirements in power availability and safety.
- Components for integration.

### Tesla Lab accredited by COFRAC

With its world-class testing facilities, the Tesla Lab can perform all of the tests required by IEC / EN 61439 standards for switchgear assemblies

We can therefore help you to:

- define a verification program,
- perform conformity tests,
- issue test reports in order to get certification from third party certification bodies (ASEFA, LOVAG, DEKRA, UL, CSA, COFRAC, ASTA...).



# Integrated technologies

Groundbreaking technologies for greater simplicity and performance



## PreciSense

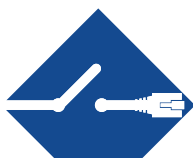
Products that are setting new standards in measurement accuracy

The PreciSense technology ensures 100% reliable accuracy across the global measurement chain.

Be guaranteed of the accuracy of your measurements:

- for the global measurement chain,
- for reliable measurements,
- for relevant corrective actions.

PreciSense offers the best accuracy on the market regardless of the type of current sensors used (solid core, split core, flexible or embedded in the DIRIS Digiware S module).



## VirtualMonitor

The simple and cost-saving solution for monitoring your protective devices

The VirtualMonitor technology enables an advanced monitoring of protective devices at all levels within the electrical installation.

Virtual Monitor:

- detects the position and status of the protective device,
- detects if the breaker has tripped,
- counts the number of operations and trips.

VirtualMonitor technology monitors the status of protective devices:

- On your entire electrical installation (without additional space).
- Remotely and in real-time.
- Without additional hardware or wiring (without adding auxiliary contacts).



## AutoCorrect

Software elimination of wiring errors

The AutoCorrect technology ensures that the measurement is properly wired at all times, thus avoiding on-site interventions.

AutoCorrect ensures the operation of the proper measuring system thanks to simple and rapid detection of wiring errors:

- automatic wiring control (voltage/current phase association),
- correction of errors with a single click,
- feature available off-load.

Error correction's are carried out without any physical modification to the wiring.



Discover the video



Discover the video



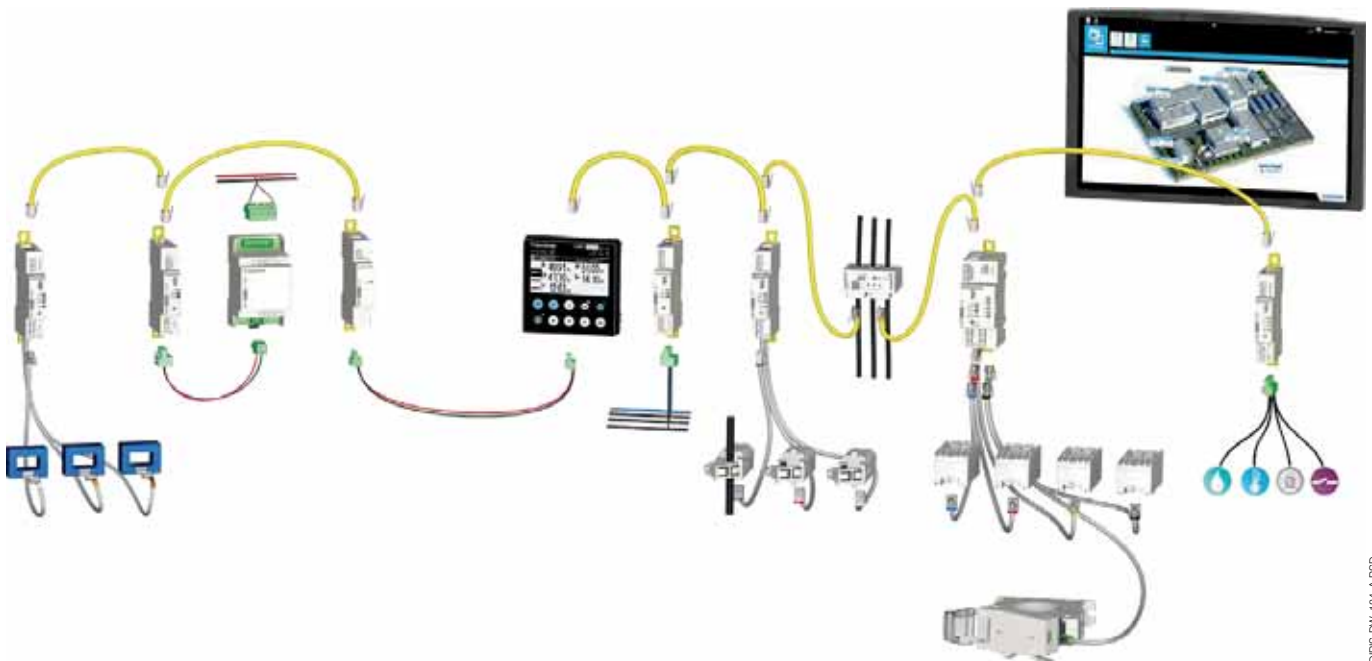
Discover the video



PreciSense, VirtualMonitor and AutoCorrect technologies are embedded in Socomec's power monitoring solutions.

## Power metering and monitoring system for AC electrical installations

- DIRIS Digiware S with its 3 integrated sensors and DIRIS Digiware I associated with ITR sensors.



DIRIS-DW\_194\_A\_PSD

## Multifunction meters

- DIRIS A-40 and DIRIS B with ITR sensors.



DIRIS\_089\_PSD

TORE\_078\_PSD

TORE\_080\_PSD

TORE\_074\_PSD





# Selection guide

Power monitoring system AC

DIRIS Digiware AC

Multi-circuit power monitoring

## Build your own AC system

System interface, displays and gateways  
(24 VDC)



**DIRIS Digiware D**  
display

or



**DIRIS Digiware M**  
gateway

or



**DIRIS Digiware C**  
RS485 interface

+

Voltage  
acquisition  
module



**DIRIS Digiware U**

+

Current acquisition  
module with integrated  
sensors



**DIRIS Digiware S**

Current acquisition modules



**DIRIS Digiware I-3x**  
3 inputs



**DIRIS Digiware I-4x**  
4 inputs



**DIRIS Digiware I-6x**  
6 inputs

+

Current sensors



**TE**  
Solid



**TR/iTR**  
Split-core



**TF**  
Flexible

+

Digital and analogue  
input/output modules



**DIRIS Digiware IO**

## Find the best DIRIS Digiware configuration!



The Socomec Meter Selector is your digital assistant, helping you find the best DIRIS Digiware configuration for your power monitoring projects, and all in just a few clicks!

- Fill in information regarding your project.
- Download the system diagram and bill of material.
- All your projects are archived in your personal account.

## Control and power supply interface

| Application                                                                                  | Centralisation and display of data                                                |                                                                                     |                                                                                     |                                                                                     | Data centralisation                                                                 | Repeater                                                                            |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                              |  |  |  |  |  |  |
| <b>DIRIS Digiware</b>                                                                        | <b>D-50</b><br><i>p. 26</i>                                                       | <b>D-70</b><br><i>p. 26</i>                                                         | <b>M-50</b><br><i>p. 20</i>                                                         | <b>M-70</b><br><i>p. 20</i>                                                         | <b>C-31</b><br><i>p. 20</i>                                                         | <b>C-32</b><br><i>p. 20</i>                                                         |
| <b>Function</b>                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Centralising measurement points                                                              | •                                                                                 | •                                                                                   | •                                                                                   | •                                                                                   | •                                                                                   |                                                                                     |
| High-resolution LCD display (configuration, selection and visualisation display of circuits) | •                                                                                 | •                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Repeater                                                                                     |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     | •                                                                                   |
| <b>Power supply</b>                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| 24 VDC                                                                                       | •                                                                                 | •                                                                                   | •                                                                                   | •                                                                                   | •                                                                                   | •                                                                                   |
| <b>Communication</b>                                                                         |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| RS485 Modbus                                                                                 | Input/Output                                                                      | Input/Output                                                                        | Input/Output                                                                        | Input/Output                                                                        | Output                                                                              |                                                                                     |
| Digiware bus                                                                                 | •                                                                                 | •                                                                                   | •                                                                                   | •                                                                                   | •                                                                                   | •                                                                                   |
| Ethernet                                                                                     | Modbus TCP<br>BACnet IP<br>SNMP                                                   | Modbus TCP<br>BACnet IP<br>SNMP                                                     | Modbus TCP<br>BACnet IP<br>SNMP                                                     | Modbus TCP<br>BACnet IP<br>SNMP                                                     |                                                                                     |                                                                                     |
| Embedded web server                                                                          | WEB-CONFIG                                                                        | WEBVIEW-M                                                                           | WEB-CONFIG                                                                          | WEBVIEW-M                                                                           |                                                                                     |                                                                                     |

## Voltage acquisition module

| Application                                      | Metering                                                                            | Monitoring                                                                            | Analysis                                                                              |
|--------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                                  |  |  |  |
| <b>DIRIS Digiware U</b>                          | <b>U-10</b><br><i>p. 32</i>                                                         | <b>U-20</b><br><i>p. 32</i>                                                           | <b>U-30</b><br><i>p. 32</i>                                                           |
| <b>Multi-measurement</b>                         |                                                                                     |                                                                                       |                                                                                       |
| U12, U23, U31, V1, V2, V3, f                     | •                                                                                   | •                                                                                     | •                                                                                     |
| U system, V system                               |                                                                                     |                                                                                       | •                                                                                     |
| Ph/N unbalance                                   |                                                                                     |                                                                                       | •                                                                                     |
| Ph/Ph unbalance                                  |                                                                                     |                                                                                       | •                                                                                     |
| <b>Quality analysis</b>                          |                                                                                     |                                                                                       |                                                                                       |
| THDv1, THDv2, THDv3, THDu12, THDu23, THDu31      |                                                                                     | •                                                                                     | •                                                                                     |
| Crest factors V1, V2, V3, U12, U23, U31          |                                                                                     |                                                                                       | •                                                                                     |
| Individual harmonics U & V (up to 63rd)          |                                                                                     |                                                                                       | •                                                                                     |
| Voltage dips, interruptions and swells (EN50160) |                                                                                     |                                                                                       | •                                                                                     |
| <b>Alarms</b>                                    |                                                                                     |                                                                                       |                                                                                       |
| On threshold                                     |                                                                                     |                                                                                       | •                                                                                     |
| <b>History</b>                                   |                                                                                     |                                                                                       |                                                                                       |
| Average values                                   |                                                                                     |                                                                                       | •                                                                                     |
| <b>Format</b>                                    |                                                                                     |                                                                                       |                                                                                       |
| Width/number of modules                          | 18 mm / 1                                                                           | 18 mm / 1                                                                             | 18 mm / 1                                                                             |

# Selection guide

Power monitoring system AC  
DIRIS Digiware AC

## Current acquisition modules

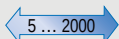
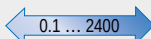
| Application                                     | Metering                                                                          |                                                                                   | Monitoring                                                                        | Analysis                                                                          | Monitoring                                                                         | Analysis                                                                            | Metering                                                                            |                                                                                     |
|-------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                 |  |  |  |  |  |  |  |  |
| <b>DIRIS Digiware I</b>                         | <b>I-30</b><br>p. 38                                                              | <b>I-31</b><br>p. 38                                                              | <b>I-33</b><br>p. 38                                                              | <b>I-35</b><br>p. 38                                                              | <b>I-43</b><br>p. 38                                                               | <b>I-45</b><br>p. 38                                                                | <b>I-60</b><br>p. 38                                                                | <b>I-61</b><br>p. 38                                                                |
| Number of current inputs                        | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 4                                                                                  | 4                                                                                   | 6                                                                                   | 6                                                                                   |
| <b>Metering</b>                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| ± kWh, ± kvarh, kVAh                            | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                  | •                                                                                   | •                                                                                   | •                                                                                   |
| Load curves                                     |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     | •                                                                                   |
| Multi-tariff                                    |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     | •                                                                                   |
| <b>Multi-measurement</b>                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                  | •                                                                                   | •                                                                                   | •                                                                                   |
| P, Q, S, PF per phase                           |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                  | •                                                                                   |                                                                                     |                                                                                     |
| Predictive power                                |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Current unbalance (Inba, Idir, Iinv, Ihom, Inb) |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Phi, cos Phi, tan Phi                           |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| <b>Quality</b>                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| THDi1, THDi2, THDi3, THDin                      |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                  | •                                                                                   |                                                                                     |                                                                                     |
| Individual harmonics I (up to 63rd)             |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Crest factors I1, I2, I3, In                    |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Overcurrents                                    |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| <b>Alarms</b>                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| On threshold                                    |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Inputs/outputs                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2/2                                                                                | 2/2                                                                                 |                                                                                     |                                                                                     |
| <b>History</b>                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Average values                                  |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| <b>Format</b>                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Width/number of modules                         | 18 mm / 1                                                                         | 18 mm / 1                                                                         | 18 mm / 1                                                                         | 18 mm / 1                                                                         | 27 mm / 1.5                                                                        | 27 mm / 1.5                                                                         | 36 mm / 2                                                                           | 36 mm / 2                                                                           |



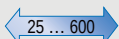
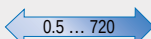
## Current acquisition module with integrated sensors

| Application                                                        | Metering                                                                          | Analysis                                                                           | Monitoring                                                                          |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                    |  |  |  |
| <b>DIRIS Digiware S</b>                                            | <b>S-130</b><br>p. 34                                                             | <b>S-135</b><br>p. 34                                                              | <b>S-Datacenter</b><br>p. 34                                                        |
| Number of current inputs                                           | 3                                                                                 | 3                                                                                  | 3                                                                                   |
| Basic current $I_b$                                                | 10 A                                                                              | 10 A                                                                               | 10 A                                                                                |
| Maximum current $I_{max}$                                          | 63 A                                                                              | 63 A                                                                               | 63 A                                                                                |
| Load type accepted                                                 | 1P + N<br>2P / 2P + N<br>3P / 3P + N                                              | 1P + N<br>2P / 2P + N<br>3P / 3P + N                                               | 1P + N                                                                              |
| <b>Metering</b>                                                    |                                                                                   |                                                                                    |                                                                                     |
| ± kWh, ± kvarh, kVAh                                               | •                                                                                 | •                                                                                  | •                                                                                   |
| Multi-tariff (max 8)                                               |                                                                                   | •                                                                                  |                                                                                     |
| Load curves                                                        |                                                                                   | •                                                                                  | •                                                                                   |
| <b>Multi-measurement</b>                                           |                                                                                   |                                                                                    |                                                                                     |
| $I_1, I_2, I_3, I_n, \Sigma P, \Sigma Q, \Sigma S, \Sigma PF$      | •                                                                                 | •                                                                                  | •                                                                                   |
| P, Q, S, PF per phase                                              |                                                                                   | •                                                                                  | •                                                                                   |
| Predictive power                                                   |                                                                                   | •                                                                                  |                                                                                     |
| Current unbalance ( $I_{nba}, I_{nb}, I_{dir}, I_{inv}, I_{hom}$ ) |                                                                                   | •                                                                                  |                                                                                     |
| $\Phi_i, \cos \Phi_i, \tan \Phi_i$                                 |                                                                                   | •                                                                                  | •                                                                                   |
| <b>Quality</b>                                                     |                                                                                   |                                                                                    |                                                                                     |
| THDi1, THDi2, THDi3, THDin                                         |                                                                                   | •                                                                                  | •                                                                                   |
| Individual harmonics I (up to 63rd)                                |                                                                                   | •                                                                                  |                                                                                     |
| Crest factors U, V, I                                              |                                                                                   | •                                                                                  |                                                                                     |
| K factor                                                           |                                                                                   | •                                                                                  |                                                                                     |
| Overcurrents                                                       |                                                                                   | •                                                                                  |                                                                                     |
| <b>Alarms</b>                                                      |                                                                                   |                                                                                    |                                                                                     |
| Thresholds and combinations                                        |                                                                                   | •                                                                                  | •                                                                                   |
| Load level                                                         |                                                                                   |                                                                                    | •                                                                                   |
| Wiring errors                                                      |                                                                                   | •                                                                                  | •                                                                                   |
| Protective device                                                  |                                                                                   | •                                                                                  | •                                                                                   |
| <b>Trends</b>                                                      |                                                                                   |                                                                                    |                                                                                     |
| Average values                                                     |                                                                                   | •                                                                                  | •                                                                                   |
| <b>Format</b>                                                      |                                                                                   |                                                                                    |                                                                                     |
| Width                                                              | 54 mm                                                                             | 54 mm                                                                              | 54 mm                                                                               |

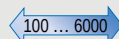
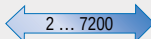
## Current sensors

| Suitable for new installations<br>match the pitch of protective<br>devices                                  | Solid-core current sensors                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                                             |  |  |  |  |  |  |  |
|                                                                                                             | <b>TE-18</b><br><i>p. 42</i>                                                      |                                                                                   | <b>TE-25</b><br><i>p. 42</i>                                                      | <b>TE-35</b><br><i>p. 42</i>                                                      | <b>TE-45</b><br><i>p. 42</i>                                                        | <b>TE-55</b><br><i>p. 42</i>                                                        | <b>TE-90</b><br><i>p. 42</i>                                                        |
| Nominal current $I_n$ (A)  | 5 ... 20                                                                          | 25 ... 63                                                                         | 40 ... 160                                                                        | 63 ... 250                                                                        | 160 ... 630                                                                         | 400 ... 1000                                                                        | 600 ... 2000                                                                        |
| Real range covered (A)     | 0.1 ... 24                                                                        | 0.5 ... 75.6                                                                      | 0.8 ... 192                                                                       | 1.26 ... 300                                                                      | 3.2 ... 756                                                                         | 8 ... 1200                                                                          | 12 ... 2400                                                                         |
| Aperture (mm)                                                                                               | Ø 8.4                                                                             | Ø 8.4                                                                             | 13.5 x 13.5                                                                       | 21 x 21                                                                           | 31 x 31                                                                             | 41 x 41                                                                             | 64 x 64                                                                             |
| Dimensions (mm)                                                                                             | 28 x 20 x 45                                                                      | 28 x 20 x 45                                                                      | 25 x 32.5 x 65                                                                    | 35 x 32.5 x 71                                                                    | 45 x 32.5 x 86                                                                      | 55 x 32.5 x 100                                                                     | 90 x 126 x 24.6                                                                     |
| Connection                                                                                                  | RJ12                                                                              | RJ12                                                                              | RJ12                                                                              | RJ12                                                                              | RJ12                                                                                | RJ12                                                                                | RJ12                                                                                |

For currents above 2000 A, the 5A / RJ12 adapter provides compatibility with 1A or 5A secondary CTs.

| Suitable for existing installations                                                                           | Split-core current sensors                                                         |                                                                                    |                                                                                    |                                                                                     |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                                               |  |  |  |  |
|                                                                                                               | <b>TR/iTR-10</b><br><i>p. 46</i>                                                   | <b>TR/iTR-14</b><br><i>p. 46</i>                                                   | <b>TR/iTR-21</b><br><i>p. 46</i>                                                   | <b>TR/iTR-32</b><br><i>p. 46</i>                                                    |
| Nominal current $I_n$ (A)  | 25 ... 63                                                                          | 40 ... 160                                                                         | 63 ... 250                                                                         | 160 ... 600                                                                         |
| Real range covered (A)     | 0.5 ... 90                                                                         | 0.64 ... 120                                                                       | 1.26 ... 200                                                                       | 4 ... 720                                                                           |
| Aperture (mm)                                                                                                 | Ø 10                                                                               | Ø 14                                                                               | Ø 21                                                                               | Ø 32                                                                                |
| Dimensions (mm)                                                                                               | 26 x 44 x 28                                                                       | 29 x 67 x 28                                                                       | 37 x 65 x 43                                                                       | 53 x 86 x 47                                                                        |
| Connection                                                                                                    | RJ12                                                                               | RJ12                                                                               | RJ12                                                                               | RJ12                                                                                |

For currents above 600 A, the 5A / RJ12 adapter provides compatibility with 1A or 5A secondary CTs.

| Suitable for existing installations<br>with space constraints or<br>with high currents                        | Flexible current sensors                                                            |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |                                                                                       |
|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                                                                                               |  |  |  |  |  |  |  |
|                                                                                                               | <b>TF-40</b><br><i>p. 48</i>                                                        | <b>TF-55</b><br><i>p. 48</i>                                                        | <b>TF-80</b><br><i>p. 48</i>                                                        | <b>TF-120</b><br><i>p. 48</i>                                                        | <b>TF-200</b><br><i>p. 48</i>                                                         | <b>TF-300</b><br><i>p. 48</i>                                                         | <b>TF-600</b><br><i>p. 48</i>                                                         |
| Nominal current $I_n$ (A)  | 140 ... 400                                                                         | 150 ... 600                                                                         | 150 ... 600                                                                         | 400 ... 2000                                                                         | 600 ... 4000                                                                          | 1600 ... 6000                                                                         | 1600 ... 6000                                                                         |
| Real range covered (A)     | 2 ... 480                                                                           | 3 ... 720                                                                           | 3 ... 720                                                                           | 8 ... 2400                                                                           | 12 ... 4800                                                                           | 32 ... 7200                                                                           | 32 ... 7200                                                                           |
| Aperture (mm)                                                                                                 | Ø 40                                                                                | Ø 55                                                                                | Ø 80                                                                                | Ø 120                                                                                | Ø 200                                                                                 | Ø 300                                                                                 | Ø 600                                                                                 |
| Connection                                                                                                    | RJ12                                                                                | RJ12                                                                                | RJ12                                                                                | RJ12                                                                                 | RJ12                                                                                  | RJ12                                                                                  | RJ12                                                                                  |

## Input/output modules

| Application                      | Metering / monitoring / control                                                   |                                                                                     |
|----------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                  |  |  |
| <b>DIRIS Digiware IO</b>         | <b>IO-10</b><br><i>p. 54</i>                                                      | <b>IO-20</b><br><i>p. 54</i>                                                        |
| Number of digital inputs/outputs | 4/2                                                                               |                                                                                     |
| Number of analogue inputs        |                                                                                   | 2                                                                                   |
| <b>Format</b>                    |                                                                                   |                                                                                     |
| Width/number of modules          | 18 mm / 1                                                                         | 18 mm / 1                                                                           |





# DIRIS Digiware **D** and **C**

## Display and system interface

Multi-circuit power  
monitoring



**DIRIS Digiware D-50/D-70**  
Centralisation and display of data



**DIRIS Digiware C-31**  
Centralisation



Configuration  
with Easy Config System.

### Function

#### DIRIS Digiware D-50 and D-70

DIRIS Digiware D remote displays allow:

- local visualisation the data from DIRIS Digiware modules
- a power supply to the DIRIS Digiware modules,
- access to measurements over RS485 or Ethernet.

DIRIS Digiware D-50 and D-70 displays also act as a gateway, centralising measurements from DIRIS Digiware, DIRIS A, DIRIS B and COUNTIS E devices and making them available over Ethernet.

With the DIRIS Digiware D-70 display, data can be visualised on WEBVIEW-M, the "Power & Energy monitoring" embedded web server.

DIRIS Digiware displays are 24 VDC powered.

#### DIRIS Digiware C-31

For applications without a local display

DIRIS Digiware C-31 interfaces centralise all measurements and communicate data over RS485 to an external software or PLC.

DIRIS Digiware C-31 interfaces and C-32 repeaters are 24 VDC powered.

### Advantages

#### DIRIS Digiware D

- High-resolution graphic screen
- Embedded web server (DIRIS Digiware D-70)
- Multi-protocols (Modbus, BACnet, SNMP)
- 24 VDC SELV (Safety Extra Low Voltage) power supply eliminating hazardous voltage on panel doors.
- Ergonomic and easy to use with 10 direct access buttons for:
  - device configuration,
  - circuit selection,
  - display of measurements.

#### Cyber security

Dedicated cyber security features referring to IEC 62443 to guarantee the confidentiality, integrity and availability of data and reduce the risk of cyber attacks:

- secured HTTPS navigation,
- secured data push (FTPS, SMTPS),
- restriction of certain protocols or services,
- firewall to prevent denial-of-service attacks.

#### DIRIS Digiware C-31

Compact: Centralise your measurement data on 1 module without a local screen, for a complete system:

- single 24 V power supply (no dangerous voltage on DIRIS Digiware modules for a connection with no interruption),
- a single RS485 communication.

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data centers



### Strong points

- > Centralising and displaying measurement data
- > A single power supply for the entire system
- > A single RS485 or Ethernet output for the entire system
- > WEBVIEW-M embedded web server

### Compliance with standards

- > IEC 61557-12
- > IEC 62443



- > ISO 14025



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



| Application           | Control and power supply interface                                                |                                                                                     |                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                       |  |  |  |
| <b>DIRIS Digiware</b> | <b>C-31</b>                                                                       | <b>D-50</b>                                                                         | <b>D-70</b>                                                                         |
| Digiware input        | •                                                                                 | •                                                                                   | •                                                                                   |
| RS485 input           |                                                                                   | •                                                                                   | •                                                                                   |
| RS485 output          | •                                                                                 | •                                                                                   | •                                                                                   |
| Ethernet output       |                                                                                   | Modbus<br>BACnet IP<br>SNMP v1, v2, v3                                              | Modbus<br>BACnet IP<br>SNMP v1, v2, v3                                              |
| Webserver             |                                                                                   | WEB-CONFIG                                                                          | WEBVIEW-M                                                                           |

## Functions



### WEBVIEW-M

Embedded web server in the DIRIS Digiware D-70 display

WEBVIEW-M allows the display and remote monitoring of all the electric parameters measured by up to 32 devices. They are displayed in the form of overview screens, graphs or tables for clear and user-friendly analysis.

Access to WEBVIEW is made by a web browser on a PC or tablet and offers multiple features such as the automatic export of data via FTPS or e-mail notification in the presence of alarms (SMTPS).

The Photoview application is available via the WEBVIEW interface embedded in the DIRIS Digiware D-70 display. It allows the display of electrical quantities on a customised background picture such as a cabinet, a wiring diagram or the map of a site.

## Accessories

### DIN rail mounting kit

The accessory allows you to install the DIRIS Digiware D-50/D-70 display on a DIN rail.

This kit is not included with the displays and must be ordered separately.

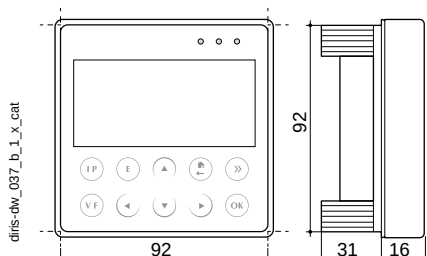


# DIRIS Digiware D and C

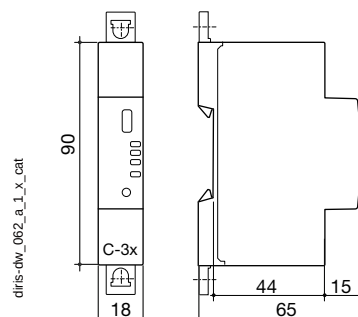
Display and system interface

## Dimensions (mm)

DIRIS Digiware D-50/D-70



DIRIS Digiware C-31



## Configuration

### Equipment consumption

| Product                                           | Power delivered (W) | Power consumed (W) |
|---------------------------------------------------|---------------------|--------------------|
| <b>Power supply</b>                               |                     |                    |
| P15 100-240 VAC / 24 VDC                          | 15                  |                    |
| P30 100-240 VAC / 24 VDC                          | 20                  |                    |
| <b>Cables</b>                                     |                     |                    |
| 50 metre package                                  |                     | 1.5                |
| <b>System interfaces</b>                          |                     |                    |
| DIRIS Digiware D-50/D-70                          |                     | 2.5                |
| DIRIS Digiware C-31                               |                     | 0.8                |
| <b>Module voltage</b>                             |                     |                    |
| DIRIS Digiware U-xx                               |                     | 0.72               |
| DIRIS Digiware U-3xdc                             |                     | 0.6                |
| <b>Current modules</b>                            |                     |                    |
| DIRIS Digiware I-3x                               |                     | 0.52               |
| DIRIS Digiware I-4x                               |                     | 1.125              |
| DIRIS Digiware I-6x                               |                     | 0.7                |
| DIRIS Digiware I-3xdc<br>(+ 3 DC current sensors) |                     | 2                  |
| DIRIS Digiware S-xx                               |                     | 0.35               |
| <b>Input/output modules</b>                       |                     |                    |
| DIRIS Digiware IO-10/IO-20                        |                     | 0.5                |
| <b>Repeater</b>                                   |                     |                    |
| DIRIS Digiware C-32                               |                     | 1.5                |

### Calculation rules for the max. number of products on the Digiware Bus

The total power consumed by the equipment connected to the Digiware Bus must not exceed the power from the 24 VDC supply.

The power supply must not exceed 20 W/70°C or 27 W/40°C.

Size with P15 power supply (ref: 4829 0120) delivering 15 W

For example, it is possible to use

- 1 DIRIS Digiware D-50 display (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and

- 19 DIRIS Digiware current modules I-3x ( $19 \times 0.52 = 9.9$  W)
- ⇒ Total power = 14.845 W

or

- 9 DIRIS Digiware current modules I-4x ( $9 \times 1.125 = 10.125$  W)
- ⇒ Total power = 14.345 W.

Size with a 24 VDC power supply delivering a maximum of 20 W (Power supply P30 ref: 4729 0603)

For example, it is possible to use

- 1 DIRIS Digiware D-50 display (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and

- 29 DIRIS Digiware current modules I-3x ( $29 \times 0.52 = 15.1$  W)
- ⇒ Total power = 19.82 W

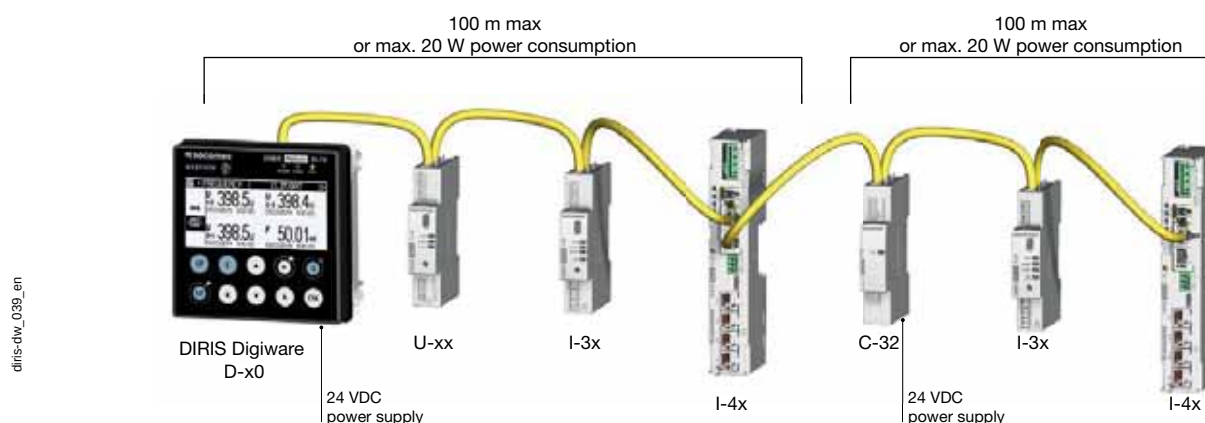
or

- 13 DIRIS Digiware current modules I-4x ( $13 \times 1.125 = 14.625$  W)
- ⇒ Total power = 19.345 W.

### Repeater

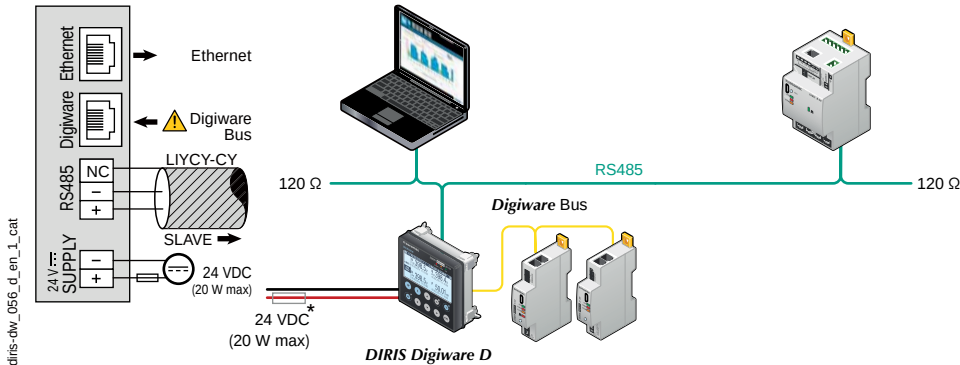
Whenever the power consumption is higher than 20 W or the distance is greater than 100 m, a DIRIS Digiware C-32 repeater is required.

In a DIRIS Digiware system, a maximum of 2 repeaters may be used.



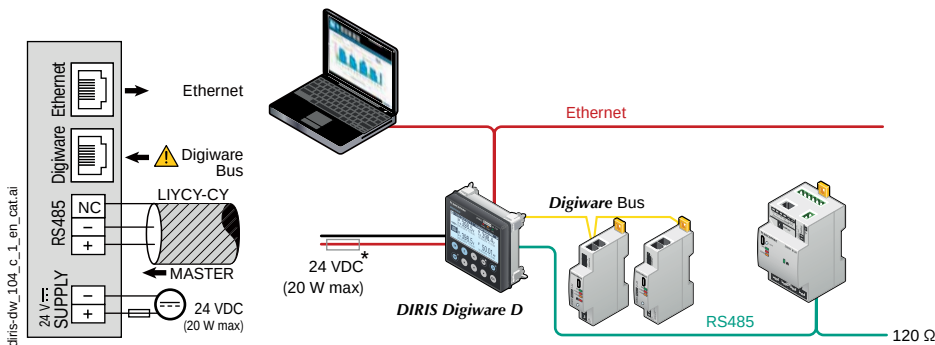
## Connections

### RS485 slave mode



(\*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

### RS485 master mode



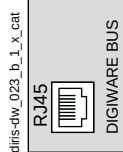
(\*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

### DIRIS Digiware C-31

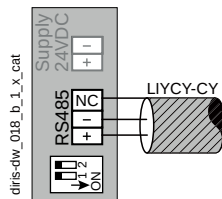
#### Power supply



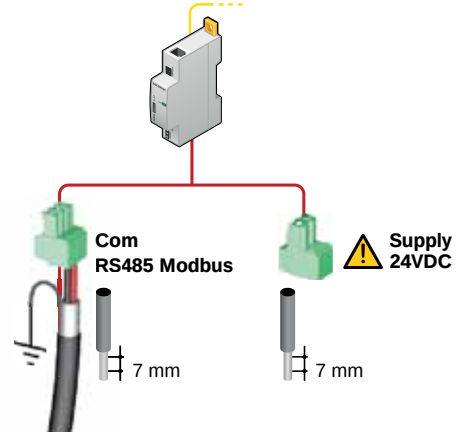
#### Digiware bus



#### Communication

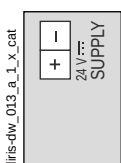


#### DIRIS Digiware C-31

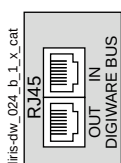


### DIRIS Digiware C-32

#### Power supply



#### Digiware bus





# DIRIS Digiware D and C

Display and system interface

## Technical characteristics

### Electrical characteristics

| DIRIS Digiware C-31 |                                                                                                         |
|---------------------|---------------------------------------------------------------------------------------------------------|
| Input voltage       | 24 VDC $\pm$ 20 % - 20 W max                                                                            |
| Connection          | Removable screw terminal block, 2 positions, stranded or solid 0.2-2.5 mm <sup>2</sup> cable            |
| P15 power supply    | Characteristics: 100-240 VAC/ 24 VDC - 0.63 A - 15 W<br>Modular format - Dimensions (H x L): 90 x 36 mm |

### Communication specifications

| Digiware Bus    |                                              |
|-----------------|----------------------------------------------|
| Function        | Connection between DIRIS Digiware modules    |
| Cable type      | Specific Socomec cable with RJ45 connections |
| RS485           |                                              |
| Connection type | 2 to 3 half duplex wires                     |
| Protocol        | Modbus RTU                                   |
| Baudrate        | 9600 to 115200 bauds                         |
| Function        | Data configuration and reading               |
| Location        | Single-point on DIRIS Digiware C             |

### Mechanical features

|                              |                                             |
|------------------------------|---------------------------------------------|
| Casing type                  | DIN-rail mounting module and base           |
| Casing protection index      | IP20 / IK06                                 |
| Front panel protection index | IP40 on the nose in modular assembly / IK06 |

### Environmental specifications

|                               |                |
|-------------------------------|----------------|
| Ambient operating temperature | -10 to +70°C   |
| Storage temperature           | -25 to +70°C   |
| Operating humidity            | 55 °C / 97% HR |
| Operating altitude            | < 2000 m       |

### DIRIS Digiware D-50/D-70 features

| Mechanical characteristics   |                                             |
|------------------------------|---------------------------------------------|
| Type of screen               | Capacitive touch-screen technology, 10 keys |
| Screen resolution            | 350 x 160 pixels                            |
| Front panel protection index | IP65                                        |

| Communication            |                                                                             |
|--------------------------|-----------------------------------------------------------------------------|
| Ethernet RJ45 10/100 Mbs | Gateway function (D-50/D-70):<br>Modbus TCP<br>BACnet IP<br>SNMP v1, v2, v3 |
| RJ45 Digiware            | Control and power supply interface function                                 |
| RS485 2-3 wires          | Modbus RTU communication function<br>Configurable as input or output        |
| USB                      | Upgrade and configuration via type B micro USB connector                    |

| Electrical characteristics |                   |
|----------------------------|-------------------|
| Power supply               | 24 VDC $\pm$ 15 % |
| Power consumption          | 2.5 VA            |
| Battery lifetime           | 10 years          |

| Environmental specifications               |              |
|--------------------------------------------|--------------|
| Storage temperature                        | -20 to +70°C |
| Operating temperature                      | -10 to +55°C |
| Humidity                                   | 95% at 40°C  |
| Installation category, degree of pollution | CAT III, 2   |

| Ports    |              |
|----------|--------------|
| Digiware | Input        |
| RS485    | Input/Output |
| Ethernet | Output       |

## References

| DIRIS Digiware                                                   |                                                          | Reference |
|------------------------------------------------------------------|----------------------------------------------------------|-----------|
| D-50                                                             | Multipoint display, Ethernet & RS485 output + WEB-CONFIG | 4829 0204 |
| D-70                                                             | Multipoint display, Ethernet & RS485 output + WEBVIEW-M  | 4829 0203 |
| C-31                                                             | System interface - no display, RS485 output              | 4829 0101 |
| C-32                                                             | Repeater                                                 | 4829 0103 |
| Power supply                                                     |                                                          | Reference |
| P15                                                              | Power supply 100-240 VAC/ 24 VDC 15 W                    | 4829 0120 |
| P30                                                              | Power supply 100-240 VAC/ 24 VDC 20 W                    | 4729 0603 |
| Digiware connection cables                                       |                                                          | Reference |
| RJ45 cables for Digiware Bus                                     | Length 0.06 m                                            | 4829 0189 |
|                                                                  | Length 0.10 m                                            | 4829 0181 |
|                                                                  | Length 0.20 m                                            | 4829 0188 |
|                                                                  | Length 0.50 m                                            | 4829 0182 |
|                                                                  | Length 1 m                                               | 4829 0183 |
|                                                                  | Length 2 m                                               | 4829 0184 |
|                                                                  | Length 3 m                                               | 4829 0190 |
|                                                                  | Length 5 m                                               | 4829 0186 |
|                                                                  | Length 10 m                                              | 4829 0187 |
| 50 m reel + 100 connectors                                       |                                                          | 4829 0185 |
| Termination for Digiware Bus (supplied with interfaces C and D)  |                                                          | 4829 0180 |
| USB configuration cable                                          |                                                          | 4829 0050 |
| Single-point display                                             |                                                          | Reference |
| DIRIS D-30 <sup>(1)</sup>                                        | Single-point display for DIRIS Digiware I-4x and DIRIS B | 4829 0200 |
| Accessories                                                      | To be ordered in multiples of                            | Reference |
| Fuse holder to protect voltage inputs (type RM) 1 pole + neutral | 4                                                        | 5701 0017 |
| gG 10x38 0.5 A fuses                                             | 10                                                       | 6012 0000 |
| DIN rail mounting kit for D-50 and D-70 displays                 | 1                                                        | 4829 0230 |
| Door mounting kit DIN 144 x 96 mm                                |                                                          | 4729 0290 |
| IP 65 flexible cover for 144 x 96 mm door mounting frame         |                                                          | 4729 0291 |

(1) DIRIS D-30 display characteristics, see page "DIRIS B".

## Expert Services

### Require integration onto your network?

No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, **audit your system, commission selected equipment and train your staff on its use.**

For further information, please contact your nearest SOCOMEC branch.



# DIRIS Digiware M

## Multi-protocol communication gateways

new



DIRIS Digiware M-50 - M-70 gateway

### Function

The DIRIS Digiware M-50 and M-70 communication gateways are the access point for the DIRIS Digiware system, centralising the 24 VDC power supply and communication in one single point.

The M-50 and M-70 act as the Ethernet gateway for all the devices connected on the Digiware or RS485 bus, and integrate a web server to configure the network parameters and to remotely display measurement data.

### Advantages

#### Plug & Play

- Direct Digiware and RS485 to Ethernet gateway.
- Automatic detection of connected devices.
- Easy setup using the embedded web server.
- Safety Extra Low Voltage 24 VDC power supply.

#### Advanced connectivity

- Ethernet output for communication using multiple protocols: Modbus TCP, BACnet IP and SNMP v1, v2, v3 (encrypted) to suit any metering and power monitoring application.
- Possible to configure as RS485 slave to communicate measurement data to a second PLC, for example.

The M-50 and M-70 gateways offer a wide range of functionalities, including:

- memory extension for connected devices,
- automatic export of logged consumption and data to an FTP(S) server,
- notification emails if there is an alarm on one of the connected devices (SMTPS),
- automatic time synchronisation of all connected devices via SNTP.

#### Embedded web server

WEBVIEW-M embedded in the M-70 and available without licence fees, allows users to visualise and analyse real-time and logged data thanks to graphical tools that are user-friendly and easily accessible to all.

#### Cyber security

The M-50 and M-70 gateways allow users to secure the transmission of data and reduce the risk of cyber attacks with special IEC 62443-compliant cyber security features:

- secured HTTPS navigation by uploading TLS/SSL certificates,
- secured data push (FTPS, SMTPS),
- possible to block or restrict certain protocols or services to reduce attack potential,
- implementation of a firewall to guard against denial-of-service attacks.

### The solution for

- > Building
- > Industry
- > Infrastructure



### Strong points

- > Plug & Play
- > Advanced connectivity
- > Embedded web server
- > Cyber security



RJ45 (Digiware bus) cables are available.

### Compliance with standards

- > IEC 62974-1 (Energy Server standard)



- > IEC 62443 (Cyber security)



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration: [www.meter-selector.com](http://www.meter-selector.com)



| Application                                    | Multi-protocol communication gateway                                                         |                                                                                                |
|------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                                                |  <b>new</b> |  <b>new</b> |
| <b>DIRIS Digiware M</b>                        | <b>M-50</b>                                                                                  | <b>M-70</b>                                                                                    |
| Digiware bus input                             | •                                                                                            | •                                                                                              |
| RS485                                          | Input/output <sup>(1)</sup>                                                                  | Input/output <sup>(1)</sup>                                                                    |
| Ethernet output                                | •                                                                                            | •                                                                                              |
| Compatible protocols                           | Modbus RTU<br>Modbus TCP<br>BACnet IP<br>SNMP v1, v2, v3, Traps                              | Modbus RTU<br>Modbus TCP<br>BACnet IP<br>SNMP v1, v2, v3, Traps                                |
| FTP(S) (automatic data export)                 | •                                                                                            | •                                                                                              |
| SMTP(S) (email notifications in case of alarm) | •                                                                                            | •                                                                                              |
| SNTP (time synchronisation)                    | •                                                                                            | •                                                                                              |
| Web Server                                     | WEB-CONFIG                                                                                   | WEBVIEW-M                                                                                      |

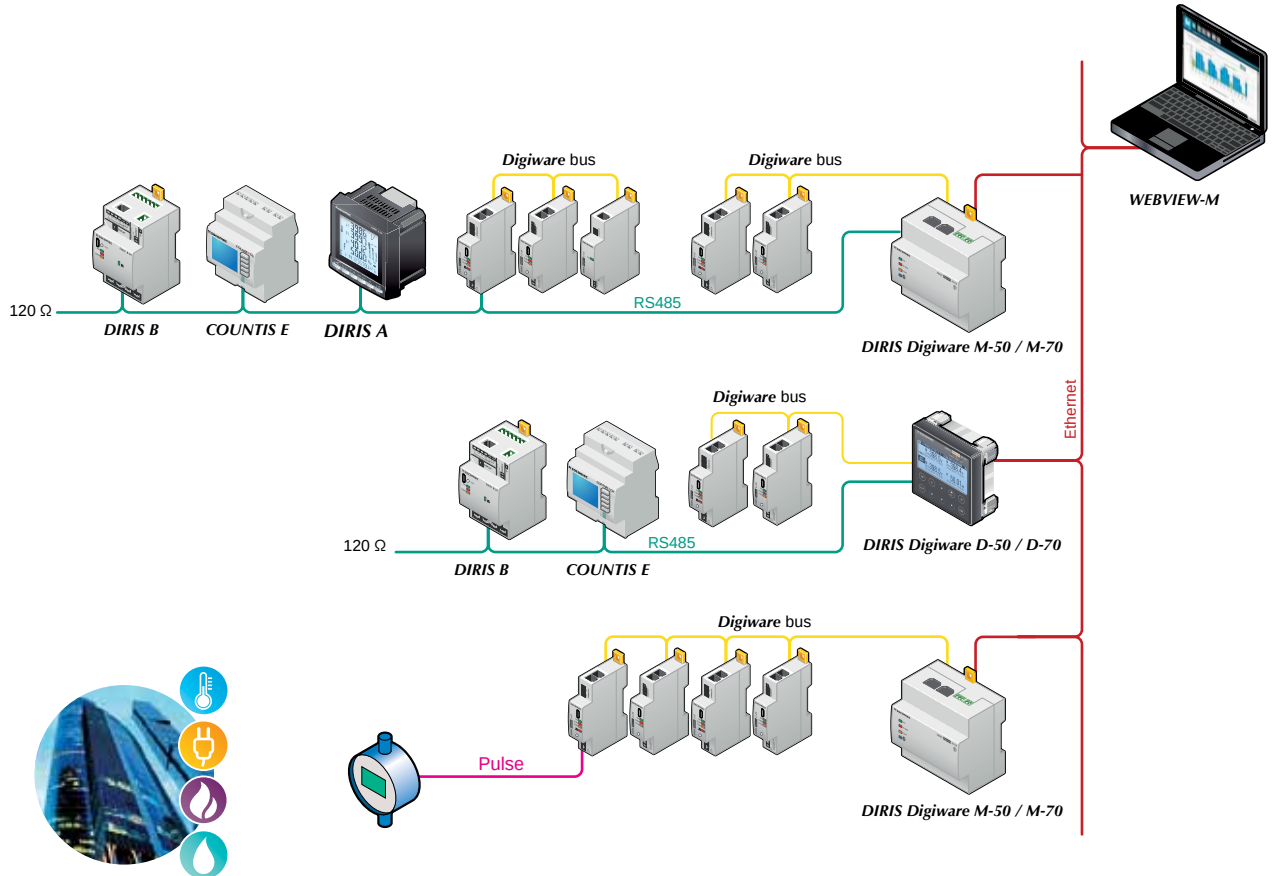
(1) The gateways can be configured as Modbus master (RS485 input) or slave (RS485 output).

## Architecture

MEASURE

COLLECT

VISUALISE



diris-dw\_169\_b\_en.ai



## Embedded webserver

### WEB-CONFIG (M-50)

The M-50 gateway includes a WEB-CONFIG allowing you to:

- configure the device hierarchy and data access,
- block or restrict access to certain peripherals, protocols or services.

### WEBVIEW-M (M-70)

In addition to the WEB-CONFIG, the M-70 gateway allows a remote visualisation of data on the embedded WEBVIEW-M software, available without licence fees.

- Real-time measurements.
- On-going and terminated alarms.
- Consumption curves and load curves per load or usage.
- Photoview: displays electrical parameters on a customised background such as a site map, an electrical diagram or a panel picture to provide an overview of your electrical installation.

### Data storage

These gateways extend the memory of connected devices so you can log a year's worth of measurements, load curves and consumption curves.



## Configuration

### Device consumption

| Device                                         | Power supplied (W) |
|------------------------------------------------|--------------------|
| <b>Power supply</b>                            |                    |
| P15 100-240 VAC / 24 VDC                       | 15                 |
| P30 100-240 VAC / 24 VDC                       | 20                 |
| Device                                         | Power consumed (W) |
| <b>Cables</b>                                  |                    |
| 50-metre package                               | 1.5                |
| <b>System interfaces</b>                       |                    |
| DIRIS Digiware C-31                            | 0.8                |
| DIRIS Digiware D-50/D-70                       | 2.5                |
| DIRIS Digiware M-50/M-70                       | 2.5                |
| <b>Voltage module</b>                          |                    |
| DIRIS Digiware U-xx                            | 0.72               |
| DIRIS Digiware U-3xdc                          | 0.6                |
| <b>Current modules</b>                         |                    |
| DIRIS Digiware I-3x                            | 0.52               |
| DIRIS Digiware I-4x                            | 1.125              |
| DIRIS Digiware I-6x                            | 0.7                |
| DIRIS Digiware I-3xdc (+ 3 DC current sensors) | 2                  |
| DIRIS Digiware S-xx                            | 0.35               |
| <b>Input/output modules</b>                    |                    |
| DIRIS Digiware IO-10/IO-20                     | 0.5                |
| <b>Repeater</b>                                |                    |
| DIRIS Digiware C-32                            | 1.5                |

### Calculation rules for the max. number of devices on the Digiware bus

The total power consumed by the devices connected to the Digiware bus must not exceed the power from the 24 VDC supply.

The power supply must not exceed 20 W / 70°C or 27 W / 40°C.

Size with P15 power supply (ref: 4829 0120) delivering 15 W

For example, it is possible to use

- 1 DIRIS Digiware M-50 gateway (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and

- 29 DIRIS Digiware current modules S-xx ( $29 \times 0.35 = 10.15$  W)  
⇒ **Total power = 14.87 W**

or

- 9 DIRIS Digiware current modules I-4x ( $9 \times 1.125 = 10.125$  W)  
⇒ **Total power = 14.845 W.**

Size with a 24 VDC power supply delivering a maximum of 20 W (P30 ref. 4729 0603)

Possible options include:

- 1 DIRIS Digiware M-50 gateway (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and

- 29 DIRIS Digiware current modules I-3x ( $30 \times 0.52 = 15.08$  W)  
⇒ **Total power = 19.8 W**

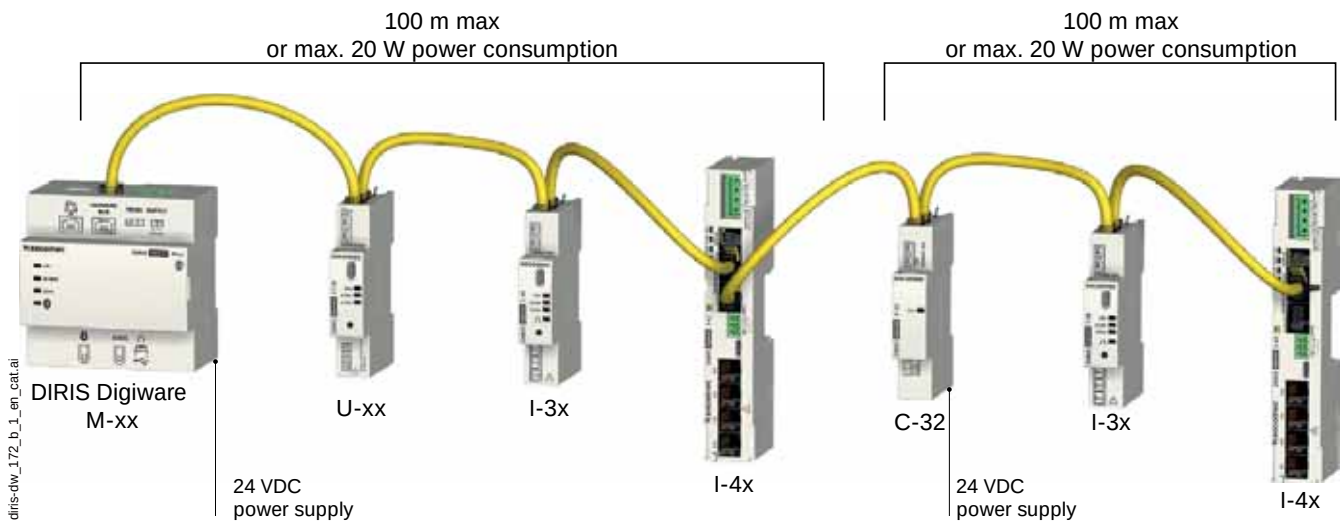
or

- 14 DIRIS Digiware current modules I-4x ( $13 \times 1.125 = 15.72$ )  
⇒ **Total power = 19.345 W.**

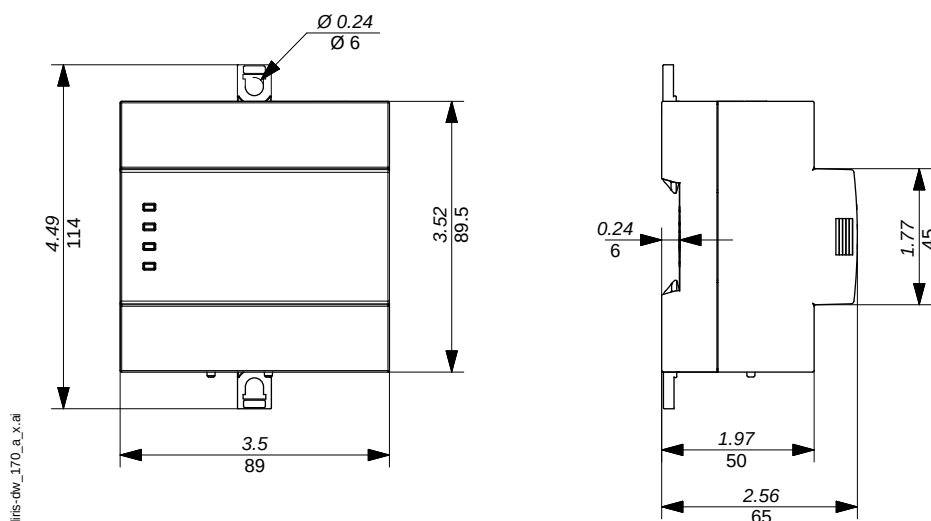
### Repeater

With power consumptions higher than 20 W or distances greater than 100 m, a DIRIS Digiware C-32 repeater is required.

In a DIRIS Digiware system, a maximum of 2 repeaters may be used.



## Dimensions (in/mm)



## Technical characteristics

### Electrical characteristics

|                   |                              |
|-------------------|------------------------------|
| Power supply      | 24 VDC $\pm$ 10 % - 20 W max |
| Power consumption | 2.5 W                        |
| Battery life      | 10 years                     |

### Mechanical characteristics

|                   |                                      |
|-------------------|--------------------------------------|
| Casing type       | DIN-rail or back plate mounting      |
| Weight            | 166 g                                |
| Protection degree | IP40 on the nose in modular assembly |

### Environmental characteristics

|                               |               |
|-------------------------------|---------------|
| Ambient operating temperature | -10 ... +55°C |
| Storage temperature           | -25 ... +70°C |
| Operating humidity            | 95% at 40°C   |
| Operating altitude            | < 2000 m      |

### Communication characteristics

|                           |                                                                                    |
|---------------------------|------------------------------------------------------------------------------------|
| Ethernet RJ45 10/100 Mbps | Gateway function (M-50/M-70):<br>Modbus TCP<br>BACnet IP<br>SNMP v1, v2, v3, Traps |
|---------------------------|------------------------------------------------------------------------------------|

#### Digiware bus

|            |                                             |
|------------|---------------------------------------------|
| Function   | 2 to 3 half duplex wires                    |
| Cable type | Specific Socomec cable with RJ45 connection |

#### RS485

|                 |                                                                                      |
|-----------------|--------------------------------------------------------------------------------------|
| Connection type | 24 VDC +10 % / -20%                                                                  |
| Protocol        | Modbus RTU                                                                           |
| Baudrate        | 9600 bds (max. 10 devices)<br>38400 bds - 115200 bds (max. 32 devices)               |
| Function        | Communication with PMD and meters or energy management systems (in RS485 slave mode) |

#### USB

|          |                                                    |
|----------|----------------------------------------------------|
| Protocol | Modbus RTU over USB                                |
| Function | Configuration of gateway and connected PMDs/meters |

## References

| DIRIS Digiware                                                                                   |                                                                    | Reference |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------|
| M-50                                                                                             | Multi-protocol Ethernet gateway                                    | 4829 0221 |
| M-70                                                                                             | Multi-protocol Ethernet gateway with embedded WEBVIEW-M web server | 4829 0222 |
| Power supply                                                                                     |                                                                    | Reference |
| P15                                                                                              | Power supply 100-240 VAC/ 24 VDC 15 W                              | 4829 0120 |
| P30                                                                                              | Power supply 100-240 VAC/ 24 VDC 20 W                              | 4729 0603 |
| Digiware connection cables                                                                       |                                                                    | Reference |
| RJ45 cables for Digiware bus                                                                     | Length 0.06 m                                                      | 4829 0189 |
|                                                                                                  | Length 0.10 m                                                      | 4829 0181 |
|                                                                                                  | Length 0.20 m                                                      | 4829 0188 |
|                                                                                                  | Length 0.50 m                                                      | 4829 0182 |
|                                                                                                  | Length 1 m                                                         | 4829 0183 |
|                                                                                                  | Length 2 m                                                         | 4829 0184 |
|                                                                                                  | Length 3 m                                                         | 4829 0190 |
|                                                                                                  | Length 5 m                                                         | 4829 0186 |
|                                                                                                  | Length 10 m                                                        | 4829 0187 |
| 50 m reel + 100 connectors                                                                       |                                                                    | 4829 0185 |
| Terminal for Digiware bus (spare part ref. only as already supplied with M-50 and M-70 gateways) |                                                                    | 4829 0180 |
| USB configuration cable                                                                          |                                                                    | 4829 0050 |
| Accessories                                                                                      | Available for order in multiples of                                | Reference |
| Fuse circuit breakers to protect voltage inputs (type RM) 1 pole + neutral                       | 4                                                                  | 5701 0017 |
| gG 10x38 0.5 A fuses                                                                             | 10                                                                 | 6012 0000 |

## Expert Services

Need help to integrate this system in your network?

No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, audit your system, commission selected equipment and train your staff on its use.

For further information, please contact your nearest SOCOMEC branch.





# DIRIS Digiware Uac

Voltage acquisition module



DIRIS Digiware U-10ac/U-20ac/ U-30ac



Configuration  
with Easy Config System.

## Function

The DIRIS Digiware Uac module measures voltage for the entire system. This pools together all voltage measurements.

The Digiware RJ45 Bus allows you to pass voltage measurements as well as power supply and communication to all connected products.

## Advantages

- 1 single voltage measurement point for the entire system.
- Single point of protection for voltage measuring.
- A complete, dedicated solution:
  - metering,
  - monitoring voltage,
  - quality analysis of the supplied voltage.
- No hazardous voltage on cabinet doors.
- Adapted to all types of network: single-phase, three-phase.

## The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



## Strong points

- > 1 single voltage measurement point for the entire system
- > Plug & Play
- > Compact



RJ45 (Digiware Bus) cables are available.

## Conformity to standards

- > IEC 61557-12



- > ISO 14025



- > UL



## Create your project

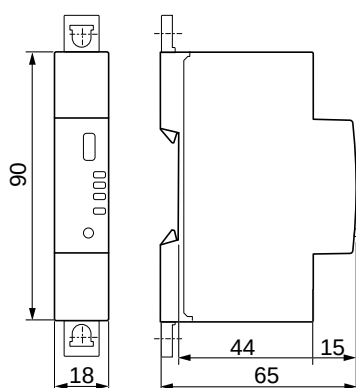
- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



| Application                                       | Voltage measurement module                                                        |                                                                                     |                                                                                     |
|---------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                   | Metering                                                                          | Monitoring                                                                          | Analysis                                                                            |
|                                                   |  |  |  |
| <b>DIRIS Digiware Uac</b>                         | <b>U-10ac</b>                                                                     | <b>U-20ac</b>                                                                       | <b>U-30ac</b>                                                                       |
| <b>Multi-measurement</b>                          |                                                                                   |                                                                                     |                                                                                     |
| U12, U23, U31, V1, V2, V3, f                      | •                                                                                 | •                                                                                   | •                                                                                   |
| U system, V system                                |                                                                                   |                                                                                     | •                                                                                   |
| Ph/N unbalance                                    |                                                                                   |                                                                                     | •                                                                                   |
| Ph/Ph unbalance                                   |                                                                                   |                                                                                     | •                                                                                   |
| <b>Quality analysis</b>                           |                                                                                   |                                                                                     |                                                                                     |
| THDv1, THDv2, THDv3, THDu12, THDu23, THDu31       |                                                                                   | •                                                                                   | •                                                                                   |
| Individual harmonics U & V (up to 63rd)           |                                                                                   |                                                                                     | •                                                                                   |
| Voltage dips, swells and interruptions (EN 50160) |                                                                                   |                                                                                     | •                                                                                   |
| <b>Alarms</b>                                     |                                                                                   |                                                                                     |                                                                                     |
| On threshold                                      |                                                                                   |                                                                                     | •                                                                                   |
| <b>History of average values</b>                  |                                                                                   |                                                                                     |                                                                                     |
| 45 days (max)                                     |                                                                                   |                                                                                     | •                                                                                   |
| <b>Format</b>                                     |                                                                                   |                                                                                     |                                                                                     |
| Width/number of modules                           | 18 mm / 1                                                                         | 18 mm / 1                                                                           | 18 mm / 1                                                                           |

## Dimensions (mm)

DIRIS Digiware Uac



diris-dw\_059\_b\_1\_x\_cat

## Specifications

### Measuring characteristics

| Voltage measurement - DIRIS Digiware Uac |                                                                                                  |
|------------------------------------------|--------------------------------------------------------------------------------------------------|
| Characteristics of the network measured  | 50-300 VAC (Ph/N) - 87-520 VAC (Ph/Ph) - CAT III                                                 |
| Frequency range                          | 45 ... 65 Hz                                                                                     |
| Frequency accuracy                       | Class 0.02                                                                                       |
| Network type                             | Single-phase/ Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral        |
| Measurement by voltage transformer       | Primary: 400 000 VAC<br>Secondary: 60, 100, 110, 173, 190 VAC                                    |
| Input consumption                        | ≤ 0.1 VA                                                                                         |
| Permanent overload                       | 300 VAC Ph/N                                                                                     |
| Accuracy of voltage measurement          | Class 0.2                                                                                        |
| Connection                               | Removable screw terminal block, 4 positions, stranded or solid 0.2 ... 2.5 mm <sup>2</sup> cable |

### Communication specifications

| USB        |                                                   |
|------------|---------------------------------------------------|
| Protocol   | Modbus RTU on USB                                 |
| Function   | Configuration of DIRIS Digiware U and I modules   |
| Location   | On each DIRIS Digiware U and I measurement module |
| Connection | Type B micro USB connector                        |

## References

| Digiware connection cables                                                               |                            | Reference        |
|------------------------------------------------------------------------------------------|----------------------------|------------------|
| RJ45 cables for Digiware Bus                                                             | Length 0.06 m              | 4829 <b>0189</b> |
|                                                                                          | Length 0.10 m              | 4829 <b>0181</b> |
|                                                                                          | Length 0.20 m              | 4829 <b>0188</b> |
|                                                                                          | Length 0.50 m              | 4829 <b>0182</b> |
|                                                                                          | Length 1 m                 | 4829 <b>0183</b> |
|                                                                                          | Length 2 m                 | 4829 <b>0184</b> |
|                                                                                          | Length 3 m                 | 4829 <b>0190</b> |
|                                                                                          | Length 5 m                 | 4829 <b>0186</b> |
|                                                                                          | Length 10 m                | 4829 <b>0187</b> |
|                                                                                          | Reel 50 m + 100 connectors | 4829 <b>0185</b> |
| Replacement reference: Digiware bus terminating resistor (supplied with C and D devices) |                            | 4829 <b>0180</b> |
| USB configuration cable                                                                  |                            | 4829 <b>0050</b> |

| DIRIS Digiware |            | Reference        |
|----------------|------------|------------------|
| U-10ac         | Metering   | 4829 <b>0105</b> |
| U-20ac         | Monitoring | 4829 <b>0106</b> |
| U-30ac         | Analysis   | 4829 <b>0102</b> |

| Accessories                                                      | To be ordered in multiples of | Reference        |
|------------------------------------------------------------------|-------------------------------|------------------|
| Fuse holder to protect voltage inputs (type RM) 3 pole + neutral | 3                             | 5701 <b>0019</b> |
| gG 10x38 0.5 A fuses                                             | 10                            | 6012 <b>0000</b> |



# DIRIS Digiware S

Current acquisition module with integrated sensors



DIRIS Digiware S



Configuration  
with Easy Config System.

## Function

DIRIS Digiware S current acquisition modules have 3 integrated current sensors for the measurement of electrical circuits up to 63 A.

Positioned directly above or below the protective devices, they are associated with the DIRIS Digiware U voltage measurement module to measure consumption, and to monitor the electrical installation and the quality of the power supply.

## Advantages

### Plug & Play

- Save wiring time: the current sensors are integrated in the module.
- Quick RJ45 connection between modules.
- Positioning possible upstream or downstream of the protective device.

### Multi-circuit

Multiple DIRIS Digiware S modules can be used within the measurement system enabling the monitoring of a large number of loads.

### Compact

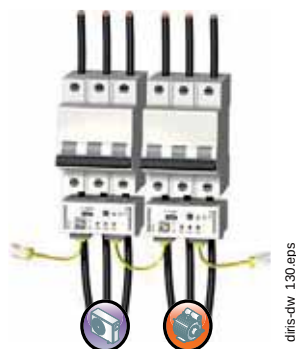
- A measurement module offering the best compactness/performance ratio of the market.
- Matches the pitch of the protective device.

### Accurate

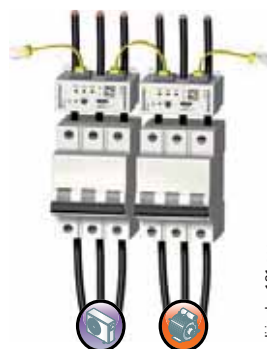
- Class 0.5 for active energy in accordance with the IEC 61557-12 standard, allowing accurate measurements over a wide range of currents.

## Functional diagram

### Downstream



### Upstream



The DIRIS Digiware S measurement module can be mounted upstream or downstream of the protective device solving issues of space constraints.

## The solution for

Distribution boards in:

- > Data center
- > Building
- > Industry



## Strong points

- > Plug & Play
- > Multi-circuit
- > Compact



RJ45 (Digiware Bus) cables are available.

## Integrated technologies



PreciSense



AutoCorrect



VirtualMonitor

For more information see our website  
[www.socomec.com](http://www.socomec.com)

## Compliance with standards

- > IEC 61557-12



- > ISO 14025



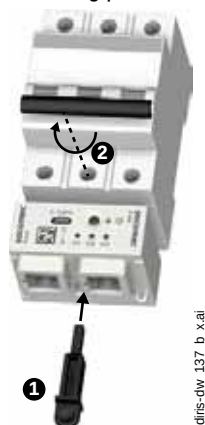
- > UL 257746



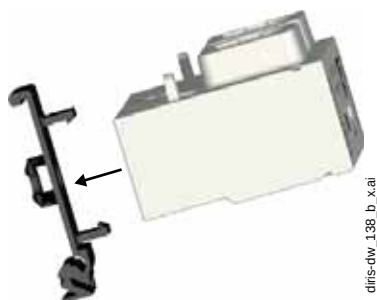
| Application                                                        | Current measurement module with integrated sensors                                |                                                                                    |                                                                                     |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                    | Metering                                                                          | Analysis                                                                           | Monitoring                                                                          |
|                                                                    |  |  |  |
| <b>DIRIS Digiware S</b>                                            | <b>S-130</b>                                                                      | <b>S-135</b>                                                                       | <b>S-Datacenter</b>                                                                 |
| Number of current inputs                                           | 3                                                                                 | 3                                                                                  | 3                                                                                   |
| Basic current $I_b$                                                | 10 A                                                                              | 10 A                                                                               | 10 A                                                                                |
| Maximum current $I_{max}$                                          | 63 A                                                                              | 63 A                                                                               | 63 A                                                                                |
| Load type accepted                                                 | 1P + N<br>2P / 2P + N<br>3P / 3P + N                                              | 1P + N<br>2P / 2P + N<br>3P / 3P + N                                               | 1P + N                                                                              |
| <b>Metering</b>                                                    |                                                                                   |                                                                                    |                                                                                     |
| $\pm$ kWh, $\pm$ kvarh, kVAh                                       | •                                                                                 | •                                                                                  | •                                                                                   |
| Multi-tariff (max 8)                                               |                                                                                   | •                                                                                  |                                                                                     |
| Load curves                                                        |                                                                                   | •                                                                                  | •                                                                                   |
| <b>Multi-measurement</b>                                           |                                                                                   |                                                                                    |                                                                                     |
| $I_1, I_2, I_3, I_n, \Sigma P, \Sigma Q, \Sigma S, \Sigma PF$      | •                                                                                 | •                                                                                  | •                                                                                   |
| P, Q, S, PF per phase                                              |                                                                                   | •                                                                                  | •                                                                                   |
| Predictive power                                                   |                                                                                   | •                                                                                  |                                                                                     |
| Current unbalance ( $I_{nba}, I_{nb}, I_{dir}, I_{inv}, I_{hom}$ ) |                                                                                   | •                                                                                  |                                                                                     |
| Phi, cos Phi, tan Phi                                              |                                                                                   | •                                                                                  | •                                                                                   |
| <b>Quality</b>                                                     |                                                                                   |                                                                                    |                                                                                     |
| THDi1, THDi2, THDi3, THDin                                         |                                                                                   | •                                                                                  | •                                                                                   |
| Individual harmonics I (up to 63rd)                                |                                                                                   | •                                                                                  |                                                                                     |
| Crest factors U, V, I                                              |                                                                                   | •                                                                                  |                                                                                     |
| K factor                                                           |                                                                                   | •                                                                                  |                                                                                     |
| Overcurrents                                                       |                                                                                   | •                                                                                  |                                                                                     |
| <b>Alarms</b>                                                      |                                                                                   |                                                                                    |                                                                                     |
| Thresholds and combinations                                        |                                                                                   | •                                                                                  | •                                                                                   |
| Load level                                                         |                                                                                   |                                                                                    | •                                                                                   |
| Wiring errors                                                      |                                                                                   | •                                                                                  | •                                                                                   |
| Protective device                                                  |                                                                                   | •                                                                                  | •                                                                                   |
| <b>Trends</b>                                                      |                                                                                   |                                                                                    |                                                                                     |
| Average values                                                     |                                                                                   | •                                                                                  | •                                                                                   |
| <b>Format</b>                                                      |                                                                                   |                                                                                    |                                                                                     |
| Width                                                              | 54 mm                                                                             | 54 mm                                                                              | 54 mm                                                                               |

## Mounting accessories

Temporary MCB insert  
(for use during panel assembly)



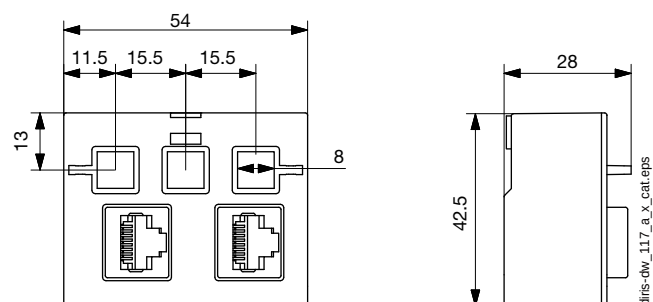
DIN rail and back plate mounting



Cable tie tether



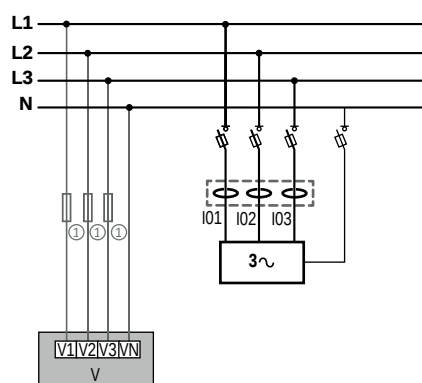
## Dimensions (mm)



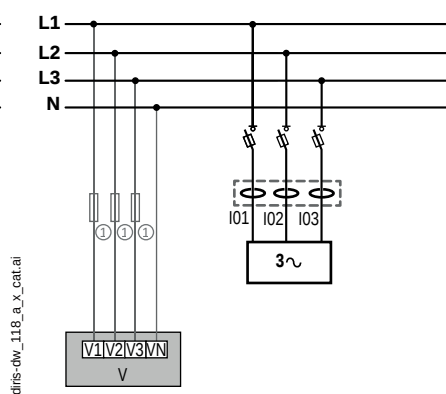
## Connections

Current is measured by the integrated inputs I01, I02 and I03 on the DIRIS Digiware S module.

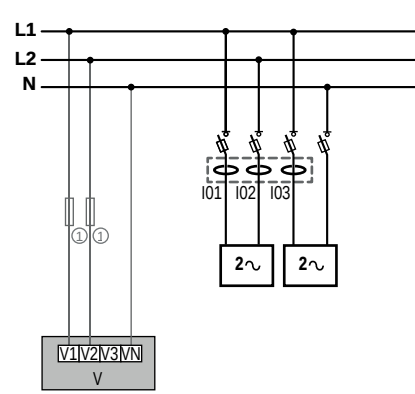
3P+N - 3CT



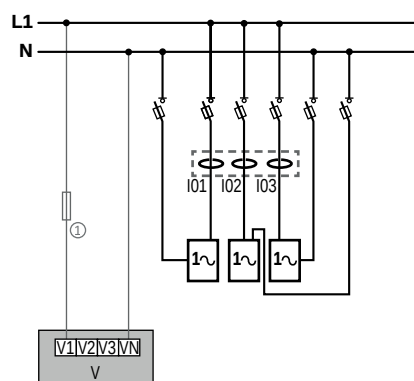
3P - 3 CT



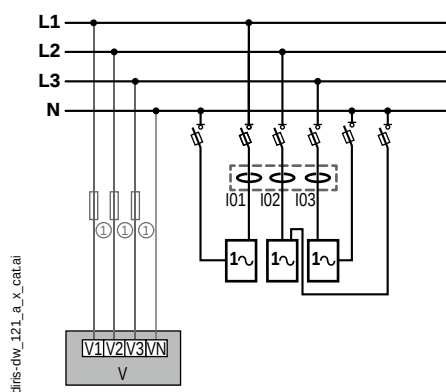
2P+N - 2CT & 2P+N - 1CT



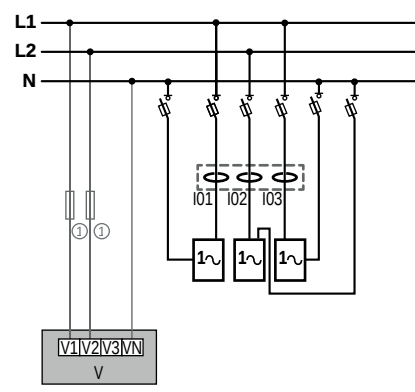
1P+N - 1 CT (3x)



3P+N - 1CT (3x)



2P+N - 1CT (3x)



DIRIS Digiware S 3~ Load

Fuses : 0.5 A gG / BS 88 2 A gG / 0.5 A class CC



## Technical characteristics

### Measurement characteristics

| Measurement of current           |                           |
|----------------------------------|---------------------------|
| Number of current inputs         | 3                         |
| Associated current sensors       | Integrated in the product |
| Basic current I <sub>b</sub>     | 10 A                      |
| Maximum current I <sub>max</sub> | 63 A                      |
| Current measurement accuracy     | Class 0.5 IEC 61557-12    |
| Measurement of energy            |                           |
| Accuracy of active energy        | Class 0.5 IEC 61557-12    |
| Accuracy of reactive energy      | Class 1 IEC 61557-12      |

### Mechanical characteristics

|                          |                                 |
|--------------------------|---------------------------------|
| Casing type              | DIN rail or back plate mounting |
| Casing protection index  | IP20 / IK08                     |
| Weight                   | 63 g                            |
| Module power consumption | 0.35 VA                         |

### Communication specifications

| Digiware BUS |                                                                         |
|--------------|-------------------------------------------------------------------------|
| Function     | Connection between DIRIS Digiware S, U, I modules and system interfaces |
| Cable type   | Specific Socomec cable with RJ45 connections                            |
| USB          |                                                                         |
| Protocol     | MODBUS RTU on USB                                                       |
| Function     | Configuration of DIRIS Digiware modules                                 |
| Location     | On each DIRIS Digiware module                                           |
| Connection   | Type B micro USB connector                                              |

### Environmental specifications

|                               |               |
|-------------------------------|---------------|
| Ambient operating temperature | -10 ... +55°C |
| Storage temperature           | -25 ... +70°C |
| Operating humidity            | 40°C / 95% RH |
| Operating altitude            | < 2000 m      |

## References

| DIRIS Digiware S                            |                                                       | Reference |
|---------------------------------------------|-------------------------------------------------------|-----------|
| S-130                                       | Metering - 3 integrated current inputs                | 4829 0160 |
| S-135                                       | Analysis - 3 integrated current inputs                | 4829 0161 |
| S-Datacenter                                | Single-phase monitoring - 3 integrated current inputs | 4829 0162 |
| Accessories                                 |                                                       | Reference |
| DIN rail and back plate mounting clip (x10) |                                                       | 4829 0195 |
| Temporary MCB insert (x10)                  |                                                       | 4829 0196 |

| Digiware connection cables                                      |                              | Reference |
|-----------------------------------------------------------------|------------------------------|-----------|
| RJ45 cables for Digiware Bus                                    | Length 0.06 m <sup>(1)</sup> | 4829 0189 |
|                                                                 | Length 0.10 m                | 4829 0181 |
|                                                                 | Length 0.20 m                | 4829 0188 |
|                                                                 | Length 0.50 m                | 4829 0182 |
|                                                                 | Length 1 m                   | 4829 0183 |
|                                                                 | Length 2 m                   | 4829 0184 |
|                                                                 | Length 3 m                   | 4829 0190 |
|                                                                 | Length 5 m                   | 4829 0186 |
|                                                                 | Length 10 m                  | 4829 0187 |
|                                                                 | 50 m reel + 100 connectors   | 4829 0185 |
| Termination for Digiware Bus (supplied with interfaces C and D) |                              | 4829 0180 |
| USB configuration cable                                         |                              | 4829 0050 |

(1) The RJ45 6 cm cables can be used on 3-pole or 4-pole protective devices.

## Expert Services

Require integration onto your network?

No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, audit your system, commission selected equipment and train your staff on its use.

For further information, please contact your nearest SOCOMEC branch.



# DIRIS Digiware *lac*

## Current acquisition modules

Multi-circuit metering  
& measurement



DIRIS Digiware I-3x



DIRIS Digiware I-4x



DIRIS Digiware I-6x



Configuration  
with Easy Config System.

### Function

DIRIS Digiware lac modules measure consumption and monitor the system at the closest point to the loads. The flexibility of these modules allows you to allocate the loads to be measured or monitored through independent current inputs.

For example:

- 1 three-phase load,
- 3 single-phase loads.

The RJ45 and RJ12 connections allow you to connect modules very quickly and to automatically configure connected current sensors:

- communication address,
- load type,
- sensor type and ratio,
- automatic rating and verification of current travel direction.

Wiring errors are also prevented and installation is simplified.

### Advantages

- RJ45 and RJ12 rapid connection.
- Available with 3, 4 or 6 inputs.
- Single-output or multi-output for maximum optimisation of the number of products.
- Compact format: 1 or 2 modules sized for integration at the closest point to the loads.
- A complete, dedicated solution:
  - metering,
  - monitoring,
  - quality analysis.
- Compliant with standard IEC 61557-12, guaranteeing the quality and accuracy of the system:
  - class 0.5 for the 2 - 120% rated current global measurement chain  $I_n$  (with TE/ iTR/TF current sensors).

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



### Strong points

- > Multi-circuit
- > Plug and Play
- > Compact
- > High-precision measurement chain

### Integrated technologies



PreciSense



AutoCorrect



VirtualMonitor

For more information see our website  
[www.socomec.com](http://www.socomec.com)

### Conformity to standards

- > IEC 61557-12



- > ISO 14025



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)

**METER SELECTOR**  
DIGITAL TOOL AVAILABLE

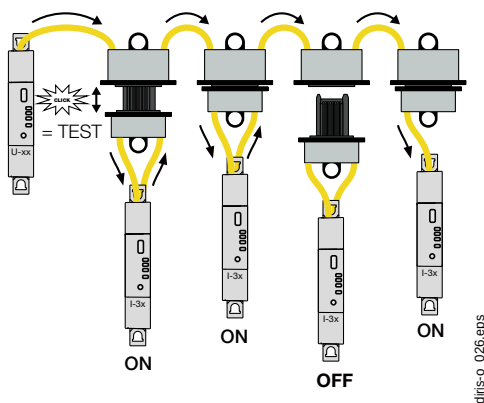
| Application                                     | Current measurement modules                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
|-------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                 | Metering                                                                          |                                                                                   | Monitoring                                                                        | Analysis                                                                          | Monitoring                                                                         | Analysis                                                                            | Metering                                                                            |                                                                                     |
|                                                 |  |  |  |  |  |  |  |  |
| <b>DIRIS Digiware Iac</b>                       | <b>I-30</b>                                                                       | <b>I-31</b>                                                                       | <b>I-33</b>                                                                       | <b>I-35</b>                                                                       | <b>I-43</b>                                                                        | <b>I-45</b>                                                                         | <b>I-60</b>                                                                         | <b>I-61</b>                                                                         |
| Number of current inputs                        | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 4                                                                                  | 4                                                                                   | 6                                                                                   | 6                                                                                   |
| Metering                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| ± kWh, ± kvarh, kVAh                            | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                  | •                                                                                   | •                                                                                   | •                                                                                   |
| Load curves                                     |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     | •                                                                                   |
| Multi-tariff                                    |                                                                                   | •                                                                                 |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     | •                                                                                   |
| Multi-measurement                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                  | •                                                                                   | •                                                                                   | •                                                                                   |
| P, Q, S, PF per phase                           |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                  | •                                                                                   |                                                                                     |                                                                                     |
| Predictive power                                |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Current unbalance (Inba, Idir, linv, Ihom, Inb) |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Phi, cos Phi, tan Phi                           |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Quality                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| THDi1, THDi2, THDi3, THDIn                      |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                  | •                                                                                   |                                                                                     |                                                                                     |
| Individual harmonics I (up to 63rd)             |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Overcurrents                                    |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Alarms                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| On threshold                                    |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Inputs/outputs                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2/2                                                                                | 2/2                                                                                 |                                                                                     |                                                                                     |
| History of average values                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| 45 days (max)                                   |                                                                                   |                                                                                   |                                                                                   | •                                                                                 |                                                                                    | •                                                                                   |                                                                                     |                                                                                     |
| Format                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Width/number of modules                         | 18 mm / 1                                                                         | 18 mm / 1                                                                         | 18 mm / 1                                                                         | 18 mm / 1                                                                         | 27 mm / 1.5                                                                        | 27 mm / 1.5                                                                         | 36 mm / 2                                                                           | 36 mm / 2                                                                           |

## Accessories

### Digiware plug-in connector

With the Digiware plug-in connector you can disconnect a DIRIS Digiware module from the Bus while ensuring the DIRIS Digiware system continues to run downstream.

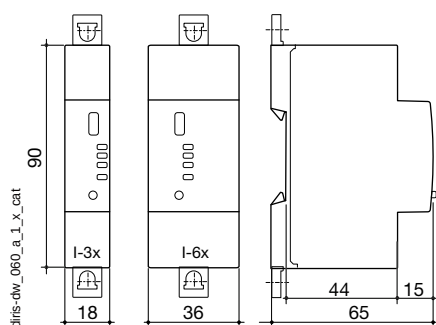
This accessory is particularly useful in applications with retractable drawers or critical applications such as in data centres.



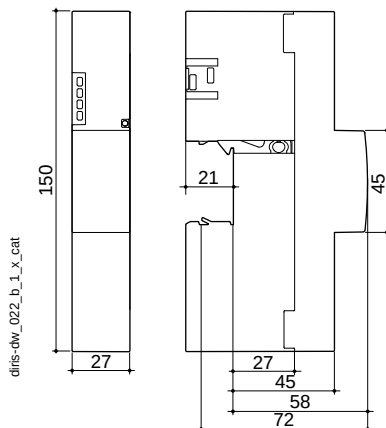
diris-o\_026.eps

## Dimensions (mm)

DIRIS Digiware I-3xac / I-6xac



DIRIS Digiware I-4xac



## Connections

### Associated current sensors

Various types of current sensors are connected to the DIRIS Digiware: closed (TE), split core (TR/iTR) or flexible (TF). This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS Digiware system automatically recognises the sensor size and type. This guarantees the overall accuracy of the DIRIS Digiware + current sensor measurement chain.

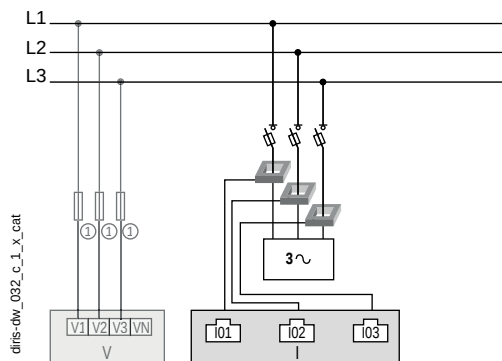
For more information see "TE, TR and TF sensors" pages.

## Network and connection examples

### I-3x

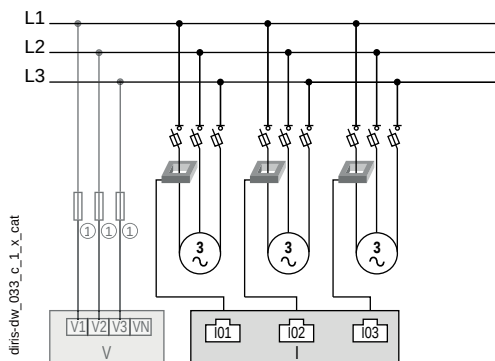
#### Three-phase

3P - 3CT (1 three-phase load)



### Three-phase

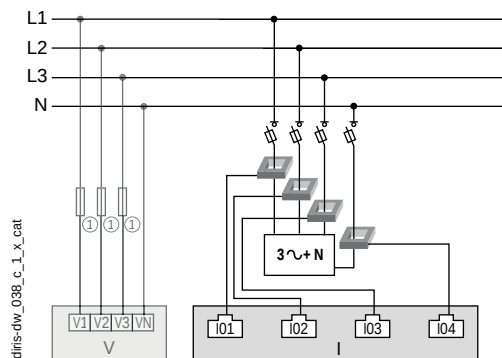
3P - 1CT (3 balanced, three-phase loads)



### I-4x

#### Three phase + neutral

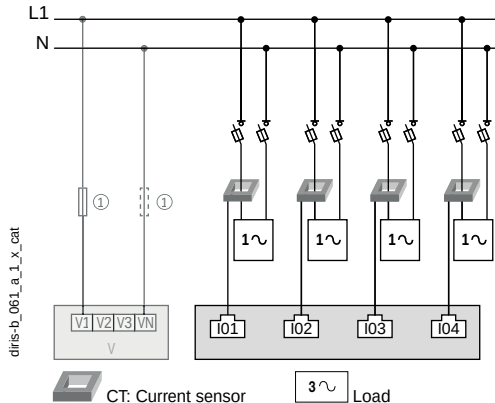
3P+N - 4CT (1 three-phase load + Neutral measured)



1. 0.5 A gG / 0.5 A class CC fuses.

### Single-phase

1P+N-1CT (4 single-phase loads)



CT: Current sensor 3~ Load

## Specifications

### Measuring characteristics

| Current measurement - DIRIS Digiware Iac |                                                                                                  |
|------------------------------------------|--------------------------------------------------------------------------------------------------|
| Number of current inputs                 | I-3x: 3 / I-45: 4 / I-6x: 6                                                                      |
| Associated current sensors               | Solid TE, split-core TR / iTR, flexible TF current sensors                                       |
| Accuracy of current measurement          | 0.2 DIRIS Digiware class only<br>Class 0.5 with TE, iTR or TF sensors<br>Class 1 with TR sensors |
| Connection                               | Specific Socomec cable with RJ12 connectors                                                      |
| Inputs - DIRIS Digiware I-45ac           |                                                                                                  |
| Number of inputs                         | 2                                                                                                |
| Type / Power supply                      | Non-insulated input, internal polarisation 12 VDC max, 1mA                                       |
| Input functions                          | Logic status, pulse meter, multi-tariff                                                          |
| Connection                               | Removable screw terminal block, stranded or solid 0.14-1.5 mm <sup>2</sup> cable                 |

### Outputs - DIRIS Digiware I-45ac

|                   |                                                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------|
| Number of outputs | 2                                                                                                |
| Relay type        | 230 VAC ±15 % - 1 A<br>30 VDC - 3 A                                                              |
| Function          | Configurable alarm (current, power, etc.) when threshold is exceeded or remote controlled status |
| Connection        | Removable screw terminal block, stranded or solid 0.2-2.5 mm <sup>2</sup> cable                  |

### Communication specifications

| USB        |                                                   |
|------------|---------------------------------------------------|
| Protocol   | Modbus RTU on USB                                 |
| Function   | Configuration of DIRIS Digiware U and I modules   |
| Location   | On each DIRIS Digiware U and I measurement module |
| Connection | Type B micro USB connector                        |

## References

| DIRIS Digiware                 |                                                     | Reference |
|--------------------------------|-----------------------------------------------------|-----------|
| I-30                           | Metering - 3 current inputs                         | 4829 0110 |
| I-31                           | Metering + load curve - 3 current inputs            | 4829 0111 |
| I-33                           | Monitoring - 3 current inputs                       | 4829 0128 |
| I-35                           | Analysis - 3 current inputs                         | 4829 0130 |
| I-43                           | Monitoring - 2 inputs/ 2 outputs - 4 current inputs | 4829 0129 |
| I-45                           | Analysis - 2 inputs/ 2 outputs - 4 current inputs   | 4829 0131 |
| I-60                           | Metering - 6 current inputs                         | 4829 0112 |
| I-61                           | Metering + load curve - 6 current inputs            | 4829 0113 |
| Accessories                    |                                                     | Reference |
| Digiware x 5 plug-in connector |                                                     | 4829 0605 |

| Digiware connection cables                                        |               | Reference |
|-------------------------------------------------------------------|---------------|-----------|
| RJ45 cables for Digiware Bus                                      | Length 0.06 m | 4829 0189 |
|                                                                   | Length 0.10 m | 4829 0181 |
|                                                                   | Length 0.20 m | 4829 0188 |
|                                                                   | Length 0.50 m | 4829 0182 |
|                                                                   | Length 1 m    | 4829 0183 |
|                                                                   | Length 2 m    | 4829 0184 |
|                                                                   | Length 3 m    | 4829 0190 |
|                                                                   | Length 5 m    | 4829 0186 |
|                                                                   | Length 10 m   | 4829 0187 |
| Reel 50 m + 100 connectors                                        |               | 4829 0185 |
| Digiware bus terminating resistor (supplied with C and D devices) |               | 4829 0180 |
| USB configuration cable                                           |               | 4829 0050 |

(1) DIRIS D-30 display characteristics see "DIRIS B" pages.

## Expert Services

### Require integration onto your network?

No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, audit your system, commission selected equipment and train your staff on its use.

For further information, please contact your nearest SOCOMEC branch.

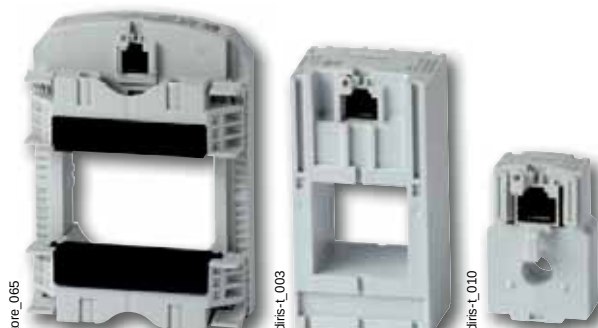




# TE sensors

## Solid current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B



TE solid sensors

### Function

TE smart current sensors measure the load currents of an electrical system and send the data to meters and measurement hubs via an RJ12 plug-and-play output. Thanks to a wide measurement range, TE current sensors cover the full current range of 5 to 2000 A, with 7 references. TE solid current sensors can be connected to DIRIS Digiware, DIRIS A-40 and DIRIS B via a rapid RJ12 connection.

Numerous accessories are available to aid the installation of sensors in any type of cabinet.

### Advantages

#### Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. This also allows automatic detection of the sensor type and size/transformation ratio.
- The sensors can be installed in both directions.

#### Installation

- The TE solid sensor range is specially designed for new installations, and has the same pitch as the most common protective devices.

#### Accuracy as per standard IEC 61557-12

- Class 0.5 for the global measuring chain (measurement hub + TE current sensors) from 2 to 120% of the nominal current  $I_n$ .

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



### Strong points

- > Plug & Play
- > Accuracy as per standard IEC 61557-12
- > Installation

### Conformity to standards

- > IEC 61557-12



- > ISO 14025



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



# Mounting

Linear assembly with the protective devices  
TE-25 / TE-35 / TE-45 / TE-55 / TE-90



DIN rail mounted



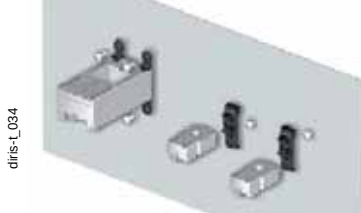
TE-90 clamps



Staggered assembly  
TE-18 / TE-35 / TE-45 / TE-55



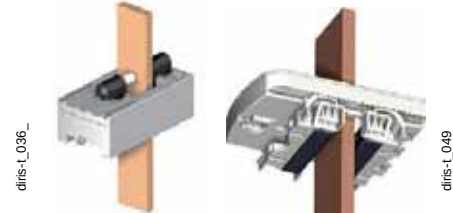
Back-plate mounting



Cable mounting



Bar mounting



# Connections

TE / TR / iTR / TF current sensors



### Mounting accessories

Mounting accessories delivered with TE sensors:

| Switch mounting                                                                   |                         | TE-18 | TE-25 | TE-35<br>TE-45<br>TE-55 | TE-90 |
|-----------------------------------------------------------------------------------|-------------------------|-------|-------|-------------------------|-------|
|  | DIN rail and back-plate | 1 pc  |       |                         | 2 pcs |
|  | DIN rail                |       | 2 pcs | 2 pcs                   |       |
|  | Back-plate              |       | 4 pcs | 4 pcs                   | 6 pcs |
|  | Busbar                  |       |       | 2 pcs                   |       |

### Compatible accessories

#### Adapter for CT with 5A secondary

- With this adapter you can use a current transformer with a 1 A or 5 A output on DIRIS Digiware I, DIRIS B and DIRIS A-40. For use with 5 A CTs (measurement up to 10 000 A) or 1 A CTs (measurement up to 2000 A). The dimensions are the same as the TE-18.



#### Coupling link

- Associated with the TE range, this accessory is for inter-connecting the sensors when linear or staggered mounted.



#### Sealable cover

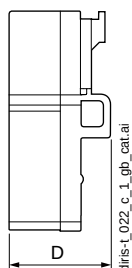
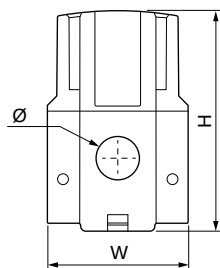
- Using a sealable cover guarantees the immunity of the sensor connection on TE/TR/ITR/TF current sensors.



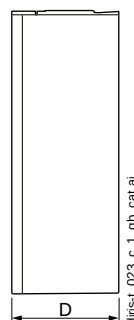
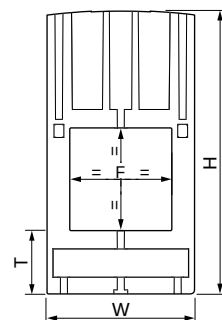
### Dimensions (mm)

#### TE - Solid current sensors

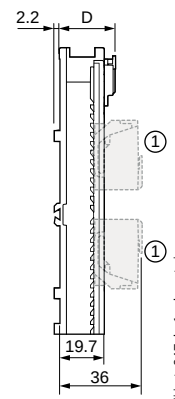
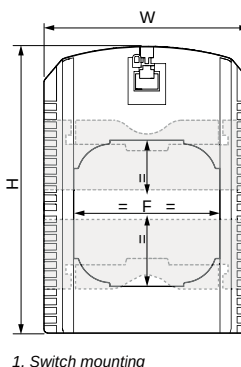
##### TE-18



##### TE-25 / TE-35 / TE-45 / TE-55



##### TE-90



| Model | Nominal current range (A) | Real range covered (A)  | Pitch (mm) | H x W x D (mm)  | F (mm)      | T (mm) |
|-------|---------------------------|-------------------------|------------|-----------------|-------------|--------|
| TE-18 | 5 ... 20 / 25 ... 63      | 0.1 ... 24 / 0.5 ... 75 | 18         | 45 x 28 x 20    | 8.6         | -      |
| TE-25 | 40 ... 160                | 0.8 ... 192             | 25         | 65 x 25 x 32.5  | 13.5 x 13.5 | 17.5   |
| TE-35 | 63 ... 250                | 1.26 ... 300            | 35         | 71 x 35 x 32.5  | 21 x 21     | 17.5   |
| TE-45 | 160 ... 630               | 3.2 ... 756             | 45         | 86 x 45 x 32.5  | 31 x 31     | 19.5   |
| TE-55 | 400 ... 1000              | 8 ... 1200              | 55         | 100 x 55 x 32.5 | 41 x 41     | 21.5   |
| TE-90 | 600 ... 2000              | 12 ... 2400             | 90         | 126 x 90 x 24.6 | 64 x 64     | -      |

## Specifications

### TE - Solid current sensors

| Model                           | TE-18                 | TE-18      | TE-25       | TE-35        | TE-45       | TE-55        | TE-90        |
|---------------------------------|-----------------------|------------|-------------|--------------|-------------|--------------|--------------|
| Nominal current range $I_n$ (A) | 5 ... 20              | 25 ... 63  | 40 ... 160  | 63 ... 250   | 160 ... 630 | 400 ... 1000 | 600 ... 2000 |
| Real range covered (A)          | 0.1 ... 24            | 0.5 ... 75 | 0.8 ... 192 | 1.26 ... 300 | 3.2 ... 756 | 8 ... 1200   | 12 ... 2400  |
| Max. current (A)                | 24                    | 75.6       | 192         | 300          | 756         | 1200         | 2400         |
| Weight (g)                      | 24                    | 24         | 69          | 89           | 140         | 187          | 163          |
| Max. voltage (phase/neutral)    | 300 V                 |            |             |              |             |              |              |
| Rated withstand voltage         | 3 kV                  |            |             |              |             |              |              |
| Frequency                       | 50/60 Hz              |            |             |              |             |              |              |
| Intermittent overload           | 10 x $I_n$ over 1 sec |            |             |              |             |              |              |
| Measurement category            | CAT III               |            |             |              |             |              |              |
| Protection degree               | IP30 / IK06           |            |             |              |             |              |              |
| Operating temperature           | -10 ... +70°C         |            |             |              |             |              |              |
| Storage temperature             | -25 ... +85°C         |            |             |              |             |              |              |
| Relative humidity               | 95% RH non-condensing |            |             |              |             |              |              |
| Altitude                        | < 2000 m              |            |             |              |             |              |              |
| Connection                      | Socomec RJ12 cable    |            |             |              |             |              |              |

## References

| Model | Nominal current range (A) | Real range covered (A) | Pitch (mm) | Reference |
|-------|---------------------------|------------------------|------------|-----------|
| TE-18 | 5 ... 20                  | 0.1 ... 24             | 18         | 4829 0500 |
| TE-18 | 25 ... 63                 | 0.5 ... 75             | 18         | 4829 0501 |
| TE-25 | 40 ... 160                | 0.8 ... 192            | 25         | 4829 0502 |
| TE-35 | 63 ... 250                | 1.26 ... 300           | 35         | 4829 0503 |
| TE-45 | 160 ... 630               | 3.2 ... 756            | 45         | 4829 0504 |
| TE-55 | 400 ... 1000              | 8 ... 1200             | 55         | 4829 0505 |
| TE-90 | 600 ... 2000              | 12 ... 2400            | 90         | 4829 0506 |

| Accessories                                                            | Reference |
|------------------------------------------------------------------------|-----------|
| Coupling link (20 linear assembly parts and 10 for staggered assembly) | 4829 0598 |
| 5 A CT adapter (max primary current 2000 A / 1 A or 10 000 A / 5 A)    | 4829 0599 |
| Sealable caps (20 pieces)                                              | 4829 0600 |

| RJ12 connection cables | Cable length (m) |           |           |           |           |           |           |           |           |                            |
|------------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------------------------|
|                        | 0.1              | 0.2       | 0.3       | 0.5       | 1         | 2         | 3         | 5         | 10        | 50 m reel + 100 connectors |
| Number of cables       | Reference        | Reference | Reference | Reference | Reference | Reference | Reference | Reference | Reference | Reference                  |
| 1                      | -                | -         | -         | -         | -         | -         | -         | 4829 0602 | 4829 0603 | 4829 0601                  |
| 3                      | 4829 0580        | 4829 0581 | 4829 0582 | 4829 0595 | 4829 0583 | 4829 0584 | 4829 0606 | -         | -         | -                          |
| 4                      | -                | -         | -         | 4829 0596 | 4829 0588 | 4829 0589 | -         | -         | -         | -                          |
| 6                      | 4829 0590        | 4829 0591 | 4829 0592 | 4829 0597 | 4829 0593 | 4829 0594 | -         | -         | -         | -                          |



# TR/iTR sensors

## Split-core AC current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B



TR Split-core current sensors

### Function

The split-core current sensors in the TR and iTR ranges enable the current of an electrical installation to be measured. Used with power monitoring device DIRIS Digiware, DIRIS A-40, DIRIS B, they make it possible to perform measurements between 25 and 600 A, with guaranteed accuracy. The RJ12 connection provides quick connections, and the integrated intelligence prevents any configuration errors.

The sensors in the iTR range revolutionise the world of measurement and provide access to VirtualMonitor status monitoring technologies and to AutoCorrect automatic configuration.

### Advantages of the TR and iTR ranges

#### Smart sensors

- Sensors with an extended operational range.
- Automatic detection of rating.
- Secured disconnection of load.
- Quick connection via RJ12 and identification of cable by colour code.

#### Accurate

- Measurement precision guaranteed in acc. with standard IEC 61557-12 : class 0.5 (iTR) or 1 (TR) for the global measuring chain from 2 to 120% of In.

### Unique advantages of the iTR range

#### VirtualMonitor technology

VirtualMonitor provides monitoring of protective devices:

- Across the entire electrical installation.
- Remotely and in real-time.
- Without additional hardware or wiring (no auxiliary contacts needed).

#### AutoCorrect technology

AutoCorrect guarantees that your measurement system is working correctly:

- Automatic wiring control (current voltage phase association).
- Correction of errors.
- Feature available off load.

### The solution for

- > Retrofit applications
- > Industry
- > Building
- > Infrastructure
- > Data centers



### Strong points

- > Smart sensors
- > PreciSense technology: Accurate
- > Easy installation and configuration

### Integrated technologies<sup>(1)</sup>



(1) AutoCorrect and VirtualMonitor are only available with iTR sensors.

For more information see our website [www.socomec.com](http://www.socomec.com)

### Compliance with standards

- > IEC 61557-12



- > ISO 14025



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration: [www.meter-selector.com](http://www.meter-selector.com)





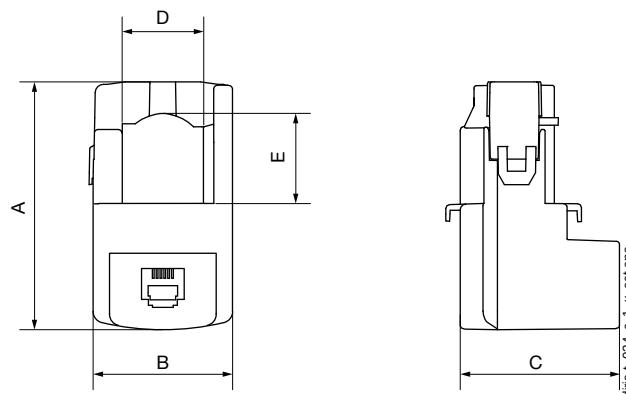
## Installation

### Cable mounting



## Dimensions (mm)

TR-10 / TR-14 / TR-21 / TR-32



| Model     | Nominal current range (A) | Real range covered (A) | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | Ø (mm) |
|-----------|---------------------------|------------------------|--------|--------|--------|--------|--------|--------|
| TR/iTR-10 | 25 ... 63                 | 0.5 ... 75.6           | 44     | 26     | 28     | -      | -      | 10     |
| TR/iTR-14 | 40 ... 160                | 0.8 ... 192            | 67     | 29     | 28     | 14     | 15     | 14     |
| TR/iTR-21 | 63 ... 250                | 1.26 ... 300           | 65     | 37     | 43     | 21     | 23     | 21     |
| TR/iTR-32 | 160 ... 600               | 3.2 ... 720            | 86     | 53     | 47     | 32     | 33     | 32     |

## Technical characteristics

| Model                                                  | TR-10                       | iTR-10    | TR-14       | iTR-14    | TR-21        | iTR-21    | TR-32        | iTR-32    |
|--------------------------------------------------------|-----------------------------|-----------|-------------|-----------|--------------|-----------|--------------|-----------|
| Nominal current range I <sub>n</sub> (A)               | 25 ... 63                   |           | 40 ... 160  |           | 63 ... 250   |           | 160 ... 600  |           |
| Real range covered (A)                                 | 0.5 ... 75.6                |           | 0.8 ... 192 |           | 1.26 ... 300 |           | 3.2 ... 720  |           |
| Max. current (A)                                       | 75.6                        |           | 192         |           | 300          |           | 720          |           |
| Weight (g)                                             | 74                          |           | 117         |           | 211          |           | 311          |           |
| Max. voltage (phase/neutral)                           | 300 V                       |           |             |           |              |           |              |           |
| Rated withstand voltage                                | 3 kV                        |           |             |           |              |           |              |           |
| Frequency                                              | 50/60 Hz                    |           |             |           |              |           |              |           |
| Intermittent overload                                  | 10 x I <sub>n</sub> for 1 s |           |             |           |              |           |              |           |
| Measurement category                                   | CAT III                     |           |             |           |              |           |              |           |
| Global class used with Diris Digiware / A-40/B-10/B-30 | Class 1                     | Class 0.5 | Class 1     | Class 0.5 | Class 1      | Class 0.5 | Class 1      | Class 0.5 |
| Protection degree                                      | IP20 / IK07                 |           |             |           |              |           |              |           |
| Operating temperature range                            | -10 to +70°C                |           |             |           |              |           | -10°...+55°C |           |
| Storage temperature range                              | -25 to +85°C                |           |             |           |              |           |              |           |
| Relative humidity                                      | 95% RH non-condensing       |           |             |           |              |           |              |           |
| Altitude                                               | < 2000 m                    |           |             |           |              |           |              |           |
| Connection                                             | Socomec RJ12 cable          |           |             |           |              |           |              |           |

## References

| Model | Nominal current range (A) | Real range covered (A) | Ø (mm) | Reference |
|-------|---------------------------|------------------------|--------|-----------|
| TR-10 | 25 ... 63                 | 0.5 ... 75             | 10     | 4829 0555 |
| TR-14 | 40 ... 160                | 0.8 ... 192            | 14     | 4829 0556 |
| TR-21 | 63 ... 250                | 1.26 ... 300           | 21     | 4829 0557 |
| TR-32 | 160 ... 600               | 3.2 ... 720            | 32     | 4829 0558 |

| Model  | Nominal current range (A) | Real range covered (A) | Ø (mm) | Reference |
|--------|---------------------------|------------------------|--------|-----------|
| iTR-10 | 25 ... 63                 | 0.5 ... 75             | 10     | 4829 0655 |
| iTR-14 | 40 ... 160                | 0.8 ... 192            | 14     | 4829 0656 |
| iTR-21 | 63 ... 250                | 1.26 ... 300           | 21     | 4829 0657 |
| iTR-32 | 160 ... 600               | 3.2 ... 720            | 32     | 4829 0658 |

| RJ12 connection cables | Cable length (m) |           |           |           |           |           |           |           |           |                            |
|------------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------------------------|
|                        | 0.1              | 0.2       | 0.3       | 0.5       | 1         | 2         | 3         | 5         | 10        | 50 m reel + 100 connectors |
| Number of cables       | Reference        | Reference | Reference | Reference | Reference | Reference | Reference | Reference | Reference | Reference                  |
| 1                      | -                | -         | -         | -         | -         | -         | -         | 4829 0602 | 4829 0603 | 4829 0601                  |
| 3                      | 4829 0580        | 4829 0581 | 4829 0582 | 4829 0595 | 4829 0583 | 4829 0584 | 4829 0606 | -         | -         | -                          |
| 4                      | -                | -         | -         | 4829 0596 | 4829 0588 | 4829 0589 | -         | -         | -         | -                          |
| 6                      | 4829 0590        | 4829 0591 | 4829 0592 | 4829 0597 | 4829 0593 | 4829 0594 | -         | -         | -         | -                          |



# TF sensors

## Flexible TF current sensors

used with DIRIS Digiware, DIRIS A-40 and DIRIS B



TF Flexible current sensors

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Data centers



### Strong points

- > Plug & Play
- > Accuracy according to IEC 61557-12
- > Safe locking mechanism
- > Installation
- > Simplified installation

### Integrated technologies



PreciSense

For more information see our website  
[www.socomec.com](http://www.socomec.com)

### Compliance with standards

- > IEC 61557-12



- > ISO 14025



- > UL



### Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)

**METER SELECTOR**  
DIGITAL TOOL AVAILABLE

### Function

TF flexible current sensors measure the load currents of an electrical circuit and send the data to meters and Power Monitoring Devices or current modules via an RJ12 plug-and-play connection. Thanks to a wide measurement range, TF current sensors cover a wide current range from 100 to 6000 A, with only 7 references. TF flexible current sensors can be used with DIRIS Digiware I modules, DIRIS A-40 and DIRIS B.

### Advantages

#### Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. This also allows automatic detection of the sensor type and rating.
- The sensors can be installed in both directions.

#### Accuracy according to IEC 61557-12

- Class 0.5 for the global measuring chain (PMD + TF current sensors) from 2 to 120% of the nominal current  $I_n$ .
- Accuracy is guaranteed regardless of the position of the conductor in the loop.

#### Safe locking mechanism<sup>(1)</sup>

- The locking system prevents the loop from opening, guaranteeing continuous functioning and accuracy even under harsh conditions.

#### Installation

- The TF flexible sensor range is specially designed for existing installations with strict integration constraints or with high-intensity currents.

#### Simplified installation

- The Rogowski integrator is directly integrated to the RJ12<sup>(1)</sup> cable enabling a quick and compact integration (no DIN rail assembly required) inside electrical panels.
- The integrator is self supplied by the PMD through the RJ12 cable and does not need any external power supply.

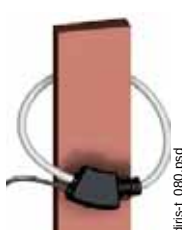
(1) Except for TF-55.

### Installation

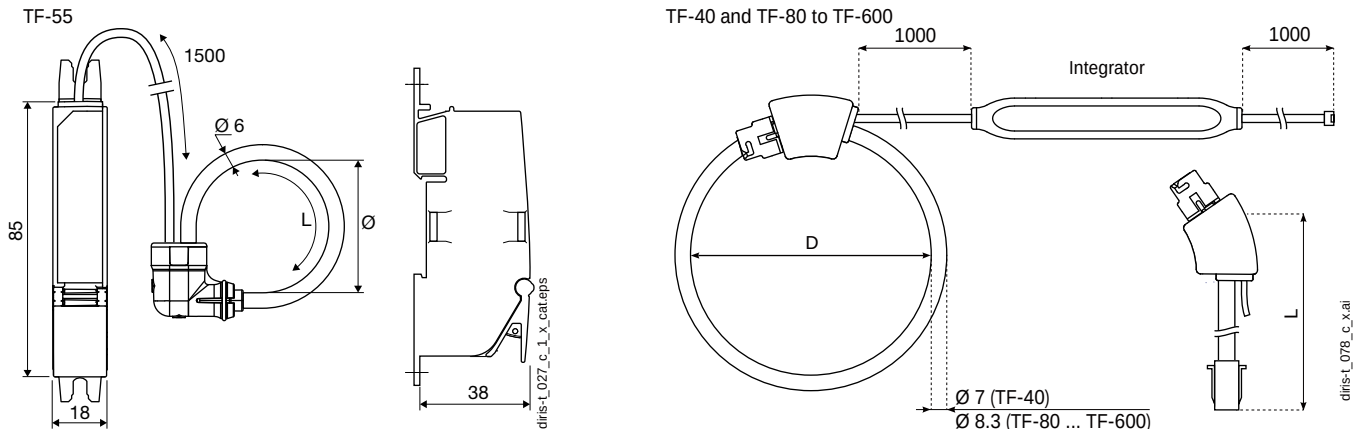
#### Cable mounting



#### Bar mounting



## Dimensions (mm)



| Model  | Nominal current range (A) | Real range covered (A) | D = Ø loop (mm) | L = Loop length (mm) |
|--------|---------------------------|------------------------|-----------------|----------------------|
| TF-40  | 100 ... 400               | 2 ... 480              | 40              | 126                  |
| TF-55  | 150 ... 600               | 3 ... 720              | 55              | 173                  |
| TF-80  | 150 ... 600               | 3 ... 720              | 80              | 251                  |
| TF-120 | 400 ... 2000              | 8 ... 2400             | 120             | 377                  |
| TF-200 | 600 ... 4000              | 12 ... 4800            | 200             | 628                  |
| TF-300 | 1600 ... 6000             | 32 ... 7200            | 300             | 942                  |
| TF-600 | 1600 ... 6000             | 32 ... 7200            | 600             | 1885                 |

Integrator dimensions: 128 x 19 x 15 mm

## Technical characteristics

| Model                           | TF-40                                                                                      | TF-55       | TF-80       | TF-120       | TF-200       | TF-300        | TF-600        |
|---------------------------------|--------------------------------------------------------------------------------------------|-------------|-------------|--------------|--------------|---------------|---------------|
| Nominal current range $I_n$ (A) | 100 ... 400                                                                                | 150 ... 600 | 150 ... 600 | 400 ... 2000 | 600 ... 4000 | 1600 ... 6000 | 1600 ... 6000 |
| Real range covered (A)          | 2 ... 480                                                                                  | 3 ... 720   | 3 ... 720   | 8 ... 2400   | 12 ... 4800  | 32 ... 7200   | 32 ... 7200   |
| Weight (g)                      | 114                                                                                        | 114         | 130         | 142          | 164          | 193           | 274           |
| Max. voltage (phase/neutral)    | 600 V                                                                                      |             |             |              |              |               |               |
| Rated withstand voltage         | 3.6 kV                                                                                     |             |             |              |              |               |               |
| Accuracy class                  | 0.5 in association with DIRIS Digiware I, DIRIS A-40, DIRIS B based on IEC 61557-12        |             |             |              |              |               |               |
| Frequency                       | 50 / 60 Hz                                                                                 |             |             |              |              |               |               |
| Intermittent overload           | 10 x $I_n$ for 1 s                                                                         |             |             |              |              |               |               |
| Measurement category            | CAT III                                                                                    |             |             |              |              |               |               |
| Protection degree               | IP30 / IK07                                                                                |             |             |              |              |               |               |
| Operating temperature           | -10 to +70°C                                                                               |             |             |              |              |               |               |
| Storage temperature             | -25 to +85°C                                                                               |             |             |              |              |               |               |
| Relative humidity               | 95% RH non-condensing                                                                      |             |             |              |              |               |               |
| Altitude                        | < 2000 m                                                                                   |             |             |              |              |               |               |
| Connection                      | Socomec cable or equivalent RJ12 straight, twisted pair, unshielded, 600 V, -10 ... +70 °C |             |             |              |              |               |               |

## References

| Model  | Nominal current range (A) | Real range covered (A) | D = Ø loop (mm) | L = Loop length (mm) | Reference |
|--------|---------------------------|------------------------|-----------------|----------------------|-----------|
| TF-40  | 100 ... 400               | 2 ... 480              | 40              | 126                  | 4829 0573 |
| TF-55  | 150 ... 600               | 3 ... 720              | 55              | 173                  | 4829 0570 |
| TF-80  | 150 ... 600               | 3 ... 720              | 80              | 251                  | 4829 0574 |
| TF-120 | 400 ... 2000              | 8 ... 2400             | 120             | 377                  | 4829 0575 |
| TF-200 | 600 ... 4000              | 12 ... 4800            | 200             | 628                  | 4829 0576 |
| TF-300 | 1600 ... 6000             | 32 ... 7200            | 300             | 942                  | 4829 0577 |
| TF-600 | 1600 ... 6000             | 32 ... 7200            | 600             | 1885                 | 4829 0578 |

### Accessories

Female/female connector for extension of the RJ12 connection between PMD and TF sensor

Reference  
4829 0670

| RJ12 connection cables | Cable length (m) |           |           |           |           |           |           |           |           |                            |
|------------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------------------------|
|                        | 0.1              | 0.2       | 0.3       | 0.5       | 1         | 2         | 3         | 5         | 10        | 50 m reel + 100 connectors |
| Number of cables       | Reference        | Reference | Reference | Reference | Reference | Reference | Reference | Reference | Reference | Reference                  |
| 1                      | -                | -         | -         | -         | -         | -         | -         | 4829 0602 | 4829 0603 | 4829 0601                  |
| 3                      | 4829 0580        | 4829 0581 | 4829 0582 | 4829 0595 | 4829 0583 | 4829 0584 | 4829 0606 | -         | -         | -                          |
| 4                      | -                | -         | -         | 4829 0596 | 4829 0588 | 4829 0589 | -         | -         | -         | -                          |
| 6                      | 4829 0590        | 4829 0591 | 4829 0592 | 4829 0597 | 4829 0593 | 4829 0594 | -         | -         | -         | -                          |



# DIRIS Digiware R-60

Residual Current Monitoring module

Residual  
Current Monitoring

new



DIRIS Digiware R-60



Configuration with  
Easy Config System software.

## Function

DIRIS Digiware R-60 modules combine residual current monitoring (RCM) with power metering and monitoring functions, for any combination of 1-phase, 2-phase or 3-phase circuits used in TN-S and TT earthing systems.

With six RJ12 channels, they can be connected to a mix of  $\Delta$ IC residual CTs and TE/TR/ITR/TF current sensors via RJ12 cables enabling quick connection and avoiding wiring errors.

## Advantages

### 2 in 1

One DIRIS Digiware R-60 module can be connected to residual CTs and traditional TE/TR/ITR/TF current sensors to pool residual current and power monitoring.

### Multi-circuit

One DIRIS Digiware R-60 module can monitor the residual current on up to 6 circuits.

The Digiware modular concept allows several R-60 modules to be added within a single system, making it easy to implement RCM for a large number of outgoing circuits instead of the main incomer only.

### Plug & Play solution

The Digiware concept and the RJ45 bus allow:

- easy connection of R-60 modules to an existing DIRIS Digiware system,
- optimal scalability by adding additional modules when needed.

The connection to current sensors is quick and error-free thanks to colour coded RJ12 cables.

### Smart alarming

DIRIS Digiware R-60 provides the most advanced RCM alarm features for preventive notifications:

- before the residual current device (RCD) trips,
- before leakage currents become hazardous for people and assets,
- if the RCD is defective.

The combination with Virtual Monitor technology specifies if the RCD has tripped on an overload or a high residual current.

### Patented innovation

Thanks to an automatic learning sequence, launched for a chosen duration representative of the normal operation of the electrical installation, 6 dynamic residual current ( $I_{\Delta}$ ) thresholds are automatically set. This facilitates the determination of the maximum residual current not to be exceeded for each outgoing circuit.

## The solution for

- > Industries
- > Data centres



## Strong points

- > 2 in 1
- > Multi-circuit
- > Plug & play solution
- > Smart alarming
- > Patented innovation

## Compliance with standards

- > IEC 62020
- > IEC 61557-12



- > ISO 14025

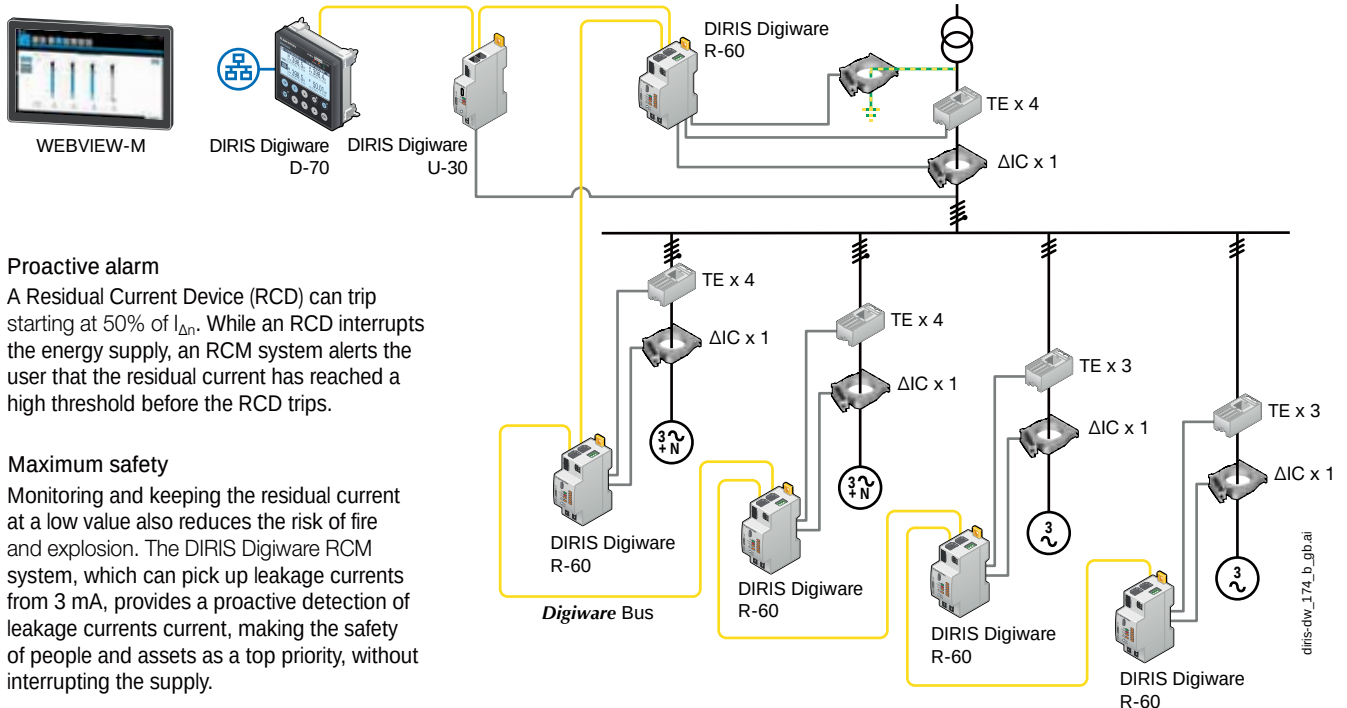


## Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



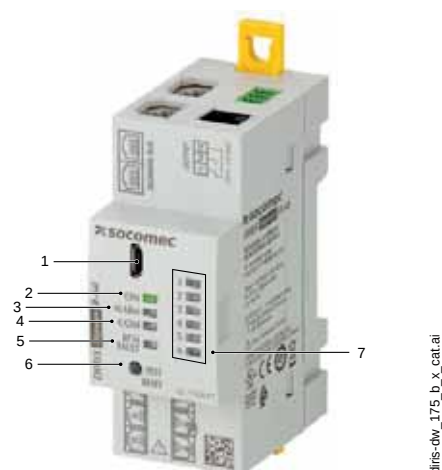
## Applications



## Measurements

|                                                               |   |
|---------------------------------------------------------------|---|
| <b>DIRIS Digiware R-60</b>                                    |   |
| Residual Current Monitoring                                   |   |
| $I_{\Delta}$                                                  | • |
| $I_{PE}$                                                      | • |
| Metering                                                      |   |
| +/- kWh, +/- kvarh, kVAh                                      | • |
| Multi-tariff (max 8)                                          | • |
| Load curves                                                   | • |
| Multi-measurement                                             |   |
| $I_1, I_2, I_3, I_n, \Sigma P, \Sigma Q, \Sigma S, \Sigma PF$ | • |
| P, Q, S, PF per phase                                         | • |
| Alarms                                                        |   |
| Dynamic $I_{\Delta}$ and $I_{PE}$ thresholds                  | • |
| Overloaded neutral conductor                                  | • |
| Protective device (opening, Trip, defective RCD)              | • |
| $I_{\Delta}$ and $I_{PE}$ comparisons                         | • |
| Trends                                                        |   |
| $I_{\Delta}$                                                  | • |
| $I_{PE}$                                                      | • |
| Load curves                                                   | • |

## Front face



1. USB port for configuration.
2. ON LED. Lights when the device is active.
3. ALARM LED for system alarms (CT disconnected, etc.)
4. COM LED. Flashes when the communication bus is active.
5. RCM FAULT. Lights if there is an RCM alarm on any of the channel 1 through 6.
6. TEST / RESET button. Starts the auto test (long press) and resets alarms (short press). Used during auto-discovery process for the resolution of address conflicts.
7. Individual LED alarm signals for each channel 1 to 6.

# DIRIS Digiware R-60

## Residual Current Monitoring module

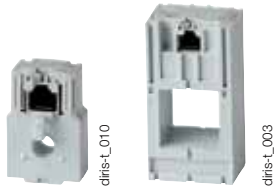
### Connections

#### Associated sensors

Various types of residual CTs and current sensors can be connected to the DIRIS Digiware R-60 module:  $\Delta$ IC solid-core,  $\Delta$ IP-R split-core residual CTs, and solid-core TE, split-core TR/iTR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors.

For more information: refer to the residual CTs and current sensors catalogue pages

#### TE solid current sensors



#### $\Delta$ IC solid-core residual CTs



#### TR/iTR split-core current sensors



#### TF Flexible current sensors



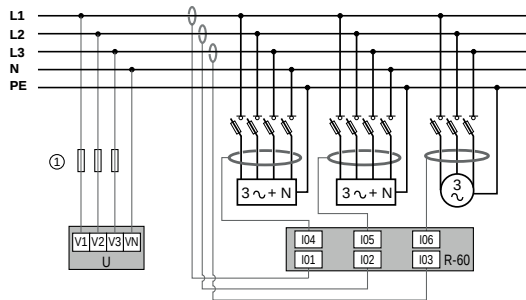
#### $\Delta$ IP-R split-core residual CTs



#### Connection examples

##### RCM ( $I_{\Delta}$ ) – 3 x 3-Ph load

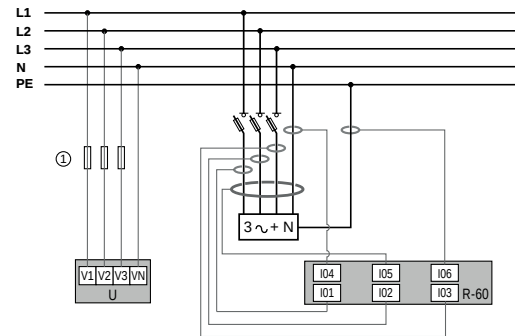
Load current monitoring – L1, L2, L3, upstream



diris-dw\_176\_b\_1\_x\_cat.ai

##### RCM ( $I_{\Delta} + I_{PE}$ ) – 1 x 3-Ph load

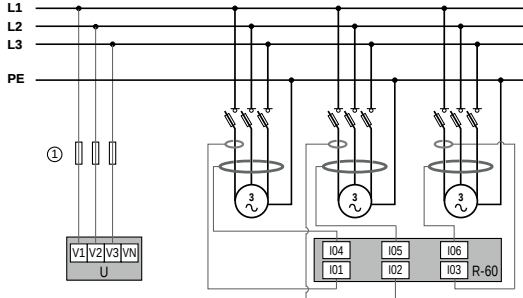
Load current monitoring – 1 x 3-Ph load (L1, L2, L3, N)



diris-dw\_179\_a\_1\_x\_cat.ai

##### RCM ( $I_{\Delta}$ ) – 3 x 3-Ph load

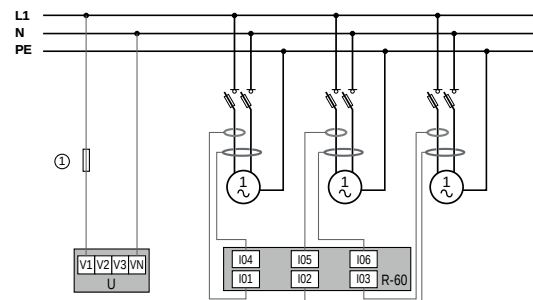
Load current monitoring – 3 x 3-Ph balanced loads



diris-dw\_180\_a\_1\_x\_cat.ai

##### RCM ( $I_{\Delta}$ ) – 3 x 1-Ph load

Load current monitoring – 3 x 1-Ph loads

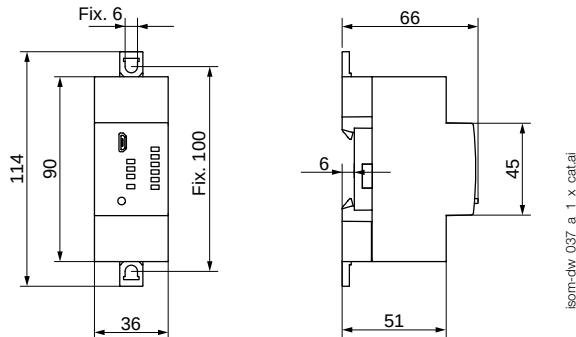


diris-dw\_181\_a\_1\_x\_cat.ai

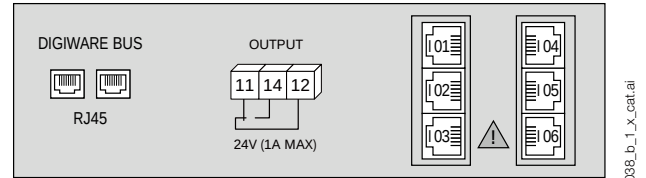




## Dimensions (mm)



## Terminals and wiring



DIGIWARE BUS: RJ45 bus to connect to other Digiware modules

11 - 12 - 14: alarm relay output  
I01 - I02 - I03 - I04 - I05 - I06: RJ12 connection of residual CTs (via the T-10 adaptor) and current sensors

isom-dw\_038\_b\_1\_x\_cat.ai

## Technical characteristics

### Measurement characteristics

|                              |                                       |
|------------------------------|---------------------------------------|
| RCM type                     | Type A according to IEC 62020         |
| Number of RJ12 channels      | 6                                     |
| Residual CTs connection      | RJ12 cables via Digiware T-10 adaptor |
| Current sensors connection   | RJ12 cables                           |
| Current measurement accuracy | Class 0.5 according to IEC 61557-12   |
| Active energy accuracy       | Class 0.5 according to IEC 61557-12   |
| Reactive energy accuracy     | Class 1 according to IEC 61557-12     |

### Digital output characteristics

|                    |                   |
|--------------------|-------------------|
| Number of contacts | 1                 |
| Contact type       | Changeover switch |
| Nominal voltage    | 24 VAC / 24 VDC   |
| Max current        | 1 A               |
| Default mode       | Normally open     |

### Mechanical characteristics

|                         |                        |
|-------------------------|------------------------|
| Mounting type           | DIN rail or back plate |
| Casing protection index | IP20                   |
| Weight                  | 103 g                  |

### Electrical characteristics

|                        |                          |
|------------------------|--------------------------|
| Auxiliary power supply | 24 VDC with Digiware bus |
| R-60 consumption       | 0.5 W                    |

### Communication characteristics

|                     |                                         |
|---------------------|-----------------------------------------|
| <b>Digiware bus</b> |                                         |
| Function            | Connection between Digiware modules     |
| Cable type          | Specific Socomec RJ45 cable             |
| <b>USB</b>          |                                         |
| Protocol            | Modbus RTU on USB                       |
| Function            | Configuration of DIRIS Digiware modules |
| Cable type          | Type B micro USB connector              |

### Environmental characteristics

|                       |               |
|-----------------------|---------------|
| Operating temperature | -10 ... +55°C |
| Storage temperature   | -25 ... +70°C |
| Operating humidity    | 55°C / 97% RH |
| Operating altitude    | < 2000 m      |

## References

|                                  |                  |
|----------------------------------|------------------|
| <b>Module</b>                    | <b>Reference</b> |
| DIRIS Digiware R-60              | 4829 0114        |
| <b>Accessories</b>               | <b>Reference</b> |
| DIRIS Digiware T-10 RJ12 adaptor | 4829 0620        |

| RJ12 connection cables | Cable length (m) |           |           |           |           |           |           |           |           |                            |
|------------------------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------------------------|
|                        | 0.1              | 0.2       | 0.3       | 0.5       | 1         | 2         | 3         | 5         | 10        | 50 m reel + 100 connectors |
| Number of cables       | Reference        | Reference | Reference | Reference | Reference | Reference | Reference | Reference | Reference | Reference                  |
| 1                      | -                | -         | -         | -         | -         | -         | -         | 4829 0602 | 4829 0603 | 4829 0601                  |
| 3                      | 4829 0580        | 4829 0581 | 4829 0582 | 4829 0595 | 4829 0583 | 4829 0584 | 4829 0606 | -         | -         | -                          |
| 4                      | -                | -         | -         | 4829 0596 | 4829 0588 | 4829 0589 | -         | -         | -         | -                          |
| 6                      | 4829 0590        | 4829 0591 | 4829 0592 | 4829 0597 | 4829 0593 | 4829 0594 | -         | -         | -         | -                          |

## Expert Services

### Require integration onto your network?

No problem for our "Expert Services" team. They will fully integrate all your SOCOMEC devices, audit your system, commission selected equipment and train your staff on its use.

For further information, please contact your nearest SOCOMEC branch.



# DIRIS Digiware IO

Digital and analogue input/output modules



**DIRIS Digiware IO-10**  
4 digital inputs/2 digital outputs



**DIRIS Digiware IO-20**  
2 analogue inputs



Configuration  
with Easy Config System.

## Function

DIRIS Digiware IO modules enrich the measurement system with multiple features:

- DIRIS Digiware IO-10 modules have 4 digital inputs and 2 digital outputs.

The 4 digital inputs can be used to monitor the status of third-party devices (position of protective devices, trip counter) or to collect pulses from multi-fluid meters.

The 2 digital outputs allow the remote control of third-party equipment signal.

Alarms can be configured and assigned to the digital outputs.

- Thanks to their 2 analogue inputs, DIRIS Digiware IO-20 modules can collect data from analogue sensors (pressure, humidity, temperature...).

All the information reported by the IO-10 and IO-20 modules can be viewed on DIRIS Digiware D-xx displays and on Webview, the web server embedded in DIRIS G gateways and in the DIRIS Digiware D-70 display unit.

## Advantages

### Plug & Play

The IO modules can be easily added anywhere within the measurement system thanks to a quick RJ45 connection.

### Multifunction

The combination of voltage measuring modules, current measuring modules, and input/output modules makes DIRIS Digiware a complete and versatile system.

### Integrated

All the reported information is accessible from the displays, from WEBVIEW or any other centralised management software.

### Compact

The modular format allows the quick connection of a large number of IO-10 and IO-20 modules.

## The solution for

- > Industry
- > Building
- > Data center



## Strong points

- > Plug & Play
- > Multifunction
- > Integrated
- > Compact

## Compliance with standards

- > IEC 61557-12
- > IEC 61010



- > ISO 14025



- > UL



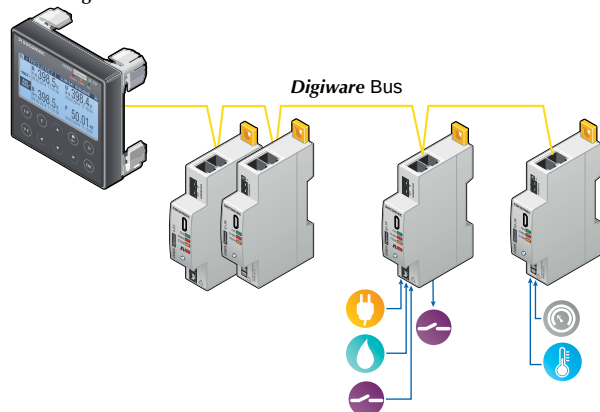
## Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



## Application diagram

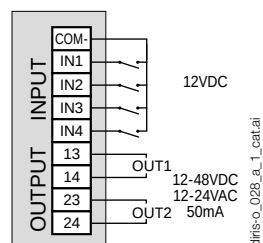
DIRIS Digiware D-xx



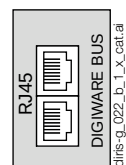
## Connections

### DIRIS Digiware IO-10

#### Digital inputs/outputs

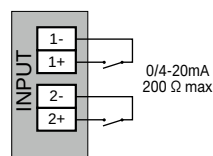


#### Digiware Bus

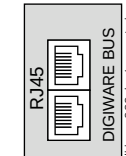


### DIRIS Digiware IO-20

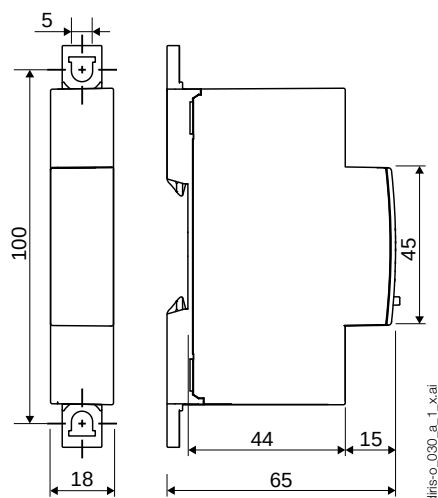
#### Analogue inputs



#### Digiware Bus



## Dimensions (mm)



## Technical characteristics

### Measuring characteristics

#### Digital inputs/outputs - DIRIS Digiware IO-10

|                         |                                                                                                                                                    |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of inputs        | 4                                                                                                                                                  |
| Type/power supply       | Insulated input, internal polarisation 12 VDC max., 3 mA                                                                                           |
| Input function          | - Status of third-party devices<br>- Monitoring of protective devices (ON/OFF, Trip)<br>- Pulse counter                                            |
| Number of outputs       | 2                                                                                                                                                  |
| Type                    | Insulated output, 48 VDC max., 50 mA and 24 VAC max.                                                                                               |
| Output function         | - Remote control of devices<br>- Alarm signal linked to the inputs (exceeding threshold, status...)                                                |
| Input/output connection | Removable screw terminal block, 9 positions (5 dedicated to inputs, 4 dedicated to outputs)<br>Stranded or solid 0.14 to 1.5 mm <sup>2</sup> cable |

#### Analogue inputs - DIRIS Digiware IO-20

|                   |                                                                                                                        |
|-------------------|------------------------------------------------------------------------------------------------------------------------|
| Number of inputs  | 2                                                                                                                      |
| Type/power supply | 0/4-20 mA, 200 Ω max                                                                                                   |
| Accuracy          | 0.5% full scale                                                                                                        |
| Function          | Connection of analogue sensors (pressure, humidity, temperature...) with choice of interpolation (linear or quadratic) |
| Input connection  | Removable screw terminal block 2x2 positions, Stranded or solid 0.14 to 1.5 mm <sup>2</sup> cable                      |

## References

| Digiware connection cables                                      |                            | Reference |
|-----------------------------------------------------------------|----------------------------|-----------|
| RJ45 cables for Digiware Bus                                    | Length 0.06 m              | 4829 0189 |
|                                                                 | Length 0.10 m              | 4829 0181 |
|                                                                 | Length 0.20 m              | 4829 0188 |
|                                                                 | Length 0.50 m              | 4829 0182 |
|                                                                 | Length 1 m                 | 4829 0183 |
|                                                                 | Length 2 m                 | 4829 0184 |
|                                                                 | Length 3 m                 | 4829 0190 |
|                                                                 | Length 5 m                 | 4829 0186 |
|                                                                 | Length 10 m                | 4829 0187 |
|                                                                 | Reel 50 m + 100 connectors | 4829 0185 |
| Termination for Digiware Bus (supplied with interfaces C and D) |                            | 4829 0180 |
| USB configuration cable                                         |                            | 4829 0050 |

| DIRIS Digiware input/output modules |                                   | Reference |
|-------------------------------------|-----------------------------------|-----------|
| IO-10                               | 4 digital inputs/2 outputs module | 4829 0140 |
| IO-20                               | 2 analogue input module           | 4829 0145 |



# Selection guide

## Active energy meters and pulse concentrators

### COUNTIS E

Single-circuit metering,  
measurement &  
analysis

Which type  
of network?

Which load  
current?

| Network - Input current         | Single-phase<br>Direct<br>up to 40 A                                              |                                |                                | Single-phase<br>Direct<br>up to 80 A                                                |                                |                                |                                | Three-phase<br>Direct<br>up to 80 A                                                 |                                |
|---------------------------------|-----------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------------------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------------------------------------------------------------|--------------------------------|
|                                 |  |                                |                                |  |                                |                                |                                |  |                                |
| Active energy meters: COUNTIS E | <i>E00/E02</i><br><i>p. 66</i>                                                    | <i>E03/E04</i><br><i>p. 66</i> | <i>E05/E06</i><br><i>p. 66</i> | <i>E11/E12</i><br><i>p. 60</i>                                                      | <i>E13/E14</i><br><i>p. 60</i> | <i>E15/E16</i><br><i>p. 60</i> | <i>E17/E18</i><br><i>p. 60</i> | <i>E21/E22</i><br><i>p. 62</i>                                                      | <i>E23/E24</i><br><i>p. 62</i> |

#### Main specifications

|                                          |          |          |          |           |           |           |           |                 |                 |
|------------------------------------------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------------|-----------------|
| MID: EN 50470 module B + D certification | • (E02)  | • (E04)  | • (E06)  | • (E12)   | • (E14)   | • (E16)   | • (E18)   | • (E22)         | • (E24)         |
| RS485 Modbus                             |          | •        |          |           | •         |           |           |                 | •               |
| M-Bus                                    |          |          | •        |           |           | •         |           |                 |                 |
| Ethernet Modbus TCP/RTU                  |          |          |          |           |           |           | •         |                 |                 |
| Width                                    | 1 module | 1 module | 1 module | 2 modules | 2 modules | 2 modules | 2 modules | 4 modules       | 4 modules       |
| Input voltage                            | 230 VAC  | 230 VAC  | 230 VAC  | 230 VAC   | 230 VAC   | 230 VAC   | 230 VAC   | 230 ... 400 VAC | 230 ... 400 VAC |

#### Functions

|                                                   |     |         |         |     |     |     |     |     |     |
|---------------------------------------------------|-----|---------|---------|-----|-----|-----|-----|-----|-----|
| Total/partial energy kWh                          | •/• | •/•     | •/•     | •/• | •/• | •/• | •/• | •/• | •/• |
| Active power / Reactive power                     | •/• | •/•     | •/•     | •/• | •/• | •/• | •/• | •/• | •/• |
| Dual tariff for kWh                               |     | •       | •       | •   | •   | •   | •   | •   | •   |
| Total/partial energy kvarh                        | •/• | •/•     | •/•     | •/• | •/• | •/• | •/• | •/• | •/• |
| kVA                                               |     | via COM | via COM |     | •   | •   | •   | •   | •   |
| Load curve                                        |     |         |         |     |     |     |     |     |     |
| Measurement (I, V, P, Q, S, F and PF)             | •   | •       | •       | •   | •   | •   | •   | •   | •   |
| CT connection indication                          |     |         |         |     |     |     |     |     |     |
| Bidirectional (energy consumption and production) | •   | •       | •       | •   | •   | •   | •   | •   | •   |
| Integrated web server                             |     |         |         |     |     |     | •   |     |     |
| Compatibility with Webview                        |     | •       |         |     | •   |     | •   |     | •   |

#### Accuracy

|                                             |               |               |               |               |               |               |               |               |               |
|---------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Active energy (IEC 62053-21)                | class 1       | class 1       | class 1       | class 1       | class 1       | class 1       | class 1       | class 1       | class 1       |
| Reactive energy (according to IEC 62053-23) | class 2       | class 2       | class 2       | class 2       | class 2       | class 2       | class 2       | class 2       | class 2       |
| Active energy (EN 50470)                    | class B (E02) | class B (E04) | class B (E06) | class B (E12) | class B (E14) | class B (E16) | class B (E18) | class B (E22) | class B (E24) |

#### Characteristics

|                                    |         |         |         |         |         |         |         |         |         |
|------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Metrological LED                   | •       | •       | •       | •       | •       | •       | •       | •       | •       |
| Pulse output                       | 100 Wh  | 100 Wh  | 100 Wh  | 100 Wh  | 100 Wh  | 100 Wh  |         | 100 Wh  | 100 Wh  |
| Sealing cover (MID version only)   | • (E02) | • (E04) | • (E06) | • (E12) | • (E14) | • (E16) | • (E18) | • (E22) | • (E24) |
| Phase/neutral inversion protection |         |         |         |         |         |         |         |         |         |

|                                                                                     |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                                                                     |  |  |
| Pulse concentrator                                                                  | <i>COUNTIS ECi2</i><br><i>p. 68</i>                                                   | <i>COUNTIS ECi3</i><br><i>p. 68</i>                                                   |
| Case                                                                                | 4 modules                                                                             | 4 modules                                                                             |
| Logical inputs                                                                      | 7                                                                                     | 7                                                                                     |
| Analogue inputs                                                                     |                                                                                       | 2                                                                                     |
| ON/OFF output (alarm)                                                               | 1                                                                                     | 1                                                                                     |
| Partial, total, daily, weekly or monthly kWh or other types of data (liters, m³...) | •                                                                                     | •                                                                                     |
| Load curve from 8 to 30 minutes                                                     | •                                                                                     | •                                                                                     |
| RS485 Modbus                                                                        | •                                                                                     | •                                                                                     |

Which accuracy?

MID certification?

Communication or pulse output?

View data on the web server?

| Three-phase Direct up to 80 A                                                     |                                | Three-phase Direct up to 100 A                                                    |                                |                                | Three-phase CT 1/5 A                                                               |                                |                                |                                | Three-phase CT/5 A                                                                  |                            |
|-----------------------------------------------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------|--------------------------------|--------------------------------|------------------------------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------------------------------------------------------------|----------------------------|
|  |                                |  |                                |                                |  |                                |                                |                                |  |                            |
| <i>E25/E26</i><br><i>p. 62</i>                                                    | <i>E27/E28</i><br><i>p. 62</i> | <i>E30/E31/E32</i><br><i>p. 64</i>                                                | <i>E33/E34</i><br><i>p. 64</i> | <i>E35/E36</i><br><i>p. 64</i> | <i>E41/E42</i><br><i>p. 66</i>                                                     | <i>E43/E44</i><br><i>p. 66</i> | <i>E45/E46</i><br><i>p. 66</i> | <i>E47/E48</i><br><i>p. 66</i> | <i>E50</i><br><i>p. 68</i>                                                          | <i>E53</i><br><i>p. 68</i> |
| • (E26)                                                                           | • (E28)                        | • (E32)                                                                           | • (E34)                        | • (E36)                        | • (E42)                                                                            | • (E44)                        | • (E46)                        | • (E48)                        |                                                                                     |                            |
|                                                                                   |                                |                                                                                   | •                              |                                |                                                                                    | •                              |                                |                                |                                                                                     | •                          |
| •                                                                                 |                                |                                                                                   |                                | •                              |                                                                                    |                                | •                              |                                |                                                                                     |                            |
|                                                                                   | •                              |                                                                                   |                                |                                |                                                                                    |                                |                                | •                              |                                                                                     |                            |
| 4 modules                                                                         | 4 modules                      | 7 modules                                                                         | 7 modules                      | 7 modules                      | 4 modules                                                                          | 4 modules                      | 4 modules                      | 4 modules                      | 96x96                                                                               | 96x96                      |
| 230 ... 400 VAC                                                                   | 230 ... 400 VAC                | 230 ... 400 VAC                                                                   | 230 ... 400 VAC                | 230 ... 400 VAC                | 230 ... 400 VAC                                                                    | 230 ... 400 VAC                | 230 ... 400 VAC                | 230 ... 400 VAC                | 86 ... 520 VAC                                                                      | 86 ... 520 VAC             |
| •/•                                                                               | •/•                            | •/• (E31)                                                                         | •/via COM (E34)                | •/via COM (E36)                | •/•                                                                                | •/•                            | •/•                            | •/•                            | •/•                                                                                 | •/•                        |
| •/•                                                                               | •/•                            | •/-                                                                               | •/via COM                      | •/via COM                      | •/•                                                                                | •/•                            | •/•                            | •/•                            | •/•                                                                                 | •/•                        |
| •                                                                                 | •                              | • (E31/E32)                                                                       | up to 4 via com                | up to 4 via com                | •                                                                                  | up to 4 via com                | up to 4 via com                | up to 4 via com                | •                                                                                   | •                          |
| •/•                                                                               | •/•                            |                                                                                   | via COM                        | via COM                        | •/•                                                                                | •/•                            | •/•                            | •/•                            | •                                                                                   | •                          |
| •                                                                                 | •                              |                                                                                   | via COM                        | via COM                        | •                                                                                  | •                              | •                              | •                              | •                                                                                   | •                          |
|                                                                                   |                                |                                                                                   | via COM                        | via COM                        |                                                                                    | via COM                        | via COM                        | via COM                        |                                                                                     |                            |
| •                                                                                 | •                              |                                                                                   | via COM                        | via COM                        | •                                                                                  | •                              | •                              | •                              | •                                                                                   | •                          |
|                                                                                   |                                |                                                                                   |                                |                                | •                                                                                  | •                              | •                              | •                              | •                                                                                   | •                          |
| •                                                                                 | •                              |                                                                                   | • (E33)                        | • (E35)                        | •                                                                                  | •                              | •                              | •                              |                                                                                     |                            |
|                                                                                   | •                              |                                                                                   |                                |                                |                                                                                    |                                |                                | •                              |                                                                                     |                            |
|                                                                                   | •                              |                                                                                   | •                              |                                |                                                                                    | •                              |                                | •                              |                                                                                     | •                          |
| class 1                                                                           | class 1                        | class 1                                                                           | class 1                        | class 1                        | class 1                                                                            | class 1                        | class 1                        | class 1                        | class 1                                                                             | class 1                    |
| class 2                                                                           | class 2                        |                                                                                   |                                |                                | class 2                                                                            | class 2                        | class 2                        | class 2                        | class 2                                                                             | class 2                    |
| class B (E26)                                                                     | class B (E28)                  | class B (E32)                                                                     | class B (E34)                  | class B (E36)                  | class C (E42)                                                                      | class C (E44)                  | class C (E46)                  | class C (E48)                  |                                                                                     |                            |
| •                                                                                 | •                              | •                                                                                 | •                              | •                              | •                                                                                  | •                              | •                              | •                              |                                                                                     |                            |
| 100 Wh                                                                            | 100 Wh                         |                                                                                   |                                |                                | configurable                                                                       | configurable                   | configurable                   | configurable                   |                                                                                     |                            |
| • (E26)                                                                           | • (E28)                        | • (E32)                                                                           | • (E34)                        | • (E36)                        | • (E42)                                                                            | • (E44)                        | • (E46)                        | • (E48)                        |                                                                                     |                            |
|                                                                                   |                                | •                                                                                 | •                              | •                              |                                                                                    |                                |                                | •                              | •                                                                                   | •                          |



# COUNTIS E0x

Active energy meters

single-phase - direct 40 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS E04 - MID

## The solution for

- > Industry
- > Marinas
- > Shopping centers
- > Data center
- > Camping
- > EV Chargers



## Strong points

- > Compactness
- > Output (pulses)
- > MID certified B+D module
- > RS485 (MODBUS) and M-Bus communication
- > Multi-measurement
- > Bi-directional metering

## MID certification

- > COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.



## Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-23 class 2
- > IEC 62053-31
- > IEC 62052-11
- > EN 50470-1
- > EN 50470-3



## Function

The COUNTIS E0x is a modular energy meter displaying energies (kWh and kVAh) and other measurements directly on its backlit LCD display, allowing direct connection up to 40 A. COUNTIS E02, E04 and E06 are also MID-certified.

## Advantages

### Compactness

Only 1 module wide.

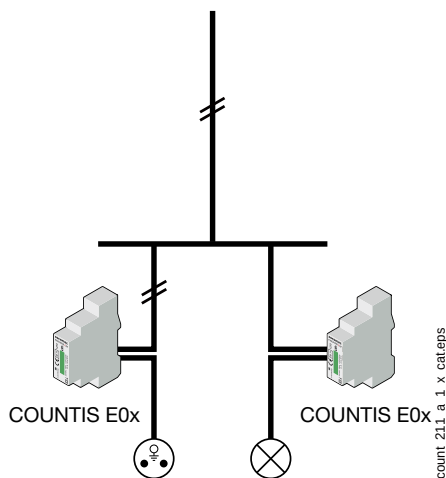
### Output (pulses)

The pulse output enables the kWh consumption to be reported to a remote system (PC/BMS) so that it can be analysed for billing, energy saving or energy cost management purposes.

### MID certified B+D module

COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

## Functional diagram



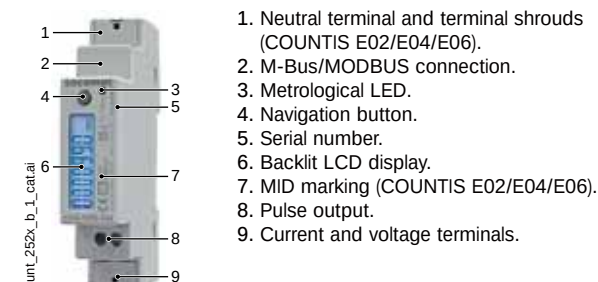
## Common characteristics

- Compact dimensions.
- Measurement accuracy: 1%.
- Displayed on backlit screen.
- Multi-measurement available on display.

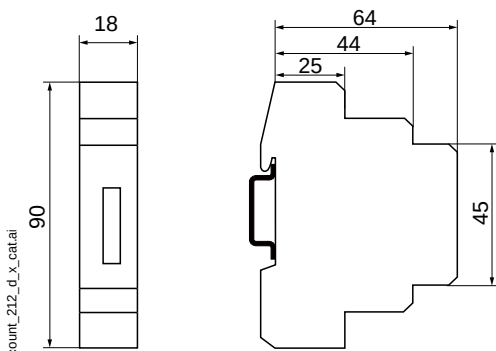
| Models | Model-related specifications                                  |
|--------|---------------------------------------------------------------|
| E00    | Pulse output                                                  |
| E02    | Pulse output + MID                                            |
| E03    | Dual tariff + Pulse output + RS485 MODBUS communication       |
| E04    | Dual tariff + Pulse output + RS485 MODBUS communication + MID |
| E05    | Dual tariff + Pulse output + M-Bus communication              |
| E06    | Dual tariff + Pulse output + M-Bus communication + MID        |



## Front panel



## Dimensions (mm)



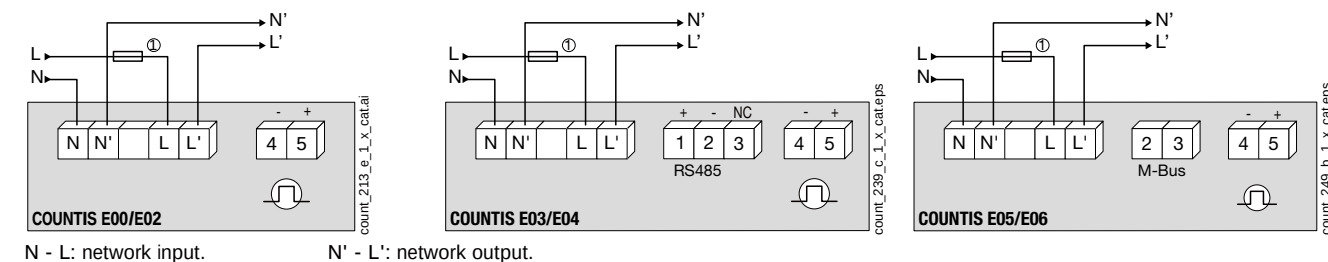
|                              |                                       |
|------------------------------|---------------------------------------|
| Type                         | modular                               |
| Number of modules            | 1                                     |
| Dimensions W x H x D         | 18 x 90 x 64 (mm)                     |
| Case degree of protection    | IP 20                                 |
| Front degree of protection   | IP 51 <sup>(1)</sup>                  |
| Display type                 | 7 digit LCD with backlighting         |
| Rigid cable cross-section    | 1.5 ... 6 mm <sup>2</sup>             |
| Flexible cable cross-section | 1.5 ... 6 mm <sup>2</sup>             |
| Weight                       | 100 g E03/E04<br>80 g E00/E02/E05/E06 |

(1) For the installation in a cabinet at least with IP51 protection.

## Electrical characteristics

| Current measurement (TRMS)            |                                                          |                     |
|---------------------------------------|----------------------------------------------------------|---------------------|
| Type                                  | single-phase - direct 40 A                               |                     |
| Input consumption                     | max 0.5 VA                                               |                     |
| Permanent overload                    | 40 A                                                     |                     |
| Intermittent overload                 | 30 I <sub>max</sub> over 10 ms                           |                     |
| Startup current (I <sub>st</sub> )    | 20 mA                                                    |                     |
| Minimum current (I <sub>min</sub> )   | 0.25 A                                                   |                     |
| Transition current (I <sub>tr</sub> ) | 0.5 A                                                    |                     |
| Reference current (I <sub>ref</sub> ) | 5 A                                                      |                     |
| Voltage measurements (TRMS)           |                                                          |                     |
| Range of measurement                  | 184 ... 276 VAC                                          |                     |
| Input consumption                     | Max. 1.5 VA for E00/E02/E03/E04<br>Max. 1 VA for E05/E06 |                     |
| Permanent overload                    | 280 VAC                                                  |                     |
| Energy accuracy                       |                                                          |                     |
| Active (according to IEC 62053-21)    | Class 1                                                  |                     |
| Active (according to EN 50470)        | Class B                                                  |                     |
| Reactive (according to IEC 62053-22)  | Class 2                                                  |                     |
| Power supply                          |                                                          |                     |
| Self-powered                          | yes                                                      |                     |
| Frequency                             | 50/60 Hz                                                 |                     |
| Output (pulses)                       |                                                          |                     |
| Number                                | 1                                                        |                     |
| Type of optocoupler                   | 27 VDC - 27 mA (IEC 62053-31)                            |                     |
| Fixed pulse weight                    | 100 Wh                                                   |                     |
| Pulse duration                        | 100 ms                                                   |                     |
| Operating conditions                  |                                                          |                     |
| Operating temperature                 | -25 ... +55°C                                            |                     |
| Storage temperature                   | -40 ... +75°C                                            |                     |
| Relative humidity                     | 80%                                                      |                     |
| Communication                         | COUNTIS E03/E04                                          | COUNTIS E05/E06     |
| Link                                  | RS485                                                    | Wired               |
| Type                                  | 2 ... 3 half duplex wires                                | 2 half duplex       |
| Protocol                              | MODBUS in RTU mode                                       | M-Bus               |
| Speed                                 | 2400 ... 38400 bauds                                     | 300, 2400, 9600 bps |

## Terminals and connections



## References

| Type                                                                | COUNTIS E00<br>Reference | COUNTIS E02<br>Reference | COUNTIS E03<br>Reference             | COUNTIS E04<br>Reference | COUNTIS E05<br>Reference | COUNTIS E06<br>Reference |
|---------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|--------------------------|--------------------------|--------------------------|
| Direct 40 A                                                         | 4850 3058                |                          |                                      |                          |                          |                          |
| Direct 40 A - MID                                                   |                          | 4850 3059                |                                      |                          |                          |                          |
| Direct 40 A - Dual tariff + RS485 MODBUS communication              |                          |                          | 4850 3039                            |                          |                          |                          |
| Direct 40 A - Dual tariff + RS485 MODBUS communication + MID        |                          |                          |                                      | 4850 3040                |                          |                          |
| Direct 40 A - Dual tariff + M-Bus communication                     |                          |                          |                                      |                          | 4850 3041                |                          |
| Direct 40 A - Dual tariff + M-Bus communication + MID               |                          |                          |                                      |                          |                          | 4850 3042                |
| <b>Accessories</b>                                                  |                          |                          | <b>To be ordered in multiples of</b> |                          | <b>Reference</b>         |                          |
| 10x 1U sealing kits                                                 |                          |                          |                                      |                          |                          | 4850 305U                |
| Fuse disconnect switches to protect 1-pole voltage inputs (RM type) |                          |                          |                                      | 6                        |                          | 5702 5001                |
| gG 14x51 40 A fuses                                                 |                          |                          |                                      | 10                       |                          | 6022 0040                |



# COUNTIS E1x

Active-energy meters

single-phase - direct 80 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS E14 - MID

## Function

The COUNTIS E1x is a modular energy meter displaying the energies (kWh, kVAh and kVA) and other measurements directly on its backlit LCD display. It is designed for single-phase load metering and is used for direct connections of up to 80 A.

## Advantages

RS485 (MODBUS), M-Bus communication, Ethernet or pulse outputs

To easily centralise your consumption, COUNTIS E1x devices have either one pulse output, one RS485 output (MODBUS), M-Bus or Ethernet Modbus TCP communication. With RS485 and Ethernet communication models, you can configure your meters remotely.

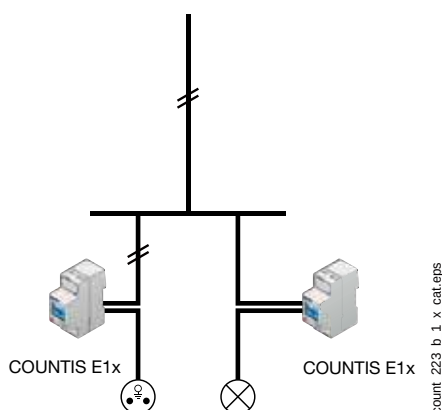
### Multi-tariff

Lets you assign different time slots (every hour, dip times) or different sources (normal, back-up) to your energy readings to monitor your energy consumption in more detail.

### MID certified B+D module

COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

## Functional diagram



## Common characteristics

- Measurement accuracy: 1%.
- Displayed on backlit screen.
- Multi-measurement available on display.
- Compact dimensions.

## The solution for

- > Marinas
- > Shopping centers
- > Data centers
- > Industry
- > EV Chargers
- > Camping



## Strong points

- > Compactness
- > Multi-measurement
- > Bi-directional metering
- > RS485 (MODBUS), M-Bus communication, Ethernet or pulse outputs
- > Multi-tariff
- > MID certified B+D module

## MID certification

- > COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.



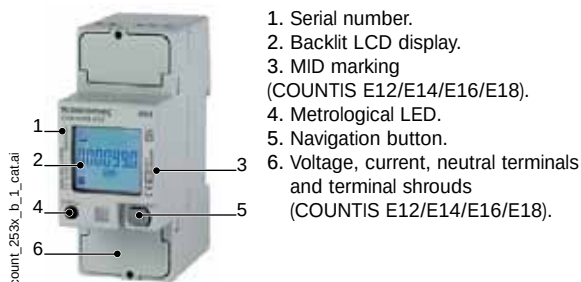
## Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-23 class 2
- > IEC 62053-31
- > IEC 62052-11
- > EN 50470-1
- > EN 50470-3

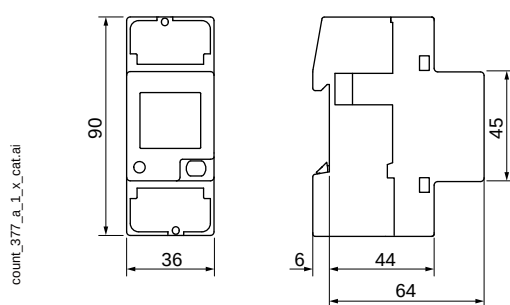


| Models | Model-related specifications                                  |
|--------|---------------------------------------------------------------|
| E11    | Dual tariff + pulse output                                    |
| E12    | Dual tariff + pulse output + MID                              |
| E13    | Dual tariff + pulse output + MODBUS RS485 communication       |
| E14    | Dual tariff + pulse output + MODBUS RS485 communication + MID |
| E15    | Dual tariff + pulse output + M-BUS communication              |
| E16    | Dual tariff+ pulse output + M-BUS communication + MID         |
| E17    | Dual tariff + Ethernet                                        |
| E18    | Dual tariff + Ethernet + MID                                  |

## Front panel



## Dimensions (mm)



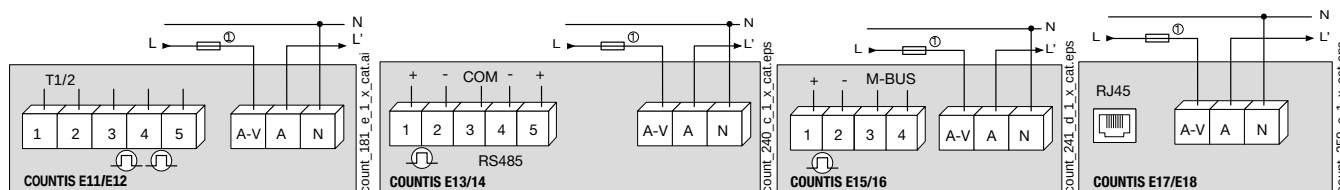
|                              |                                                |
|------------------------------|------------------------------------------------|
| Type                         | modular                                        |
| Number of modules            | 2                                              |
| Dimensions W x H x D         | 36 x 90 x 64 mm                                |
| Case degree of protection    | IP 20                                          |
| Front degree of protection   | IP 51 <sup>(1)</sup>                           |
| Display type                 | backlit LCD                                    |
| Rigid cable cross-section    | 1.5 ... 35 mm <sup>2</sup>                     |
| Flexible cable cross-section | 1.5 ... 35 mm <sup>2</sup>                     |
| Weight                       | 215 g E13/E14/E17/E18<br>205 g E11/E12/E15/E16 |

(1) For the installation in a cabinet at least with IP51 protection.

## Electrical characteristics

|                                      |                                                                     |
|--------------------------------------|---------------------------------------------------------------------|
| <b>Measurement of currents</b>       |                                                                     |
| Type                                 | single-phase - direct 80 A                                          |
| Input consumption                    | max. 0.5 VA                                                         |
| Startup current ( $I_{st}$ )         | 20 mA                                                               |
| Minimum current ( $I_{min}$ )        | 0.25 A                                                              |
| Transition current ( $I_{tr}$ )      | 0.5 A                                                               |
| Reference current ( $I_{ref}$ )      | 5 A                                                                 |
| Permanent overload ( $I_{max}$ )     | 80 A                                                                |
| Intermittent overload                | 30 $I_{max}$ over 10 ms                                             |
| <b>Voltage measurement</b>           |                                                                     |
| Range of measurement                 | 230 ... 240 V $\pm$ 20%                                             |
| Consumption (VA)                     | 3.5 VA max E13/E14/E17/E18<br>7.5 VA max E11/E12/E15/E16            |
| Permanent overload                   | 290 V phase-neutral                                                 |
| <b>Energy accuracy</b>               |                                                                     |
| Active (according to IEC 62053-21)   | Class 1                                                             |
| Active (according to EN 50470)       | Class B                                                             |
| Reactive (according to IEC 62053-22) | Class 2                                                             |
| <b>Power supply</b>                  |                                                                     |
| Self-powered                         | Yes                                                                 |
| Frequency                            | 50/60 Hz                                                            |
| <b>Output (pulses)</b>               |                                                                     |
| Optocoupler type (IEC 62053-31)      | 250 VAC/DC - 100 mA (E11/E12)<br>27 VDC - 27 mA (E13/E14/E15/E16)   |
| Number                               | 1                                                                   |
| Fixed pulse weight                   | 100 Wh                                                              |
| Pulse duration                       | 50 $\pm$ 2 ms ON time<br>30 $\pm$ 2 ms OFF time                     |
| <b>Operating conditions</b>          |                                                                     |
| Operating temperature                | -25 ... 55°C                                                        |
| Storage temperature                  | -25 ... 75°C                                                        |
| Relative humidity                    | 80%                                                                 |
| <b>Communication</b>                 |                                                                     |
|                                      | <b>COUNTIS E13/14</b> <b>COUNTIS E15/E16</b> <b>COUNTIS E17/E18</b> |
| Link                                 | RS485      Wired      RJ45                                          |
| Type                                 | 2 half duplex<br>2-3 half duplex (E13/E14)      Full duplex         |
| Protocol                             | MODBUS <sup>®</sup> RTU      M-BUS      MODBUS TCP, HTTP, NTP, DHCP |
| Baudrate                             | 1200 ... 115200 bauds      300 ... 9600 bauds      10/100 Mbps      |

## Connection



## References

| Type                                                                | COUNTIS E11 Reference | COUNTIS E12 Reference | COUNTIS E13 Reference                | COUNTIS E14 Reference | COUNTIS E15 Reference | COUNTIS E16 Reference | COUNTIS E17 Reference | COUNTIS E18 Reference |
|---------------------------------------------------------------------|-----------------------|-----------------------|--------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Direct 80 A - Dual tariff                                           | 4850 3060             |                       |                                      |                       |                       |                       |                       |                       |
| Direct 80 A - Dual tariff + MID                                     |                       | 4850 3061             |                                      |                       |                       |                       |                       |                       |
| Direct 80 A - Dual tariff + MODBUS communication via RS485          |                       |                       | 4850 3043                            |                       |                       |                       |                       |                       |
| Direct 80 A - Dual tariff + MODBUS communication via RS485 + MID    |                       |                       |                                      | 4850 3044             |                       |                       |                       |                       |
| Direct 80 A - Dual tariff + M-Bus communication                     |                       |                       |                                      |                       | 4850 3045             |                       |                       |                       |
| Direct 80 A - Dual tariff + M-Bus communication + MID               |                       |                       |                                      |                       |                       | 4850 3046             |                       |                       |
| Direct 80 A - Dual tariff + Ethernet Modbus TCP communication       |                       |                       |                                      |                       |                       |                       | 4850 3047             |                       |
| Direct 80 A - Dual tariff + Ethernet Modbus TCP communication + MID |                       |                       |                                      |                       |                       |                       |                       | 4850 3048             |
| <b>Accessories</b>                                                  |                       |                       | <b>To be ordered in multiples of</b> |                       |                       | <b>Reference</b>      |                       |                       |
| 10x 1U sealing kits                                                 |                       |                       |                                      | 6                     |                       |                       | 4850 305U             |                       |
| Fuse disconnect switches to protect 1-pole voltage inputs (RM type) |                       |                       |                                      | 10                    |                       |                       | 5702 5001             |                       |
| gG 22x58 80 A fuses                                                 |                       |                       |                                      |                       |                       |                       | 6022 0040             |                       |



# COUNTIS E2x

Active-energy meters

three-phase - direct 80 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS E24 - MID

## The solution for

- > Industry
- > Infrastructure
- > Data center
- > EV Chargers
- > Shopping centers



## Function

The COUNTIS E2x is a modular energy meter displaying the energies (kWh, kVAh and kVA) and other measurements directly on its backlit LCD display. It is designed for three-phase networks and allows a direct connection of up to 80 A.

## Advantages

RS485 (MODBUS), M-BUS, Ethernet communication or pulse outputs

To easily centralise your consumption, COUNTIS E2x devices have either one pulse output, one RS485 (MODBUS), M-BUS or an Ethernet Modbus TCP communication output. With RS485 and Ethernet communication models, you can configure your meters remotely.

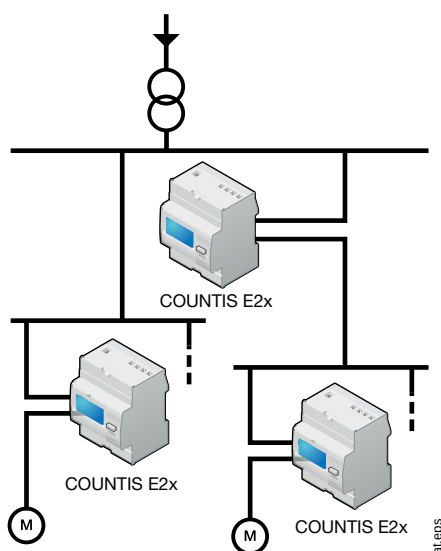
### Multi-tariff

Lets you assign different time slots (every hour, dip times) or different sources (normal, back-up) to your energy readings to monitor your energy consumption in more detail.

### MID certified B+D module

COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

## Functional diagram



count\_224\_a\_1\_x\_cat.eps

## Common characteristics

- Measurement accuracy: 1%.
- Displayed on backlit screen.
- Multi-measurement available on display.

## Strong points

- > RS485 (MODBUS), M-BUS, Ethernet or pulse outputs
- > Multi-tariff
- > MID certified B+D module
- > Multi-measurement on display
- > Bi-directional metering

## MID certification

- > COUNTIS E units comply with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.



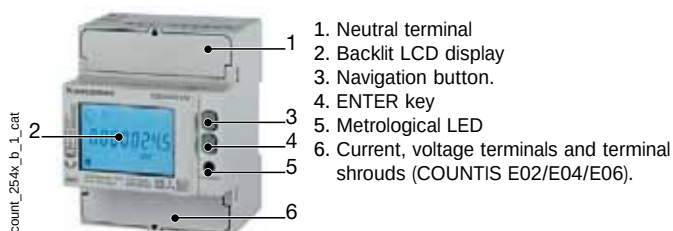
## Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-23 class 2
- > IEC 62053-31
- > IEC 62052-11
- > EN 50470-1
- > EN 50470-3

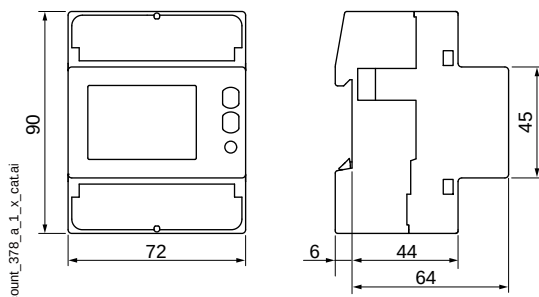


| Models | Model-related specifications                                  |
|--------|---------------------------------------------------------------|
| E21    | Dual tariff + pulse output                                    |
| E22    | Dual tariff + pulse output + MID                              |
| E23    | Dual tariff + pulse output + MODBUS RS485 communication       |
| E24    | Dual tariff + pulse output + MODBUS RS485 communication + MID |
| E25    | Dual tariff + pulse output + M-BUS communication              |
| E26    | Dual tariff+ pulse output + M-BUS communication + MID         |
| E27    | Dual tariff + pulse output + Ethernet                         |
| E28    | Dual tariff + pulse output + Ethernet + MID                   |

## Front panel



## Dimensions (mm)



|                              |                            |
|------------------------------|----------------------------|
| Type                         | modular                    |
| Number of modules            | 4                          |
| Dimensions W x H x D         | 72 x 90 x 64 mm            |
| Case degree of protection    | IP 20                      |
| Front degree of protection   | IP 51 <sup>(1)</sup>       |
| Display type                 | 8-digit backlit LCD        |
| Rigid cable cross-section    | 1.5 ... 35 mm <sup>2</sup> |
| Flexible cable cross-section | 1.5 ... 35 mm <sup>2</sup> |
| Weight                       | 440 g                      |

(1) For the installation in a cabinet at least with IP51 protection.

## Electrical characteristics

### Measurement of currents

|                                  |                           |
|----------------------------------|---------------------------|
| Type                             | three-phase - direct 80 A |
| Input consumption                | 0.5 VA max. per phase     |
| Startup current ( $I_{st}$ )     | 20 mA                     |
| Minimum current ( $I_{min}$ )    | 0.25 A                    |
| Transition current ( $I_{tr}$ )  | 0.5 A                     |
| Reference current ( $I_{ref}$ )  | 5 A                       |
| Permanent overload ( $I_{max}$ ) | 80 A                      |
| Intermittent overload            | 30 $I_{max}$ over 10 ms   |

### Voltage measurement

|                      |                                                                                            |
|----------------------|--------------------------------------------------------------------------------------------|
| Range of measurement | 230 ... 240 V $\pm 20\%$                                                                   |
| Consumption (VA)     | 7.5 VA max (0.5 W) per phase E21/E22/E25/E26<br>3.5 VA max (1 W) per phase E23/E24/E27/E28 |
| Permanent overload   | 290 V phase-neutral / 500 V phase-phase                                                    |

### Energy accuracy

|                                      |         |
|--------------------------------------|---------|
| Active (according to IEC 62053-21)   | Class 1 |
| Active (according to EN 50470)       | Class B |
| Reactive (according to IEC 62053-22) | Class 2 |

### Power supply

|              |          |
|--------------|----------|
| Self-powered | Yes      |
| Frequency    | 50/60 Hz |

### Output (pulses)

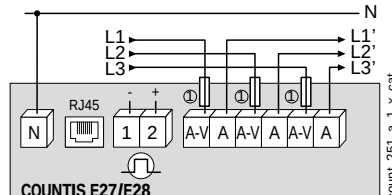
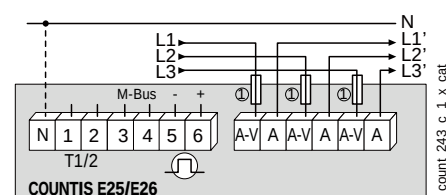
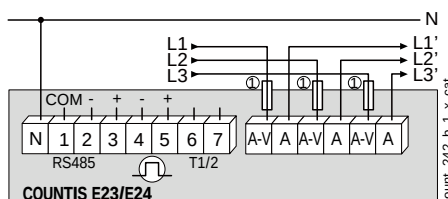
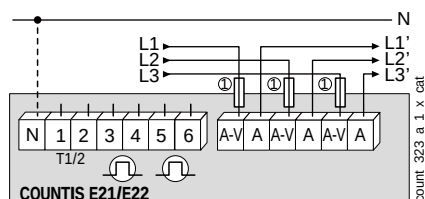
|                                  |                                                               |
|----------------------------------|---------------------------------------------------------------|
| Optoisolated type (IEC 62053-31) | 250 VAC/DC - 100 mA (E21/E22)<br>27 VDC - 27 mA (E23 ... E28) |
| Number                           | 2 (E21/E22)<br>1 (E23 ... E28)                                |
| Fixed pulse weight               | 100 Wh                                                        |
| Pulse duration                   | 50 $\pm$ 2 ms ON time<br>30 $\pm$ 2 ms OFF time               |

### Operating conditions

|                       |              |
|-----------------------|--------------|
| Operating temperature | -25 ... 55°C |
| Storage temperature   | -25 ... 75°C |
| Relative humidity     | 80%          |

| Communication | COUNTIS E23/E24                               | COUNTIS E25/E26    | COUNTIS E27/E28                |
|---------------|-----------------------------------------------|--------------------|--------------------------------|
| Link          | RS485                                         | Wired              | RJ45                           |
| Type          | 2 half duplex<br>2 to 3 half duplex (E23/E24) |                    | Full duplex                    |
| Protocol      | MODBUS RTU                                    | M-BUS              | MODBUS TCP,<br>HTTP, NTP, DHCP |
| Baudrate      | 1200 ... 115200 bauds                         | 300 ... 9600 bauds | 10/100 Mbps                    |

## Connection



**WARNING:** The neutral conductor must be connected on models COUNTIS E23 / E24 / E27 / E28 (the neutral conductor is represented by the solid line in the image opposite).

The neutral conductor is optional on models COUNTIS E21 / E22 / E25 / E26 (the neutral conductor is represented by the dashed line in the image opposite).

## References

| Type                                                                | COUNTIS E21<br>Reference      | COUNTIS E22<br>Reference | COUNTIS E23<br>Reference | COUNTIS E24<br>Reference | COUNTIS E25<br>Reference | COUNTIS E26<br>Reference | COUNTIS E27<br>Reference | COUNTIS E28<br>Reference |
|---------------------------------------------------------------------|-------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Direct 80 A - Dual tariff                                           | 4850 3062                     |                          |                          |                          |                          |                          |                          |                          |
| Direct 80 A - Dual tariff + MID                                     |                               | 4850 3049                |                          |                          |                          |                          |                          |                          |
| Direct 80 A - Dual tariff + MODBUS communication via RS485          |                               |                          | 4850 3050                |                          |                          |                          |                          |                          |
| Direct 80 A - Dual tariff + MODBUS communication via RS485 + MID    |                               |                          |                          | 4850 3051                |                          |                          |                          |                          |
| Direct 80 A - Dual tariff + M-Bus communication                     |                               |                          |                          |                          | 4850 3052                |                          |                          |                          |
| Direct 80 A - Dual tariff + M-Bus communication + MID               |                               |                          |                          |                          |                          | 4850 3053                |                          |                          |
| Direct 80 A - Dual tariff + Ethernet Modbus TCP communication       |                               |                          |                          |                          |                          |                          | 4850 3054                |                          |
| Direct 80 A - Dual tariff + Ethernet Modbus TCP + MID               |                               |                          |                          |                          |                          |                          |                          | 4850 3055                |
| Accessories                                                         | To be ordered in multiples of |                          |                          |                          |                          |                          | Reference                |                          |
| Panel mounting kit 4 modules                                        |                               |                          |                          |                          |                          |                          | 192J 8015                |                          |
| 10x 1U sealing kits                                                 |                               |                          |                          |                          |                          |                          | 4850 309U                |                          |
| Fuse disconnect switches to protect 3-pole voltage inputs (RM type) | 2                             |                          |                          |                          |                          |                          | 5703 5003                |                          |
| gG 22x58 80 A fuses                                                 | 10                            |                          |                          |                          |                          |                          | 6032 0080                |                          |





# COUNTIS E3x

## Active energy meters

three-phase - direct 100 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS E32 - MID

### Function

The COUNTIS E3x is a modular energy meter displaying the energy and power consumed (kWh and kW) directly on its backlit LCD display. It is designed for three-phase load metering and is used for direct connections of up to 100 A.

COUNTIS E32, E34 and E36 are MID certified.

### Common characteristics

- Measurement accuracy: 1 %
- Backlit LCD display.
- Detects connection errors.

### Advantages

RS485 communication (MODBUS or M-BUS) or pulse output

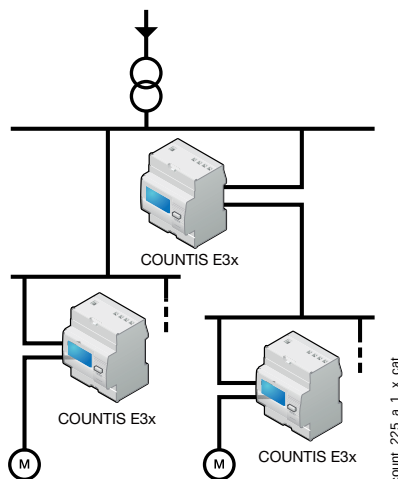
To enable the remote reporting of energy consumption, COUNTIS E3x are provided with either a pulse output or an RS485 communication output, with MODBUS or M-BUS protocol.

In addition to their reporting functions, COUNTIS E3x with RS485 can be configured remotely and enable access to multi-measurement values.

#### Detection of connection errors

The product is protected against phase/neutral inversion and detects wiring errors. This simplifies the installation and commissioning, thereby reducing associated costs, and ensures that the device operates correctly.

### Principle diagram



#### MID certified B+D module

COUNTIS E products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

#### Bi-directional metering (available only on the E33 and E35)

This function is for metering energy production or energy consumption.

#### Multi-measurement and load curve

Display of electrical values (I, U, V, P, Q, S, PF) and load curve over a 7 day period via communication.

### The solution for

- > Industry
- > Infrastructure
- > Data centre



### Strong points

- > RS485 communication (MODBUS or M-BUS) or pulse output
- > Detection of connection errors
- > MID certified B+D module
- > Bi-directional metering
- > Multi-measurement and load curve

### MID certification

- > COUNTIS E comply with the MID directive, guaranteeing accuracy and reliability when metering, an indispensable function for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.



### Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-31
- > IEC 62053-11
- > EN 50470-1
- > EN 50470-3



| Models | Key characteristics                             |
|--------|-------------------------------------------------|
| E30    | Pulse output                                    |
| E31    | Dual tariff (2 partial counters) + Pulse output |
| E32    | Dual tariff + MID + Pulse output                |
| E33    | Dual tariff + RS485 MODBUS communication        |
| E34    | Dual tariff + RS485 MODBUS communication + MID  |
| E35    | Dual tariff + M-BUS communication               |
| E36    | Dual tariff + M-BUS communication + MID         |

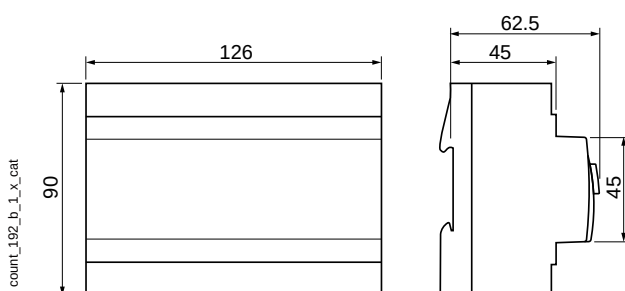


## Front panel



1. Terminal shrouds (COUNTIS E32, E34 and E36).
2. Backlit LCD display.
3. MID marking (COUNTIS E32, E34 and E36).
4. Serial number (COUNTIS E32, E34 and E36).
5. Navigation key.
6. Reset key.
7. Metrological LED.

## Dimensions (mm)



|                              |                            |
|------------------------------|----------------------------|
| Type                         | modular                    |
| Number of modules            | 7                          |
| Dimensions W x H x D         | 126 x 90 x 62.5 mm         |
| Case degree of protection    | IP20                       |
| Front degree of protection   | IP51                       |
| Display type                 | backlit LCD display        |
| Rigid cable cross-section    | 2.5 ... 35 mm <sup>2</sup> |
| Flexible cable cross-section | 2.5 ... 35 mm <sup>2</sup> |
| Weight                       | 490 g                      |

## Electrical characteristics

### Current measurement

|                                  |                            |
|----------------------------------|----------------------------|
| Type                             | three-phase - direct 100 A |
| Input consumption                | 0.5 VA max. per phase      |
| Startup current ( $I_{st}$ )     | 80 mA                      |
| Minimum current ( $I_{min}$ )    | 0.5 A <sup>(1)</sup>       |
| Transition current ( $I_t$ )     | 2 A <sup>(2)</sup>         |
| Reference current ( $I_{ref}$ )  | 20 A <sup>(3)</sup>        |
| Permanent overload ( $I_{max}$ ) | 100 A                      |
| Intermittent overload            | 3000 A max for 10 ms       |

### Voltage measurement

|                      |                                         |
|----------------------|-----------------------------------------|
| Range of measurement | 230 ... 400 V $\pm$ 20 %                |
| Consumption (VA)     | 2                                       |
| Permanent overload   | 280 V phase-neutral / 480 V phase-phase |

### Energy accuracy

|                                    |         |
|------------------------------------|---------|
| Active (according to IEC 62053-21) | Class 1 |
| Active (according to EN 50470)     | Class B |

### Power supply

|               |            |
|---------------|------------|
| Self-supplied | yes        |
| Frequency     | 50 / 60 Hz |

### Output (pulsed) (COUNTIS E30/E31/E32)

|                     |                                      |
|---------------------|--------------------------------------|
| Number              | 1                                    |
| Type of optocoupler | IEC 62053-31 class A (20 ... 30 VDC) |
| Fixed pulse weight  | 100 Wh                               |
| Pulse duration      | 100 ms                               |

### Operating conditions

|                       |               |
|-----------------------|---------------|
| Operating temperature | -10 ... 55 °C |
| Storage temperature   | -20 ... 70 °C |
| Relative humidity     | 85 %          |

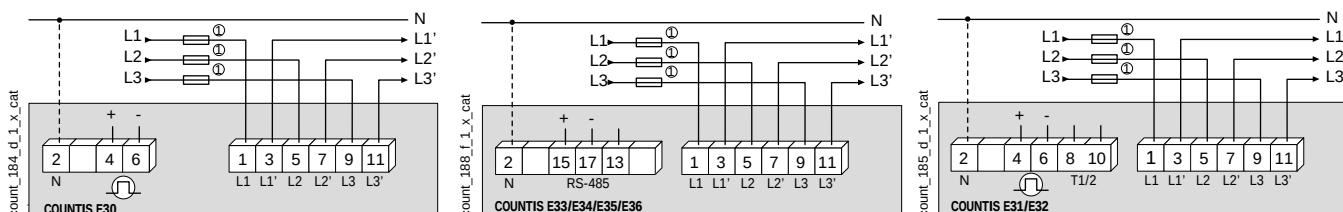
| Communication | COUNTIS E33/34        | COUNTIS E35/E36     |
|---------------|-----------------------|---------------------|
| Link          | RS485                 | Connection          |
| Type          | 2 half duplex wires   | 2 half duplex wires |
| Protocol      | MODBUS RTU            | M-BUS               |
| Speed         | 4800 ... 38 400 bauds | 300 ... 9600 bauds  |

(1)  $I_{min} \leq 0.5 \cdot I_{tr}$

(2) The accuracy class is guaranteed between  $I_{tr}$  and  $I_{max}$ .

(3)  $I_{ref} = I_{tr}$  (base current) =  $10 \cdot I_{tr}$  for direct connection COUNTIS.

## Connection



1. 100 A gG / Am fuses max.

ATTENTION: The neutral conductor is optional on models COUNTIS E3x (the neutral conductor is represented by the dashed line in the image opposite).

## References

| Type                                                                             | COUNTIS E30 Reference | COUNTIS E31 Reference | COUNTIS E32 Reference | COUNTIS E33 Reference | COUNTIS E34 Reference | COUNTIS E35 Reference | COUNTIS E36 Reference |
|----------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 100 A direct                                                                     | 4850 3005             |                       |                       |                       |                       |                       |                       |
| 100 A direct - Dual tariff                                                       |                       | 4850 3006             |                       |                       |                       |                       |                       |
| 100 A direct - Dual tariff + MID                                                 |                       |                       | 4850 3007             |                       |                       |                       |                       |
| 100 A direct - Dual tariff + MODBUS communication via RS485 <sup>(1)</sup>       |                       |                       |                       | 4850 3012             |                       |                       |                       |
| 100 A direct - Dual tariff + MODBUS communication via RS485 + MID <sup>(1)</sup> |                       |                       |                       |                       | 4850 3013             |                       |                       |
| 100 A direct - Dual tariff + M-Bus communication <sup>(1)</sup>                  |                       |                       |                       |                       |                       | 4850 3025             |                       |
| 100 A direct - Dual tariff + M-Bus communication + MID <sup>(1)</sup>            |                       |                       |                       |                       |                       |                       | 4850 3026             |

(1) 4 tariffs through RS485 communication.

| Accessories                                                         | To be ordered in multiples of | Reference |
|---------------------------------------------------------------------|-------------------------------|-----------|
| 10x 4U sealing kits                                                 |                               | 4850 307U |
| Fuse disconnect switches to protect 3-pole voltage inputs (RM type) | 2                             | 5703 5003 |
| gG 22x58 100 A fuses                                                | 10                            | 6032 0100 |



# COUNTIS E4x

## Active energy meters

three-phase - connection to current transformers up to 12000 A



COUNTIS E44 - MID

### The solution for

- > Industry
- > Infrastructure
- > Data centre
- > EV Chargers



### Strong points

- > RS485 (MODBUS), M-BUS, Ethernet or pulse outputs
- > Multi-tariff
- > MID certified B+D module
- > Bi-directional metering
- > Multi-measurement and load curve

### MID certification

- > COUNTIS E comply with the MID directive, guaranteeing accuracy and reliability when metering, an indispensable function for energy billing applications.
- > COUNTIS E MID feature tamper-proof components to prevent fraud.



### Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-23 class 2
- > IEC 62053-31
- > IEC 62053-11
- > EN 50470-1
- > EN 50470-3



### Associated with current transformers



See "Current transformers".

### Function

The COUNTIS E4x is a modular electrical energy meter displaying the energies (kWh, kVAh and kVA) and other measurements directly on its backlit LCD display. It is designed for three-phase load metering with connection via CT and is suitable for applications of up to 12000 A.

COUNTIS E42, E44, E46 and E48 are MID certified.

### Common characteristics

- Measurement accuracy: 1 % / 0,5%(MID).
- Backlit LCD display.
- Multi-measurement available on display.

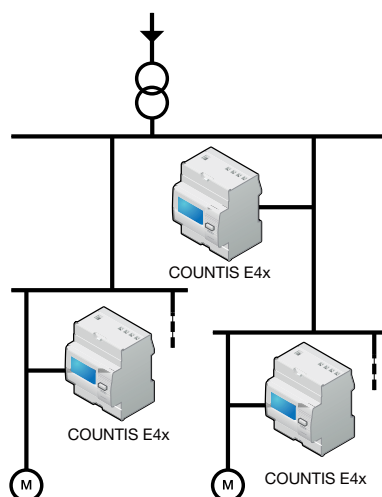
### Advantages

RS485 (MODBUS), M-BUS, Ethernet communication or pulse outputs

To enable the remote reporting of energy consumption, COUNTIS E4x devices have either one pulse output, one RS485 (MODBUS), M-BUS or an Ethernet Modbus TCP communication output.

In addition to their reporting functions, COUNTIS E4x with RS485 and Ethernet can be configured remotely and enable access to multi-measurement values.

### Principle diagram



### MID certified B+D module

COUNTIS E products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

### Bi-directional metering

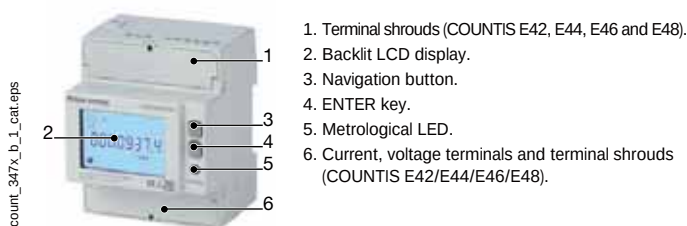
This function is for metering energy production or energy consumption.

### Multi-measurement and load curve

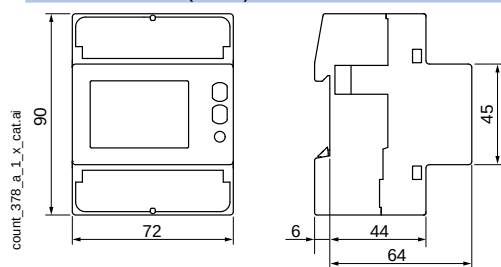
Display of electrical values (I, U, V, P, Q, S, PF) and load curve over a 3 day period via communication.

| Models | Key functions                                               |
|--------|-------------------------------------------------------------|
| E41    | Dual tariff + Pulse output                                  |
| E42    | Dual tariff + Pulse output + MID                            |
| E43    | 4 tariffs + Pulse output + RS485 MODBUS communication       |
| E44    | 4 tariffs + Pulse output + RS485 MODBUS communication + MID |
| E45    | 4 tariffs + Pulse output + M-BUS communication              |
| E46    | 4 tariffs + Pulse output + M-BUS communication + MID        |
| E47    | 4 tariffs + Pulse output + Ethernet                         |
| E48    | 4 tariffs + Pulse output + Ethernet + MID                   |

## Front panel



## Dimensions (mm)

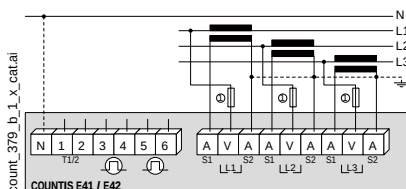


|                              |                           |
|------------------------------|---------------------------|
| Type                         | modular                   |
| Number of modules            | 4                         |
| Dimensions W x H x D         | 72 x 90 x 64 mm           |
| Case degree of protection    | IP20                      |
| Front degree of protection   | IP51                      |
| Display type                 | 8-digit backlit LCD       |
| Rigid cable cross-section    | 1.5 ... 6 mm <sup>2</sup> |
| Flexible cable cross-section | 1.5 ... 6 mm <sup>2</sup> |
| Weight                       | 322 g                     |

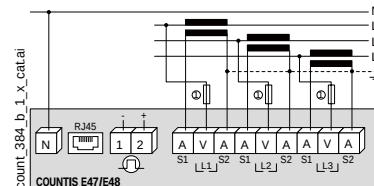
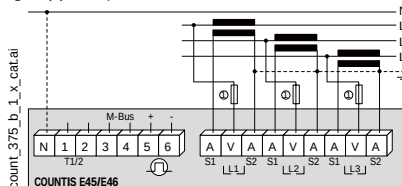
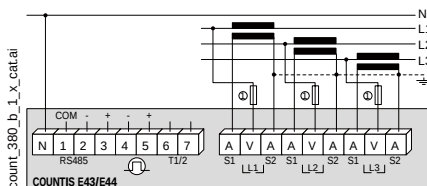
## Connection

### Recommendation:

- Connecting the CT secondaries is strictly prohibited in IT earthing systems; it is however optional in TT/TN earthing arrangements.
- When disconnecting the COUNTIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.



**WARNING:** The neutral conductor must be connected on models COUNTIS E43/E44/E47/E48 (the neutral conductor is represented by the solid line in the image opposite). The neutral conductor is optional on models COUNTIS E21/E22/E25/E26 (the neutral conductor is represented by the dashed line in the image opposite).



1. Fuses 0.5 A gG / 0.5 A class CC.

## References

| Type                                                                          | COUNTIS E41 Reference | COUNTIS E42 Reference | COUNTIS E43 Reference | COUNTIS E44 Reference | COUNTIS E45 Reference | COUNTIS E46 Reference | COUNTIS E47 Reference | COUNTIS E48 Reference |
|-------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Via CT - Dual tariff                                                          | 4850 3063             |                       |                       |                       |                       |                       |                       |                       |
| Via CT - Dual tariff + MID                                                    |                       | 4850 3064             |                       |                       |                       |                       |                       |                       |
| Via CT - Dual tariff + MODBUS communication via RS485 <sup>(1)</sup>          |                       |                       | 4850 3065             |                       |                       |                       |                       |                       |
| Via CT - Dual tariff + MODBUS communication via RS485 + MID <sup>(1)</sup>    |                       |                       |                       | 4850 3066             |                       |                       |                       |                       |
| Via CT - Dual tariff + M-Bus communication <sup>(1)</sup>                     |                       |                       |                       |                       | 4850 3067             |                       |                       |                       |
| Via CT - Dual tariff + M-Bus communication + MID <sup>(1)</sup>               |                       |                       |                       |                       |                       | 4850 3068             |                       |                       |
| Via CT - Dual tariff + Ethernet Modbus TCP communication <sup>(1)</sup>       |                       |                       |                       |                       |                       |                       | 4850 3056             |                       |
| Via CT - Dual tariff + Ethernet Modbus TCP communication + MID <sup>(1)</sup> |                       |                       |                       |                       |                       |                       |                       | 4850 3057             |

(1) 4 tariffs through RS485 communication.

| Accessories                                                         | To be ordered in multiples of | Reference |
|---------------------------------------------------------------------|-------------------------------|-----------|
| Panel mounting kit 4 modules                                        |                               | 192J 8015 |
| 10x 4U sealing kits                                                 |                               | 4850 309U |
| Fuse disconnect switches to protect 3-pole voltage inputs (RM type) | 2                             | 5701 0018 |
| gG 10x38 0,5 A fuses                                                | 10                            | 6012 0000 |



# COUNTIS *ECix*

## multifluid pulse concentrator

Single-circuit metering,  
measurement &  
analysis



COUNTIS ECi3

### The solution for

- > Data centres
- > Industry
- > Infrastructure



### Strong points

- > Up to 7 multifluid meters and 2 analogue sensors
- > Load curves
- > RS485 MODBUS communication
- > Improved customisation

### Management software

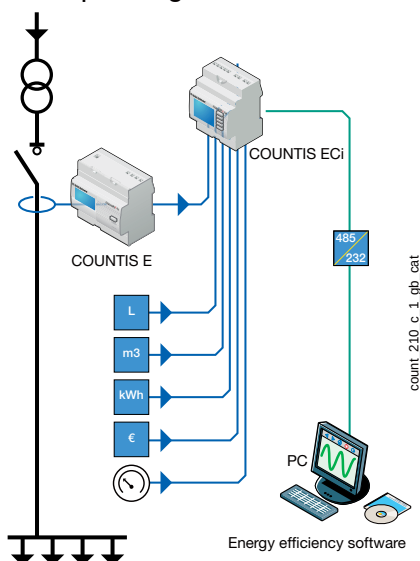
- > To get the most effective use from your Socomec measurement and metering devices, we offer a range of dedicated software tools.

### Function

The COUNTIS ECix is a multifluid pulse concentrator which communicates via an RS485 link using MODBUS protocol.

It enables pulses from water, gas, compressed air, electricity meters and, for the COUNTIS ECi3, the output of analogue sensors (light, temperature, wind etc.) to be registered and stored. All data, ie. total and partial meters and load curves (available for all logical and analogue inputs) can be centralised via RS485 communication using MODBUS protocol.

### Principle diagram



### Advantages

Up to 7 multifluid meters and 2 analogue sensors

- 7 digital inputs + 2 analogue inputs.
- Total, partial and programmable metering (day, week, month, year).

#### Load curves

Load curves are available for each of the 7 logical inputs.

A history of average values are available for the 2 analogue inputs (ECi3).

#### RS485 MODBUS communication

- Centralisation and transmission of pulse and analogue data to a supervision station.
- Remote configuration of COUNTIS ECi device.

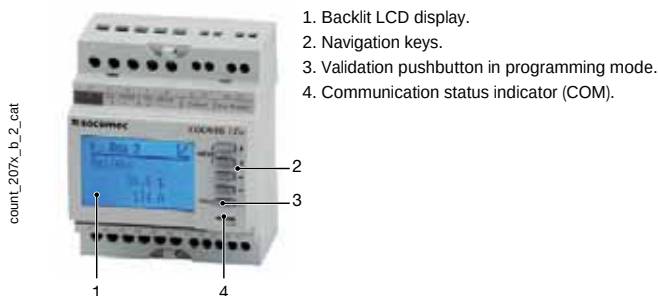
#### Improved customisation

- Selection of the measuring unit: kWh, m<sup>3</sup>, liters.
- Selection of the currency unit: €, K€, £, \$.

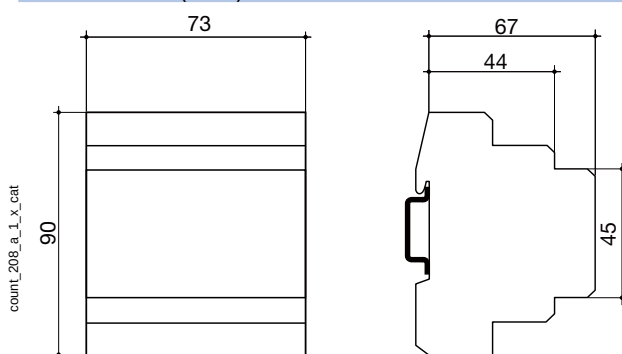
Values can be displayed in the unit of your choice and energy costs can be directly calculated.

| Models | Key characteristics                     |
|--------|-----------------------------------------|
| ECi2   | 7 insulated inputs                      |
| ECi3   | 7 insulated inputs + 2 analogue inputs. |

## Front panel



## Dimensions (mm)



|                              |                           |
|------------------------------|---------------------------|
| Type                         | modular                   |
| Number of modules            | 4                         |
| Dimensions W x H x D         | 73 x 90 x 67 mm           |
| Case degree of protection    | IP20                      |
| Front degree of protection   | IP51                      |
| Display type                 | backlit LCD display       |
| Terminal blocks type         | fixed                     |
| Rigid cable cross-section    | 1 ... 10 mm <sup>2</sup>  |
| Flexible cable cross-section | 0.5 ... 6 mm <sup>2</sup> |
| Weight                       | 215 g                     |

## Characteristics

### Auxiliary power supply

|                     |               |
|---------------------|---------------|
| Self-supplied       | no            |
| Alternating voltage | 110 / 400 VAC |
| Direct voltage      | 120 / 300 VDC |
| Tolerance           | ± 10 %        |
| Frequency           | 45 / 65 Hz    |
| Consumption         | 5 VA          |
| Insulation voltage  | 3.5 kV        |

### Communication

|               |                           |
|---------------|---------------------------|
| Link          | RS485                     |
| Type          | 2 ... 3 half duplex wires |
| Protocol      | MODBUS RTU                |
| MODBUS® speed | 9600 ... 38400 bauds      |

### Inputs

|                                   |             |
|-----------------------------------|-------------|
| Number                            | 7           |
| Control voltage (integrated)      | 10...30 VDC |
| Minimum signal width              | 10 ms       |
| Maximum signal width              | 2 s         |
| Minimum duration between 2 pulses | 30 ms       |
| Edge triggering                   | rising      |

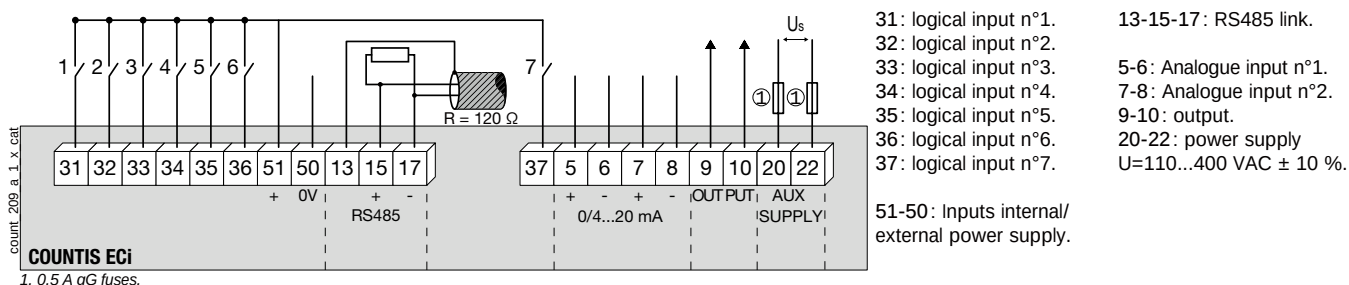
### Analogue inputs (ECi3)

|                  |        |
|------------------|--------|
| Number           | 2      |
| Current          | 25 mA  |
| Accuracy         | 0.5 %  |
| Response time    | 500 ms |
| Input resistance | 200 Ω  |
| Consumption      | 0.1 VA |

### Operating conditions

|                       |                |
|-----------------------|----------------|
| Operating temperature | -10 ... +55 °C |
| Storage temperature   | -20 ... +70 °C |
| Relative humidity     | 95 %           |

## Connection



## References

| Auxiliary power supply U <sub>s</sub>                                                     | COUNTIS ECi2<br>Reference     | COUNTIS ECi3<br>Reference |
|-------------------------------------------------------------------------------------------|-------------------------------|---------------------------|
| 230 / 400 VAC                                                                             | 4853 0000                     |                           |
| 230 / 400 VAC + 2 analogue inputs                                                         |                               | 4853 0001                 |
| Description of accessories                                                                | Reference                     | Reference                 |
| Panel mounting kit                                                                        | 192J 8015                     | 192J 8015                 |
| Accessories                                                                               | To be ordered in multiples of | Reference                 |
| Door mounting kit                                                                         |                               | 192J 8015                 |
| Fuse disconnect switches to protect the 1-pole + neutral auxiliary power supply (RM type) | 6                             | 5701 0017                 |
| gG 10x38 0.5 A fuses                                                                      | 10                            | 6012 0000                 |





# COUNTIS M03

Energy meters

single-phase - direct 100 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS M03

## The solution for

- > Colleges and universities
- > Infrastructures
- > Data centers
- > Shopping centers



## Strong points

- > Compact
- > RS485 communication (MODBUS)

## Conformity to standards

- > IEC 62052-11
- > IEC 62053-21
- > IEC 62053-23



## Overview

The SOCOMEC COUNTIS M03 Meter is an energy meter designed for single-phase metering and direct connection to 45 A.

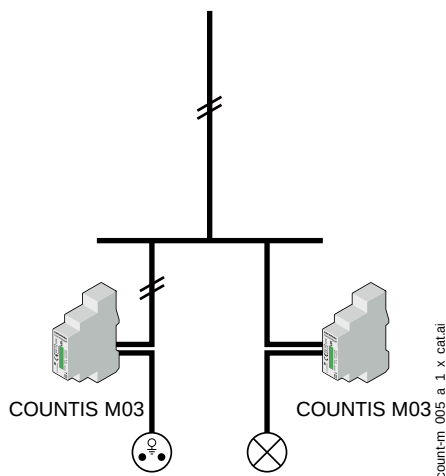
With multifunction monitoring and compact size in one module, it supports RS485 communication and is suited to domestic and commercial power distribution systems.

## Function

The COUNTIS M03 is a modular electrical energy meter which can display active energy (kWh) and other data on an LCD screen.

The meter is intended to record single-phase load energy, with direct connection to 45 A.

## Functional diagram



## Advantages

- Compact size, one module.
- RS485 communication (MODBUS).
- Energy values can be remotely transmitted via the communication output to a (PC/ BMS/etc.) system for billing analysis, energy saving or energy cost management.

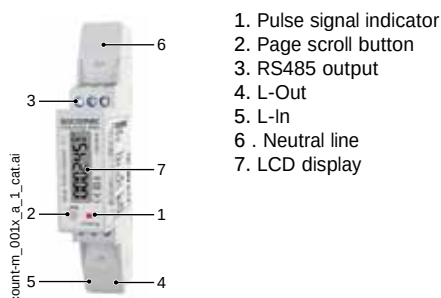
## General Characteristics

- Compact design
- Measurement accuracy: 1 %
- LCD display

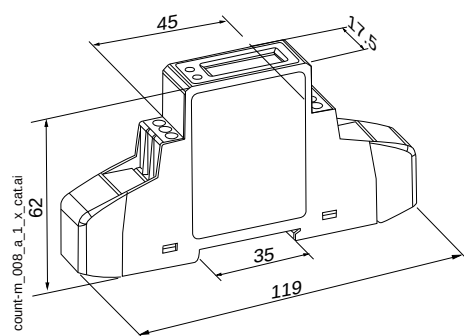
| Model | Key functions                                |
|-------|----------------------------------------------|
| M03   | MODBUS RS485 communication + 2 pulses output |



## Front panel

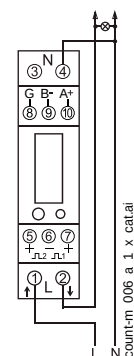


## Dimensions (mm)



|                              |                            |
|------------------------------|----------------------------|
| Type                         | modular                    |
| Number of modules            | 1                          |
| Dimensions W x H x D         | 17.5 x 119 x 62 mm         |
| Case degree of protection    | IP 20                      |
| Front degree of protection   | IP 51                      |
| Display type                 | LCD Backlight              |
| Rigid cable cross-section    | 2.5 ... 10 mm <sup>2</sup> |
| Flexible cable cross-section | 2.5 ... 10 mm <sup>2</sup> |
| Weight                       | 100 g                      |

## Connections



## Electrical characteristics

| Communication |                                |
|---------------|--------------------------------|
| Interface     | RS485                          |
| Type          | 2 wires or 3 half duplex wires |
| Protocol      | DBUS® RTU                      |
| MODBUS speed  | 1200/2400/4800/9600 bps        |

## Features and technical parameters

### Features

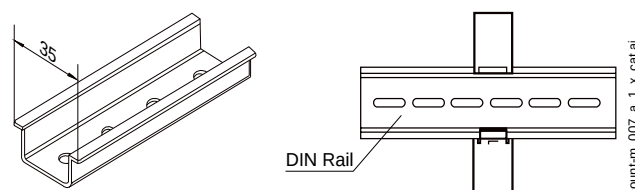
- The meter can calculate the current and active power demand and the maximum demand value
- Standard DIN-RAIL mounting (conforms to German industry standard)
- Direct connection up to 45 A current, only 18 mm wide
- RS485 communication supported, protocol: Modbus-RTU
- White backlit LCD screen may be read easily even in low light
- Multi-parameter monitoring: I, V, P, Q, S and P F, etc.
- 2 channels of pulse output (the first can be set)
- Protection rating: IP51 (Interior energy meters)

### Technical parameters

| Item                  | Specification             |
|-----------------------|---------------------------|
| Standard              | IEC62052-11 - IEC62053-21 |
| Rated voltage         | 230 V ±20%                |
| Rated current         | 10 (100) A                |
| Pulse constant        | 1: Adjustable; 2: 1Wh/imp |
| Frequency             | 50 / 60 Hz                |
| Accuracy rating       | 1.0                       |
| Display               | LCD 6+1 = 999999 kW       |
| Operating temperature | -25 ... +55 °C            |
| Power consumption     | ≤ 2W/10VA                 |
| Average humidity      | ≤ 90 %                    |
| Maximum humidity      | ≤ 95 %                    |
| Startup current       | 0.004 Ib                  |
| Installation Category | CAT II                    |
| Class of pollution    | 2                         |

## Mounting instructions

- Select a 35 mm standard rail (length as required), and secure to the chosen position for mounting.
- Push the clips down one tooth
- Fit the meter into the rail, then push the clips up a tooth to mount the meter onto the rail.
- Connect as shown in the wiring diagram.
- After connecting, seal the wiring cover with lead seals.



## References

| Type                                               | COUNTIS M03 Reference |
|----------------------------------------------------|-----------------------|
| 100 A direct - with MODBUS communication via RS485 | 48C0 3018             |



# COUNTIS M13

Energy meters

single-phase - direct 100 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS M13

## The solution for

- > High Rise Building
- > Infrastructure
- > Data centers
- > Shopping centers



## Strong points

- > Compact
- > RS485 communication (MODBUS)

## Conformity to standards

- > IEC 62052-11
- > IEC 62053-21
- > IEC 62053-23



## Overview

The SOCOMEC COUNTIS M13 Meter is an energy meter designed for single-phase metering and direct connection to 45 A.

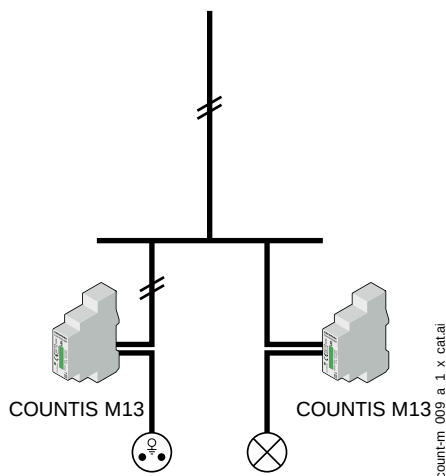
With multifunction monitoring and compact size in one module, it supports RS485 communication and is suited to domestic and commercial power distribution systems.

## Function

The COUNTIS M13 is a modular electrical energy meter which can display active energy (kWh) and other data on an LCD screen.

The meter is intended to record single-phase load energy, with direct connection to 100 A.

## Functional diagram



## Advantages

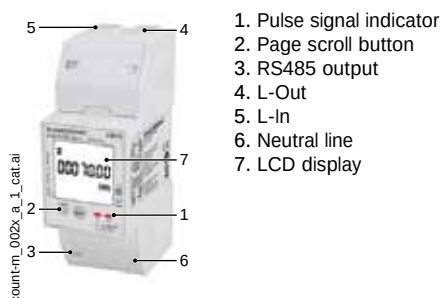
- Compact size, one module.
- RS485 communication (MODBUS).
- Energy values can be remotely transmitted via the communication output to a (PC/ BMS/etc.) system for billing analysis, energy saving or energy cost management.

## General Characteristics

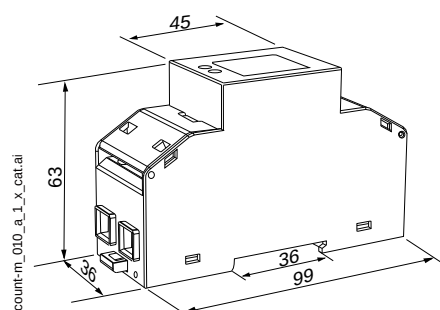
- Compact design
- Measurement accuracy: 1 %
- LCD display

| Model | Key functions                                |
|-------|----------------------------------------------|
| M13   | MODBUS RS485 communication + 2 pulses output |

## Front panel

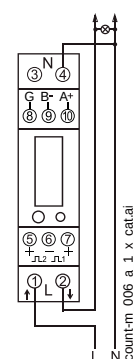


## Dimensions (mm)



|                              |                          |
|------------------------------|--------------------------|
| Type                         | modular                  |
| Number of modules            | 2                        |
| Dimensions W x H x D         | 36 x 99 x 63 mm          |
| Case degree of protection    | IP 20                    |
| Front degree of protection   | IP 51                    |
| Display type                 | LCD Backlight            |
| Rigid cable cross-section    | 4 ... 25 mm <sup>2</sup> |
| Flexible cable cross-section | 4 ... 25 mm <sup>2</sup> |
| Weight                       | 200 g                    |

## Connections



## Electrical characteristics

| Communication |                                |
|---------------|--------------------------------|
| Interface     | RS485                          |
| Type          | 2 wires or 3 half duplex wires |
| Protocol      | MODBUS® RTU                    |
| MODBUS speed  | 1200/2400/4800/9600 bps        |

## Features and technical parameters

### Features

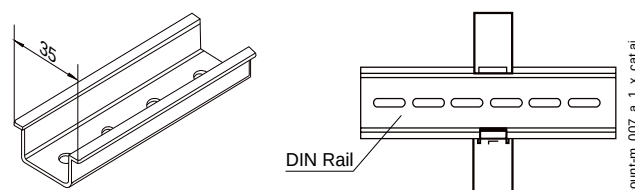
- The meter can calculate the current and active power demand and the maximum demand value
- Standard DIN-RAIL mounting (conforms to German industry standard)
- Direct connection up to 100 A current, only 36 mm wide
- RS485 communication supported, protocol: Modbus-RTU
- White backlit LCD screen may be read easily even in low light
- Multi-parameter monitoring: I, V, P, Q, S and P F, etc.
- 2 channels of pulse output (the first can be set)
- Protection rating: IP51 (Interior energy meters)

### Technical parameters

| Item                  | Specification             |
|-----------------------|---------------------------|
| Standard              | IEC62052-11 - IEC62053-21 |
| Rated voltage         | 230 V ±20%                |
| Rated current         | 10 (100) A                |
| Pulse constant        | 1: Adjustable; 2: 1Wh/imp |
| Frequency             | 50 / 60 Hz                |
| Accuracy rating       | 1.0                       |
| Display               | LCD 6+1 = 999999 kW       |
| Operating temperature | -25 ... +55 °C            |
| Power consumption     | ≤ 2W/10VA                 |
| Average humidity      | ≤ 90 %                    |
| Maximum humidity      | ≤ 95 %                    |
| Startup current       | 0.004 Ib                  |
| Installation Category | CAT II                    |
| Class of pollution    | 2                         |

## Mounting instructions

1. Select a 35 mm standard rail (length as required), and secure to the chosen position for mounting.
2. Push the clips down one tooth
3. Fit the meter into the rail, then push the clips up a tooth to mount the meter onto the rail.
4. Connect as shown in the wiring diagram.
5. After connecting, seal the wiring cover with lead seals.



## References

| Type                                               | COUNTIS M13 Reference |
|----------------------------------------------------|-----------------------|
| 100 A direct - with MODBUS communication via RS485 | 48C0 3019             |



# COUNTIS M33

Energy meters

three-phase - direct 100 A

Single-circuit metering,  
measurement &  
analysis



COUNTIS M33

## The solution for

- > Industry
- > Public buildings
- > High Rise Building



## Strong points

- > RS485 communication
- > (MODBUS) and pulse output
- > Multi-parameter
- > measurement and load
- > acquisition

## Conformity to standards

- > IEC 62052-11
- > IEC 62053-21
- > IEC 62053-23



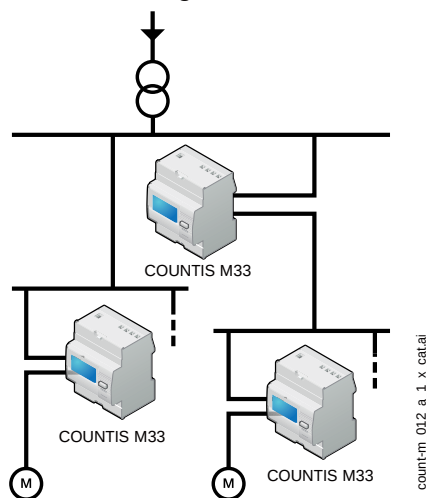
## Overview

COUNTIS M33 is a three Phase four-wire energy meter can be directly connected to 100A current. Used for accumulating active and reactive power and storing this data in tables in memory, monitor demand and total harmonic distortion.

## Function

The COUNTIS M33 is a modular active electrical energy meter which can directly display both total active (kWh) and reactive energy (kvarh) on a backlit LCD screen. This series of products is intended for three phase load metering for direct connections to 100 A.

## Functional diagram



## Advantages

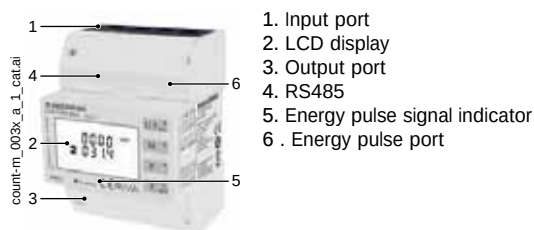
- Compact size, one module.
- RS485 communication (MODBUS).
- Energy values can be remotely transmitted via the communication output to a (PC/ BMS/etc.) system for billing analysis, energy saving or energy cost management.

## General Characteristics

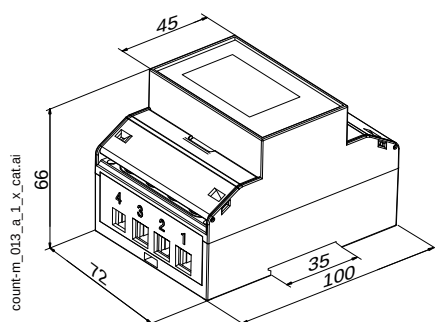
- Compact design
- Measurement accuracy: 1 %
- Backlit LCD display

| Model | Key functions                                |
|-------|----------------------------------------------|
| M33   | MODBUS RS485 communication + 2 pulses output |

## Front panel

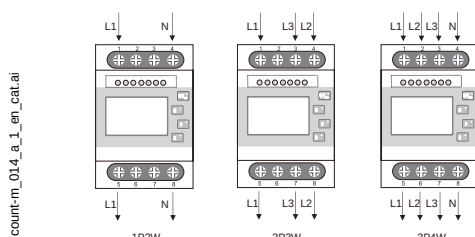


## Dimensions (mm)



|                              |                          |
|------------------------------|--------------------------|
| Type                         | modular                  |
| Number of modules            | 2                        |
| Dimensions W x H x D         | 72 x 100 x 66 mm         |
| Case degree of protection    | IP 20                    |
| Front degree of protection   | IP 51                    |
| Display type                 | Backlit LCD Backlight    |
| Rigid cable cross-section    | 4 ... 25 mm <sup>2</sup> |
| Flexible cable cross-section | 4 ... 25 mm <sup>2</sup> |

## Connections



## Electrical characteristics

| Communication             |                                |
|---------------------------|--------------------------------|
| Interface                 | RS485                          |
| Type                      | 2 wires or 3 half duplex wires |
| Protocol                  | MODBUS <sup>®</sup> RTU        |
| MODBUS <sup>®</sup> speed | 2400-38400 bps                 |

## Features and technical parameters

### Features

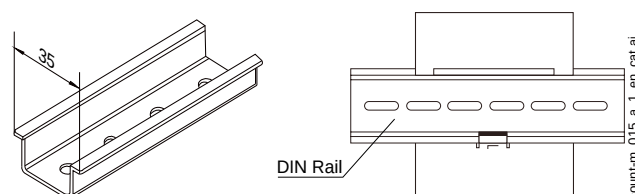
- Measure three-phase active and reactive energy, analyse power quality and load conditions
- Standard DIN-RAIL mounting (conforms to German industry standard)
- Direct input of 100 A current
- RS485 communication supported, protocol: Modbus-RTU
- Demand and maximum demand, total harmonic distortion
- LCD backlit for easy power readings in low light
- Multi-parameter monitoring: I, V, P, Q, S and P F, etc.
- Protection rating: IP51 (Interior energy meters)

### Technical parameters

| Item                  | Specification               |
|-----------------------|-----------------------------|
| Standard              | IEC62052-11 - IEC62053-21   |
| Rated voltage         | 3 x 230/400V±20%            |
| Rated current         | 10 (100) A                  |
| Pulse constant        | 1: Adjustable; 2: 2.5Wh/imp |
| Frequency             | 50 / 60 Hz                  |
| Accuracy rating       | 1.0                         |
| Display               | LCD                         |
| Operating temperature | -25 ... +50 °C              |
| Storage temperature   | -40 ... +70 °C              |
| Power consumption     | ≤ 2W/10VA                   |
| Operating humidity    | ≤ 95 %                      |
| Startup current       | 0.004 Ib                    |

## Mounting instructions

1. Select a 35 mm standard rail (length as required), and secure to the chosen position for mounting.
2. Push the clips down one tooth
3. Fit the meter into the rail, then push the clips up a tooth to mount the meter onto the rail.



## References

| Type                                               | COUNTIS M33 Reference |
|----------------------------------------------------|-----------------------|
| 100 A direct - with MODBUS communication via RS485 | 48C0 3020             |



# COUNTIS M43

## Energy meters

three-phase - up to 6000 A via CT

Single-circuit metering,  
measurement &  
analysis



COUNTIS M43

### The solution for

- > Industry
- > Public buildings
- > High Rise Building



### Strong points

- > RS485 communication (MODBUS) and pulse output
- > Multi-parameter measurement

### Conformity to standards

- > IEC 62052-11
- > IEC 62053-21
- > IEC 62053-23



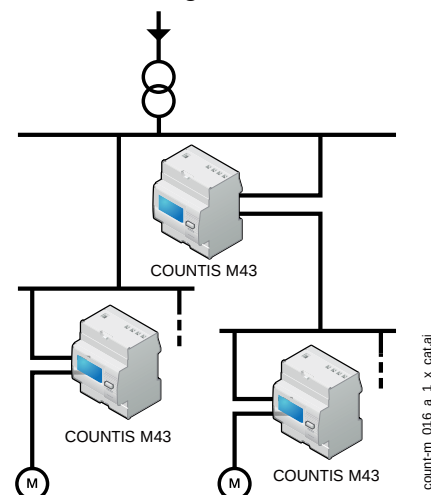
### Overview

SOCOMEK COUNTIS M43 Meter is a three-phase four-wire rail-mounted energy meter, able to measure both active and reactive energy via CT connection. It has one RS485 communication.

### Function

The COUNTIS M33 utilizes a modular design, with both active and reactive energy value (kWh, kvarh) directly displayed on a backlit LCD monitor. This series of meters works in three-phase electricity networks via CT input.

### Functional diagram



### Advantages

- To enable remote transmission of energy consumption, the COUNTIS M43 series of products offers pulse output and RS485 communication output (using MODBUS).
- In addition, for the remote transmission function, COUNTIS M43 with RS485 products can be configured remotely and collect multiple electrical parameters via communication.

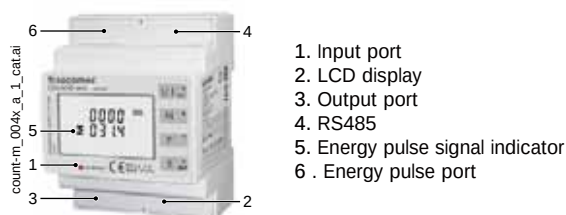
### General Characteristics

- Compact design
- Measurement accuracy: 1 %
- LCD display

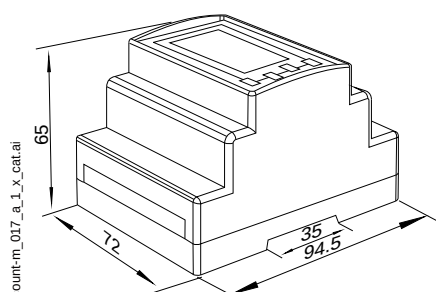
| Model | Key functions                                |
|-------|----------------------------------------------|
| M43   | MODBUS RS485 communication + 2 pulses output |



## Front panel



## Dimensions (mm)



|                              |                             |
|------------------------------|-----------------------------|
| Type                         | modular                     |
| Number of modules            | 2                           |
| Dimensions W x H x D         | 72 x 94.5 x 65 mm           |
| Case degree of protection    | IP 20                       |
| Front degree of protection   | IP 51                       |
| Display type                 | LCD                         |
| Rigid cable cross-section    | 0.5 ... 2.5 mm <sup>2</sup> |
| Flexible cable cross-section | 0.5 ... 2.5 mm <sup>2</sup> |

## Electrical characteristics

| Communication             |                                |
|---------------------------|--------------------------------|
| Interface                 | RS485                          |
| Type                      | 2 wires or 3 half duplex wires |
| Protocol                  | MODBUS <sup>®</sup> RTU        |
| MODBUS <sup>®</sup> speed | 2400-38400 bps                 |

## Features and technical parameters

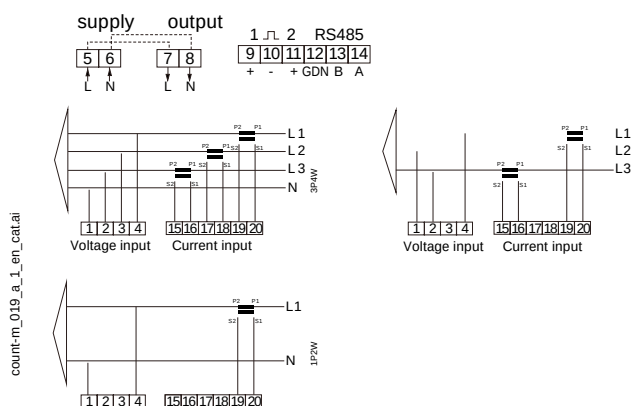
### Features

- Measure three-phase active and reactive energy, analyse power quality and load conditions
- Standard DIN-RAIL mounting (conforms to German industry standard)
- Direct input of 100 A current
- RS485 communication supported, protocol: Modbus-RTU
- Demand and maximum demand, total harmonic distortion
- LCD backlit for easy power readings in low light
- Multi-parameter monitoring: I, V, P, Q, S and P F, etc.
- Protection rating: IP51 (Interior energy meters)

### Technical parameters

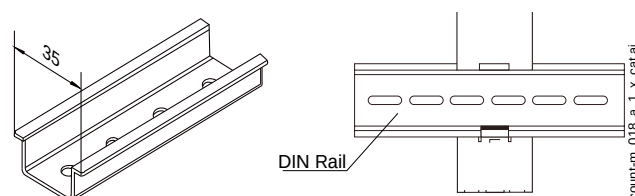
| Item                  | Specification               |
|-----------------------|-----------------------------|
| Standard              | IEC62052-11 - IEC62053-21   |
| Rated voltage         | 3 x 230/400V±20%            |
| Rated current         | 10 (100) A                  |
| Pulse constant        | 1: Adjustable; 2: 2.5Wh/imp |
| Frequency             | 50 / 60 Hz                  |
| Accuracy rating       | 0.5S                        |
| Display               | LCD                         |
| Operating temperature | -25 ... +55 °C              |
| Storage temperature   | -40 ... +70 °C              |
| Power consumption     | ≤ 2W/10VA                   |
| Operating humidity    | ≤ 95 %                      |
| Startup current       | 0.002 In                    |

## Connections



## Mounting instructions

1. Select a 35 mm standard rail (length as required), and secure to the chosen position for mounting.
2. Push the clips down one tooth
3. Fit the meter into the rail, then push the clips up a tooth to mount the meter onto the rail.



## References

| Type                                               | COUNTIS M43 Reference |
|----------------------------------------------------|-----------------------|
| CT input with RS485 MODBUS communication 48C0 3021 | 48C0 3021             |



# MULTIS L50

## Digital panel meter

three-phases - via CT up to 6000 A dimensions 96 x 96 mm

Single-circuit metering,  
measurement &  
analysis



MULTIS L50

multi\_078\_front.eps

### The solution for

- > Industry
- > Infrastructure



### Strong points

- > Large backlit LCD display
- > Direct display of multimeasurement and metering values
- > RS485 MODBUS communication
- > Inputs/Output for control/command or pulses

### Conformity to standards

- > IEC 62053-21 class 1
- > IEC 62053-23 class 2



### Function

The MULTIS L50 is a panel mounted digital meter displaying multi-measurement and energy values directly on its large backlit LCD display. It is designed for utilisation on three-phase or single-phase networks with connection via CT and is suitable for applications of up to 6000 A. The product can be configured by the user via the keypad and the display.

### Advantages

#### Easy to use

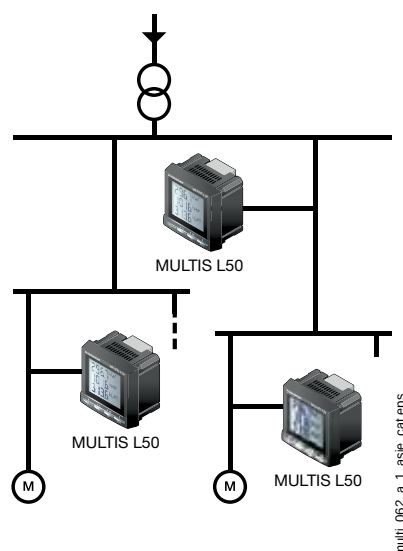
Thanks to its large backlit LCD display and its multiple viewing screens with direct pushbutton access, MULTIS L50 provide clear readings and are easy to use.

They directly display a number of multi-measurement and metering values.

#### Advanced functionalities

The MULTIS L50 offers input/output functions as standard and has a pulse output or RS485 MODBUS communication output.

### Principle diagram



multi\_062\_a\_1\_ase\_cat.eps

## Functions

#### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
  - unbalance: U unb
- Power factors
  - instantaneous: 3PF, Σ

#### Metering

- Active energy: ± kWh
- Reactive energy: ± kvarh
- Hours: ⌚

#### Harmonic analysis

- Total harmonic distortion (level 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

#### Communications<sup>(1)</sup>

RS485 with MODBUS protocol

#### Output

- Remote command of device
- Pulse report

#### Inputs

- Remote status device

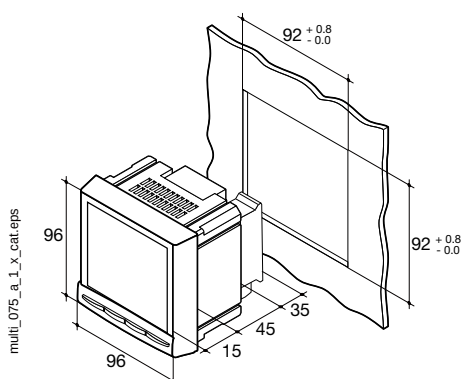
(1) Available as an option (see the following pages).

### Front panel



1. Backlit LCD display.
2. Direct access key for currents (instantaneous and max. values), current THD.
3. Direct access key for voltages, frequency and voltage THD.
4. Pushbutton for active, reactive, and apparent power (instantaneous and max. values) and power factor.
5. Direct access key for energies, hour meter and programming menu.

### Case



|                                            |                             |
|--------------------------------------------|-----------------------------|
| Type                                       | panel mounting              |
| Dimensions W x H x D                       | 96 x 96 x 60 mm             |
| Case degree of protection                  | IP30                        |
| Front degree of protection                 | IP52                        |
| Display type                               | backlit LCD display         |
| Terminal block type                        | fixed or plug-in            |
| Voltage and other connection cross-section | 0.2 ... 2.5 mm <sup>2</sup> |
| Current connection cross-section           | 0.5 ... 6 mm <sup>2</sup>   |
| Weight                                     | 400 g                       |

### Plug-in modules

#### MULTIS L50



#### 1 Output

1 output assignable to:

- Pulses: configurable (type, weight, duration) in kWh or kvarh.
- Remote command of device.

#### Communication

RS485 link with JBUS / MODBUS protocol  
(speed up to 38400 bauds)

#### 3 inputs, 1 output

3 inputs assignable to:

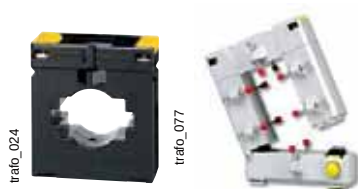
- Remote status device.

1 output assignable to:

- Pulses: configurable (type, weight, duration) in kWh or kvarh.
- Remote command of device.

### Accessories

#### Current transformers



#### IP65 protection



#### Panel mounting kit for a 144 x 96 mm cut-out



# MULTIS L50

Digital panel meter

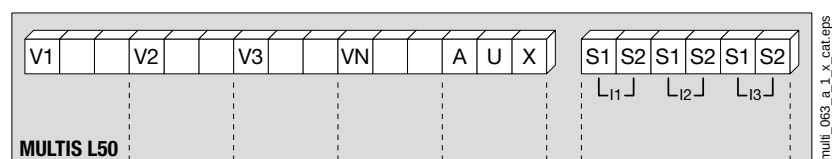
three-phases - via CT up to 6000 A dimensions 96 x 96 mm

## Electrical characteristics

| Current measurement (TRMS)                   |                           |
|----------------------------------------------|---------------------------|
| Via CT primary                               | 9 999 A                   |
| Via CT secondary                             | 5 A                       |
| Measurement range                            | 0 ... 11 kA               |
| Input consumption                            | 0.6 VA                    |
| Measurement updating period                  | 1 s                       |
| Accuracy                                     | 1%                        |
| Permanent overload                           | 6 A                       |
| Intermittent overload                        | 10 I <sub>n</sub> for 1 s |
| Voltage measurements (TRMS)                  |                           |
| Direct measurement between phases            | 50 ... 500 VAC            |
| Direct measurement between phase and neutral | 28 ... 289 VAC            |
| Input consumption                            | ≤ 0.1 VA                  |
| Measurement updating period                  | 1 s                       |
| Accuracy                                     | 1%                        |
| Permanent overload                           | 800 VAC                   |
| Power measurement                            |                           |
| Measurement updating period                  | 1 s                       |
| Accuracy                                     | 1%                        |
| Power factor measurement                     |                           |
| Measurement updating period                  | 1 s                       |
| Accuracy                                     | 1%                        |
| Frequency measurement                        |                           |
| Measurement range                            | 45 ... 65 Hz              |
| Measurement updating period                  | 1 s                       |
| Accuracy                                     | 0.1 %                     |

| Energy accuracy                      |                           |
|--------------------------------------|---------------------------|
| Active (according to IEC 62053-21)   | Class 1                   |
| Reactive (according to IEC 62053-23) | Class 2                   |
| Auxiliary power supply               |                           |
| Alternating voltage                  | 110 ... 250 VAC           |
| AC tolerance                         | ± 10 %                    |
| Direct voltage                       | 120 ... 250 VDC           |
| DC tolerance                         | ± 10%                     |
| Frequency                            | 50 / 60 Hz                |
| Consumption                          | 10 VA                     |
| Pulse or alarm output                |                           |
| Number                               | 1                         |
| Type                                 | 100 VDC - 0.5 A - 10 VA   |
| Max. number of operations            | ≤ 10 <sup>8</sup>         |
| Inputs                               |                           |
| Number                               | 3                         |
| Power supply                         | 10 ... 30 VDC             |
| Minimum signal width                 | 10 ms                     |
| Minimum duration between 2 pulses    | 18 ms                     |
| Type                                 | Phototransistors          |
| Communication                        |                           |
| Link                                 | RS485                     |
| Type                                 | 2 ... 3 half duplex wires |
| Protocol                             | MODBUS RTU                |
| MODBUS® speed                        | 1400 ... 38400 bauds      |
| Operating conditions                 |                           |
| Operating temperature                | - 10 ... + 55 °C          |
| Storage temperature                  | - 20 ... + 85 °C          |
| Relative humidity                    | 95 %                      |

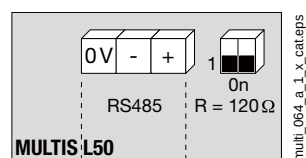
## Terminals



S1 - S2: current inputs.

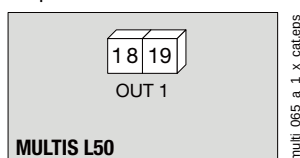
AUX: auxiliary power supply U<sub>s</sub>.  
V1, V2, V3 & VN: voltage inputs.

### Communication module



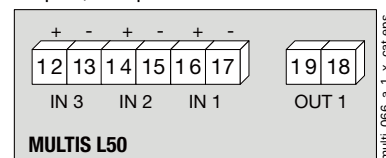
RS485 link.  
R = 120 Ω: selectable internal resistance for RS485 end of line termination.

### Output or alarm module



18 - 19: output n°1

### 3 inputs, 1 output module



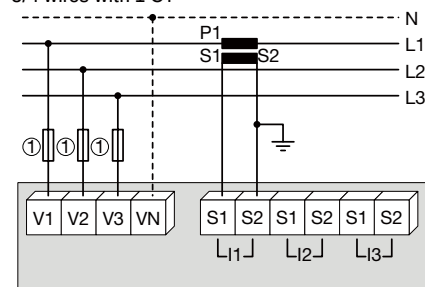
## Connection

### Recommendation:

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.

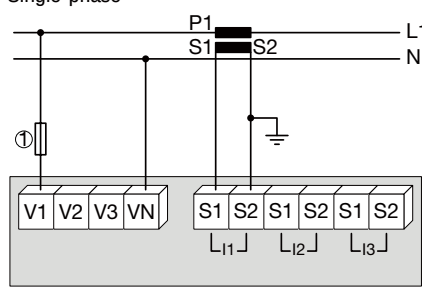
### Low voltage balanced network

#### 3/4 wires with 1 CT



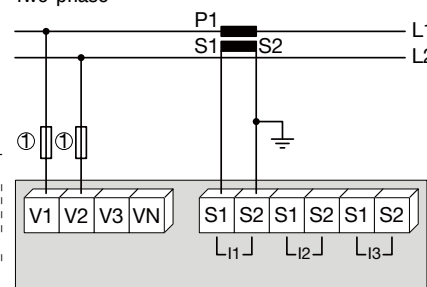
Use of 1 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.  
1. Fuses 0.5 A gG / 0.5 A class CC.

#### Single-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

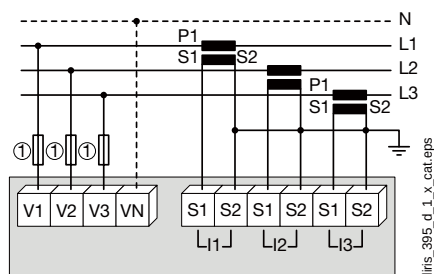
#### Two-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

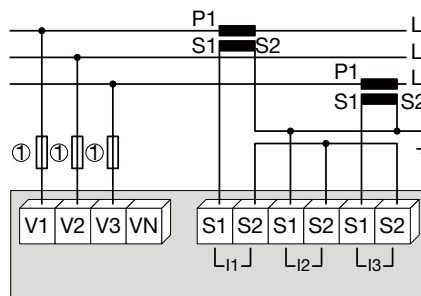
#### Low voltage unbalanced network

##### 3/4 wires with 3 CTs



1. Fuses 0.5 A gG / 0.5 A class CC.

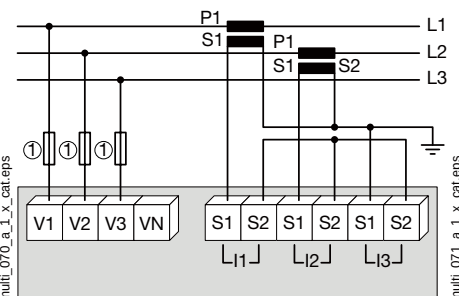
##### 3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

1. Fuses 0.5 A gG / 0.5 A class CC.

##### 3 wires with 2 CTs

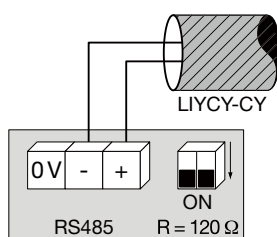


Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

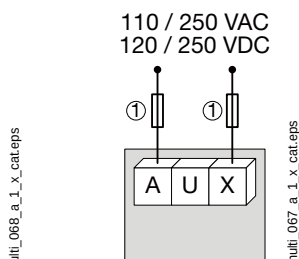
1. Fuses 0.5 A gG / 0.5 A class CC.

#### Additional information

##### Communication via RS485 link



##### AC & DC auxiliary power supply



1. Fuses 0.5 A gG / 0.5 A class CC.

#### References

| Basic device                                                                      |                               | MULTIS L50             |
|-----------------------------------------------------------------------------------|-------------------------------|------------------------|
| MULTIS L50                                                                        |                               | Reference 192J 9130    |
| Optional plug-in modules                                                          |                               | Reference              |
| 1 output                                                                          |                               | 4825 0080              |
| RS485 MODBUS® communication                                                       |                               | 4825 0082              |
| 3 inputs, 1 output                                                                |                               | 4825 0083              |
| Accessories                                                                       |                               |                        |
| Description of accessories                                                        | To be ordered in multiples of | Reference              |
| IP65 protection                                                                   | 1                             | 4825 0089              |
| Panel mounting kit for a 144 x 96 mm cut-out                                      | 1                             | 4825 0088              |
| Fuse holder for the protection of voltage inputs (type RM) 3 poles                | 4                             | 5601 0018              |
| Fuse holder for the protection of the auxiliary supply (type RM) 1 pole + neutral | 6                             | 5601 0017              |
| Fuse type gG 10x38 0.5 A                                                          | 10                            | 6012 0000              |
| Ferrite to be associated with communication modules                               | 1                             | 4899 0011              |
| Current transformer range                                                         | 1                             | See "TE sensors" pages |

#### Expert Services

> Study, definition, advice, implementation, maintenance and training... Our experts "Expert Services" offer complete support for the success of your project.





# Selection guide

## Multifunction meters

DIRIS

Single-circuit metering,  
measurement &  
analysis

Which  
application?



Which  
functions?

|                                     |                                                   |  |  |  |  |
|-------------------------------------|---------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|
|                                     |                                                   | DIRIS A-10                                                                         | DIRIS A-20                                                                          | DIRIS A-30/A-41                                                                     |  |
|                                     |                                                   | p. 84                                                                              | p. 88                                                                               | p. 92                                                                               |  |
|                                     | Functions                                         | CURRENT TRANSFORMERS                                                               |                                                                                     |                                                                                     |  |
| General characteristics             | Remote display                                    |                                                                                    |                                                                                     |                                                                                     |  |
|                                     | Number of loads                                   | 1                                                                                  | 1                                                                                   | 1                                                                                   |  |
|                                     | Mounting                                          | DIN                                                                                | 96 x 96                                                                             | 96 x 96                                                                             |  |
|                                     | Power supply                                      | AC                                                                                 | AC                                                                                  | AC/DC                                                                               |  |
|                                     | All In One                                        | •                                                                                  |                                                                                     |                                                                                     |  |
|                                     | Optional modules                                  |                                                                                    | •                                                                                   | •                                                                                   |  |
|                                     | Ethernet (Modbus TCP/Bacnet IP)                   | o / -                                                                              | o / -                                                                               | o / -                                                                               |  |
|                                     | RS485 (Modbus/Bacnet MSTP)                        | • / -                                                                              | • / -                                                                               | • / -                                                                               |  |
|                                     | Profibus DPV1                                     |                                                                                    |                                                                                     | o                                                                                   |  |
|                                     | Webserver / File export                           | o / -                                                                              | o/o                                                                                 | Via DIRIS G                                                                         |  |
|                                     | Max. number of inputs (digital / analogue)        | 1 / -                                                                              | 3 / -                                                                               | 6 / 4                                                                               |  |
|                                     | Max. number of outputs (digital / analogue)       | 1 / -                                                                              | 1 / -                                                                               | 6 / 4                                                                               |  |
| Manage energy consumptions          | 4-quadrant energy metering                        | •                                                                                  | •                                                                                   | •                                                                                   |  |
|                                     | Load curves (local memory)                        |                                                                                    |                                                                                     | o                                                                                   |  |
|                                     | Rebilling of energy (MID approved)                |                                                                                    |                                                                                     |                                                                                     |  |
|                                     | Multi-tariff management                           | 2                                                                                  |                                                                                     |                                                                                     |  |
| Monitor the electrical installation | Instantaneous, average, min and max values        | •                                                                                  | •                                                                                   | •                                                                                   |  |
|                                     | Voltage unbalance measurement                     |                                                                                    |                                                                                     | •                                                                                   |  |
|                                     | Neutral current (measured / calculated)           | - / •                                                                              | - / •                                                                               | • (with A-41)                                                                       |  |
| Check the power quality             | Harmonic analysis (THD / Individual)              | • / -                                                                              | • / -                                                                               | • / •                                                                               |  |
|                                     | Dip and swell detection                           |                                                                                    |                                                                                     |                                                                                     |  |
|                                     | Overcurrent detection                             |                                                                                    |                                                                                     |                                                                                     |  |
|                                     | 1/2 cycle RMS curves on events                    |                                                                                    |                                                                                     |                                                                                     |  |
| Manage the loads                    | Operating hours                                   | •                                                                                  | •                                                                                   | •                                                                                   |  |
|                                     | Number of operations (info / alarm)               |                                                                                    | • / -                                                                               | • / -                                                                               |  |
|                                     | Protective device monitoring (on / off / tripped) | •                                                                                  | •                                                                                   | •                                                                                   |  |
|                                     | Predictive power analysis and load shedding       |                                                                                    |                                                                                     | •                                                                                   |  |

•: integrated in the product.

o: optional via DIRIS Digiware M-50/M-70 or modules.



Which dimensions?

Which communication protocol?

Which options?

|                                                                                  |                                                                                   |                                                                                   |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |  |
| <b>DIRIS B-10</b>                                                                | <b>DIRIS B-30</b>                                                                 | <b>DIRIS A-40</b>                                                                 |
| <i>p. 102</i>                                                                    | <i>p. 102</i>                                                                     | <i>p. 98</i>                                                                      |
|                                                                                  |                                                                                   |                                                                                   |
| <b>SMART SENSORS</b>                                                             |                                                                                   |                                                                                   |
| •                                                                                | •                                                                                 |                                                                                   |
| 1 to 4                                                                           | 1 to 4                                                                            | 1                                                                                 |
| DIN                                                                              | DIN                                                                               | 96 x 96                                                                           |
| AC                                                                               | AC                                                                                | AC/DC                                                                             |
|                                                                                  |                                                                                   | •                                                                                 |
| •                                                                                | •                                                                                 |                                                                                   |
| •/0                                                                              | •/0                                                                               | -/-                                                                               |
| •/0                                                                              | •/0                                                                               | •/-                                                                               |
| 0                                                                                | 0                                                                                 | -                                                                                 |
| 0/0                                                                              | 0/0                                                                               | 0/0                                                                               |
| 2/2                                                                              |                                                                                   | 3/-                                                                               |
| 2/2                                                                              |                                                                                   | 2/-                                                                               |
| •                                                                                | •                                                                                 | •                                                                                 |
|                                                                                  | •                                                                                 | •                                                                                 |
|                                                                                  |                                                                                   |                                                                                   |
| 8                                                                                | 8                                                                                 | 4                                                                                 |
| •                                                                                | •                                                                                 | •                                                                                 |
| •                                                                                | •                                                                                 | •                                                                                 |
| •/•                                                                              | •/•                                                                               | -/•                                                                               |
| •/-                                                                              | •/•                                                                               | •/•                                                                               |
|                                                                                  | •                                                                                 | •                                                                                 |
|                                                                                  | •                                                                                 | •                                                                                 |
|                                                                                  |                                                                                   |                                                                                   |
| •                                                                                | •                                                                                 | •                                                                                 |
| •/-                                                                              | •/•                                                                               | •/•                                                                               |
| •                                                                                | •                                                                                 | •                                                                                 |
|                                                                                  | •                                                                                 | •                                                                                 |



# DIRIS A-10

## Multifunction meters - PMD

measuring and monitoring - modular format

Single-circuit metering,  
measurement &  
analysis



DIRIS A-10

### The solution for

- > Industry
- > Infrastructures
- > Tertiary



### Function

The DIRIS A-10 is a modular multifunction meter for measuring electrical values in low voltage networks with connection to current transformers.

It allows all electrical parameters to be displayed and utilised for communication and/or output functions.

### Advantages

#### Easy to use

Five direct access pushbuttons enable all measurements to be clearly viewed on its backlit LCD display.

#### Integrated temperature sensor

It allows variations in temperature to be detected.

#### Detects wiring errors

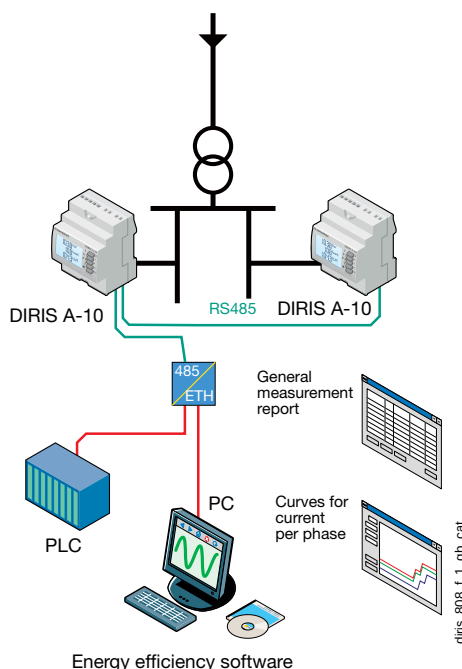
An integrated test function can be utilised to detect incorrect wiring and to automatically correct CT installation errors.

#### Compliant with IEC 61557-12

IEC 61557-12 is a high-level standard for all PMDs (Performance Monitoring Devices) that are designed to measure and monitor electrical parameters in distribution networks.

Compliance with IEC 61557-12 ensures a high level of equipment performance, in terms of metrology, and the mechanical and environmental aspects (EMC, temperature, etc.).

### Principle diagram



### Strong points

- > Easy to use
- > Integrated temperature sensor
- > Detects wiring errors
- > Compliant with IEC 61557-12

### Conformity to standards

- > IEC 61557-12
- > IEC 62053-22 class 0.5S
- > IEC 62053-23 class 2
- > UL



### Associated with current transformers



See "Current transformers".

### Functions

#### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Power
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factors
  - instantaneous: 3PF, ΣPF

#### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kVarh
- Hours: ⌚

#### Harmonic analysis

- Total harmonic distortion (level 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

#### Dual tariff function

Selection of one out of 2 billing tariffs

#### Events

Alarms on all electrical values

#### Communications<sup>(1)</sup>

RS485 with MODBUS protocol

#### Input

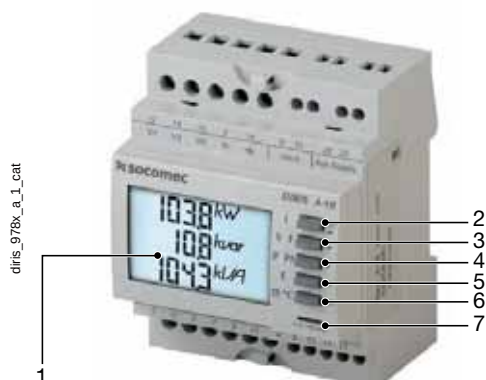
- Tariff selection
- Remote device status

#### Output

- Remote command of device
- Alarm report
- Pulse report

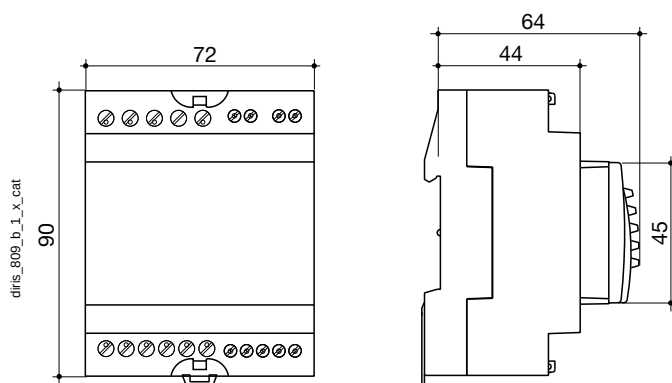
(1) Available on specific version (see the following pages).

## Front panel



1. Backlit LCD display.
2. Direct access key for currents (instant and maximum), current THD and test function.
3. Direct access key for voltages, frequency and voltage THD.
4. Direct access key for active, reactive and apparent power (instantaneous and max. values) and power factor.
5. Direct access key for energies.
6. Pushbutton for hour meter, temperature and programming menu access.
7. Metrological LED.

## Case



|                                                                   |                                       |
|-------------------------------------------------------------------|---------------------------------------|
| Type                                                              | modular                               |
| Number of modules                                                 | 4                                     |
| Dimensions W x H x D                                              | 72 x 90 x 64 mm                       |
| Case degree of protection                                         | IP 30                                 |
| Front degree of protection                                        | IP 52                                 |
| Display type                                                      | backlit LCD display                   |
| Voltage and current connection cross-section                      | 4 mm <sup>2</sup>                     |
| Connection cross-section for AUX supply, input, output and comms. | 2.5 mm <sup>2</sup>                   |
| Weight                                                            | 205 g (4825 0010) - 215 g (4825 0011) |

## Electrical characteristics

|                                              |                           |
|----------------------------------------------|---------------------------|
| <b>Current measurement (TRMS)</b>            |                           |
| Via CT primary                               | 9 999 A                   |
| Via CT secondary                             | 5 A                       |
| Measurement range                            | 0 ... 11 kA               |
| Input consumption                            | 0.6 VA                    |
| Measurement updating period                  | 1 s                       |
| Accuracy                                     | 0.2 %                     |
| Permanent overload                           | 6 A                       |
| Intermittent overload                        | 10 I <sub>n</sub> for 1 s |
| <b>Voltage measurements (TRMS)</b>           |                           |
| Direct measurement between phases            | 50 ... 500 VAC            |
| Direct measurement between phase and neutral | 28 ... 289 VAC            |
| Input consumption                            | ≤ 0.1 VA                  |
| Measurement updating period                  | 1 s                       |
| Accuracy                                     | 0.2 %                     |
| <b>Power measurement</b>                     |                           |
| Measurement updating period                  | 1 s                       |
| Accuracy                                     | 0.5 %                     |
| <b>Power factor measurement</b>              |                           |
| Measurement updating period                  | 1 s                       |
| Accuracy                                     | 0.5 %                     |
| <b>Frequency measurement</b>                 |                           |
| Measurement range                            | 45 ... 65 Hz              |
| Measurement updating period                  | 1 s                       |
| Accuracy                                     | 0.1 %                     |

|                                      |                                     |
|--------------------------------------|-------------------------------------|
| <b>Energy accuracy</b>               |                                     |
| Active (according to IEC 62053-22)   | Class 0.5 S                         |
| Reactive (according to IEC 62053-23) | Class 2                             |
| <b>Auxiliary power supply</b>        |                                     |
| Alternating voltage                  | 110 ... 277 VAC                     |
| AC tolerance                         | ± 15 %                              |
| Frequency                            | 50 / 60 Hz                          |
| Consumption                          | < 3 VA                              |
| <b>Digital output (pulses)</b>       |                                     |
| Number                               | 1                                   |
| Optocoupler type (IEC 62053-31)      | Class A and B (10 ... 30 VDC, 27mA) |
| <b>Input (tariff)</b>                |                                     |
| Number                               | 1                                   |
| Type                                 | 0 VAC: T1 / 200-277 VAC: T2         |
| <b>Communication</b>                 |                                     |
| Link                                 | RS485                               |
| Type                                 | 2 ... 3 half duplex wires           |
| Protocol                             | MODBUS RTU                          |
| MODBUS <sup>®</sup> speed            | 2400 ... 38400 bauds                |
| <b>Operating conditions</b>          |                                     |
| Operating temperature                | - 10 ... + 55 °C                    |
| Storage temperature                  | - 20 ... + 70 °C                    |
| Relative humidity                    | 85 %                                |

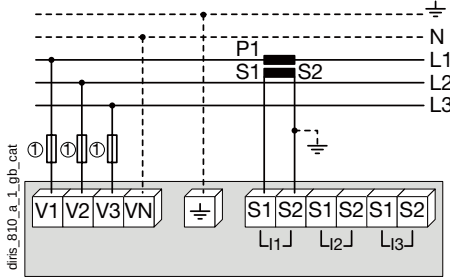
## Connection

### Recommendation:

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, an accessory which is included in this catalogue. Please consult us.
- It is recommended that the earthing point for the DIRIS A-10 and the current transformer secondaries are not earthed at the same time.

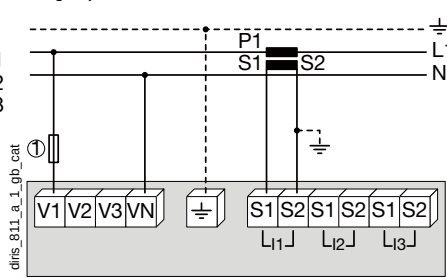
### Low voltage balanced network

#### 3/4 wires with 1 CT



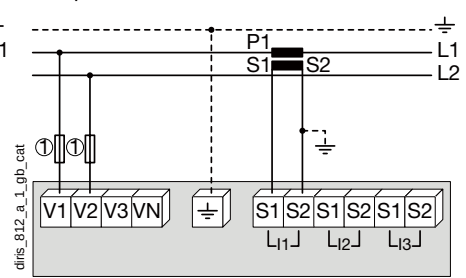
1. Fuses 0.5 A gG / 0.5 A class CC.

#### Single-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

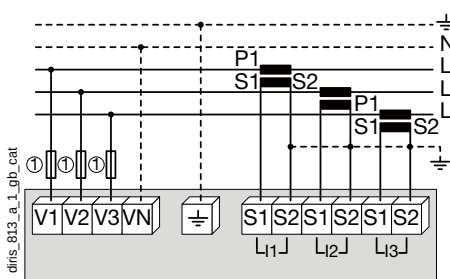
#### Two-phase



1. Fuses 0.5 A gG / 0.5 A class CC.

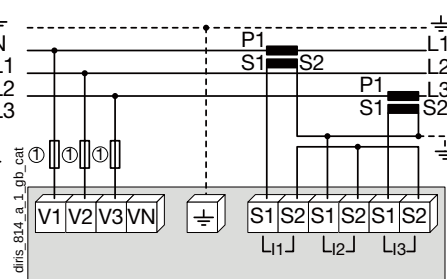
### Low voltage unbalanced network

#### 3/4 wires with 3 CTs



1. Fuses 0.5 A gG / 0.5 A class CC.

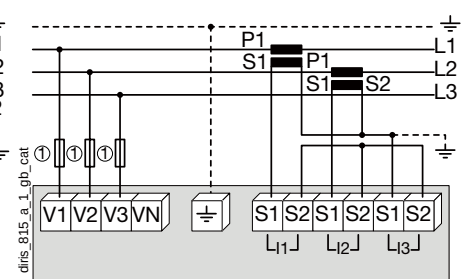
#### 3 wires with 2 CTs



Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

1. Fuses 0.5 A gG / 0.5 A class CC.

#### 3 wires with 2 CTs

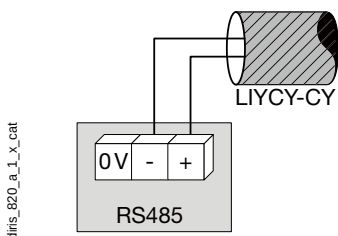


Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

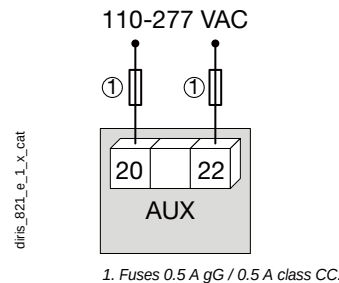
1. Fuses 0.5 A gG / 0.5 A class CC.

## Additional information

### Communication via RS485 link

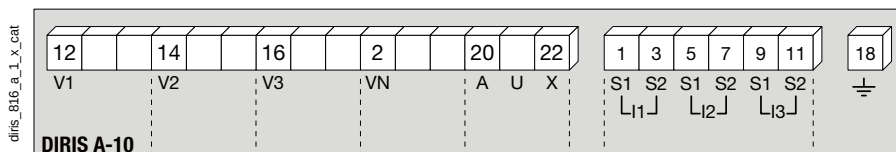


### AC auxiliary power supply



1. Fuses 0.5 A gG / 0.5 A class CC.

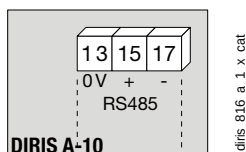
## Terminals



AUX: auxiliary power supply  $U_s$ .  
V1, V2, V3 & VN: voltage inputs.

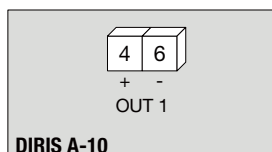
S1 - S2: current inputs.

### Communication terminals



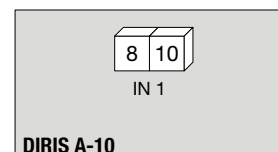
RS485 link.

### Pulse or alarm output terminals



4 - 6: output n°1

### Input terminals



8 - 10: input n°1

## References

| Basic device                                                                                   |                                  | DIRIS A-10                       |
|------------------------------------------------------------------------------------------------|----------------------------------|----------------------------------|
| Description                                                                                    |                                  | Reference                        |
| DIRIS A-10                                                                                     |                                  | 4825 0400                        |
| DIRIS A-10 with RS485 MODBUS communication                                                     |                                  | 4825 0401                        |
| Accessories                                                                                    |                                  | Reference                        |
| Fuse disconnect switches for the protection of voltage inputs (type RM) 3 poles                | To be ordered in multiples of 4  | 5701 0018                        |
| Fuse disconnect switches for the protection of the auxiliary supply (type RM) 1 pole + neutral | 6                                | 5701 0017                        |
| Fuses type gG 10x38 0.5 A                                                                      | 10                               | 6012 0000                        |
| Current transformer range                                                                      | 1                                | See "Current transformers" pages |
| Management software for DIRIS                                                                  | See "Easy Config System" pages   |                                  |
| Door mounting kit                                                                              |                                  | 4825 0088                        |
| Automatic CT short-circuiting device                                                           | See "Current transformers" pages |                                  |

## Expert Services

- > Study, definition, advice, implementation, maintenance and training... Our experts "Expert Services" offer complete support for the success of your project.





# DIRIS A-20

Multifunction measuring unit - PMD

measurement and monitoring - door mounting

Single-circuit metering,  
measurement &  
analysis



DIRIS A-20

diris\_981\_front.eps

## The solution for

- > Industry
- > Infrastructure
- > Building



## Strong points

- > User-friendly operation
- > Compliant with IEC 61557-12
- > Detects wiring errors
- > Customisable

## Compliance with standards

- > IEC 61557-12
- > IEC 62053-22 class 0.5S
- > IEC 62053-23 class 2
- > UL



## Related software

- > To use Socomec PMDs effectively, we can offer you several dedicated software tools. See "Easy Config System" pages.

## Function

DIRIS A-20 units are performance metering and monitoring devices that provide the user with all of the measurements needed to complete energy efficient projects successfully and to provide assured monitoring of electrical distribution.

All of this information can be used and analysed remotely with the help of energy efficiency software programs.

## Advantages

### User-friendly operation

With its large backlit multiple-display screen with 4 hot keys, the DIRIS A-20 is easy to use.

### Compliant with IEC 61557-12

Reference standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

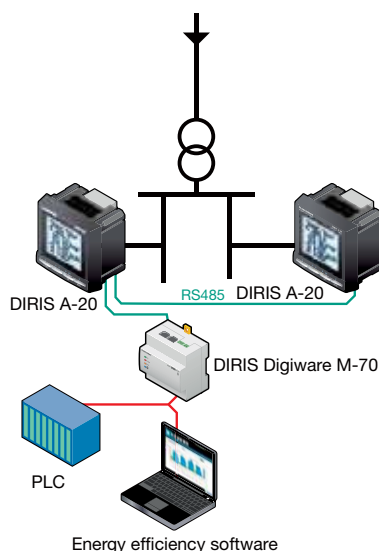
### Detects wiring errors

The DIRIS A-20 is equipped with an error correction function for CT connection.

### Customisable

Additional communication and input/output modules can extend the basic functional scope of this product. Equipped with additional modules, the DIRIS A-20 can provide the user with flexibility and expandability throughout the service life of the product.

## Functional diagram



DIRIS\_576\_L1\_en\_cat

## Functions

### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Powers
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factors
  - instantaneous: 3PF, ΣPF

### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Hours: ⌚

### Harmonic analysis

- Total harmonic distortion (rank 51)
  - Currents: thd I1, thd I2, thd I3
  - Phase-to-neutral voltage: thd V1, thd V2, thd V3
  - Phase-to-phase voltage: thd U12, thd U23, thd U31

### Events

Alarms on all electrical parameters

### Communications<sup>(1)</sup>

RS485 with MODBUS protocol

### Output

- Equipment control
- Alarm report
- Pulse report

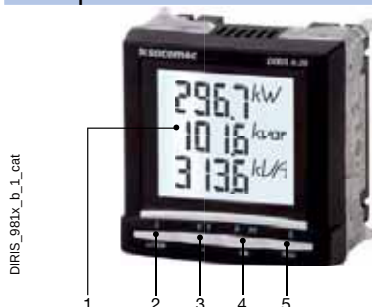
### Input

- Information report from a dry external contact

(1) Available as an option (see the following pages).

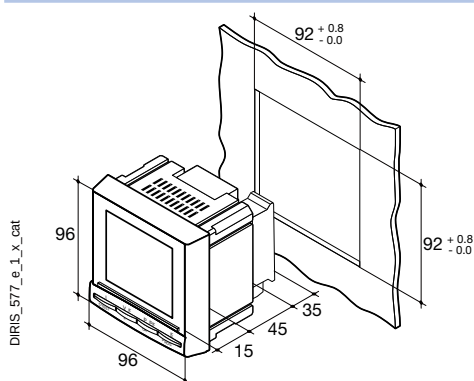


## Front panel



1. Backlit LCD display
2. Pushbutton for currents (instantaneous and maximum), THD currents and the connection correction function.
3. Pushbutton for voltages, frequency and THD voltages.
4. Pushbutton for power (instantaneous and maximum), active, reactive and effective, power factor.
5. Pushbutton for energy sources and timer counter.

## Case



|                                                        |                             |
|--------------------------------------------------------|-----------------------------|
| Type                                                   | Plug-in                     |
| Dimensions W x H x D                                   | 96 x 96 x 60 mm             |
| Case degree of protection                              | IP30                        |
| Front degree of protection                             | IP52                        |
| Display type                                           | Backlit LCD                 |
| Type of terminal strips                                | Fixed or removable          |
| Section for connection of voltages and other terminals | 0.2 ... 2.5 mm <sup>2</sup> |
| Section for connection of currents                     | 0.5 ... 6 mm <sup>2</sup>   |
| Weight                                                 | 400 g                       |

## Plug-in optional modules

DIRIS® A-20

DIRIS\_773\_a\_1\_cat

**1 output**

1 output that can be configured for:

- pulses: configurable (type, weight, duration) to kWh or kVarh.
- Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
- Equipment control

**Communication**

RS485 link with MODBUS protocol (speed up to 38 400 baud).

**3 inputs , 1 output**

3 inputs can be configured into:

- Information report from an external contact.

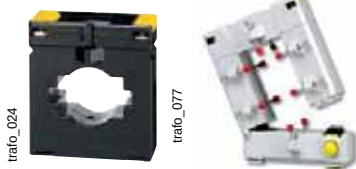
1 output that can be configured for:

- pulses: configurable (type, weight, duration) to kWh or kVarh.
- Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
- Equipment control

## Accessories

Current transformer  
See "Current transformers" pages.

IP65 protection



# DIRIS A-20

## Multifunction measuring unit - PMD

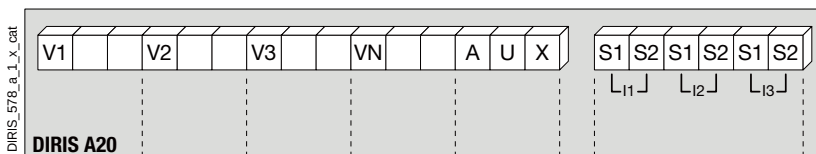
measurement and monitoring - door mounting

### Electrical characteristics

| Current measurement (TRMS)                   |                              |
|----------------------------------------------|------------------------------|
| Via CT primary                               | 9 999 A                      |
| Via CT secondary                             | 5 A                          |
| Measurement range                            | 0 ... 11 kA                  |
| Input consumption                            | 0.6 VA                       |
| Measurement updating period                  | 1 s                          |
| Accuracy                                     | 0.2%                         |
| Permanent overload                           | 6 A                          |
| Intermittent overload                        | 10 I <sub>n</sub> over 1 sec |
| Voltage measurements (TRMS)                  |                              |
| Direct measurement between phases            | 50 ... 500 VAC               |
| Direct measurement between phase and neutral | 28 ... 289 VAC               |
| Input consumption                            | ≤ 0.1 VA                     |
| Measurement updating period                  | 1 s                          |
| Accuracy                                     | 0.2%                         |
| Power measurement                            |                              |
| Measurement updating period                  | 1 s                          |
| Accuracy                                     | 0.5%                         |
| Power factor measurement                     |                              |
| Measurement updating period                  | 1 s                          |
| Accuracy                                     | 0.5%                         |
| Frequency measurement                        |                              |
| Measurement range                            | 45 ... 65 Hz                 |
| Measurement updating period                  | 1 s                          |
| Accuracy                                     | 0.1%                         |

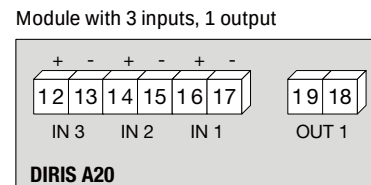
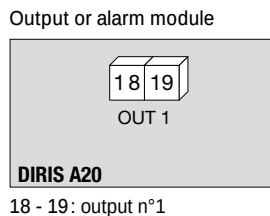
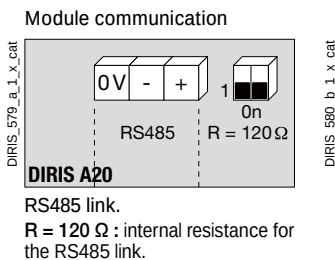
| Energy accuracy                      |                          |
|--------------------------------------|--------------------------|
| Active (according to IEC 62053-22)   | Class 0.5 S              |
| Reactive (in acc. with CEI 62053-23) | Class 2                  |
| Auxiliary power supply               |                          |
| Alternative voltage                  | 110 ... 400 VAC          |
| AC tolerance                         | ± 10%                    |
| DC voltage                           | 120 ... 289 VDC          |
| DC tolerance                         | ± 20%                    |
| Frequency                            | 50 / 60 Hz               |
| Power consumption                    | 10 VA                    |
| Pulse or alarm output                |                          |
| Number                               | 1                        |
| Type                                 | 100 VDC - 0.5 A - 10 VA  |
| Max. number of manoeuvres            | ≤ 10 <sup>8</sup>        |
| Inputs                               |                          |
| Number                               | 3                        |
| Power supply                         | 10 ... 30 VDC            |
| Minimum width of signal              | 10 ms                    |
| Minimum length between 2 pulses      | 18 ms                    |
| Type                                 | Optical couplers         |
| Communication                        |                          |
| Link                                 | RS485                    |
| Type                                 | 2 to 3 half duplex wires |
| Protocol                             | MODBUS® in RTU mode      |
| MODBUS® speed                        | 1400 ... 38400 baud      |
| Operating conditions                 |                          |
| Operating temperature range          | - 10 ... + 55°C          |
| Storage temperature                  | - 20 ... + 85°C          |
| Relative humidity                    | 95%                      |

### Terminals



S1 - S2: current inputs.

AUX: auxiliary power supply U<sub>s</sub>.  
V1, V2, V3 & VN: voltage inputs.

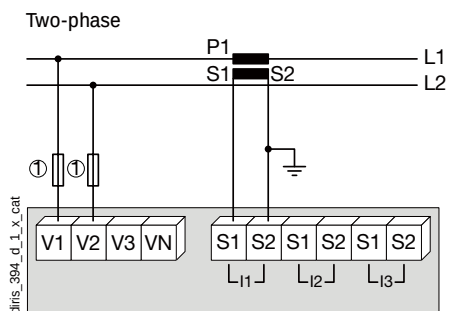
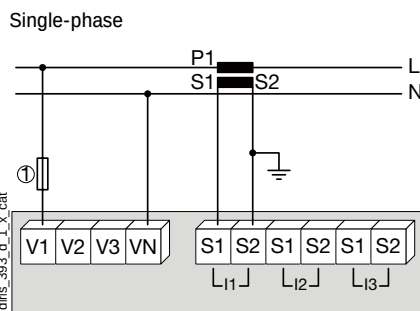
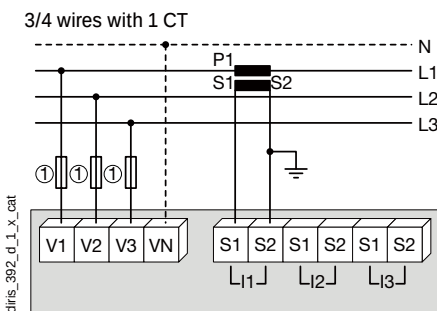


### Connection

#### Low voltage balanced network

##### Recommendation

- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us.



The 1CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

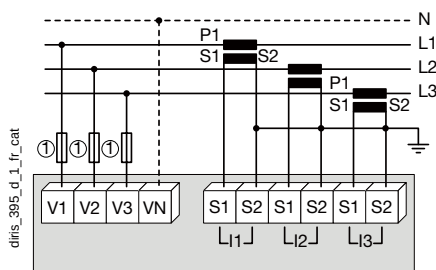
1. 0.5 A gG / 0.5 A class CC fuses.

1. 0.5 A gG / 0.5 A class CC fuses.

1. 0.5 A gG / 0.5 A class CC fuses.

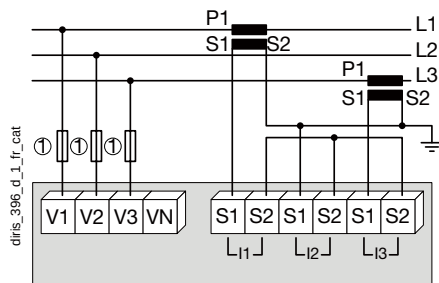
## Low voltage unbalanced network

### 3/4 wires with 3 CTs



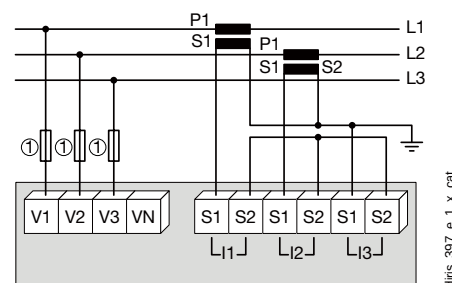
1. 0.5 A gG / 0.5 A class CC fuses.

### 3 wires with 2 CTs



The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.  
1. 0.5 A gG / 0.5 A class CC fuses.

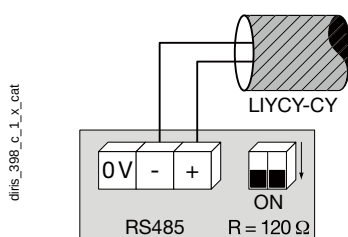
### 3 wires with 2 CTs



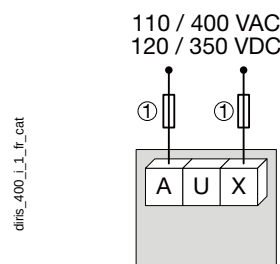
The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.  
1. 0.5 A gG / 0.5 A class CC fuses.

## Additional information

### Communication via RS485 link



### AC and DC auxiliary power supply



1. 0.5 A gG / 0.5 A class CC fuses.

## References

|                                                                                     |                               |                                  |
|-------------------------------------------------------------------------------------|-------------------------------|----------------------------------|
| <b>Basic device</b>                                                                 |                               | <b>DIRIS A-20</b>                |
| <b>Auxiliary power supply U<sub>s</sub></b>                                         |                               | <b>Reference</b>                 |
| 110 ... 400 VAC / 120 ... 350 VDC                                                   |                               | 4825 0402                        |
| <b>Options</b>                                                                      |                               |                                  |
| <b>Plug-in modules</b>                                                              |                               | <b>Reference</b>                 |
| On/Off output.                                                                      |                               | 4825 0080                        |
| RS485 MODBUS® communication                                                         |                               | 4825 0082                        |
| 3 inputs, 1 output                                                                  |                               | 4825 0083                        |
| <b>Accessoires</b>                                                                  |                               | <b>Reference</b>                 |
| Protection IP65                                                                     | To be ordered in multiples of | 4825 0089                        |
| Plug-in kit for cutout 144 x 96 mm                                                  | 1                             | 4825 0088                        |
| 3-pole fuse disconnect switches to protect input voltages (RM type)                 | 1                             | 5601 0018                        |
| 1-pole + neutral fuse disconnect switches to protect the auxiliary supply (RM type) | 4                             | 5601 0017                        |
| gG 10x38 0.5 A fuses                                                                | 6                             | 6012 0000                        |
| Ferrite for use with communication modules                                          | 10                            | 4899 0011                        |
| Current transformer range                                                           | 1                             | See "Current transformers" pages |
| Software associated with DIRIS                                                      | 1                             | See "Easy Config System" pages   |
| Automatic CT short-circuiting device                                                | 1                             | See "Current transformers" pages |

## Expert Services

> Study, definition, advice, implementation, maintenance and training...  
Our experts "Expert Services" offer complete support for the success of your project.





# DIRIS A-30/A-41

Multifunction measuring unit - PMD

measurement and advanced monitoring - door mounting

Single-circuit metering,  
measurement &  
analysis



DIRIS A-30

diris\_994\_front.eps

## The solution for

- > Industry
- > Building
- > Infrastructures



## Strong points

- > User-friendly operation
- > Detects wiring errors
- > Customisable
- > Compliant with IEC 61557-12

## Compliance with standards

- > IEC 61557-12
- > IEC 62053-22 class 0.5 S
- > IEC 62053-23 class 2
- > UL



## Function

The DIRIS A-30 and A-41 are power monitoring devices that provide the user with all of the measurements needed to complete energy efficiency projects and to assure the monitoring of electrical distribution.

All the information can be used and analysed remotely using energy efficiency software packages.

## Advantages

### User-friendly operation

With its large backlit multiple-display screen with 6 hot keys, the DIRIS A-30 is easy to use.

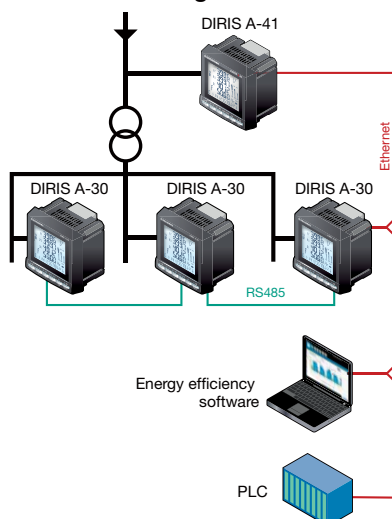
### Detects wiring errors

The DIRIS A-30 is provided with a correction function for TC wiring errors.

### Customisable

The DIRIS A-30 can be equipped with additional modules that give the user flexibility throughout the service life of the product. Communication modules and additional digital or analogue inputs/outputs can be used to increase its range of functionality.

## Functional diagram



diris\_581\_1\_1\_en\_cat

## Compliant with IEC 61557-12

Reference standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

## Functions

### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In, Isystem
  - average/max average: I1, I2, I3, In
- Voltages & frequency
  - instantaneous: V1, V2, V3, U12, U23, U31, F, Vsystem, Usystem
  - average/max average: V1, V2, V3, U12, U23, U31, F
- Powers
  - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
  - max average: ΣP, ΣQ, ΣS
  - predictive: (ΣP), (ΣQ), (ΣS)
- Power factors
  - instantaneous: 3PF, ΣPF
  - average/max average: ΣPF

- Kfactor
- Temperatures<sup>(1)</sup>
  - internal
  - external via 3 PT100 probes

### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Effective power: kVAh
- Hours: ⌚

### Harmonic analysis

- Level of harmonic distortion
- Currents: thd I1, thd I2, thd I3, thd In
- Phase-to-neutral voltage: thd V1, thd V2, thd V3
- Phase-to-phase voltage: thd U12, thd U23, thd U31

- Individual harmonics up to 63rd
- Currents: HI1, HI2, HI3, HIn
- Phase-to-neutral voltage: HV1, HV2, HV3,
- Phase-to-phase voltages: HU12, HU23, HU31

### Load curve<sup>(1)</sup>

- Active & reactive power: ΣP+/-; ΣQ+/-
- Voltages & frequency: V1, V2, V3, U12, U23, U31, F

### Events<sup>(1)</sup>

- Alarms on all electrical parameters.

### Communications<sup>(1)</sup>

- RS485 (Modbus)
- Ethernet (Modbus/TCP or Modbus RTU)
- Ethernet with RS485 Modbus RTU gateway over TCP
- Profibus DP Sub-D9

### Inputs/ Outputs<sup>(1)</sup>

- Pulse counting
- Checking / control of equipment
- Alarm report
- Pulse report

### Analogue output

- Analogue 0/4- 20 mA

<sup>(1)</sup> Available as an option (see following pages).

## Front panel



1. Backlit LCD display
2. Pushbutton for currents and for connection correction function
3. Pushbutton for voltages and frequency.
4. Pushbutton for active, reactive and effective powers and for power factor.
5. Pushbutton for maximum and average values for currents and power levels.
6. Pushbutton for harmonics.
7. Pushbutton for electrical energy meters, timers and impulse counters

## Plug-in modules

### DIRIS® A-30



### DIRIS® A-41\*



\* With current measurement module for Neutral as standard.



#### Pulse outputs

2 configurable pulse outputs (type, weight and run) on  $\pm$ kWh,  $\pm$ kvarh and kVAh.



#### MODBUS® communication

RS485 link with MODBUS® protocol (speed up to 38400 baud).



#### PROFIBUS® DP communication

SUB-D9 link with PROFIBUS® DP protocol (speed up to 12 Mbaud).



#### Analogue outputs

You can connect a maximum of 2 modules, i.e. 4 analogue outputs.

2 outputs can be allocated to:

3I, In, 3V, 3U, F,  $\pm$  $\Sigma$ P,  $\pm$  $\Sigma$ Q,  $\Sigma$ S,  $\Sigma$ PFL/C, Isys, Vsys, Usys, Ppred, Qpred, Spred, T°C internal, T°C 1, T°C 2, T°C3 and to 30 VDC power supply.



#### 2 inputs - 2 outputs

You can connect a maximum of 3 modules, i.e. 6 inputs / 6 outputs.

2 outputs can be allocated to:

- monitoring: 3I, In, 3V, 3U, F,  $\pm$  $\Sigma$ P,  $\pm$  $\Sigma$ Q,  $\Sigma$ S,  $\Sigma$ PFL/C, THD 3I, THD In, THD 3V, THD 3U, Ppred, Qpred, Spred, T°C internal, T°C 1, T°C2, T°C3 and of time counter,
- remote control,
- timed remote control,
- 2 inputs for pulse counting.



#### Storage capability

- Memory function up to max. 62 days for P+, P-, Q+, Q- with a TOP for internal or external synchronisation of 5, 8, 10, 15, 20, 30 and 60 minutes.
- Memory function for the last 10 timed and dated alarms.
- Memory function for the last min and max instantaneous values for 3U, 3V, 3I, In, F,  $\Sigma$ P $\pm$ ,  $\Sigma$ Q $\pm$ ,  $\Sigma$ S, THD 3U, THD 3V, THD 3U, THD 3V, THD 3I, THD In.
- Memory function of average values 3U, 3V et F as a function of synchronisation (maximum 60 days).



#### Ethernet communication

- Ethernet link with MODBUS/TCP or MODBUS RTU over TCP.



#### Ethernet communication with RS485 MODBUS gateway

- Ethernet link with MODBUS/TCP or MODBUS RTU over TCP.
- Connect 1 to 247 RS485 MODBUS slaves.

# DIRIS A-30/A-41

Multifunction measuring unit - PMD

measurement and advanced monitoring - door mounting

## Accessories

Current transformer

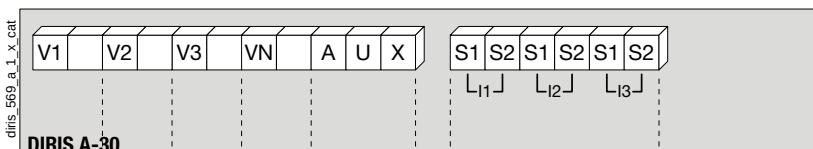
See "Current transformers" pages.

IP65 protection



## Terminals

DIRIS A-30

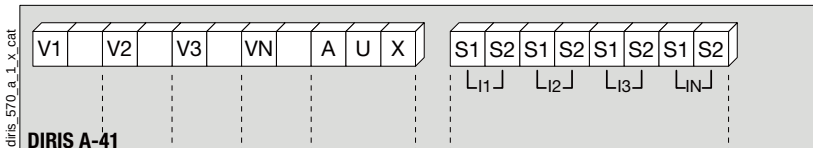


S1 - S2: current inputs

AUX: auxiliary power supplies  $U_s$

V1 - V2 - V3 - VN: voltage inputs

DIRIS A-41

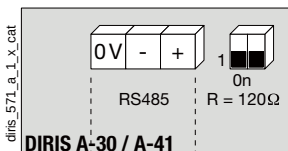


S1 - S2: current inputs

AUX: auxiliary power supplies  $U_s$

V1 - V2 - V3 - VN: voltage inputs

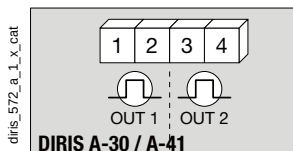
Communication module



RS485 link.

R = 120 Ω : internal resistance for the RS485 link.

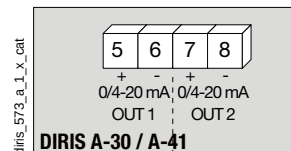
Pulse output module



1 - 2: pulse output n°1.

3 - 4: relay output n°2.

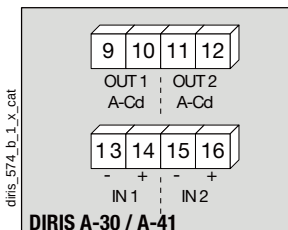
Analogue output module



5 - 6: analogue output n°1.

7 - 8: analogue output n°2.

2 input / 2 output module



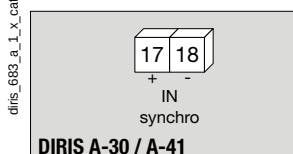
9 - 10: relay output n°1.

11 - 12: relay output n°2.

13 - 14: optical input n°1.

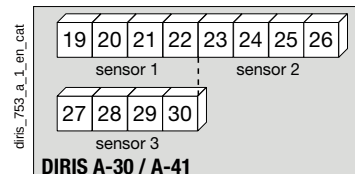
15 - 16: optical input n°2.

Memory module



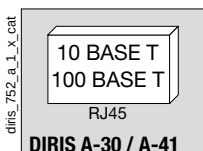
17 - 18: synchronisation input.

Temperature module

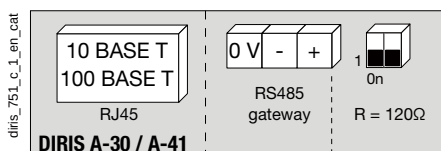


Probe 1      Probe 2      Probe 3  
19: red      23: red      27: red  
20: red      24: red      28: red  
21: white      25: white      29: white  
22: white      26: white      30: white

Ethernet module



Ethernet module + RS485 MODBUS gateway





## Electrical characteristics

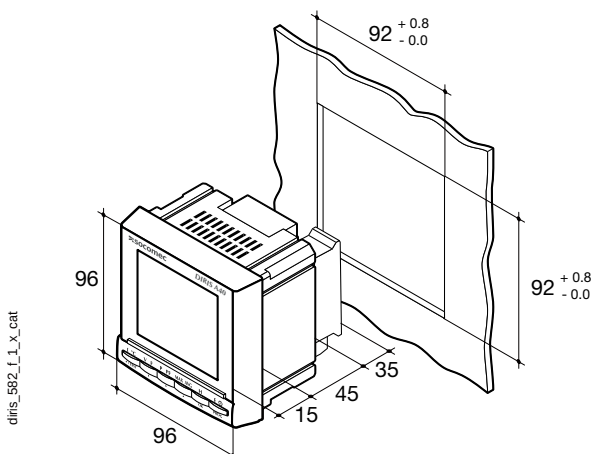
| Measurement of currents on insulated inputs (TRMS) |                                 |
|----------------------------------------------------|---------------------------------|
| Via CT primary                                     | 9,999 A                         |
| Via CT secondary                                   | 1 or 5 A                        |
| Measurement range                                  | 0 ... 11 kA                     |
| Input consumption                                  | ≤ 0,1 VA                        |
| Measurement updating period                        | 1 s                             |
| Accuracy                                           | 0.2%                            |
| Permanent overload                                 | 6 A                             |
| Intermittent overload                              | 10 I <sub>n</sub> for 1 s       |
| Voltage measurements (TRMS)                        |                                 |
| Direct measurement between phases                  | 50 to 1039 VAC                  |
| Direct measurement between phase and neutral       | 28 to 600 VAC                   |
| VT primary measurement                             | 500,000 VAC                     |
| VT secondary measurement                           | 60, 100, 110, 173, 190 VAC      |
| Frequency                                          | 50 / 60 Hz                      |
| Input consumption                                  | ≤ 0,1 VA                        |
| Measurement updating period                        | 1 s                             |
| Accuracy                                           | 0.2%                            |
| Current - voltage product                          |                                 |
| Limitation for TC 1 A                              | 10,000,000                      |
| Limitation for TC 5 A                              | 10,000,000                      |
| Power measurement                                  |                                 |
| Measurement updating period                        | 1 s                             |
| Accuracy                                           | 0.5%                            |
| Power factor measurement                           |                                 |
| Measurement updating period                        | 1 s                             |
| Accuracy                                           | 0.5%                            |
| Frequency measurement                              |                                 |
| Measurement range                                  | 45 ... 65 Hz                    |
| Measurement updating period                        | 1 s                             |
| Accuracy                                           | 0.1%                            |
| Energy accuracy                                    |                                 |
| Active (according to IEC 62053-22)                 | Class 0.5 S                     |
| Reactive (according to IEC 62053-23)               | Class 2                         |
| Auxiliary power supply                             |                                 |
| Alternative voltage                                | 110 ... 400 VAC                 |
| AC tolerance                                       | ± 10 %                          |
| Direct current                                     | 120 ... 350 VDC / 12 ... 48 VDC |
| DC tolerance                                       | ± 20 % / - 6 ... + 20 %         |
| Frequency                                          | 50 / 60 Hz                      |
| Power consumption                                  | ≤ 10 VA                         |

| Module 2 inputs - 2 outputs: outputs (alarms / control) |                                 |
|---------------------------------------------------------|---------------------------------|
| Number of relays                                        | 2 <sup>(1)</sup>                |
| Type                                                    | 250 VAC - 5 A - 1150 VA         |
| Module 2 inputs - 2 outputs: optical coupler inputs     |                                 |
| Number                                                  | 2 <sup>(1)</sup>                |
| Power supply                                            | 10 ... 30 VDC                   |
| Minimum width of signal                                 | 10 ms                           |
| Minimum length between 2 pulses                         | 18 ms                           |
| Type                                                    | Optical couplers                |
| Pulse output module                                     |                                 |
| Number of relays                                        | 2                               |
| Type                                                    | 100 VDC - 0.5 A - 10 VA         |
| Max. number of manoeuvres                               | ≤ 10 <sup>8</sup>               |
| Analogue output module                                  |                                 |
| Number of outputs                                       | 2 <sup>(2)</sup>                |
| Type                                                    | Insulated                       |
| Scale                                                   | 0 / 4 ... 20 mA                 |
| Load resistance                                         | 600 Ω                           |
| Maximum current                                         | 30 mA                           |
| MODBUS communication module                             |                                 |
| Link                                                    | RS485                           |
| Type                                                    | 2 to 3 half duplex wires        |
| Protocol                                                | MODBUS® RTU                     |
| MODBUS® speed                                           | 4800 to 38400 baud              |
| PROFIBUS DP communication module                        |                                 |
| Link                                                    | SUB-D9                          |
| Protocol                                                | PROFIBUS® DP                    |
| PROFIBUS® speed                                         | 9.8 kbaud ... 12 Mbaud          |
| Ethernet communication module                           |                                 |
| Connection technology                                   | RJ45                            |
| Baud rate                                               | 10 base T / 100 base T          |
| Protocol                                                | MODBUS TCP or MODBUS RTU on TCP |
| Temperature module (inputs)                             |                                 |
| Type                                                    | PT100                           |
| Connection                                              | 2, 3 or 4 wires                 |
| Dynamic                                                 | - 20°C ... 150°C                |
| Accuracy                                                | ± 1 digit                       |
| Maximum length                                          | 300 cm                          |
| Operating conditions                                    |                                 |
| Operating temperature range                             | -10 to +55°C                    |
| Storage temperature                                     | -20 to 85°C                     |
| Relative humidity                                       | 95%                             |

(1) Max. 3 modules / DIRIS.

(2) Max. 2 modules / DIRIS.

## Case



|                                                        |                             |
|--------------------------------------------------------|-----------------------------|
| Type                                                   | Panel mounting              |
| Dimensions W x H x D                                   | 96 x 96 x 60 mm             |
| Case degree of protection                              | IP30                        |
| Front degree of protection                             | IP52                        |
| Display type                                           | Backlit LCD display         |
| Type of terminal strips                                | Fixed or detachable         |
| Section of connection for voltages and other terminals | 0,2 ... 2.5 mm <sup>2</sup> |
| Section of connection for currents                     | 0.5 ... 6 mm <sup>2</sup>   |
| Weight                                                 | 400 g                       |

# DIRIS A-30/A-41

Multifunction measuring unit - PMD

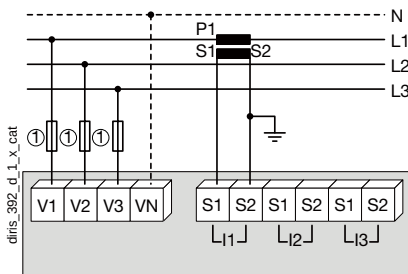
measurement and advanced monitoring - door mounting

## Connections

### Balanced low-voltage network for DIRIS A-30

**Recommendation:** When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us. In TNC mode, it is advisable to connect the DIRIS A-30/A-41 to earth using the functional earth module.

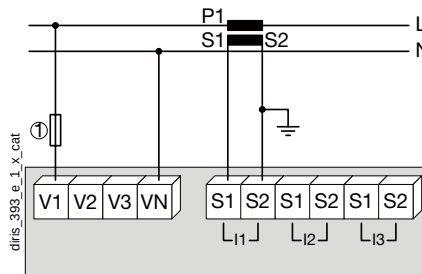
#### 3/4 wires with 1 CT



The use of 1 TC reduces by 0.5% the accuracy of the phases, the current for which is worked out by vector calculation.

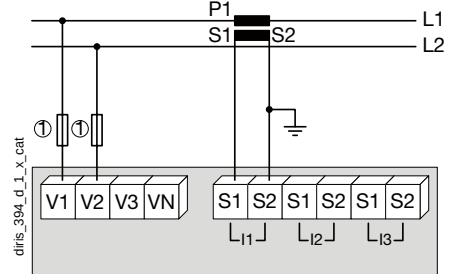
1. 0.5 A gG / 0.5 A class CC fuses.

#### Single-phase



1. 0.5 A gG / 0.5 A class CC fuses.

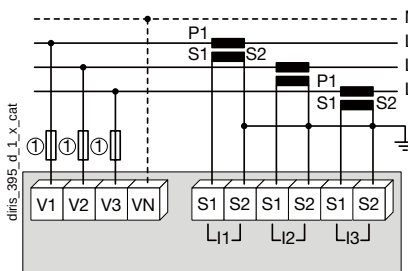
#### Two-phase



1. 0.5 A gG / 0.5 A class CC fuses.

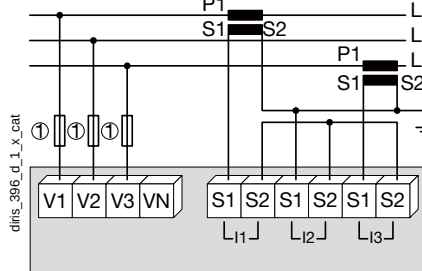
### Balanced low-voltage network for DIRIS A-30

#### 3/4 wires with 3 CTs



1. 0.5 A gG / 0.5 A class CC fuses.

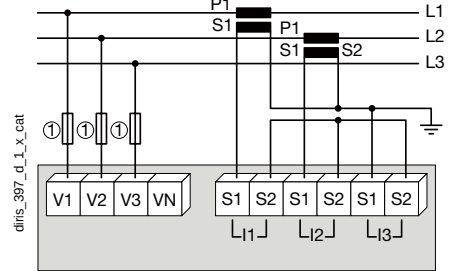
#### 3 wires with 2 CTs



The use of 2 TC reduces by 0.5% the accuracy of the phase, the current for which is worked out by vector calculation.

1. 0.5 A gG / 0.5 A class CC fuses.

#### 3 wires with 2 CTs

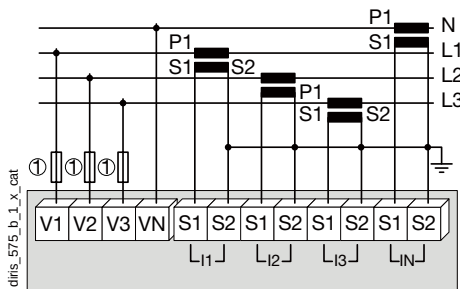


The use of 2 TC reduces by 0.5% the accuracy of the phase, the current for which is worked out by vector calculation.

1. 0.5 A gG / 0.5 A class CC fuses.

### Balanced low-voltage network for DIRIS A-41

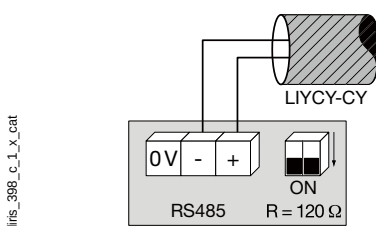
#### 4 wires with 4 CTs



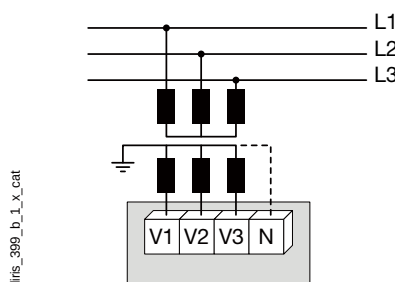
1. 0.5 A gG / 0.5 A class CC fuses.

### Additional information

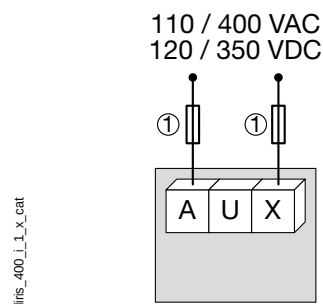
#### Communication via RS485 link



#### Connection of potential transformer for HV networks



#### AC and DC auxiliary power supply



1. 0.5 A gG / 0.5 A class CC fuses.

## References

| Basic device                                   | DIRIS A-30       |  | DIRIS A-41<br>With CT on the neutral |
|------------------------------------------------|------------------|--|--------------------------------------|
| <b>Auxiliary power supply <math>U_s</math></b> | <b>Reference</b> |  | <b>Reference</b>                     |
| 110 ... 400 VAC / 120 ... 350 VDC              | 4825 0403        |  | 4825 0404                            |
| 12 ... 48 VDC                                  | 4825 0405        |  | 4825 0406                            |

| Options                                               |                  |  |                  |
|-------------------------------------------------------|------------------|--|------------------|
| <b>Plug-in modules<sup>(1)</sup></b>                  | <b>Reference</b> |  | <b>Reference</b> |
| Pulse outputs                                         | 4825 0090        |  | 4825 0090        |
| RS485 MODBUS <sup>®</sup> communication               | 4825 0092        |  | 4825 0092        |
| PROFIBUS <sup>®</sup> DP communication                | 4825 0205        |  | 4825 0205        |
| Analogue outputs                                      | 4825 0093        |  | 4825 0093        |
| 2 inputs - 2 outputs                                  | 4825 0094        |  | 4825 0094        |
| Storage capability                                    | 4825 0097        |  | 4825 0097        |
| Ethernet communication <sup>(2)</sup>                 | 4825 0203        |  | 4825 0203        |
| Ethernet communication + RS485 gateway <sup>(2)</sup> | 4825 0204        |  | 4825 0204        |
| Temperature inputs                                    | 4825 0206        |  | 4825 0206        |

(1) Ease of integration of additional functions (maximum 4 slots on A-30 and 3 on A-41).

(2) Dimensions: 2 slots.

| Accessories                                                                   | To be ordered<br>in multiples of | Reference                           | To be ordered<br>in multiples of | Reference                           |
|-------------------------------------------------------------------------------|----------------------------------|-------------------------------------|----------------------------------|-------------------------------------|
| IP65 protection.                                                              | 1                                | 4825 0089                           | 1                                | 4825 0089                           |
| Integration kit for 144 x 96 mm cutout                                        | 1                                | 4825 0088                           | 1                                | 4825 0088                           |
| Fuse holders to protect voltage inputs (type RM) 3 pole                       | 4                                | 5701 0018                           | 4                                | 5701 0018                           |
| Fuse holders to protect the auxiliary power supply (type RM) 1 pole + neutral | 6                                | 5701 0017                           | 6                                | 5701 0017                           |
| gG 10x38 0.5 A fuses                                                          | 10                               | 6012 0000                           | 10                               | 6012 0000                           |
| Range of current transformers                                                 | 1                                | See "Current<br>transformers" pages | 1                                | See "Current<br>transformers" pages |
| Ferrite for use with communication modules                                    | 1                                | 4899 0011                           |                                  | 4899 0011                           |
| PT100 temperature probe, M6 screw                                             | 1                                | 4825 0208                           | 1                                | 4825 0208                           |
| PT100 temperature probe, M6 lug                                               | 1                                | 4825 0209                           | 1                                | 4825 0209                           |
| Associated DIRIS software                                                     |                                  | See "Easy Config System" pages      |                                  |                                     |
| Automatic CT short-circuiting device                                          |                                  | See "Current transformers" pages    |                                  |                                     |

## Expert Services

- > Study, definition, advice, implementation, maintenance and training...  
Our experts "Expert Services" offer complete support for the success of your project.





# DIRIS A-40

## Multifunction measuring unit - PMD

measurement, monitoring and event analysis with smart sensors - door mounting



DIRIS A-40

### Function

The DIRIS A-40 is a panel-mounted power monitoring device (PMD). It is designed for measuring, monitoring and reporting electrical energy.

The DIRIS A-40 offers a range of functions for measuring voltage, current, power, energy and quality. It allows the analysis of a single-phase or three-phase load.

### Advantages

#### Assisted configuration

The configuration wizard guides the user step by step. It also detects and corrects configuration errors. This cuts the commissioning time in half and always delivers a reliable result.

#### Connected to the Cloud

The range comprises IoT ready connected products that enable data to be exported automatically for remote operation without any limit on time, distance and time in storage.

#### Smart sensors

Three current sensor formats (solid-core TE, split-core TR/ITR and Rogowski coil TF) allow integration of the DIRIS A-40 into new and existing electrical installations.

#### Compliant with IEC 61557-12

Reference standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 standard guarantees performance levels and satisfactory performance from the PMDs under the environmental conditions typical of industrial and tertiary applications.

### The solution for

- > Industry
- > Building
- > Infrastructure



### Strong points

- > Assisted configuration
- > Connected to the Cloud
- > Compliant with IEC 61557-12
- > Smart sensors

### Integrated technologies



For more information see our website  
[www.socomec.com](http://www.socomec.com)

### Conformity to standards

- > IEC 61557-12
- > UL E257746
- > EN 50160



### Functions

#### Multi-measurement

- Currents
  - I1, I2, I3, In, Isystem
- Voltages & frequency
  - V1, V2, V3, VN, Vsystem, U12, U23, U31, Usystem, f
- Powers
  - P1, P2, P3, ΣP, Q1, Q2, Q3, ΣQ, S1, S2, S3, ΣS
  - Predictive powers ΣP, ΣQ, ΣS
- Power factor
  - PF1, PF2, PF3, ΣPF
- Cos φ & tangent φ
  - Instantaneous values per phase

#### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Apparent power: kVAh
- Multi-tariff (8 max.)
- Hour Meter

#### Quality

- Voltage Unbalance
  - Vdir, Vinv, Vhom, Udir, Uinv, Unba, Vnba, Vnb, Unb
- Current unbalance
  - Idir, Iinv, Ihom, Inba, Inb
- Total harmonic distortion
  - Currents THDi1, THDi2, THDi3, THDiN, TDDi
  - Phase-to-neutral voltage THDv1, THDv2, THDv3
  - Phase-to-phase voltage THDu12, THDu23, THDu31
- Individual harmonics up to 63rd
  - Currents: HI1, HI2, HI3, HIn
  - Phase-to-neutral voltage: HV1, HV2, HV3
  - Phase-to-phase voltage: HU12, HU23, HU31
- Kfactor & Crest factor
- Events according to EN 50160
  - Voltage dips, outages, interruptions, swells
- Waveform capture
  - Automatic waveform captures when event occurs, and manual recording of the waveform
  - Available through communication

#### Monitoring of protection

- Auxiliary contact monitoring
- Report and alarm on trips
- Number of operations
- Load curves and historical records (max. 130 days)
- Active, reactive and apparent power
- Currents, voltages and frequency

#### Alarms

- Alarms for all electrical values, events and input status changes, possibility of logical combination
- Time-stamping of events

#### Communication

- DIRIS A-40 RS485 Modbus as standard
- DIRIS A-40 Ethernet Modbus
- DIRIS A-40 PROFIBUS DPV1

#### Inputs

- 3 digital inputs
  - Power supplied from DIRIS A-40 or an external source
  - Function: logic status, status of circuit breaker, counting of pulses or synchronization multifluid metering
- 2 logical outputs
  - Function: Command, energy pulse output, load shedding, alarm

## Functions

### Monitoring

- Real-time measurement of electrical values.
- View data as graphs or tables.
- Power quality analysis of the utility supply and of loads.



### Metering

- Measurement of active, reactive and apparent energies.
- Historical record of measurements.
- Graphic display on monthly, weekly, daily or hourly basis.

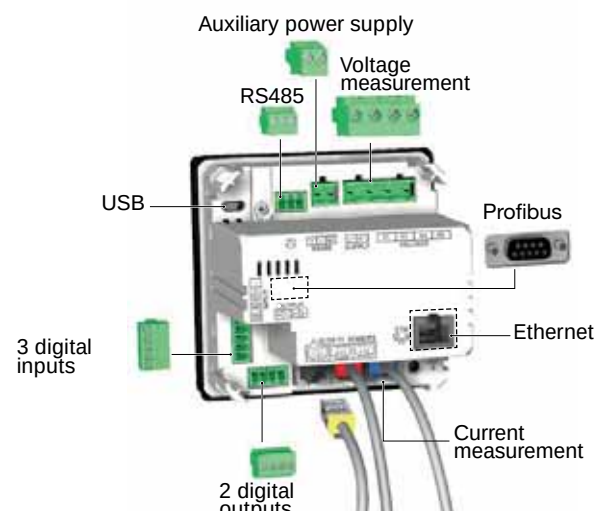


### Alarming

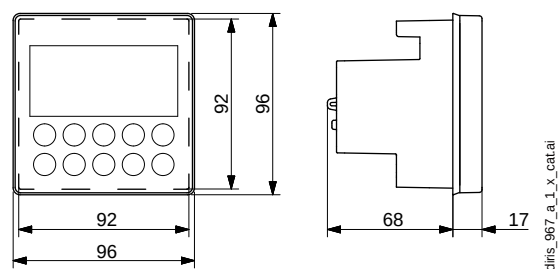
- Display of alarms.
- History of alarms.



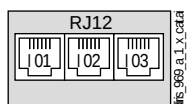
## Terminals



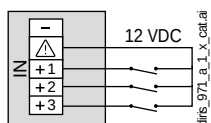
## Dimensions (mm)



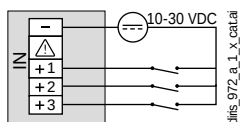
### Current measurement



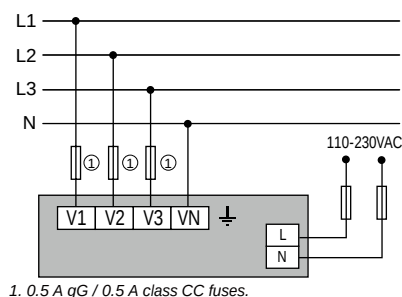
### 3 inputs supplied by the product



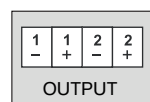
### 3 inputs with external power supply



### Voltage connections inc auxiliary power supply



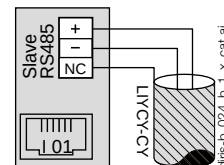
### 2 outputs



### Earth



### RS485



# DIRIS A-40

## Multifunction measuring unit - PMD

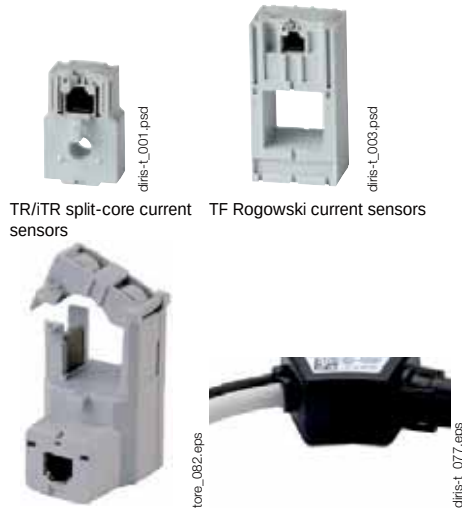
measurement, monitoring and event analysis with smart sensors - door mounting

### Connections

#### Associated current sensors

Various types of current sensors can be connected to the DIRIS A-40: solid-core (TE), split-core (TR/iTR) or Rogowski (TF). This range of sensors is suitable for all types of new or existing installations. A quick RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS A-40 automatically recognizes the sensor size and type. This guarantees the overall accuracy of the DIRIS A-40 + current sensor measurement chain. For more information: see "TE, TR/iTR, TF sensors" pages.

TE solid current sensors



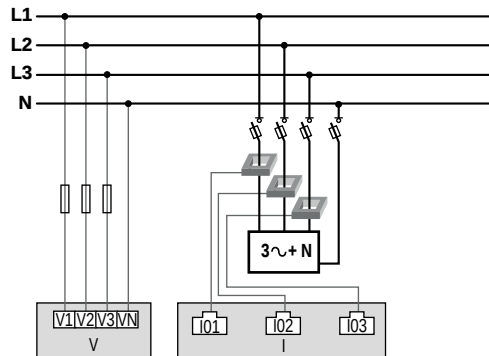
TE / TR/iTR / TF current sensors



#### Network and connection examples

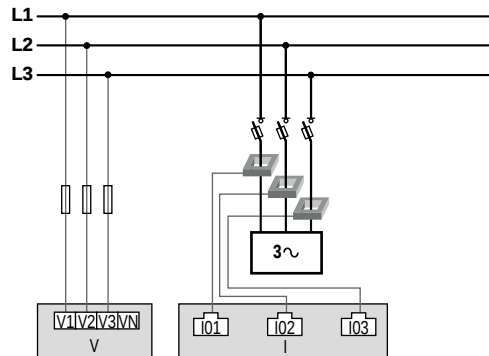
##### Three-phase + Neutral

3P+N - 3 CT (1 three-phase load + calculated Neutral)



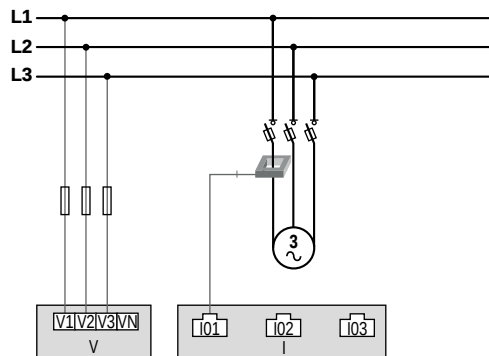
##### Three-phase

3P - 3CT (1 three-phase load)



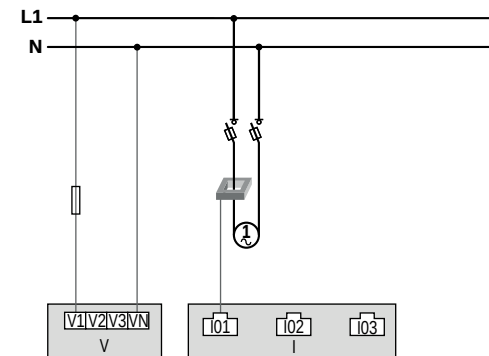
##### Three-phase

3P - 1CT (1 balanced three-phase load)



##### Single-phase

1P+N - 1CT (1 single-phase load)



1. 0.5 A gG / 0.5 A class CC fuses.

If self-supplied, a fuse must always be added to the Neutral.



CT: Current sensor



Load



## DIRIS A-40 characteristics

### Electrical characteristics

| Auxiliary power supply |                                                                                                                                                         |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alternative voltage    | 110/400 VAC or 120/300 VDC - Cat III                                                                                                                    |
| Frequency              | 50/60 Hz                                                                                                                                                |
| Power consumption      | 5VA AC / 1,5VA DC (48250500)<br>8VA AC / 2,5VA DC (48250501 & 48250502)                                                                                 |
| Connection             | Removable spring-cage terminal block, 2x 2 positions, 0.5 - 2.5 mm <sup>2</sup> solid cable or 0.25 - 1.5 mm <sup>2</sup> stranded cable with end piece |

### Measurement characteristics

| Power and energy measurement            |                                                                                                                                                      |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accuracy                                | Class 0.2 DIRIS A-40 only                                                                                                                            |
| Active energy and active power          | Class 0.5 with TE, TF or ITR sensors<br>Class 1 with TR sensors                                                                                      |
| Accuracy of reactive energy             | Class 2 with TE, TR/ITR or TF sensors                                                                                                                |
| Power factor measurement                |                                                                                                                                                      |
| Accuracy                                | Class 0.5 with TE, TF or ITR sensors<br>Class 1 with TR sensors                                                                                      |
| Voltage measurement                     |                                                                                                                                                      |
| Characteristics of the network measured | 50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III                                                                                                       |
| Frequency range                         | 45 to 65Hz                                                                                                                                           |
| Frequency accuracy                      | Class 0.02                                                                                                                                           |
| Network type                            | Single-phase/ Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral                                                            |
| Measurement by voltage transformer      | Primary: 400 000 VAC<br>Secondary: 60, 100, 110, 173, 190 VAC                                                                                        |
| Input consumption                       | ≤ 0,1 VA                                                                                                                                             |
| Accuracy of voltage measurement         | Class 0.2                                                                                                                                            |
| Connection                              | Removable spring-cage terminal block, 4 positions, 0.5 - 2.5 mm <sup>2</sup> solid cable or 0.25 - 1.5 mm <sup>2</sup> stranded cable with end piece |
| Current measurement                     |                                                                                                                                                      |
| Number of current inputs                | 3                                                                                                                                                    |
| Associated current sensors              | Solid TE, split-core TR/ITR, flexible TF current sensors                                                                                             |
| Accuracy                                | 0.2 DIRIS A-40 class only<br>Class 0.5 with TE, TF or ITR sensors<br>Class 1 with TR sensors                                                         |
| Connection                              | Specific Socomec cable with RJ12 connectors                                                                                                          |

### Input characteristics

|                     |                                                                                                 |
|---------------------|-------------------------------------------------------------------------------------------------|
| Number              | 3                                                                                               |
| Type / Power supply | Optocoupler with internal (12 VDC ± 10%) or external (12-24 VDC ± 20%) polarisation             |
| Input function      | Logic status, status of circuit breaker, synchronization topography, multifluid pulse metering  |
| Connection          | Removable screw terminal block, 5 positions, stranded or solid 0.14 - 1.5 mm <sup>2</sup> cable |

### Output characteristics

|                 |                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------|
| Number          | 2                                                                                               |
| Type            | Optocoupler 30 Vd.c. max 20mA max - SELV                                                        |
| Output function | Command, energy pulse output, load shedding, alarm                                              |
| Connection      | Removable screw terminal block, 4 positions, stranded or solid 0.14 - 1.5 mm <sup>2</sup> cable |

### Communication characteristics

| DIRIS A-40 RS485 |                             |
|------------------|-----------------------------|
| Link             | RS485                       |
| Connection type  | 2 to 3 half duplex wires    |
| Protocol         | Modbus RTU                  |
| Baud rate        | 1200 to 115 200 baud        |
| USB              | Configuration of DIRIS A-40 |

## References

| DIRIS A-40 monitoring devices                                                             |                                                                                    | Reference |
|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------|
| DIRIS A-40                                                                                | RS485 Modbus - 3 inputs / 2 outputs                                                | 4825 0500 |
| DIRIS A-40                                                                                | Ethernet Modbus TCP or BACnet IP - webserver - RS485 Modbus - 3 inputs / 2 outputs | 4825 0501 |
| DIRIS A-40                                                                                | Profibus DPV1 - RS485 Modbus - 3 inputs / 2 outputs                                | 4825 0502 |
| Accessories                                                                               |                                                                                    | Reference |
| Fuse disconnect switches to protect voltage inputs (RM type)                              |                                                                                    |           |
|                                                                                           | To be ordered in multiples of 4                                                    | 5701 0018 |
| Fuse disconnect switches to protect the 1-pole + neutral auxiliary power supply (RM type) |                                                                                    |           |
|                                                                                           | To be ordered in multiples of 6                                                    | 5701 0017 |
| gG 10x38 0.5 A fuses                                                                      |                                                                                    |           |
|                                                                                           | To be ordered in multiples of 10                                                   | 6012 0000 |



# DIRIS B

## Multifunction measuring unit - PMD

measurement, monitoring and event analysis with smart sensors - modular format

Single-circuit metering,  
measurement &  
analysis



DIRIS B-10 / B-30  
RS485

diris-b\_038.eps



Configuration  
with Easy Config System.

### Function

The DIRIS B is a power monitoring device in a modular format that communicates via RS485. The 4 RJ12 independent current inputs of the device allow it to manage several types and number of circuits: for example, 4 single-phase loads or 1 three-phase load + 1 single-phase load.

The DIRIS B is connected to current sensors (RJ12 connection) that are suitable for all types of installation: solid TE, split-core TR/iTR, and flexible TF current sensors.

### Advantages

#### Plug & Play

A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. Automatically addressing and configuring the product (communication address, load type, type and ratio of current sensor) allow you to simplify implementation and to save time.

#### Class 0.5 in accordance with IEC 61557-12

- Class 0.2 for the meter alone.
- Class 0.5 from 2% to 120% of nominal current for the global measurement chain (associated with TE/iTR/TF current sensors).

#### Multi-circuit

- 4 current measurement inputs allow you to configure multiple circuits in order to optimise the number of measurement devices per installation.

#### Communication

- The DIRIS B can be connected to:
  - a remote DIRIS D-30 screen for displaying measurement and metering data.
  - DIRIS Digiware M-50/M-70 gateways for centralisation and communication of data via Ethernet. DIRIS Digiware M-70 embeds WEBVIEW-M, a webserver for remote visualisation of measurement data.
  - optional modules for more communication options including a second RS485 port or PROFIBUS DP protocol. Digital or Analog input/output, as well as temperature input modules can also be connected.

### The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



### Strong points

- > Plug & Play
- > Global accuracy class 0.5 in accordance with IEC 61557-12
- > Multi-circuit
- > Communication

### Integrated technologies



PreciSense



AutoCorrect



VirtualMonitor

For more information see our website  
[www.socomec.com](http://www.socomec.com)

### Conformity to standards

- > UL E257746
- > IEC 61557-12
- > EN 50160
- > ISO 14025



| Application                                          | Local metering                                                                      | Local analysis                                                                      |
|------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                      |  |  |
| <b>DIRIS B</b>                                       | <b>B-10 RS485</b>                                                                   | <b>B-30 RS485</b>                                                                   |
| Number of current inputs                             | 4                                                                                   | 4                                                                                   |
| Metering                                             |                                                                                     |                                                                                     |
| ± kWh, ± kvarh, kVAh                                 | •                                                                                   | •                                                                                   |
| Load curves                                          |                                                                                     | •                                                                                   |
| Multi-tariff                                         | •                                                                                   | •                                                                                   |
| Multi-measurement                                    |                                                                                     |                                                                                     |
| U12, U23, U31, V1, V2, V3, f                         | •                                                                                   | •                                                                                   |
| U system, V system                                   | •                                                                                   | •                                                                                   |
| I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF                      | •                                                                                   | •                                                                                   |
| P, Q, S, PF per phase                                | •                                                                                   | •                                                                                   |
| Predictive power                                     | •                                                                                   | •                                                                                   |
| Ph/N unbalance                                       | •                                                                                   | •                                                                                   |
| Ph/Ph unbalance                                      | •                                                                                   | •                                                                                   |
| Current unbalance (Inba, Idir, linv, Ihom, Inb)      | •                                                                                   | •                                                                                   |
| Phi, cos Phi, tan Phi                                | •                                                                                   | •                                                                                   |
| Quality analysis                                     |                                                                                     |                                                                                     |
| THDv1, THDv2, THDv3, THDu12, THDu23, THDu31          | •                                                                                   | •                                                                                   |
| THDi1, THDi2, THDi3, THDin                           | •                                                                                   | •                                                                                   |
| Individual harmonics U & V (up to 63 <sup>rd</sup> ) |                                                                                     | •                                                                                   |
| Individual harmonics I (up to 63 <sup>rd</sup> )     |                                                                                     | •                                                                                   |
| Crest factor I1, I2, I3, In                          |                                                                                     | •                                                                                   |
| Crest factor V1, V2, V3, U12, U23, U31               |                                                                                     | •                                                                                   |
| Voltage dips, interruptions, swells (EN 50160)       |                                                                                     | •                                                                                   |
| Overcurrents                                         |                                                                                     | •                                                                                   |
| Alarms                                               |                                                                                     |                                                                                     |
| On threshold                                         |                                                                                     | •                                                                                   |
| Inputs/outputs                                       |                                                                                     | •                                                                                   |
| History of average values                            |                                                                                     |                                                                                     |
| 45 days (max)                                        |                                                                                     | •                                                                                   |
| Communication                                        |                                                                                     |                                                                                     |
| RS485 Modbus                                         | •                                                                                   | •                                                                                   |
| 2 inputs (status / pulse)                            | •                                                                                   | •                                                                                   |

## Accessories

### DIRIS B sealing cover

- Prevents access to the cabling of the monitoring device.



### USB configuration cable (2 m)

- Advanced configuration of DIRIS B gateways can be achieved using the EASY CONFIG software via Ethernet or direct USB connection.

# DIRIS B

## Multifunction measuring unit - PMD

measurement, monitoring and event analysis with smart sensors - modular format

### DIRIS D-30 display

DIRIS D-30

Connection



### Optional modules

DIRIS O



Optional modules (4 max.)\*

- Digital inputs/outputs
- Analogue inputs/outputs
- Temperature inputs
- Communication protocols

\* maximum 4 optional modules with maximum 1 temperature module and 1 communication module (Modbus, PROFIBUS).



DIRIS O-iod

- 2 digital inputs centralises the metering pulses or the input status changes of the auxiliary contacts.
- 2 digital outputs can be connected to configurable alarms warning of exceeded thresholds (power, current, etc.) or can be piloted remotely.



DIRIS O-ioa

- 2 inputs (4-20 mA) centralise analogue sensors (pressure, humidity, temperature, etc.)
- 2 outputs (4-20 mA) report the measurements (power, currents, etc.) to PLCs.



DIRIS O-it

- 3 temperature inputs to be connected to PT100 or PT1000 sensors.
- Ambient air temperature.



DIRIS O-m

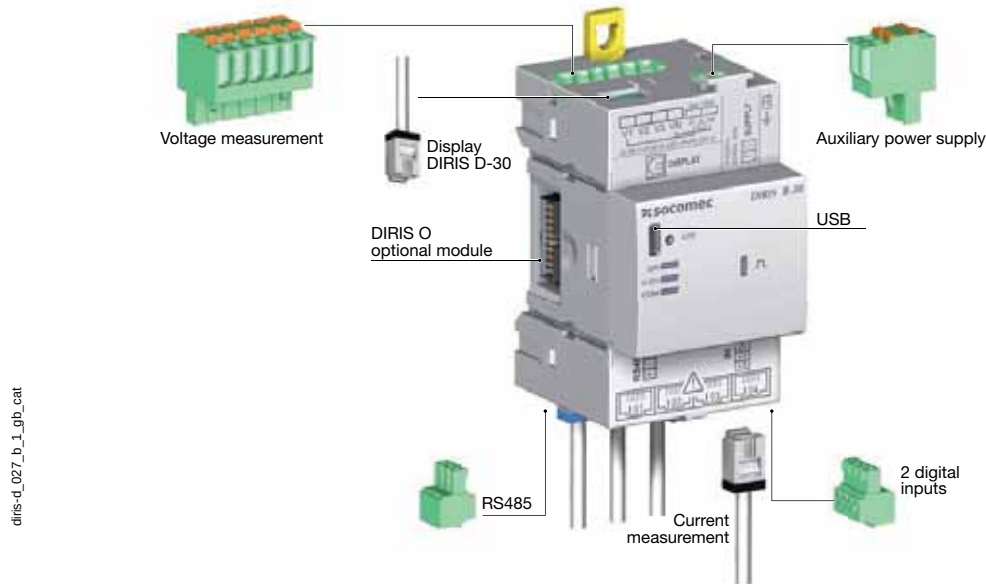
- Provides a second RS485 Modbus communication port to the DIRIS B for simultaneous sending of information via RS485 to two supervision stations.



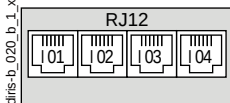
DIRIS O-p

- Adds a PROFIBUS DPV1 communication port to the DIRIS B.

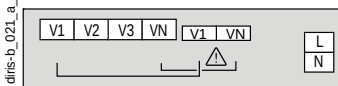
#### DIRIS B terminals



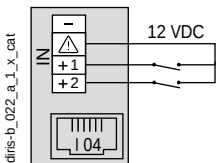
#### Current measurement



#### Voltage measurement and auxiliary power supply

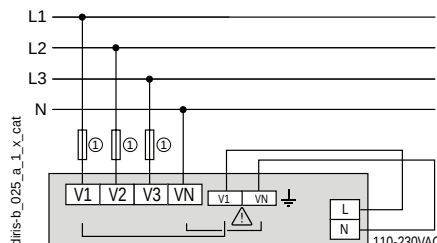


#### 2 inputs supplied by the product

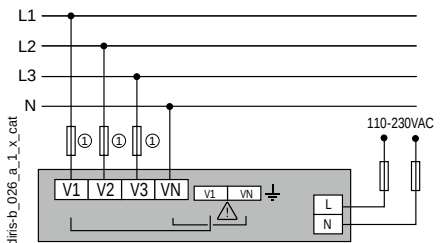


#### Self supply

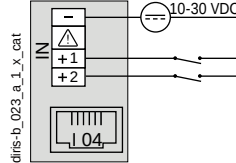
Easy connection of the power supply from the measurement terminal (specific terminals)



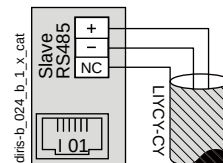
#### Separate power supply



#### 2 inputs with external power supply



#### RS485

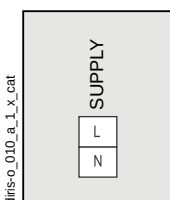


#### RJ9 for DIRIS D-30 (self-supply and data)

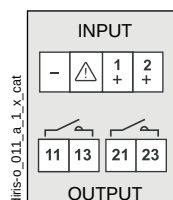


#### Terminals of optional DIRIS O modules

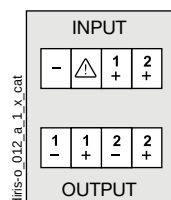
##### Optional module power supply



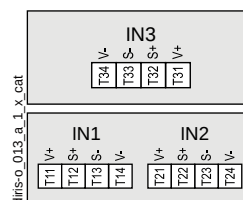
##### DIRIS O-iod



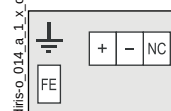
##### DIRIS O-ioa



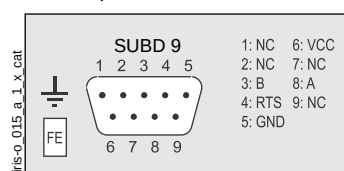
##### DIRIS O-it



##### DIRIS O-m RS485



##### DIRIS O-p

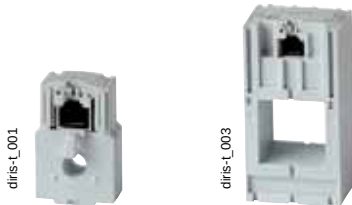


## Connections

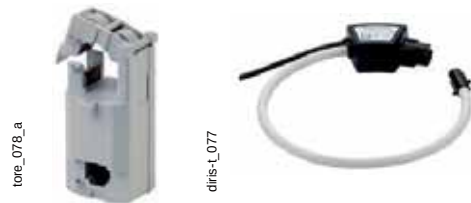
### Associated current sensors

Various types of current sensors can be connected to the DIRIS B: solid-core TE, split-core TR/iTR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS B automatically recognises the type of sensor used and its current rating. This guarantees the overall accuracy of the DIRIS B + current sensor measurement chain. For more information: see "TE, TR/iTR, TF sensors" pages.

#### TE solid-core current sensors



#### TR/iTR split-core current sensors



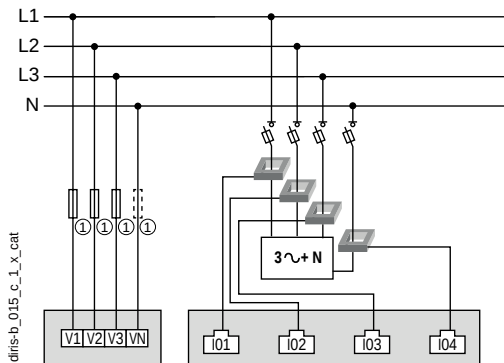
#### TE / TR / iTR / TF current sensors



## Network and connection examples

### Three-phase + neutral

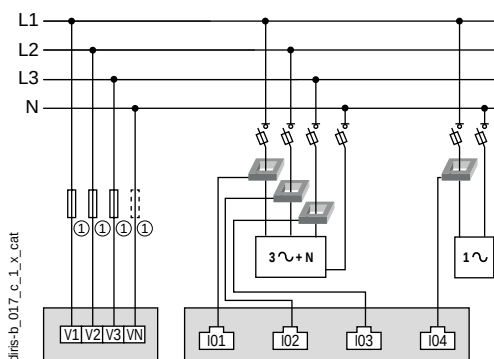
3P+N - 4CTs (measurement for 1 three-phase load + Neutral)



1. Fuses 0.5 A gG / 0.5 A class CC.

### Three-phase

3P+N - 3CTs & 1P+N - 1CT (1 three-phase load & 1 single-phase load)

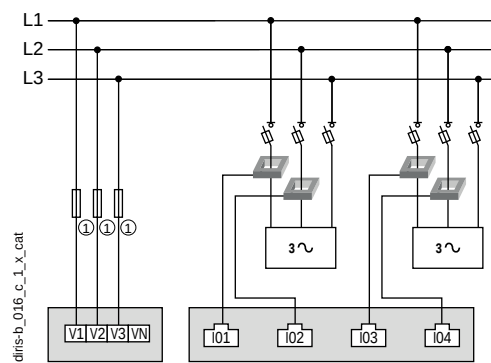


1. Fuses 0.5 A gG / 0.5 A class CC.

In case of self-supply, a fuse must be added on the neutral.

### Three-phase

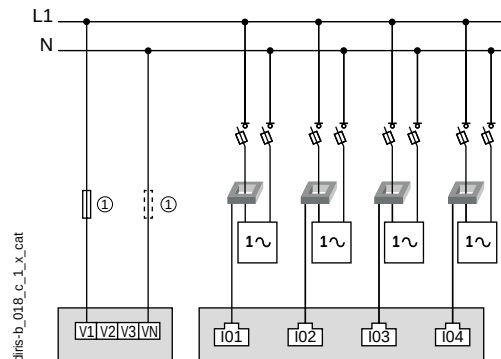
3P - 2CTs (2 three-phase loads without neutral)



1. Fuses 0.5 A gG / 0.5 A class CC.

### Single-phase

1P+N-1CT (4 single-phase loads)



1. Fuses 0.5 A gG / 0.5 A class CC.



CT: Current sensors

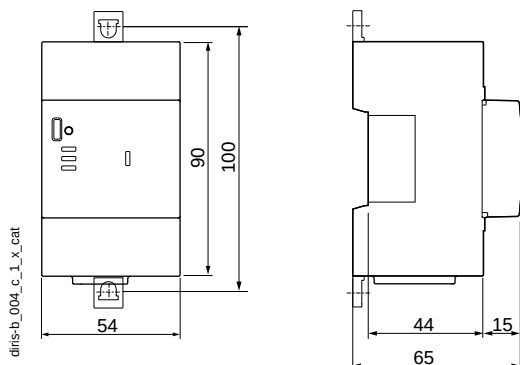


Load

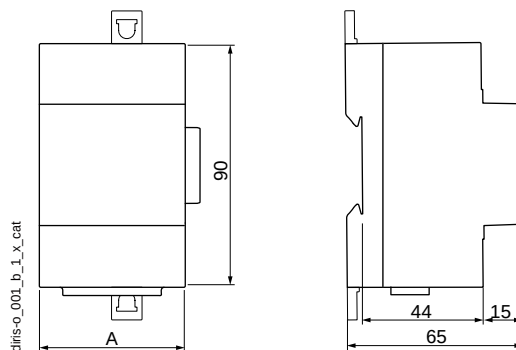


#### Dimensions (mm)

DIRIS B

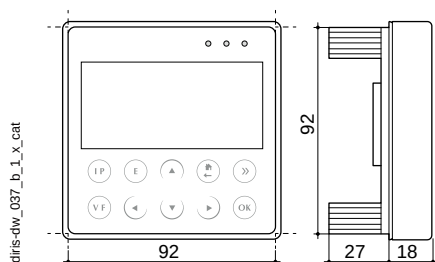


DIRIS O optional modules



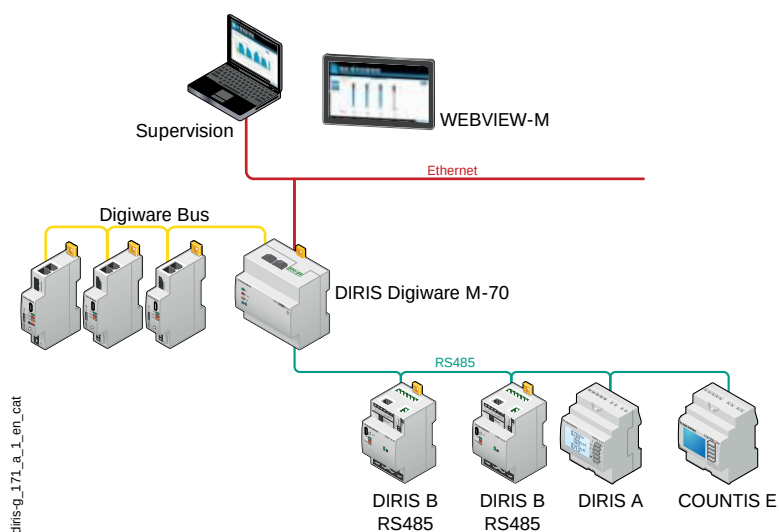
| DIRIS O optional modules               | A (mm) |
|----------------------------------------|--------|
| DIRIS O-iod - DIRIS O-ioa - DIRIS O-it | 45     |
| DIRIS O-m - DIRIS O-p                  | 54     |

DIRIS D-30



#### Communication architecture

Example of communication architecture with DIRIS Digiware M-70 gateway and WEBVIEW-M embedded web server.



#### DIRIS B characteristics

##### Electrical characteristics

| Auxiliary power supply |                                                                                                                                                      |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC voltage             | 110-230 VAC $\pm 15\%$ (Ph/N ou Ph/Ph) Cat III                                                                                                       |
| Frequency              | 50/60 Hz                                                                                                                                             |
| Consumption            | < 2 VA without display < 6VA with display                                                                                                            |
| Connection             | Removable spring-cage terminal, 2 x 2 positions, 0.5 ... 2.5 mm <sup>2</sup> solid cable or 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule |

##### Measurement characteristics

| Energy and power measurement   |                                                                                 |
|--------------------------------|---------------------------------------------------------------------------------|
| Accuracy                       | Class 0.2 DIRIS B alone                                                         |
| Active energy and active power | Class 0.5 with TE, iTR or TF current sensors<br>Class 1 with TR current sensors |
| Reactive energy accuracy       | Class 2 with TE, TR or TF current sensors                                       |

| Power factor measurement |                                                                                 |
|--------------------------|---------------------------------------------------------------------------------|
| Accuracy                 | Class 0.5 with TE, iTR or TF current sensors<br>Class 1 with TR current sensors |

| Voltage measurement                |                                                                                                                                                      |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network characteristics measured   | 50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III                                                                                                       |
| Frequency range                    | 45 ... 65Hz                                                                                                                                          |
| Frequency accuracy                 | Class 0.02                                                                                                                                           |
| Network type                       | Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral                                                           |
| Measurement by voltage transformer | Primary: 400 000 VAC<br>Secondary: 60, 100, 110, 173, 190 VAC                                                                                        |
| Input consumption                  | $\leq 0.1$ VA                                                                                                                                        |
| Permanent overload                 | 300VAC Ph/N                                                                                                                                          |
| Voltage measurement accuracy       | Class 0.2                                                                                                                                            |
| Connection                         | Removable spring-cage terminal, 2 x 6 positions, 0.5 ... 2.5 mm <sup>2</sup> solid cable or 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule |

| Current measurement        |                                                                                                            |
|----------------------------|------------------------------------------------------------------------------------------------------------|
| Number of current inputs   | 4                                                                                                          |
| Associated current sensors | Solid TE, split-core TR/iTR, flexible TF current sensors                                                   |
| Accuracy                   | Class 0.2 DIRIS B alone<br>Class 0.5 with TE, iTR or TF current sensors<br>Class 1 with TR current sensors |
| Connection                 | RJ12 connectors with specific SOCOMEC cable                                                                |

##### Input characteristics

|                     |                                                                                                         |
|---------------------|---------------------------------------------------------------------------------------------------------|
| Number              | 2                                                                                                       |
| Type / Power supply | Optocoupler internal polarisation (12 VDC $\pm 10\%$ ) or external polarisation (10-30 VDC $\pm 10\%$ ) |
| Input function      | Logic status, pulse meter or synchronisation pulse status (input 1)                                     |

##### Communication characteristics

| DIRIS B RS485   |                             |
|-----------------|-----------------------------|
| Link            | RS485                       |
| Connection type | 2 ... 3 half duplex wires   |
| Protocol        | Modbus RTU                  |
| Speed           | 1200 ... 115200 bauds       |
| USB             | DIRIS B RS485 configuration |

##### Environment characteristics

|                       |                               |
|-----------------------|-------------------------------|
| Operating temperature | -10 ... +70 °C                |
| Storage temperature   | -25 ... +85 °C                |
| Operating humidity    | 55 °C / 97% relative humidity |
| Operating altitude    | 2000 m                        |
| Vibration             | 1G from 10 to 100Hz           |

#### DIRIS D-30 display characteristics

| Mechanical characteristics |                                             |
|----------------------------|---------------------------------------------|
| Screen type                | Capacitive touch-screen technology, 10 keys |
| Screen resolution          | 350 x 160 pixels                            |
| Single product connection  |                                             |
| RJ9                        | Self-supply and data                        |
| Micro-USB                  | Updating                                    |
| Degree of protection       | IP65 (front face)                           |
| Environment                |                                             |
| Storage temperature (°C)   | -20 ... +70°C                               |
| Operating temperature (°C) | -20 ... +70°C                               |
| Humidity                   | 95 % to 40°C                                |
| Installation category      | CAT III                                     |
| Degree of pollution        | 2                                           |

#### DIRIS O optional modules characteristics

| Power supply <sup>(1)</sup> |                        |
|-----------------------------|------------------------|
| AC voltage                  | 110-230 VAC $\pm 15\%$ |
| Frequency                   | 50/60 Hz               |

(1) No power supply on DIRIS O-it.

| DIRIS O-iod - 2 digital inputs/2 digital outputs |                                                                                                         |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Number of inputs                                 | 2 per optional modules - max. 4 optional modules                                                        |
| Type                                             | Optocoupler internal polarisation (12 VDC $\pm 10\%$ ) or external polarisation (10-30 VDC $\pm 10\%$ ) |
| Function                                         | Logic status or pulse meter                                                                             |
| Number of outputs                                | 2 per optional modules - max. 4 optional modules                                                        |
| Type                                             | Relay / 230 VAC $\pm 15\%$ - 1 A                                                                        |
| Function                                         | Configurable alarm (current, power...) on threshold overruns or remote controlled status                |
| Inputs/Outputs connection                        | Removable screw terminal, 4 positions, 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable              |

| DIRIS O-ioa - 2 analogue inputs/2 analogue outputs |                                                                     |
|----------------------------------------------------|---------------------------------------------------------------------|
| Number of inputs                                   | 2 per optional modules - max. 4 optional modules                    |
| Type                                               | 4-20 mA                                                             |
| Function                                           | Connection of analogue sensors (pressure, humidity, temperature...) |
| Number of outputs                                  | 2 per optional modules - max. 4 optional modules                    |
| Type                                               | 4-20 mA                                                             |
| Function                                           | Transmission of measurement image (current, power...) to PLCs       |

| DIRIS O-it - 3 temperature inputs |                                                           |
|-----------------------------------|-----------------------------------------------------------|
| Number of inputs                  | 3 external inputs + 1 measurement for ambient temperature |
| Dynamic                           | -20 ... 150 °C                                            |
| Type                              | PT100 or PT1000                                           |
| Function inputs 1, 2 and 3        | Temperature measurement                                   |

| DIRIS O-m - RS485 communication |                                                                                            |
|---------------------------------|--------------------------------------------------------------------------------------------|
| Link                            | RS485 2 ... 3 half duplex wires                                                            |
| Protocol                        | Modbus RTU                                                                                 |
| Speed                           | 1200 ... 115200 bauds                                                                      |
| Connection                      | Removable screw terminal, 3 positions, 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable |

| DIRIS O-p - PROFIBUS communication |               |
|------------------------------------|---------------|
| Protocol                           | PROFIBUS DPV1 |

## References

| DIRIS B monitoring devices                                                                |                                              | Reference |
|-------------------------------------------------------------------------------------------|----------------------------------------------|-----------|
| DIRIS B-10                                                                                | RS485 - Modbus - 230 VAC                     | 4829 0010 |
| DIRIS B-30                                                                                | RS485 - Modbus - 230 VAC                     | 4829 0000 |
| DIRIS O optional modules                                                                  |                                              | Reference |
| DIRIS O-iod                                                                               | 2 digital inputs / 2 digital outputs         | 4829 0030 |
| DIRIS O-ioa                                                                               | 2 analogue inputs/2 analogue outputs 4-20 mA | 4829 0031 |
| DIRIS O-it                                                                                | 3 temperature inputs PT 100 / PT 1000        | 4829 0032 |
| DIRIS O-m                                                                                 | RS485 Modbus communication                   | 4829 0033 |
| DIRIS O-p                                                                                 | PROFIBUS communication                       | 4829 0034 |
| Accessories                                                                               |                                              | Reference |
| DIRIS D-30 - Single-point display                                                         | To be ordered in multiples of                | 4829 0200 |
| RJ9 cable for DIRIS D-30 display - 1.5 m                                                  |                                              | 4829 0280 |
| RJ9 cable for DIRIS D-30 display - 3 m                                                    |                                              | 4829 0281 |
| DIRIS B sealing cover for I/O terminals                                                   |                                              | 4829 0049 |
| USB configuration cable                                                                   |                                              | 4829 0050 |
| Fuse disconnect switches to protect voltage inputs (RM type)                              | 4                                            | 5701 0018 |
| Fuse disconnect switches to protect the 1-pole + neutral auxiliary power supply (RM type) | 6                                            | 5701 0017 |
| gG 10x38 0.5 A fuses                                                                      | 10                                           | 6012 0000 |



# DIRIS Q800

## Electrical network analyser

quality analysis of electrical energy and power grids

Single-circuit metering,  
measurement &  
analysis



DIRIS Q800

diris-q\_012\_a

### Function

The **DIRIS Q800** is a multifunction network analyser for all energy efficiency projects. It helps to actively ensure the electrical system runs continuously and at optimised rates.

As such, with this system you can:

- Improve the efficiency of your facility.
- Reduce production losses.
- Optimise running costs.
- Reduce maintenance costs.

To achieve these objectives, the DIRIS Q800 does the following:

- Measures electrical parameters and status (via auxiliary contacts).
- Analyses the quality of energy according to class A IEC 61000-4-30:2015 Ed.3.
- Measures differential current.
- GPS synchronisation.
- Sends an email in the event of an alarm.

### Advantages

#### Large colour touchscreen

The 192 x 144 mm color touchscreen is tactile, easy to operate and provides intuitive navigation.

#### Regulatory compliance

By its compliance with IEC 61000-4-30:2015 Ed.3 Class A for all electrical parameters and IEC 62586-2, you have the assurance of a certified and high quality product.

#### Multiple communication channels

With its multiple communication options, the DIRIS Q800 can be integrated into any type of communication infrastructure:

- 1 rear Ethernet port for permanent cable connection.
- 1 front Ethernet for local diagnostics.
- 1 Wifi port.
- 1 RS485 port.
- 1 USB port.
- GPS synchronisation.
- Built-in Webserver.
- Protocols: HTTP, HTTPS, FTP, NTP, MODBUS, PQDIF, SMTP.

### The solution for

- > Industry
- > Infrastructure
- > Healthcare buildings
- > Data centers



### Strong points

- > Large colour touchscreen
- > High performance and accuracy
- > Regulatory compliance
- > Multiple communication channels

### Compliance with standards

- > IEC 61000-4-30 :2015 Ed.3 class A
- > IEC 62586-1
- > IEC 62586-2
- > IEC 62053-22
- > IEC 62053-24
- > EN 50160



## Functions

### Measurements

- Measures across 4 quadrants
- Voltage by phase, current by phase, frequency.
- Neutral current, differential current.
- Neutral/earth voltage.
- Active, reactive and apparent power.
- Cos phi and power factor.
- THD and spectral analysis up to the 63<sup>rd</sup> for current and voltage.
- Flicker (Pst, Plt).
- Voltage and current unbalance.
- Remote control signals.
- Current and Power Demand: average and maximum (timestamped)

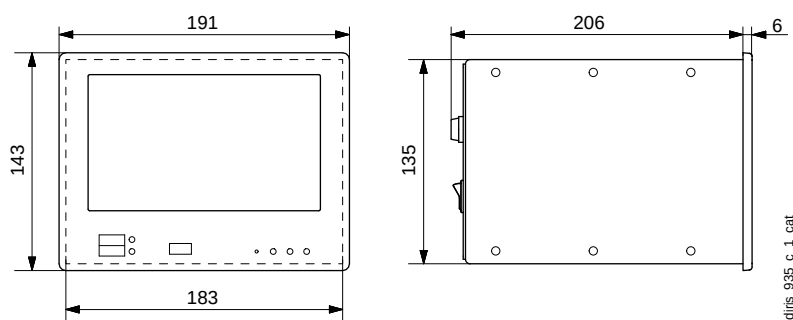
### Logging

- EN 50160 events ½ period (10 ms): voltage dips, voltage cutouts, voltage surges.
- Current events 1/2 period (10 ms): inrush
- Data exported automatically via FTP.
- EN 50160 reports with CBEMA / ITIC curves for PQ events.
- Transients (20 micro seconds).

### Inputs/outputs

- 4 digital inputs.
- 4 digital outputs.
- 4 analogue outputs.

## Dimensions (mm)



### Dimensions

|                        |                              |
|------------------------|------------------------------|
| Cutout                 | 192 x 144 DIN / 186 x 138 mm |
| Front panel (W x H)    | 191 x 143 mm                 |
| Enclosures (W x H x D) | 183 x 135 x 190 mm           |
| Weight                 | 1400 g                       |

## Specifications

### Auxiliary power supply

|                   |                                    |
|-------------------|------------------------------------|
| Voltage range     | 100 ... 240 VAC / 65 ... 250 VDC   |
| Frequency         | 50/60 Hz                           |
| Power consumption | Max. 15 VA                         |
| Backup battery    | Li-ion 2500 mAh (>15 min autonomy) |

### Measurement inputs

|                                     |                                                           |
|-------------------------------------|-----------------------------------------------------------|
| Direct voltage measurement input    | P-N: max 580 V RMS CAT III<br>L-L: max 1000 V RMS CAT III |
| U4 direct voltage measurement input | Max 580 V RMS CAT II                                      |
| Voltage input crest factor          | 2                                                         |
| Current inputs                      | Max 7 A RMS                                               |
| Current input consumption           | 0.04 VA                                                   |
| Current input crest factor          | 3                                                         |
| Voltage input impedance             | > 6 MΩ                                                    |
| Frequency range                     | 42.5 to 57.5 Hz/51 to 69 Hz                               |
| Voltage reference channel           | U1N/U12                                                   |
| Sampling                            | 51.2 kHz @50 Hz                                           |

### Accuracy

|                                         |                            |
|-----------------------------------------|----------------------------|
| Three-phase voltage                     | ± 0.1%                     |
| 4 <sup>th</sup> voltage (neutral/earth) | ± 0.2%                     |
| Currents                                | ± 0.2%                     |
| Power                                   | ± 0.2%                     |
| Frequency                               | ± 10 mHz                   |
| Harmonics                               | Class 1 IEC/EN 61000-4-7   |
| Active energy                           | Class 0.2S IEC/EN 62053-22 |
| Reactive energy                         | Class 1 IEC/EN 62053-24    |

### Communication

|                                   |                                                         |
|-----------------------------------|---------------------------------------------------------|
| Ethernet ports                    | 2 Auto MDIX RJ45 10/100 Base Ethernet                   |
| RS485 opto-insulated port (slave) | 0.5 UL 4800 to 115200 bps                               |
| Passive WIFI antenna              | RP-SMA female                                           |
| Active GPS antenna                | SMA female                                              |
| Protocols                         | HTTP, HTTPS, FTP, SFTP, NTP, NMEA, Modbus RTU/TCP, SMTP |
| USB port                          | USB 2.0                                                 |

### Environmental conditions

|                                    |               |
|------------------------------------|---------------|
| Operating temperature (max. range) | -25 ... +55°C |
| Storage temperature                | -25 ... +75°C |
| Humidity                           | Max. 95 %     |
| Max. altitude                      | 2000 m        |

### Standards and safety

|                      |                                                   |
|----------------------|---------------------------------------------------|
| Product conformity   | IEC/EN 62586-1, IEC/EN 62586-2                    |
| Safety               | EN 61010-2-030                                    |
| Degree of pollution  | 2 (EN 61010-1)                                    |
| Degree of protection | IP40 front, IP20 rear                             |
| Directive            | RED §3.1a Health EN 62311 :2008<br>RED § 3.1b EMC |

## References

### Designation

DIRIS Q800 100 ... 240 VAC / 65 ... 250 VDC

### Reference

4826 0100<sup>(1)</sup>

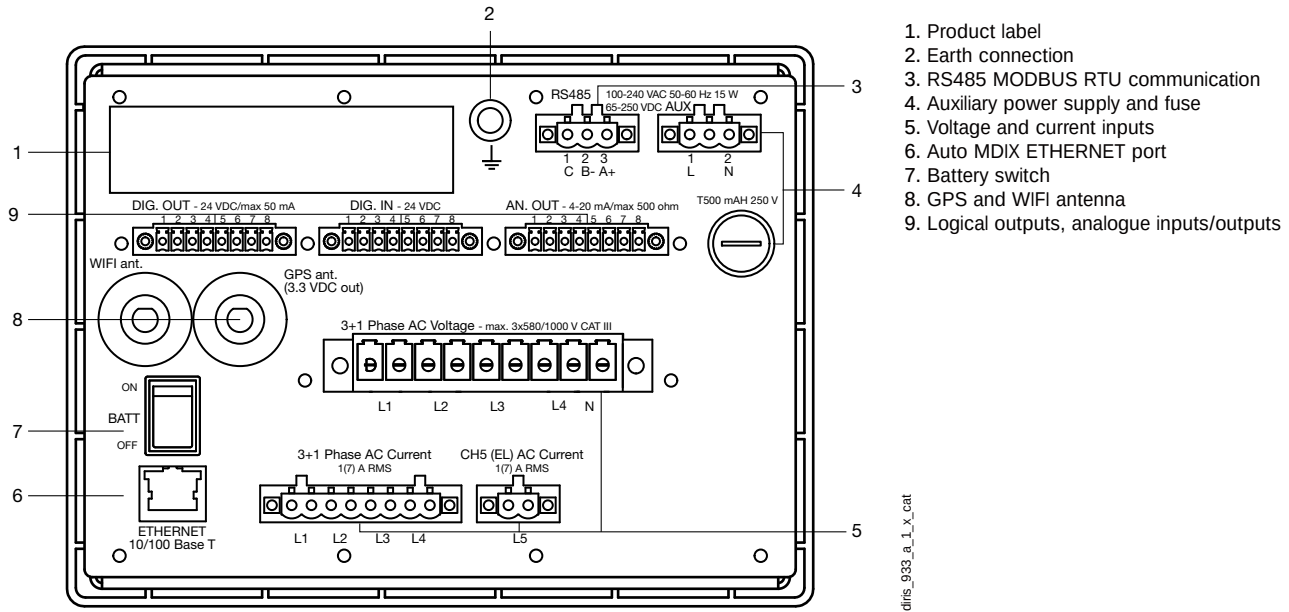
(1) Power supply 19 ... 60 VDC: please contact us.

# DIRIS Q800

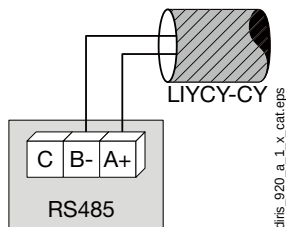
## Electrical network analyser

quality analysis of electrical energy and power grids

### Terminals

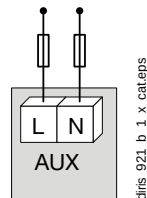


#### Communication via RS485 link

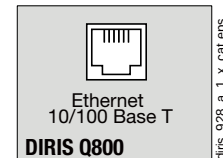


#### AC and DC auxiliary power supply

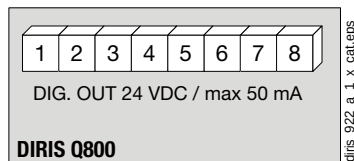
100-240 VAC  
65/250 VDC



#### Ethernet communication

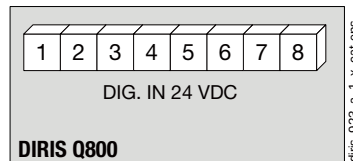


#### Digital outputs



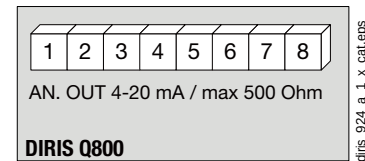
1-2: optocoupler output 1  
3-4: optocoupler output 2  
5-6: optocoupler output 3  
7-8: optocoupler output 4

#### Digital inputs



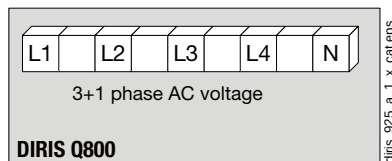
1-2: optocoupler input 1  
3-4: optocoupler input 2  
5-6: optocoupler input 3  
7-8: optocoupler input 4

#### Analogue outputs

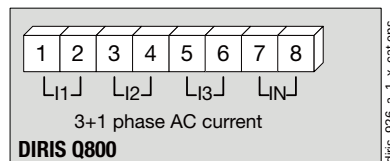


1-2: analogue output 1  
3-4: analogue output 2  
5-6: analogue output 3  
7-8: analogue output 4

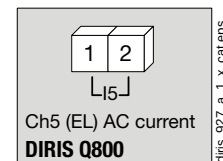
#### Current and voltage inputs



L1, L2, L3, L4, N: voltage inputs



1-2: current input i1  
3-4: current input i2  
5-6: current input i3  
7-8: current input iN

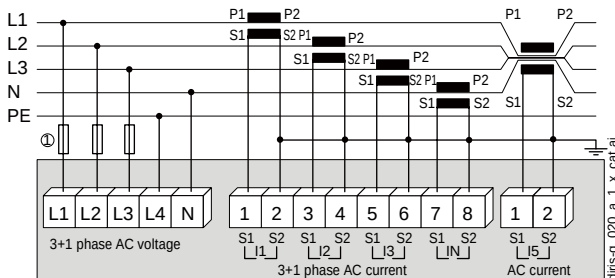


1-2: differential core connections



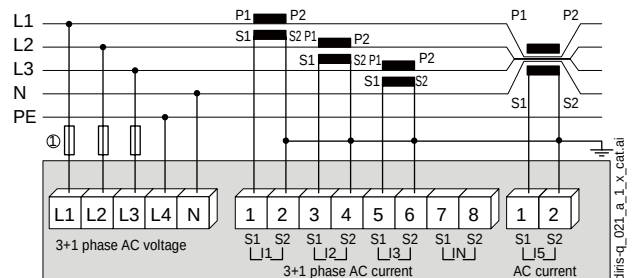
## Connections

### Three-phase + neutral, 4 CT + differential measurements (1/5 A)



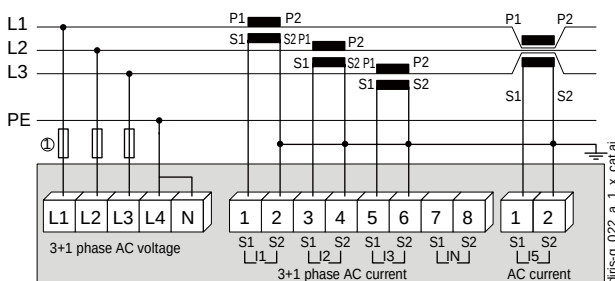
1. 0.5 A gG / 0.5 A class CC fuses.

### Three-phase + neutral, 3 CT + differential measurements (1/5 A)



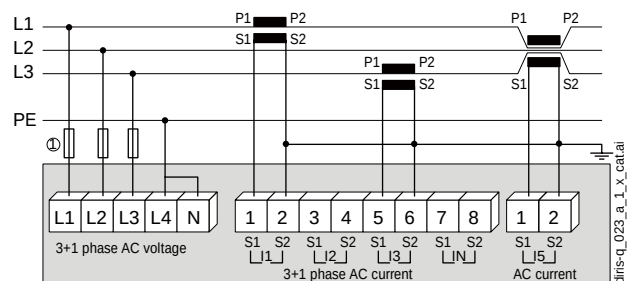
1. 0.5 A gG / 0.5 A class CC fuses.

### Three-phase, 3 CT + differential measurements (1/5 A)



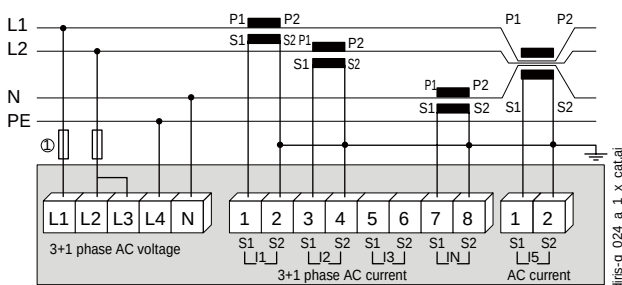
1. 0.5 A gG / 0.5 A class CC fuses.

### Three-phase, 2 CT + differential measurements (1/5 A)



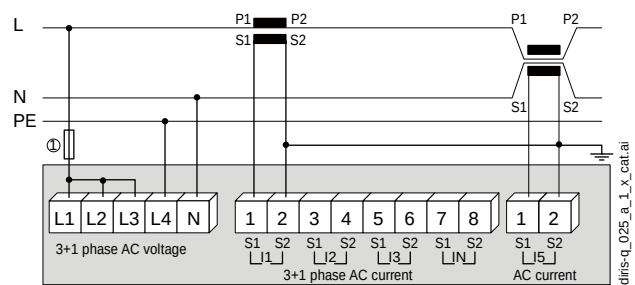
1. 0.5 A gG / 0.5 A class CC fuses.

### Two-phase + neutral, 3 CT + differential measurements (1/5 A)



1. 0.5 A gG / 0.5 A class CC fuses.

### Single-phase, 1 CT + differential measurements (1/5 A)



1. 0.5 A gG / 0.5 A class CC fuses.

## Expert Services

- > Study, definition, advice, implementation, maintenance and training... Our experts "Expert Services" offer complete support for the success of your project.





# Selection guide

## Current transformers

| Type         | TRB<br>60     | TRB<br>70 | TRB<br>135 | TCA<br>14 | TCA<br>21 | TCA<br>22 | TCB<br>17-20   | TCB<br>26-30  | TCB<br>28-30 | TCB<br>26-40 | TCB<br>32-40  | TCB<br>44-50 |  |
|--------------|---------------|-----------|------------|-----------|-----------|-----------|----------------|---------------|--------------|--------------|---------------|--------------|--|
| Format       | Wound primary |           |            | Cable     |           |           | Cable – busbar |               |              |              |               |              |  |
| Class        | 0.5           | 0.5       | 0.5        | 1         | 0.5/1     | 1         | 1              | 0.5/1         | 0.5/1        | 1            | 0.5/1         | 0.5/1        |  |
| Version 0.2s |               |           | (1)        |           |           | (2)       |                | T2CB<br>26-30 |              |              | T2CB<br>32-40 |              |  |
|              | p. 117        |           |            | p. 119    |           |           | p. 120         |               |              |              |               |              |  |

Rating (A)

|      |           |           |            |            |            |            |  |  |  |  |  |  |  |
|------|-----------|-----------|------------|------------|------------|------------|--|--|--|--|--|--|--|
| 0.5  |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 5    | 5         |           |            |            |            |            |  |  |  |  |  |  |  |
| 10   | ...<br>10 |           |            |            |            |            |  |  |  |  |  |  |  |
| 15   |           | 5         |            |            |            |            |  |  |  |  |  |  |  |
| 20   |           | ...<br>40 |            |            |            |            |  |  |  |  |  |  |  |
| 25   |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 30   |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 40   |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 50   |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 60   |           |           | 25         | *          |            |            |  |  |  |  |  |  |  |
| 75   |           |           | ...<br>150 | 25         | 40         |            |  |  |  |  |  |  |  |
| 80   |           |           |            | ...<br>150 | ...<br>150 |            |  |  |  |  |  |  |  |
| 100  |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 125  |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 150  |           |           |            |            | 60         |            |  |  |  |  |  |  |  |
| 160  |           |           |            |            | ...<br>300 |            |  |  |  |  |  |  |  |
| 200  |           |           |            |            |            | 100        |  |  |  |  |  |  |  |
| 250  |           |           |            |            |            | ...<br>600 |  |  |  |  |  |  |  |
| 300  |           |           |            |            |            | *          |  |  |  |  |  |  |  |
| 400  |           |           |            |            |            | 150        |  |  |  |  |  |  |  |
| 500  |           |           |            |            |            | ...<br>600 |  |  |  |  |  |  |  |
| 600  |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 750  |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 800  |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 1000 |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 1200 |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 1250 |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 1500 |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 1600 |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 2000 |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 2500 |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 3000 |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 4000 |           |           |            |            |            |            |  |  |  |  |  |  |  |
| 5000 |           |           |            |            |            |            |  |  |  |  |  |  |  |

Dimensions

|              |      |      |     |    |    |      |      |            |       |       |           |            |  |
|--------------|------|------|-----|----|----|------|------|------------|-------|-------|-----------|------------|--|
| Height       | 75.5 | 85.5 | 85  | 65 | 65 | 65   | 65   | 61         | 70    | 75.5  | 88.5      | 98.5       |  |
| Width        | 61   | 71   | 135 | 45 | 45 | 49.5 | 49.5 | 75.5       | 49.9  | 61    | 71        | 86         |  |
| Depth        | 35   | 45   | 60  | 30 | 30 | 35   | 50   | 48         | 68    | 48    | 58        | 58         |  |
| Cable (Ø mm) |      |      |     | 14 | 21 | 22.5 | 17.5 | 26         | 28    | 26    | 32        | 44         |  |
| Busbar 1     |      |      |     |    |    |      | 20x5 | 30x10      | 30x10 | 32x18 | 40x10     | 50x12      |  |
| Busbar 2     |      |      |     |    |    |      |      | 20x10 (x2) |       | 40x12 | 30x5 (x2) | 40x10 (x2) |  |
| Busbar 3     |      |      |     |    |    |      |      |            |       |       |           |            |  |

\* Class 1.

(1) See T2RB 115 for a 0.2S wound primary version. Dimensions differ from TRB 135.

(2) See T2CA 225 for a 0.2S closed-loop cable version. Dimensions differ from TCA 22.





# Current transformers

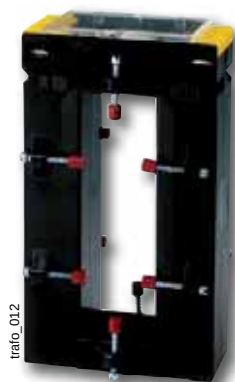
Measurement devices

from 5 to 5000 A

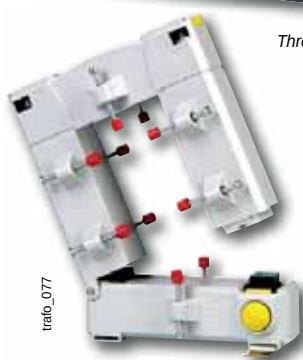
Current  
transformers



Three-phase CT



Bar-through CT



Split-core transformer



Cable-through CT

## The solution for

- > Industry
- > Office buildings



## Strong points

- > An adapted accuracy class
- > A wide range of ratings and dimensions
- > Quick and easy to mount

## Conformity to standards

- > IEC 61869-2
- > IEC 61439-1



## Available on request

SOCOMEK also offer customised solutions:

- > 1 A secondary
- > Double or triple primary ratio
- > Voltage transformer
- > Summation CTs

## Function

SOCOMEK current transformers deliver to the secondary a standard current proportional to the primary current and adapted to the rating of the associated device. They are equipped as standard with removable terminal covers and double terminals allowing the secondary to be short-circuited without any risk.

They are mounted using two screw-on metal brackets or, in certain cases, by a clip-on DIN-rail fastener. The connections are made by screws or by fast-on terminals.

- Accuracy class: 0.2s — 0.5 or 1.
- Dielectric quality: 3 kV — 50 Hz — 1 min.
- Operating frequency: 50 — 60 Hz.
- Permanent overload: 1.2 In.
- Insulation class: E (120 °C).

## Advantages

An adapted accuracy class

In order to get the best of your DIRIS multifunction meters and COUNTIS energy meters, we can provide current transformers with the following accuracy classes: 0.2s; 0.5; 1 or 3.

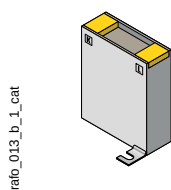
A wide range of ratings and dimensions

Your measurement process can be optimised whatever your needs in terms of ratings, space requirements, conductor sizing or accuracy class. A wide range of combinations are available in our standard range with specific versions available on request (other ratios, tropicalisation and specific frequency, class or burden).

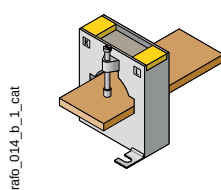
Quick and easy to mount

Our current transformers are adapted to any type of mounting: edgewise or flat mounting, DIN-rail or back-plate mounting. Implementation is easy and rapid.

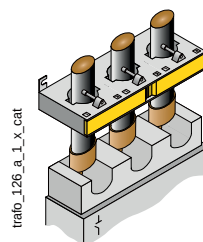
## Composition of the range



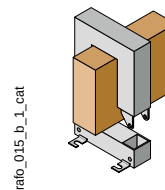
Primary wound moulded case CT



Bar or cable-through CT



Bar or cable-through three-phase CT



Bar-through split-core CT

## Primary wound moulded case CT

## References

| Primary | Secondary <sup>(1)</sup> | TRB 60    |           | TRB 70    |           | T2RB 115   |           | TRB 135   |           |
|---------|--------------------------|-----------|-----------|-----------|-----------|------------|-----------|-----------|-----------|
|         |                          | Class 0.5 | Reference | Class 0.5 | Reference | Class 0.2s | Reference | Class 0.5 | Reference |
| 5 A     | 5 A                      | 2.5 VA    | 192T 0505 | 10 VA     | 192T 0521 |            |           |           |           |
| 10 A    | 5 A                      | 2.5 VA    | 192T 0510 | 10 VA     | 192T 0522 |            |           |           |           |
| 15 A    | 5 A                      |           |           | 10 VA     | 192T 0523 |            |           |           |           |
| 20 A    | 5 A                      |           |           | 10 VA     | 192T 0524 |            |           |           |           |
| 25 A    | 5 A                      |           |           | 10 VA     | 192T 0525 | 7.5 VA     | 192U 0402 | 10 VA     | 192T 0603 |
| 30 A    | 5 A                      |           |           | 5 VA      | 192T 0530 | 7.5 VA     | 192U 0403 | 10 VA     | 192T 0607 |
| 40 A    | 5 A                      |           |           | 5 VA      | 192T 0541 | 7.5 VA     | 192U 0404 | 10 VA     | 192T 0604 |
| 50 A    | 5 A                      |           |           | 5 VA      | 192T 0551 | 7.5 VA     | 192U 0405 | 10 VA     | 192T 0605 |
| 60 A    | 5 A                      |           |           |           |           | 7.5 VA     | 192U 0406 | 10 VA     | 192T 0606 |
| 75 A    | 5 A                      |           |           |           |           | 7.5 VA     | 192U 0407 | 10 VA     | 192T 0608 |
| 80 A    | 5 A                      |           |           |           |           | 7.5 VA     | 192U 0408 | 10 VA     | 192T 0609 |
| 100 A   | 5 A                      |           |           |           |           |            |           | 10 VA     | 192T 0610 |
| 125 A   | 5 A                      |           |           |           |           | 7.5 VA     | 192U 0412 | 10 VA     | 192T 0612 |
| 150 A   | 5 A                      |           |           |           |           | 7.5 VA     | 192U 0415 | 10 VA     | 192T 0615 |

(1) Secondary 1 A: on request.

## Accessories

| Accessories       | TRB 60<br>Reference | TRB 70<br>Reference      |  | TRB 135<br>Reference     |
|-------------------|---------------------|--------------------------|--|--------------------------|
| DIN-rail mounting | 192T 0003           | 192T 0005 <sup>(1)</sup> |  |                          |
| Sealable cover    | 192T 0105           | 192T 0103                |  | 192T 0101 <sup>(2)</sup> |

(1) Not available for 50 A rating

(2) For 125 and 150 A ratings, use reference 192T 0103.

## CT Plug-in transducer (CEA-VA)

| Power supply  | Output             | TRB 60<br>Reference | TRB 70<br>Reference      |
|---------------|--------------------|---------------------|--------------------------|
| Self-supplied | 0-20 mA / 0-10 VDC | 192Y 0015           | 192Y 0025 <sup>(1)</sup> |
| 230 VAC       | 0-20 mA / 0-10 VDC | 192Y 0215           | 192Y 0225 <sup>(1)</sup> |
| 24 VDC        | 0-20 mA / 0-10 VDC | 192Y 0115           | 192Y 0125 <sup>(1)</sup> |

(1) Not available for ratings 40 and 50 A

## CT Plug-in transducer (CEA-VA4)

| Power supply | Output             | TRB 60<br>Reference | TRB 70<br>Reference      |
|--------------|--------------------|---------------------|--------------------------|
| 230 VAC      | 4-20 mA / 0-10 VDC | 192T 0255           | 192Y 0265 <sup>(1)</sup> |
| 24 VDC       | 4-20 mA / 0-10 VDC | 192Y 0155           | 192Y 0165 <sup>(1)</sup> |

(1) Not available for ratings 40 and 50 A

## Certificate of performance

Each class 0.2s current transformer is supplied with an individual certificate of performance, attesting to its accuracy.

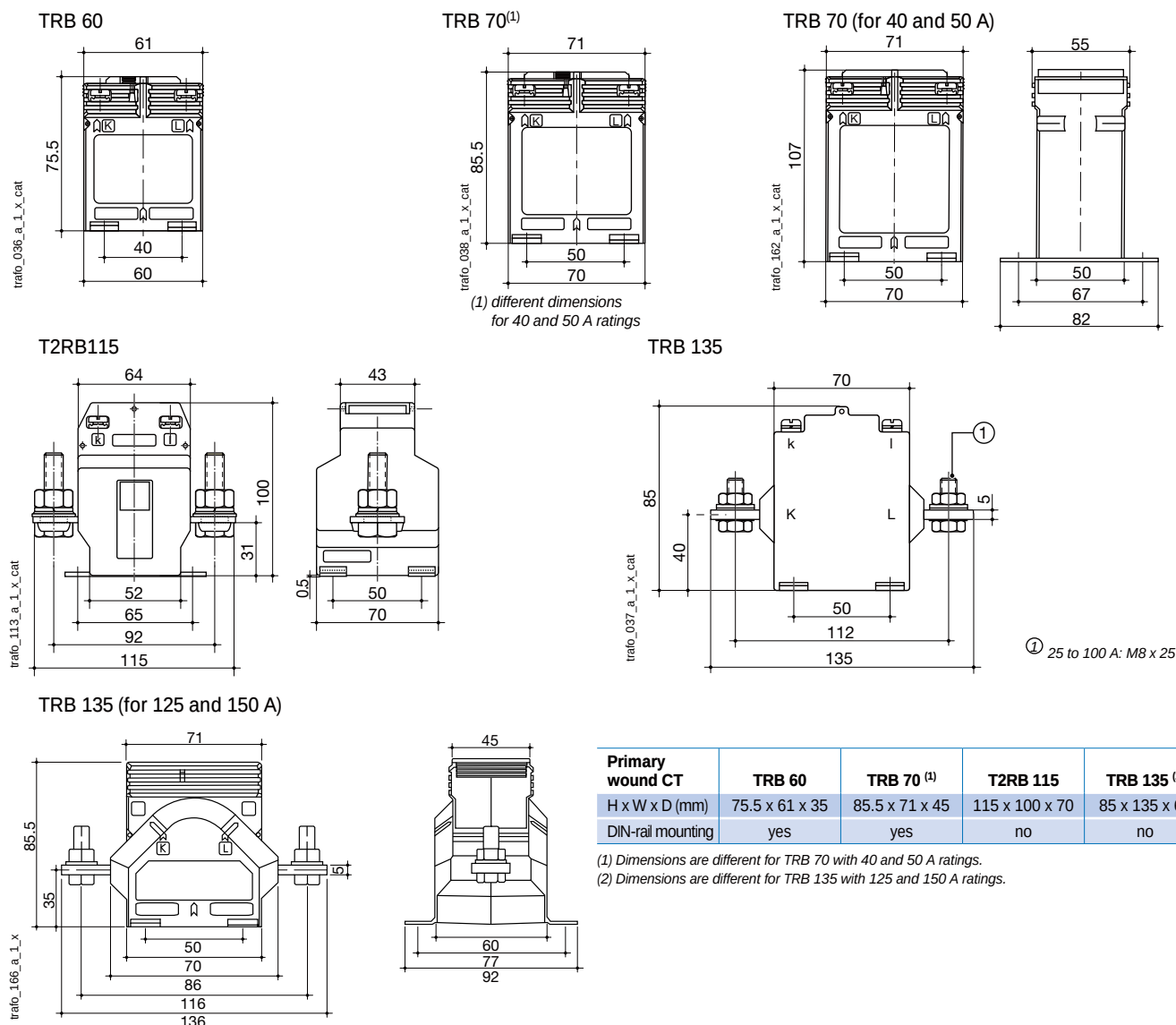
# Current transformers

## Measurement devices

from 5 to 5000 A

## Primary wound moulded case CT (continued)

### Dimensions (mm)



| Primary wound CT  | TRB 60         | TRB 70 <sup>(1)</sup> | T2RB 115       | TRB 135 <sup>(2)</sup> |
|-------------------|----------------|-----------------------|----------------|------------------------|
| H x W x D (mm)    | 75.5 x 61 x 35 | 85.5 x 71 x 45        | 115 x 100 x 70 | 85 x 135 x 60          |
| DIN-rail mounting | yes            | yes                   | no             | no                     |

(1) Dimensions are different for TRB 70 with 40 and 50 A ratings.

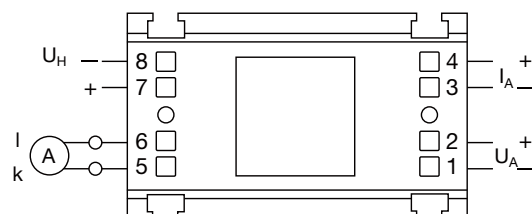
(2) Dimensions are different for TRB 135 with 125 and 150 A ratings.

### Associated transducers



Transducer to be associated with adapted current transformers:

- Class 0.5.
- Input: 1 or 5 A.
- Output:
  - 0-20 mA, 0-10 V (type CEA-VA)
  - 4-20 mA, 0-10 V (type CEA-VA4)
- Self-supplied or auxiliary power supply 24 VDC or 230 VAC.
- 3 sizes according to the CT: type 1, 2 or 3.



### Dimensions (mm)

| Converter | For CT | Height (mm) | Width (mm) | Depth (mm) |
|-----------|--------|-------------|------------|------------|
| Type 1    | TRB 60 | 50.5        | 60         | 32.5       |
| Type 2    | TRB 70 | 50          | 70         | 43         |



### Cable-through CT

#### References

|         |                          | TCA 14  |           | TCA 21  |           |           | TCA 22  |               | T2CA 225   |           |
|---------|--------------------------|---------|-----------|---------|-----------|-----------|---------|---------------|------------|-----------|
| Primary | Secondary <sup>(1)</sup> | Class 1 | Reference | Class 1 | Class 0.5 | Reference | Class 1 | Reference     | Class 0.2s | Reference |
| 40 A    | 5 A                      | 1       | 192T 1404 |         |           |           |         |               |            |           |
| 50 A    | 5 A                      | 1       | 192T 1405 |         |           |           |         |               |            |           |
| 60 A    | 5 A                      | 1.5     | 192T 1406 | 1 VA    |           | 192T 2006 |         |               |            |           |
| 75 A    | 5 A                      | 1.5     | 192T 1407 | 1.5 VA  |           | 192T 2007 |         |               |            |           |
| 80 A    | 5 A                      |         |           | 1.5 VA  |           | 192T 2008 |         |               |            |           |
| 100 A   | 5 A                      | 2.5     | 192T 1410 |         | 1.5 VA    | 192T 2010 | 1 VA    | 192T 2022     |            |           |
| 125 A   | 5 A                      | 2.5     | 192T 1412 |         | 1.5 VA    | 192T 2012 |         |               |            |           |
| 150 A   | 5 A                      | 2.5     | 192T 1415 |         | 1.5 VA    | 192T 2015 | 1.5 VA  | 192T 2023     | 1.5 VA     | 192U 2215 |
| 200 A   | 5 A                      |         |           |         | 2.5 VA    | 192T 2020 | 2.5 VA  | 192T 2024     | 2.5 VA     | 192U 2220 |
| 250 A   | 5 A                      |         |           |         | 2.5 VA    | 192T 2016 | 3.75 VA | 192T 2025     | 5 VA       | 192U 2225 |
| 300 A   | 5 A                      |         |           |         | 2.5 VA    | 192T 2017 | 3.75 VA | 192T 2030     | 5 VA       | 192U 2230 |
| 400 A   | 5 A                      |         |           |         |           |           | 5 VA    | 192T 2034     | 5 VA       | 192U 2240 |
| 500 A   | 5 A                      |         |           |         |           |           | 5 VA    | 192T 2035 (2) | 10 VA      | 192U 2250 |
| 600 A   | 5 A                      |         |           |         |           |           | 5 VA    | 192T 2036 (2) | 10 VA      | 192U 2260 |

(1) Secondary 1 A: on request.

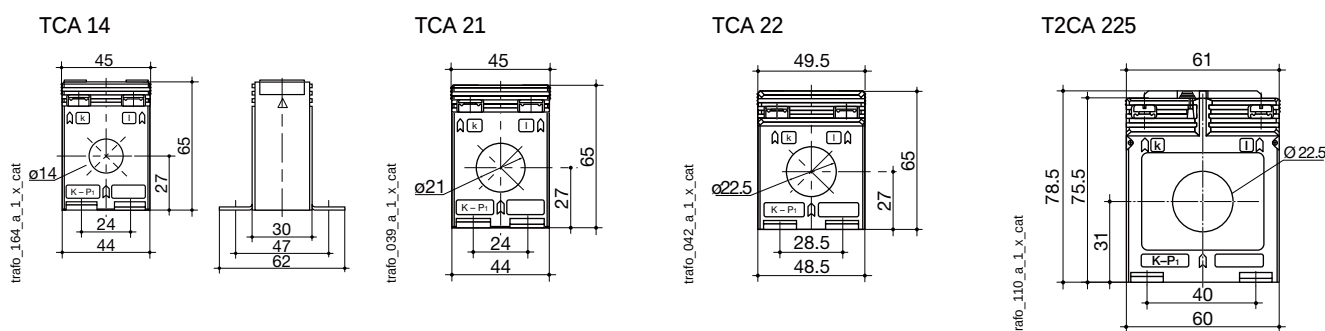
(2) Dimensions of T2CA 225

#### Accessories

| Accessories                         | TCA 14<br>Reference | TCA 21<br>Reference | TCA 22<br>Reference | T2CA 225<br>Reference |
|-------------------------------------|---------------------|---------------------|---------------------|-----------------------|
| DIN-rail mounting                   | 192T 0006           | 192T 0006           | 192T 0007           | 192T 0003             |
| Guide tube Ø 8.5 mm <sup>(1)</sup>  |                     | 192T 0020           |                     |                       |
| Guide tube Ø 12.5 mm <sup>(1)</sup> |                     | 192T 0021           | 192T 0023           |                       |
| Guide tube Ø 16.5 mm <sup>(1)</sup> |                     |                     | 192T 0024           |                       |
| Sealable cover                      |                     |                     |                     | 192T 0105             |

(1) For centralising cables within the CT aperture.

#### Dimensions (mm)



| Cable-through CT  | TCA 14       | TCA 21       | TCA 22 <sup>(1)</sup> | T2CA 225       |
|-------------------|--------------|--------------|-----------------------|----------------|
| Ø cable (mm)      | 14           | 21           | 22.5                  | 22.5           |
| H x W x D (mm)    | 65 x 45 x 30 | 65 x 45 x 30 | 65 x 49.5 x 35        | 78.5 x 61 x 35 |
| DIN-rail mounting | yes          | yes          | yes                   | yes            |

(1) Dimensions are different for 600 A: 78.5x61x35.

# Current transformers

Measurement devices

from 5 to 5000 A

## Bar or cable-through CT

### References

| Primary | Secondary <sup>(1)</sup> | TCB 17-20 |           | TCB 26-30 |         |           | T2CB 26-30 |           | TCB 28-30 |         |           |
|---------|--------------------------|-----------|-----------|-----------|---------|-----------|------------|-----------|-----------|---------|-----------|
|         |                          | Class 1   | Reference | Class 0.5 | Class 1 | Reference | Class 0.2s | Reference | Class 0.5 | Class 1 | Reference |
| 50 A    | 5 A                      |           |           |           | 1 VA    | 192T 2305 |            |           |           |         |           |
| 60 A    | 5 A                      | 1 VA      | 192T 2106 |           | 1 VA    | 192T 2306 |            |           |           |         |           |
| 75 A    | 5 A                      | 1 VA      | 192T 2107 |           | 1.5 VA  | 192T 2307 |            |           |           |         |           |
| 80 A    | 5 A                      | 1.25 VA   | 192T 2108 |           | 1.5 VA  | 192T 2308 |            |           |           | 1.25 VA | 192T 2408 |
| 100 A   | 5 A                      | 1.5 VA    | 192T 2110 | 1.5 VA    |         | 192T 2310 |            |           |           | 1.5 VA  | 192T 2410 |
| 125 A   | 5 A                      | 1.5 VA    | 192T 2112 | 1.5 VA    |         | 192T 2312 |            |           |           | 2.5 VA  | 192T 2412 |
| 150 A   | 5 A                      | 2.5 VA    | 192T 2115 | 1.5 VA    |         | 192T 2315 | 1.5 VA     | 192U 2315 |           | 2.5 VA  | 192T 2415 |
| 160 A   | 5 A                      | 2.5 VA    | 192T 2116 |           |         |           |            |           |           |         |           |
| 200 A   | 5 A                      | 2.5 VA    | 192T 2120 | 2.5 VA    |         | 192T 2320 | 2.5 VA     | 192U 2320 | 2.5 VA    |         | 192T 2420 |
| 250 A   | 5 A                      | 5 VA      | 192T 2125 | 5 VA      |         | 192T 2325 | 2.5 VA     | 192U 2325 | 2.5 VA    |         | 192T 2425 |
| 300 A   | 5 A                      | 5 VA      | 192T 2130 | 5 VA      |         | 192T 2330 | 5 VA       | 192U 2330 | 2.5 VA    |         | 192T 2430 |
| 400 A   | 5 A                      | 5 VA      | 192T 2140 | 5 VA      |         | 192T 2340 | 5 VA       | 192U 2340 | 5 VA      |         | 192T 2440 |
| 500 A   | 5 A                      |           |           | 5 VA      |         | 192T 2350 | 5 VA       | 192U 2350 | 5 VA      |         | 192T 2450 |
| 600 A   | 5 A                      |           |           | 5 VA      |         | 192T 2360 | 5 VA       | 192U 2360 |           |         |           |
| 750 A   | 5 A                      |           |           | 5 VA      |         | 192T 2375 | 5 VA       | 192U 2375 |           |         |           |

(1) Secondary 1 A: on request.

| Primary | Secondary <sup>(1)</sup> | TCB 26-40 |           | TCB 32-40 |         |           | T2CB 32-40 |           |
|---------|--------------------------|-----------|-----------|-----------|---------|-----------|------------|-----------|
|         |                          | Class 1   | Reference | Class 0.5 | Class 1 | Reference | Class 0.2s | Reference |
| 75 A    | 5 A                      |           |           |           | 1.5 VA  | 192T 4007 |            |           |
| 100 A   | 5 A                      | 1.5 VA    | 192T 3210 | 1.5 VA    |         | 192T 4010 |            |           |
| 125 A   | 5 A                      | 2.5 VA    | 192T 3212 | 1.5 VA    |         | 192T 4012 |            |           |
| 150 A   | 5 A                      | 2.5 VA    | 192T 3215 | 2.5 VA    |         | 192T 4015 |            |           |
| 160 A   | 5 A                      | 2.5 VA    | 192T 3216 |           |         |           |            |           |
| 200 A   | 5 A                      | 2.5 VA    | 192T 3220 | 5 VA      |         | 192T 4020 | 2.5 VA     | 192U 4020 |
| 250 A   | 5 A                      | 2.5 VA    | 192T 3225 | 5 VA      |         | 192T 4025 | 5 VA       | 192U 4025 |
| 300 A   | 5 A                      | 5 VA      | 192T 3230 | 10 VA     |         | 192T 4030 | 5 VA       | 192U 4030 |
| 400 A   | 5 A                      | 5 VA      | 192T 3240 | 10 VA     |         | 192T 4040 | 5 VA       | 192U 4040 |
| 500 A   | 5 A                      | 5 VA      | 192T 3250 | 10 VA     |         | 192T 4050 | 5 VA       | 192U 4050 |
| 600 A   | 5 A                      | 5 VA      | 192T 3260 | 10 VA     |         | 192T 4060 | 5 VA       | 192U 4060 |
| 750 A   | 5 A                      | 10 VA     | 192T 3275 | 10 VA     |         | 192T 4075 | 5 VA       | 192U 4075 |
| 800 A   | 5 A                      |           |           | 10 VA     |         | 192T 4080 |            |           |
| 1000 A  | 5 A                      |           |           | 10 VA     |         | 192T 4090 |            |           |

(1) Secondary 1 A: on request.

## Accessories

| Accessories       | TCB 17-20<br>Reference | TCB 26-30<br>Reference | TCB 26-40<br>Reference | TCB 32-40<br>Reference |
|-------------------|------------------------|------------------------|------------------------|------------------------|
| DIN-rail mounting | 192T 0007              | 192T 0003              | 192T 0003              | 192T 0005              |
| Sealable cover    |                        | 192T 0105              | 192T 0105              | 192T 0103              |

### CT Plug-in transducer (CEA-VA)

| Power supply  | Output             | TCB 26-30<br>Reference | TCB 26-40<br>Reference | TCB 32-40<br>Reference |
|---------------|--------------------|------------------------|------------------------|------------------------|
| Self-supplied | 0-20 mA / 0-10 VDC | 192Y 0015              | 192Y 0015              | 192Y 0035              |
| 230 VAC       | 0-20 mA / 0-10 VDC | 192Y 0215              | 192Y 0215              | 192Y 0235              |
| 24 VDC        | 0-20 mA / 0-10 VDC | 192Y 0115              | 192Y 0115              | 192Y 0135              |

### CT Plug-in transducer (CEA-VA4)

| Power supply | Output             | TCB 26-30<br>Reference | TCB 26-40<br>Reference | TCB 32-40<br>Reference |
|--------------|--------------------|------------------------|------------------------|------------------------|
| 230 VAC      | 4-20 mA / 0-10 VDC | 192T 0255              | 192T 0255              | 192Y 0275              |
| 24 VDC       | 4-20 mA / 0-10 VDC | 192Y 0155              | 192Y 0155              | 192Y 0175              |

## References

| Primary | Secondary <sup>(1)</sup> | TCB 44-50 |           | TCB 44-63 |           | T2CB 44-63 |           |
|---------|--------------------------|-----------|-----------|-----------|-----------|------------|-----------|
|         |                          | Class 0.5 | Reference | Class 0.5 | Reference | Class 0.2s | Reference |
| 150 A   | 5 A                      | 1.5 VA    | 192T 5015 |           |           |            |           |
| 200 A   | 5 A                      | 2.5 VA    | 192T 5020 | 1.5 VA    | 192T 6420 |            |           |
| 250 A   | 5 A                      | 5 VA      | 192T 5025 | 1.5 VA    | 192T 6425 |            |           |
| 300 A   | 5 A                      | 5 VA      | 192T 5030 | 2.5 VA    | 192T 6430 | 5 VA       | 192U 6430 |
| 400 A   | 5 A                      | 10 VA     | 192T 5040 | 5 VA      | 192T 6440 | 5 VA       | 192U 6440 |
| 500 A   | 5 A                      | 10 VA     | 192T 5050 | 10 VA     | 192T 6450 | 10 VA      | 192U 6450 |
| 600 A   | 5 A                      | 10 VA     | 192T 5060 | 10 VA     | 192T 6460 | 10 VA      | 192U 6460 |
| 750 A   | 5 A                      | 10 VA     | 192T 5075 | 10 VA     | 192T 6475 | 10 VA      | 192U 6475 |
| 800 A   | 5 A                      | 15 VA     | 192T 5080 | 10 VA     | 192T 6480 |            |           |
| 1000 A  | 5 A                      | 15 VA     | 192T 5090 | 15 VA     | 192T 6490 | 10 VA      | 192U 6490 |
| 1200 A  | 5 A                      | 15 VA     | 192T 5092 | 15 VA     | 192T 6492 | 10 VA      | 192U 6492 |
| 1250 A  | 5 A                      | 15 VA     | 192T 5095 | 15 VA     | 192T 6493 | 10 VA      | 192U 6493 |
| 1500 A  | 5 A                      |           |           | 15 VA     | 192T 6495 | 10 VA      | 192U 6495 |
| 1600 A  | 5 A                      |           |           | 15 VA     | 192T 6494 |            |           |

(1) Secondary 1 A: on request.

| Primary | Secondary <sup>(1)</sup> | TCB 55-80 |           | TCB 85-100 |           | TCB 100-125 |           |
|---------|--------------------------|-----------|-----------|------------|-----------|-------------|-----------|
|         |                          | Class 0.5 | Reference | Class 0.5  | Reference | Class 0.5   | Reference |
| 400 A   | 5 A                      | 2.5 VA    | 192T 8140 |            |           |             |           |
| 500 A   | 5 A                      | 5 VA      | 192T 8150 |            |           |             |           |
| 600 A   | 5 A                      | 5 VA      | 192T 8160 |            |           |             |           |
| 750 A   | 5 A                      | 10 VA     | 192T 8175 | 2.5 VA     | 192T 9675 |             |           |
| 800 A   | 5 A                      | 10 VA     | 192T 8180 | 5 VA       | 192T 9680 |             |           |
| 1000 A  | 5 A                      | 15 VA     | 192T 8190 | 10 VA      | 192T 9690 | 5 VA        | 192T 9590 |
| 1200 A  | 5 A                      | 15 VA     | 192T 8192 | 10 VA      | 192T 9692 |             |           |
| 1250 A  | 5 A                      | 15 VA     | 192T 8193 | 15 VA      | 192T 9693 | 10 VA       | 192T 9593 |
| 1500 A  | 5 A                      | 15 VA     | 192T 8195 | 15 VA      | 192T 9695 | 15 VA       | 192T 9595 |
| 1600 A  | 5 A                      | 15 VA     | 192T 8194 | 15 VA      | 192T 9694 |             |           |
| 2000 A  | 5 A                      | 15 VA     | 192T 8196 | 30 VA      | 192T 9696 | 30 VA       | 192T 9596 |
| 2500 A  | 5 A                      |           |           | 30 VA      | 192T 9697 | 30 VA       | 192T 9597 |
| 3000 A  | 5 A                      |           |           | 30 VA      | 192T 9698 | 30 VA       | 192T 9598 |

(1) Secondary 1 A: on request.

## Accessories

| Accessories    | TCB 44-50<br>Reference | TCB 44-63<br>Reference | TCB 55-80<br>Reference | TCB 85-100<br>Reference | TCB 100-125<br>Reference |
|----------------|------------------------|------------------------|------------------------|-------------------------|--------------------------|
| Sealable cover | 192T 0102              | 192T 0102              | 192T 0102              | 192T 0106               | 192T 0106                |

### CT Plug-in transducer (CEA-VA)

| Power supply  | Output             | TCB 44-50<br>Reference | TCB 44-63<br>Reference | TCB 55-80<br>Reference |
|---------------|--------------------|------------------------|------------------------|------------------------|
| Self-supplied | 0-20 mA / 0-10 VDC |                        | 192Y 0045              | 192Y 0045              |
| 230 VAC       | 0-20 mA / 0-10 VDC |                        | 192Y 0245              | 192Y 0245              |
| 24 VDC        | 0-20 mA / 0-10 VDC |                        | 192Y 0145              | 192Y 0145              |

### CT Plug-in transducer (CEA-VA4)

| Input   | Output             | TCB 44-50<br>Reference | TCB 44-63<br>Reference | TCB 55-80<br>Reference |
|---------|--------------------|------------------------|------------------------|------------------------|
| 230 VAC | 4-20 mA / 0-10 VDC |                        | 192Y 0285              | 192Y 0285              |
| 24 VDC  | 4-20 mA / 0-10 VDC |                        | 192Y 0185              | 192Y 0185              |

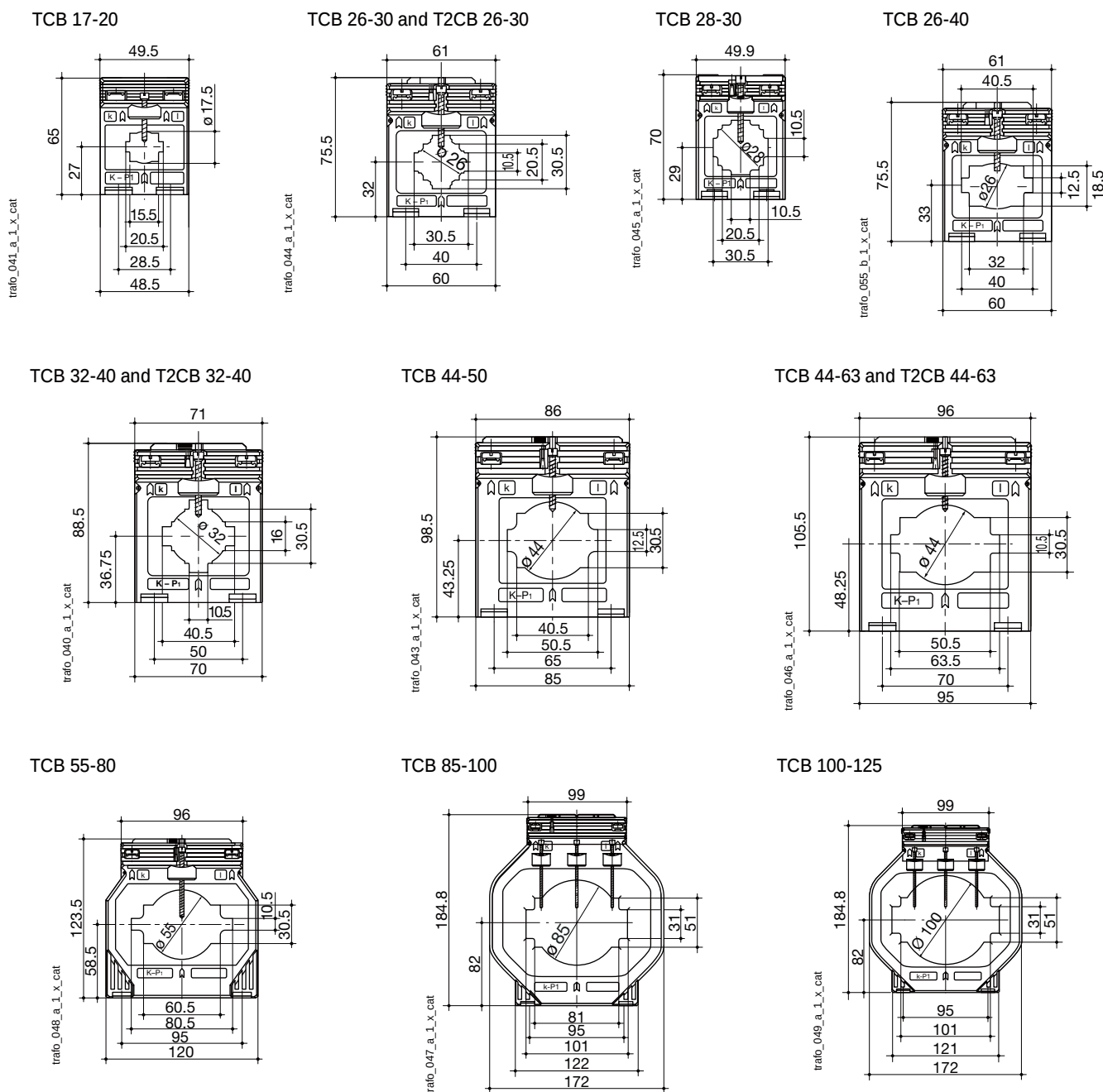
# Current transformers

## Measurement devices

from 5 to 5000 A

## Bar or cable-through CT (continued)

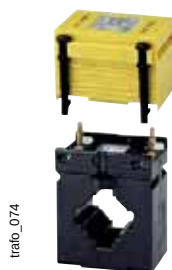
### Dimensions (mm)



| Bar or cable-through CT | TCB 17-20      | TCB 26-30                         | T2CB 26-30                        | TCB 26-40                     | TCB 28-30      | TCB 32-40                        | T2CB 32-40                       |
|-------------------------|----------------|-----------------------------------|-----------------------------------|-------------------------------|----------------|----------------------------------|----------------------------------|
| Bar (mm)                | 20 x 5 (x 1)   | 30 x 10 (x 1) / 20 x 10 (x 1...2) | 30 x 10 (x 1) / 20 x 10 (x 1...2) | 40 x 12 (x 1) / 32 x 18 (x 1) | 30 x 10 (x 1)  | 40 x 10 (x 1) / 30 x 5 (x 1...2) | 40 x 10 (x 1) / 30 x 5 (x 1...2) |
| Ø cable (mm)            | 17.5           | 26                                | 26                                | 26                            | 28             | 32                               | 32                               |
| H x W x D (mm)          | 65 x 49.5 x 50 | 75.5 x 61 x 48                    | 75.5 x 61 x 48                    | 75.5 x 61 x 48                | 70 x 49.9 x 68 | 88.5 x 71 x 58                   | 88.5 x 71 x 58                   |
| DIN-rail mounting       | yes            | yes                               | yes                               | yes                           |                | yes                              | yes                              |

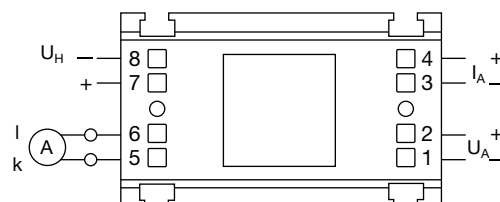
| Bar or cable-through CT | TCB 44-50                         | TCB 44-63                         | T2CB 44-63                        | TCB 55-80                                         | TCB 85-100                             | TCB 100-125                         |
|-------------------------|-----------------------------------|-----------------------------------|-----------------------------------|---------------------------------------------------|----------------------------------------|-------------------------------------|
| Bar (mm)                | 50 x 12 (x 1) / 40 x 10 (x 1...2) | 63 x 10 (x 1) / 50 x 10 (x 1...2) | 63 x 10 (x 1) / 50 x 10 (x 1...2) | 80 x 10 (x 1) / 60 x 30 (x 1) / 60 x 10 (x 1...2) | 100 x 10 (x 1...2) / 80 x 10 (x 1...3) | 123 x 30 (x 1) / 100 x 10 (x 1...3) |
| Ø cable (mm)            | 44                                | 44                                | 44                                | 55                                                | 85                                     | 100                                 |
| H x W x D (mm)          | 98.5 x 86 x 58                    | 105.5 x 96 x 58                   | 105.5 x 96 x 58                   | 123.5 x 120 x 58                                  | 184.5 x 172 x 52                       | 184.5 x 172 x 52                    |

### Associated transducers

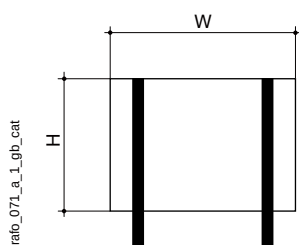


Transducer to be associated with adapted current transformers:

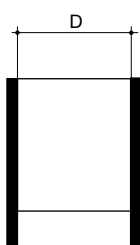
- Class 0.5.
- Input: 1 or 5 A
- Output:
  - 0-20 mA, 0-10 V (model CEA-VA),
  - 4-20 mA, 0-10 V (model CEA-VA4),
- Self-supplied or auxiliary power supply 24 VDC or 230 VAC.
- 3 sizes according to the CT: type 1, 2 or 3.



trafo\_060\_a\_1\_x\_cat



trafo\_071\_a\_1\_gb\_cat



#### Dimensions (mm)

| Converter | For CT    | Height (mm) | Width (mm) | Depth (mm) |
|-----------|-----------|-------------|------------|------------|
| Type 1    | TCB 26-30 | 50.5        | 60         | 32.5       |
| Type 1    | TCB 26-40 | 50.5        | 60         | 32.5       |
| Type 2    | TCB 32-40 | 50          | 70         | 43         |
| Type 3    | TCB 44-63 | 50.5        | 95         | 43         |
| Type 3    | TCB 55-80 | 50.5        | 95         | 43         |

# Current transformers

Measurement devices

from 5 to 5000 A

## Bar-through CT

### References

| Primary | Secondary | TBA 60    |         |           | TBA 80    |           | TBA 100   |               | T2BA 100   |           |
|---------|-----------|-----------|---------|-----------|-----------|-----------|-----------|---------------|------------|-----------|
|         |           | Class 0.5 | Class 1 | Reference | Class 0.5 | Reference | Class 0.5 | Reference     | Class 0.2s | Reference |
| 200 A   | 5 A       |           | 2.5 VA  | 192T 7020 |           |           |           |               |            |           |
| 250 A   | 5 A       | 2.5 VA    |         | 192T 7025 |           |           |           |               |            |           |
| 300 A   | 5 A       | 2.5 VA    |         | 192T 7030 | 2.5 VA    | 192T 7530 |           |               |            |           |
| 400 A   | 5 A       | 5 VA      |         | 192T 7040 | 5 VA      | 192T 7540 |           |               |            |           |
| 500 A   | 5 A       | 5 VA      |         | 192T 7050 | 5 VA      | 192T 7550 |           |               |            |           |
| 600 A   | 5 A       | 10 VA     |         | 192T 7060 | 5 VA      | 192T 7560 | 5 VA      | 192T 8060     |            |           |
| 750 A   | 5 A       | 10 VA     |         | 192T 7075 | 5 VA      | 192T 7575 | 5 VA      | 192T 8075     |            |           |
| 800 A   | 5 A       | 10 VA     |         | 192T 7080 | 10 VA     | 192T 7580 | 5 VA      | 192T 8080     |            |           |
| 1000 A  | 5 A       | 15 VA     |         | 192T 7090 | 15 VA     | 192T 7590 | 5 VA      | 192T 8090     |            |           |
| 1200 A  | 5 A       | 15 VA     |         | 192T 7092 | 15 VA     | 192T 7592 | 10 VA     | 192T 8092     | 5 VA       | 192U 8092 |
| 1250 A  | 5 A       | 15 VA     |         | 192T 7093 | 15 VA     | 192T 7593 | 10 VA     | 192T 8093     | 5 VA       | 192U 8093 |
| 1500 A  | 5 A       | 15 VA     |         | 192T 7095 | 15 VA     | 192T 7595 | 15 VA     | 192T 8095     | 5 VA       | 192U 8095 |
| 1600 A  | 5 A       | 15 VA     |         | 192T 7094 | 15 VA     | 192T 7594 | 15 VA     | 192T 8094     |            |           |
| 2000 A  | 5 A       |           |         |           | 15 VA     | 192T 7596 | 15 VA     | 192T 8096     | 5 VA       | 192U 8096 |
| 2500 A  | 5 A       |           |         |           |           |           | 30 VA     | 192T 8097     | 10 VA      | 192U 8097 |
| 3000 A  | 5 A       |           |         |           |           |           | 30 VA     | 192T 8098 (1) | 10 VA      | 192U 8098 |
| 4000 A  | 5 A       |           |         |           |           |           | 30 VA     | 192T 8099 (1) |            |           |

(1) Dimensions are different for TBA 100 with 3000 and 4000 A primary.

| Primary | Secondary | TBA 103   |           | T2BA 103   |           | TBA 127   |               | T2BA 127   |           |
|---------|-----------|-----------|-----------|------------|-----------|-----------|---------------|------------|-----------|
|         |           | Class 0.5 | Reference | Class 0.2s | Reference | Class 0.5 | Reference     | Class 0.2s | Reference |
| 400 A   | 5 A       | 2.5 VA    | 192T 9340 |            |           | 2.5 VA    | 192T 9740     |            |           |
| 500 A   | 5 A       | 2.5 VA    | 192T 9350 |            |           | 2.5 VA    | 192T 9750     |            |           |
| 600 A   | 5 A       | 2.5 VA    | 192T 9360 |            |           | 2.5 VA    | 192T 9760     |            |           |
| 750 A   | 5 A       | 2.5 VA    | 192T 9375 |            |           | 2.5 VA    | 192T 9775     |            |           |
| 800 A   | 5 A       | 5 VA      | 192T 9380 |            |           | 5 VA      | 192T 9780     |            |           |
| 1000 A  | 5 A       | 10 VA     | 192T 9390 | 5 VA       | 192U 9390 | 10 VA     | 192T 9790     |            |           |
| 1200 A  | 5 A       | 10 VA     | 192T 9392 | 5 VA       | 192U 9392 | 10 VA     | 192T 9792     | 5 VA       | 192U 9792 |
| 1250 A  | 5 A       | 10 VA     | 192T 9393 | 5 VA       | 192U 9393 | 10 VA     | 192T 9793     | 5 VA       | 192U 9793 |
| 1500 A  | 5 A       | 15 VA     | 192T 9395 | 5 VA       | 192U 9395 | 15 VA     | 192T 9795     | 5 VA       | 192U 9795 |
| 1600 A  | 5 A       | 10 VA     | 192T 9394 |            |           | 15 VA     | 192T 9794     |            |           |
| 2000 A  | 5 A       | 15 VA     | 192T 9396 |            |           | 15 VA     | 192T 9796     | 5 VA       | 192U 9796 |
| 2500 A  | 5 A       |           |           |            |           | 15 VA     | 192T 9797     |            |           |
| 3000 A  | 5 A       |           |           |            |           | 25 VA     | 182T 9798 (1) |            |           |
| 4000 A  | 5 A       |           |           |            |           | 30 VA     | 182T 9799 (1) |            |           |

(1) Replacement model TRA 127 for this rating.

### Accessories

| Accessories    | TBA 60 Reference | TBA 80 Reference | TBA 100 Reference | T2BA 100 Reference | TBA 103 Reference | T2BA 103 Reference | TBA 127 Reference | T2BA 127 Reference |
|----------------|------------------|------------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|
| Sealable cover | 192T 0102        |                  | 192T 0102         | 192T 0102          |                   |                    | 192T 0102         | 192T 0102          |

#### CT Plug-in transducer (CEA-VA)

| Power supply  | Output             | TBA 100 Reference |
|---------------|--------------------|-------------------|
| Self-supplied | 0-20 mA / 0-10 VDC | 192Y 0045         |
| 230 VAC       | 0-20 mA / 0-10 VDC | 192Y 0245         |
| 24 VDC        | 0-20 mA / 0-10 VDC | 192Y 0145         |

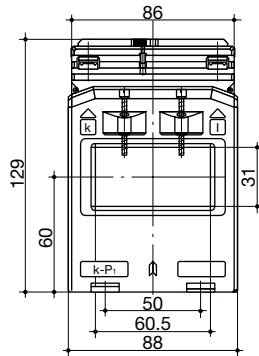
#### CT Plug-in transducer (CEA-VA4)

| Power supply | Output             | TBA 100 Reference |
|--------------|--------------------|-------------------|
| 230 VAC      | 4-20 mA / 0-10 VDC | 192Y 0285         |
| 24 VDC       | 4-20 mA / 0-10 VDC | 192Y 0185         |



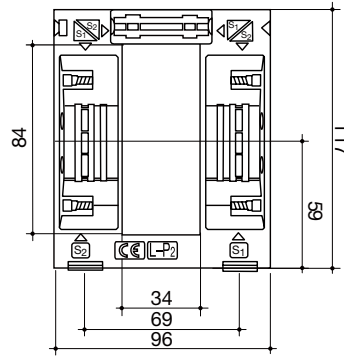
## Dimensions (mm)

TBA 60



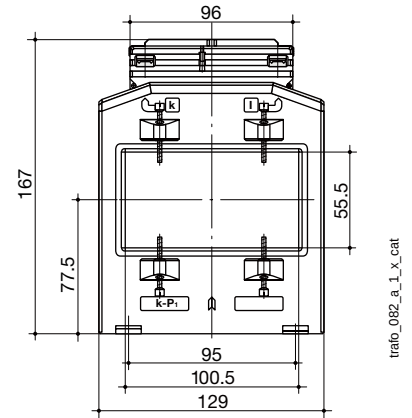
trafo\_050\_a\_1\_x\_cat

TBA 80  
300 to 2000 A



trafo\_059\_a\_1\_x\_cat

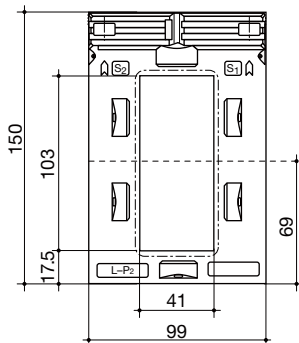
TBA 100 600 to 2500 A<sup>(1)</sup>  
T2BA 100 1200 to 3000 A



trafo\_082\_a\_1\_x\_cat

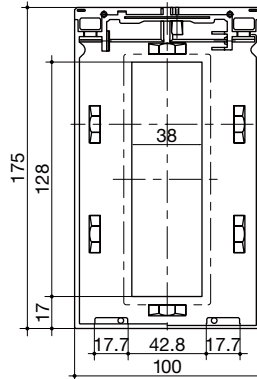
(1) TBA 100, 3000 and 4000 A: 214 x 129 x 78 mm.

TBA 103 and T2BA 103



trafo\_054\_a\_1\_x\_cat

TBA 127 and T2BA 127



trafo\_052\_a\_1\_x\_cat

| Bar-through CT | TBA 60        | TBA 80        | TBA 100                       | T2BA 100       | TBA 103       | T2BA 103      | TBA 127        | T2BA 127       |
|----------------|---------------|---------------|-------------------------------|----------------|---------------|---------------|----------------|----------------|
| Bar (mm)       | 60 x 30       | 84 x 34       | 100 x 55                      | 100 x 55       | 103 x 41      | 103 x 41      | 128 x 38       | 128 x 38       |
| H x W x D (mm) | 129 x 88 x 78 | 117 x 96 x 68 | 167 x 129 x 78 <sup>(1)</sup> | 167 x 129 x 78 | 150 x 99 x 58 | 150 x 99 x 58 | 175 x 100 x 55 | 175 x 100 x 55 |

(1) TBA 100, 3000 and 4000 A: 214 x 129 x 78 mm.

# Current transformers

## Measurement devices

from 5 to 5000 A

## Three-phase bar or cable-through CT

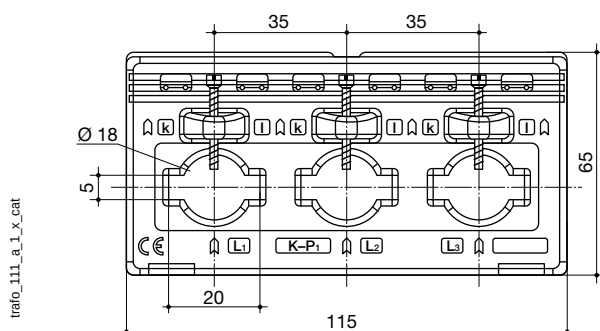
### References

| Primary   | Secondary <sup>(1)</sup> | TCB3 18-20 |           | TCB3 22-30 |           |
|-----------|--------------------------|------------|-----------|------------|-----------|
|           |                          | Class 1    | Reference | Class 1    | Reference |
| 3 x 100 A | 3 x 5 A                  | 1 VA       | 192T 3310 |            |           |
| 3 x 150 A | 3 x 5 A                  | 1.25 VA    | 192T 3315 |            |           |
| 3 x 200 A | 3 x 5 A                  | 1.5 VA     | 192T 3320 |            |           |
| 3 x 250 A | 3 x 5 A                  | 2.5 VA     | 192T 3325 | 2.5 VA     | 192T 3425 |
| 3 x 300 A | 3 x 5 A                  |            |           | 3.75 VA    | 192T 3430 |
| 3 x 400 A | 3 x 5 A                  |            |           | 5 VA       | 192T 3440 |
| 3 x 500 A | 3 x 5 A                  |            |           | 5 VA       | 192T 3450 |
| 3 x 600 A | 3 x 5 A                  |            |           | 5 VA       | 192T 3460 |

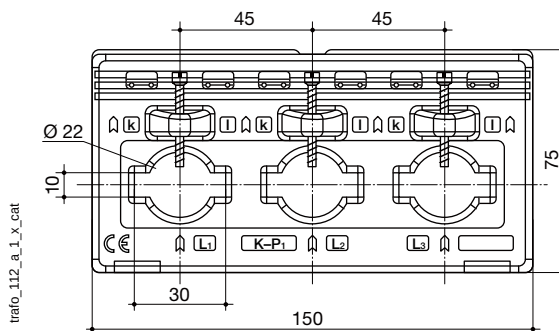
(1) Secondary 1 A: on request.

### Dimensions (mm)

TCB3 18-20



TCB3 22-30



| Three-phase bar or cable-through CT | TCB3 18-20    | TCB3 22-30    |
|-------------------------------------|---------------|---------------|
| Ø cable (mm)                        | 18            | 22            |
| Bar-through                         | 20 x 5        | 30 x 10       |
| H x W x D (mm)                      | 115 x 65 x 37 | 150 x 75 x 37 |
| DIN-rail mounting                   | no            | no            |

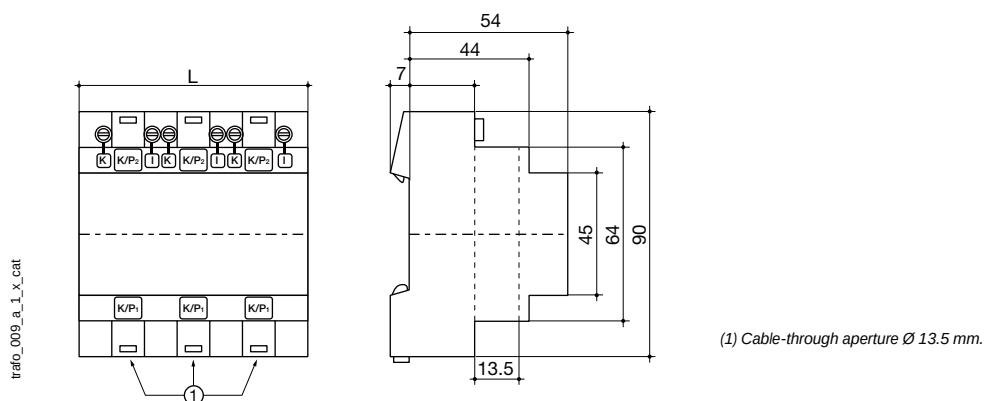
## References

| Primary   | Secondary <sup>(1)</sup> | TCA 13 — 3P |           |
|-----------|--------------------------|-------------|-----------|
|           |                          | Class 1     | Reference |
| 3 x 50 A  | 5 A                      | 1 VA        | 192T 1905 |
| 3 x 60 A  | 5 A                      | 1.25 VA     | 192T 1906 |
| 3 x 75 A  | 5 A                      | 1.5 VA      | 192T 1907 |
| 3 x 80 A  | 5 A                      | 1.5 VA      | 192T 1908 |
| 3 x 100 A | 5 A                      | 2.5 VA      | 192T 1910 |
| 3 x 125 A | 5 A                      | 2.5 VA      | 192T 1912 |
| 3 x 150 A | 5 A                      | 2.5 VA      | 192T 1915 |
| 3 x 160 A | 5 A                      | 2.5 VA      | 192T 1916 |

(1) Secondary 1 A: on request.

## Dimensions (mm)

TCA 13 — 3P



| Number of modules | Front degree of protection | Terminal degree of protection | L (mm) | Mounting       |
|-------------------|----------------------------|-------------------------------|--------|----------------|
| 6                 | IP65                       | IP20                          | 105    | 35 mm DIN-rail |

# Current transformers

Measurement devices

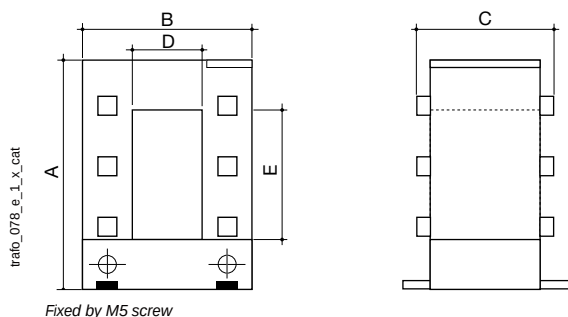
from 5 to 5000 A

## Split-core CT

### References

| Primary | Secondary | TO 23   |         |           | TO 58     |         |           | TO 812    |         |           | TO 816    |           |
|---------|-----------|---------|---------|-----------|-----------|---------|-----------|-----------|---------|-----------|-----------|-----------|
|         |           | Class 1 | Class 3 | Reference | Class 0.5 | Class 1 | Reference | Class 0.5 | Class 1 | Reference | Class 0.5 | Reference |
| 100 A   | 5 A       |         | 1.25 VA | 192T 4601 |           |         |           |           |         |           |           |           |
| 150 A   | 5 A       |         | 1.5 VA  | 192T 4602 |           |         |           |           |         |           |           |           |
| 200 A   | 5 A       |         | 2.5 VA  | 192T 4603 |           |         |           |           |         |           |           |           |
| 250 A   | 5 A       | 1.5 VA  |         | 192T 4604 |           | 1.5 VA  | 192T 4625 |           | 1.5 VA  | 192T 4725 |           |           |
| 300 A   | 5 A       | 3.75 VA |         | 192T 4605 |           | 2.5 VA  | 192T 4630 |           | 2.5 VA  | 192T 4730 |           |           |
| 400 A   | 5 A       | 5 VA    |         | 192T 4606 | 1 VA      |         | 192T 4640 |           | 2.5 VA  | 192T 4740 |           |           |
| 500 A   | 5 A       |         |         |           | 2.5 VA    |         | 192T 4650 | 2.5 VA    |         | 192T 4750 |           |           |
| 600 A   | 5 A       |         |         |           | 2.5 VA    |         | 192T 4660 | 2.5 VA    |         | 192T 4760 |           |           |
| 750 A   | 5 A       |         |         |           | 2.5 VA    |         | 192T 4675 | 2.5 VA    |         | 192T 4775 |           |           |
| 800 A   | 5 A       |         |         |           | 2.5 VA    |         | 192T 4680 | 2.5 VA    |         | 192T 4780 |           |           |
| 1000 A  | 5 A       |         |         |           | 5 VA      |         | 192T 4610 | 5 VA      |         | 192T 4710 | 10 VA     | 192T 4810 |
| 1250 A  | 5 A       |         |         |           |           |         |           | 7.5 VA    |         | 192T 4712 | 10 VA     | 192T 4812 |
| 1500 A  | 5 A       |         |         |           |           |         |           | 7.5 VA    |         | 192T 4715 | 10 VA     | 192T 4815 |
| 1600 A  | 5 A       |         |         |           |           |         |           |           |         |           | 10 VA     | 192T 4814 |
| 2000 A  | 5 A       |         |         |           |           |         |           |           |         |           | 10 VA     | 192T 4820 |
| 2500 A  | 5 A       |         |         |           |           |         |           |           |         |           | 10 VA     | 192T 4825 |
| 3000 A  | 5 A       |         |         |           |           |         |           |           |         |           | 15 VA     | 192T 4830 |
| 4000 A  | 5 A       |         |         |           |           |         |           |           |         |           | 15 VA     | 192T 4840 |
| 5000 A  | 5 A       |         |         |           |           |         |           |           |         |           | 15 VA     | 192T 4850 |

### Dimensions (mm)



### Dimensions (mm)

| Type   | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) |
|--------|--------|--------|--------|--------|--------|
| TO 23  | 106    | 93     | 58     | 23     | 33     |
| TO 58  | 158    | 125    | 58     | 55     | 85     |
| TO 812 | 198    | 155    | 58     | 85     | 125    |
| TO 816 | 243    | 195    | 79     | 85     | 165    |

| Split-core CT  | TO 23         | TO 58          | TO 812         | TO 816         |
|----------------|---------------|----------------|----------------|----------------|
| H x W x D (mm) | 106 x 93 x 58 | 158 x 125 x 58 | 198 x 155 x 58 | 243 x 195 x 75 |

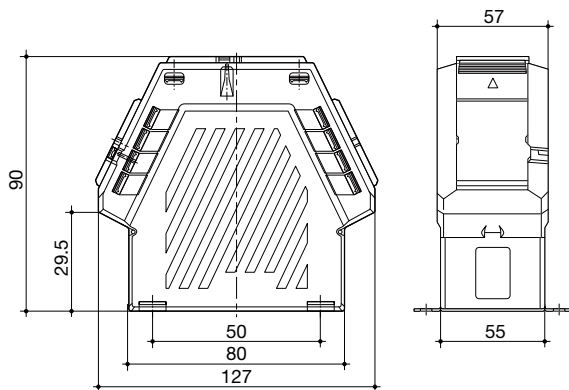
## Summation CT

### Reference

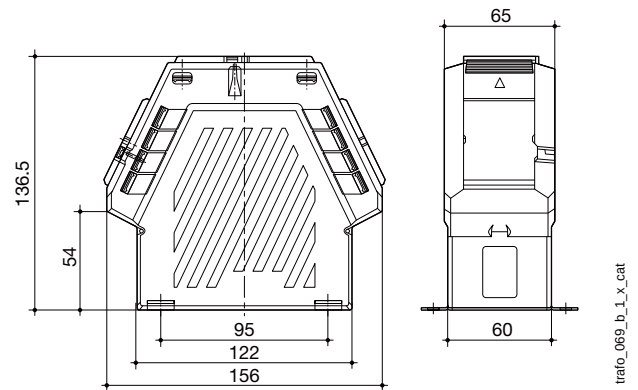
| Primary           | Secondary | BSA 02<br>Reference | BSA 03<br>Reference | BSA 04<br>Reference |
|-------------------|-----------|---------------------|---------------------|---------------------|
| 5 + 5/5 A         | 5 A       | 192T 0802           |                     |                     |
| 5A + 5+ 5/5       | 5 A       |                     | 192T 0803           |                     |
| 5 + 5 + 5 + 5/5 A | 5 A       |                     |                     | 192T 0904           |

### Dimensions (mm)

BSA 02 and BSA 03



BSA 04



| Summation CT      | BSA 02        | BSA 03        | BSA 04           |
|-------------------|---------------|---------------|------------------|
| H x W x D (mm)    | 90 x 127 x 57 | 90 x 127 x 57 | 136.5 x 156 x 65 |
| DIN-rail mounting | no            | no            | no               |



# Selection guide

## Software solutions for energy monitoring and analysis

What are the features?

For what size of project?

Where is the data stored?

|                                                                                         | WEBVIEW-S                                                                          | WEBVIEW-M                                                                           | WEBVIEW-L                                                                           |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                         |  |  |  |
| <b>Hosting of the application<sup>(1)</sup></b>                                         | DIRIS A-40 Ethernet                                                                | DIRIS Digiware M-70 /D-70                                                           | DATALOG H80/H81                                                                     |
| <b>Data collection</b>                                                                  | <i>p. 132</i>                                                                      | <i>p. 132</i>                                                                       | <i>p. 132</i>                                                                       |
| Maximum number of connected measurement devices                                         | 1                                                                                  | 32                                                                                  | 100 (WEBVIEW-L100)<br>200 (WEBVIEW-L200)                                            |
| Interfacing to third-party applications                                                 |                                                                                    |                                                                                     | via connector                                                                       |
| Export of data in CSV format                                                            | •                                                                                  | •                                                                                   | •                                                                                   |
| <b>Real time monitoring</b>                                                             |                                                                                    |                                                                                     |                                                                                     |
| U/V voltages and currents I                                                             | •                                                                                  | •                                                                                   | •                                                                                   |
| Powers P, Q, S, Power factor                                                            | •                                                                                  | •                                                                                   | •                                                                                   |
| Quality monitoring THDi, THDu, THDv, K factor, Harmonic analysis up to 63 <sup>rd</sup> | •                                                                                  | •                                                                                   | •                                                                                   |
| Energy metering Ea+, Ea-, Er+, Er-, Es                                                  | •                                                                                  | •                                                                                   | •                                                                                   |
| Pulse counting                                                                          | •                                                                                  | •                                                                                   | •                                                                                   |
| Input/Output monitoring                                                                 | •                                                                                  | •                                                                                   | •                                                                                   |
| Measurement history U, V, I, P, Q, S,                                                   | •                                                                                  | •                                                                                   | •                                                                                   |
| <b>Energy analysis</b>                                                                  |                                                                                    |                                                                                     |                                                                                     |
| Energy consumption analysis                                                             | •                                                                                  | •                                                                                   | •                                                                                   |
| Multi-parameter analysis                                                                |                                                                                    |                                                                                     | •                                                                                   |
| <b>Alarm management</b>                                                                 |                                                                                    |                                                                                     |                                                                                     |
| Product alarms                                                                          | •                                                                                  | •                                                                                   | •                                                                                   |
| Software alarms                                                                         |                                                                                    |                                                                                     |                                                                                     |
| Alarms history                                                                          | •                                                                                  | •                                                                                   | •                                                                                   |
| Transmission of alarms                                                                  | e-mail                                                                             | e-mail                                                                              | e-mail                                                                              |
| <b>Reporting management</b>                                                             |                                                                                    |                                                                                     |                                                                                     |
| Customisable user interface                                                             |                                                                                    | Photoview                                                                           | Photoview                                                                           |
| Hierarchy management                                                                    |                                                                                    | •                                                                                   | •                                                                                   |
| <b>Conformity to standards</b>                                                          |                                                                                    |                                                                                     |                                                                                     |
| Energy Server Standard - IEC 62974-1                                                    |                                                                                    | •                                                                                   | •                                                                                   |

(1) For more information on the hardware please refer to the appropriate catalogue pages.

(2) N'VIEW is a software solution intended for energy management purposes only.



## Architecture

### Level 4

Cloud hosting

### Level 3

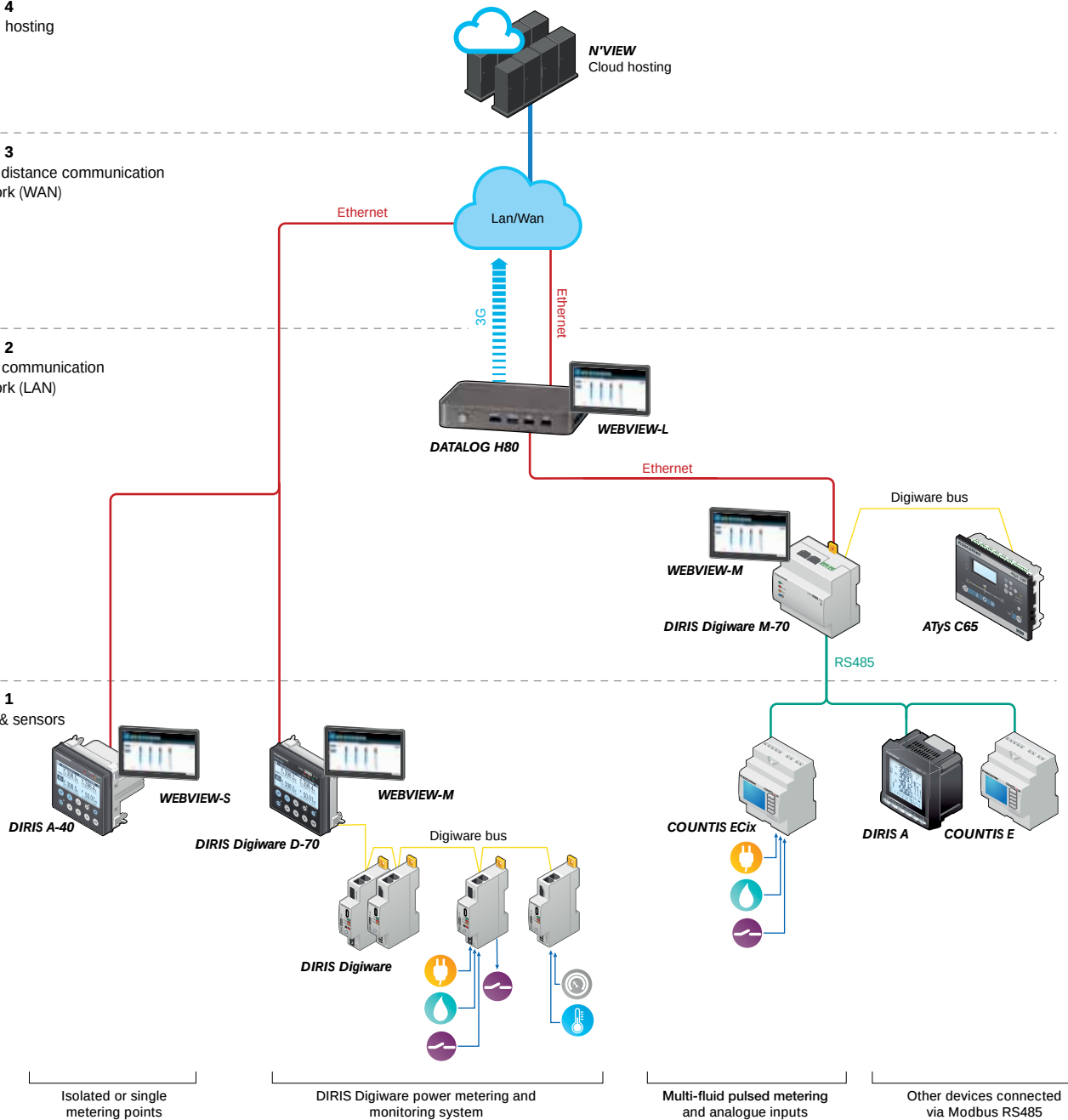
Long-distance communication network (WAN)

### Level 2

Local communication network (LAN)

### Level 1

PMD & sensors



## Expert Services

Require integration onto your network?

No problem for our Expert Services team. They work out all the details of the measurement schedule, the complete integration of all devices in your energy management system, the configuration of your software application, the training of your teams and details of operational support. For further information, please contact your nearest Socomec office.



# WEBVIEW

Embedded software for power monitoring and energy management

Software suite



soft\_076

## Function

WEBVIEW is a web based software embedded in DIRIS A-40 power monitoring devices, DIRIS Digiware D-70 displays, DIRIS Digiware M-70 communication gateways and DATALOG H80/H81 dataloggers delivering real-time monitoring of all measurements from up to 200 devices and displaying the breakdown of energy consumptions.

Uncover the causes of electrical disturbances and anticipate maintenance requirements thanks to historical records of multiple electrical parameters.

Pre-set alarms defined by the user can be sent by e-mail. Users can access WEBVIEW via a web browser on a PC or a tablet.

## Strong points

### Plug & Play

Quickly configure WEBVIEW thanks to the automatic detection of Socomec devices. Create geographical and electrical hierarchies to reflect your installation and your processes.

### Easy to use

WEBVIEW centralises measurements from all downstream devices via a single clear and user friendly interface. The ergonomics of each screen allow users to easily and quickly analyse the parameters and the behaviour of the installation.

### Various functions

Very easy to configure and to use, WEBVIEW offers a wide range of features including real-time monitoring, alarm management and notification by e-mail, multi-utility analysis (electricity, water, gas), power parameter logging and allocation of consumption by end-use and location.

## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Strong points

- > Plug & Play
- > Easy to use
- > Various functions

## Compliance with standards

- > IEC 62974-1<sup>(1)</sup>



(1) Energy Server standard applicable to WEBVIEW-M and L versions embedded in DIRIS Digiware M-70/D-70 and DATALOG H80.

## Characteristics

| Type      | Hosting             | Functions                          | Number of measurement devices |
|-----------|---------------------|------------------------------------|-------------------------------|
| WEBVIEW-S | DIRIS A-40          | Monitor, Alarm, Analyse            | 1                             |
| WEBVIEW-M | DIRIS Digiware M-70 | Monitor, Alarm, Analyse, Photoview | 32                            |
|           | DIRIS Digiware D-70 | Monitor, Alarm, Analyse, Photoview | 32                            |
| WEBVIEW-L | DATALOG H80/H81     | Monitor, Alarm, Analyse, Photoview | 100/200                       |

## Functions

### Monitor

- Automatic detection of connected devices.
- Summary of the parameters measured for the electrical network and loads.
- Display of voltage, current, power, power factor, total harmonic distortion (THD) and harmonics per rank.
- Display of average/instantaneous values with min/max limits depending on the devices.
- Total and partial energy consumption per load.
- Input/output status.
- Synchronisation of device clocks.
- Graphical or table representation.



soft\_076.eps

### Alarm

- Alarms for overloads, events and input status changes.
- Display of alarms history.
- Sorting by type, nature, criticality or state.
- Alarms displayed on the main page.
- Alarm notification by e-mail (SMTP).



soft\_074.eps

### Analyse

- Historical measurements and consumption.
- Historical records of multiple electrical parameters.
- Breakdown of consumption by location, by end-use and by utility type (water, gas, electricity...).
- Export of consumption data in a CSV format.



soft\_075.eps

### Photoview

- Photoview: customised dashboard of the WEBVIEW environment via the upload of graphical files (building plans, electrical circuit diagrams, production processes...)
- Real time monitoring via drag and drop of parameters on the background pictures (measurement points, alarms, text...).
- Display of the mapping of the measurement plan by cascading of several images.



soft\_064.eps

## References

| Type          | Host device              | Reference |
|---------------|--------------------------|-----------|
| WEBVIEW-S     | DIRIS A-40               | 4825 0501 |
| WEBVIEW-M     | DIRIS Digiware M-70      | 4829 0222 |
|               | DIRIS Digiware D-70      | 4829 0203 |
| WEBVIEW-L 100 | DATALOG H80              | 4854 0020 |
|               | DATALOG H81 (3G network) | 4854 0021 |
| WEBVIEW-L 200 | DATALOG H80              | 4854 0030 |
|               | DATALOG H81 (3G network) | 4854 0031 |



# Easy Config System

Configuration software

Software suite



soft\_122\_a

soft\_124\_a

## Function

With the Easy Config System, you can configure your Socomec power monitoring and load-breaking equipment while visualising all electrical measurements in real time.

Its speed and simplicity make the Easy Config System software an essential tool for:

- Panel builders and system integrators who want to provide correctly configured electrical panels for their customers
- Operators who want to configure their devices on their own or change specific settings

*The bonus: you can easily save and modify your configurations and also duplicate them from one device to another or from one system to another.*

## Advantages

### Quick configuration

Easy Config System is a quick and easy way for system integrators and panel builders to configure their installations:

- Automatic discovery of connected devices
- Configuration of multiple devices at the same time
- Duplication of configurations between devices.

### Local or remote access

You can access Easy Config System either locally by connecting it to devices via a USB cable, or remotely with an Ethernet connection. This system provides great flexibility taking into account the constraints of your facility. With the remote access option, you can change settings and correct any configuration or wiring errors, without having to physically return to site.

### Reliable data

Easy Config System has a dynamic dashboard (see next page) which adapts to the type of device and can display the phasor diagram, the alarms in progress or detected sensors and their ratings. It also provides an overview of the topology, listing the connected devices, with their firmware versions and internal clock, and the quality of communication.

This ensures the user that the wiring and configuration are correct and, as a result, data is reliable.

## Strong points



> Faster



> More reliable



> More flexible

## Compatible with



> DIRIS Digiware power monitoring system



> DIRIS A & B power monitoring devices



> ISOM insulation monitoring systems



> COUNTIS E energy meters



> ATyS C55/C65, ATyS p and ATyS pm transfer switches and controllers

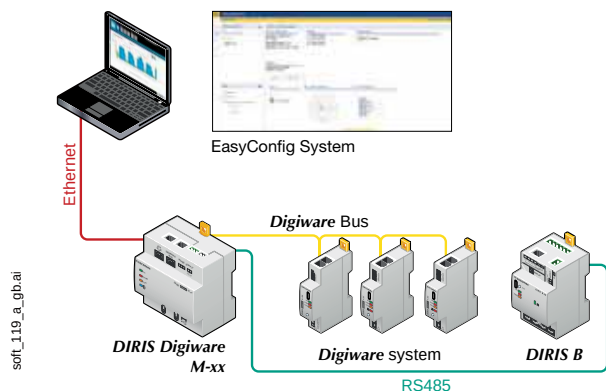
## Free download Easy Config System



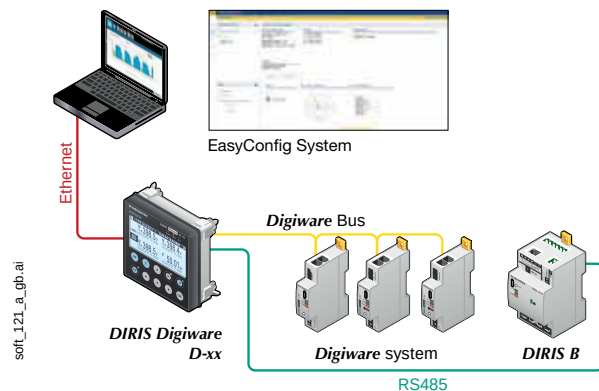
[https://www.socomec.com/easy-config-system\\_en.html](https://www.socomec.com/easy-config-system_en.html)

## Configuration options

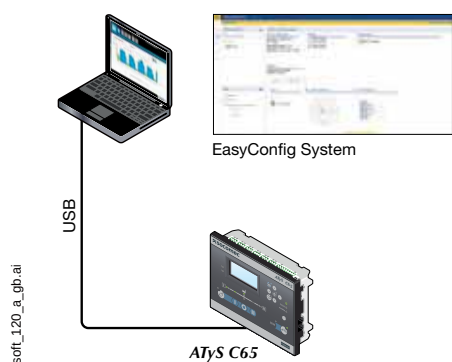
Configure the entire system with an Ethernet connection to a DIRIS Digiware M-xx gateway



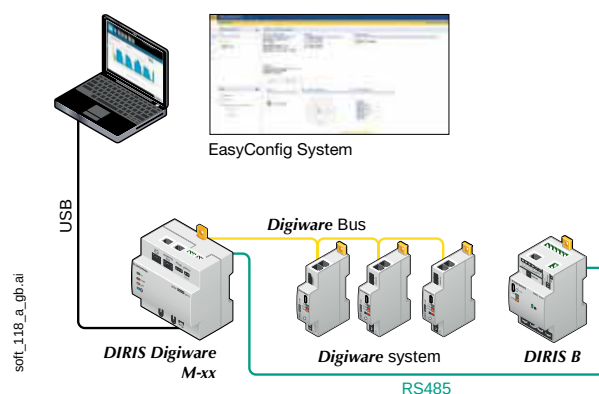
Configure the entire system with an Ethernet connection to a DIRIS Digiware D-xx display



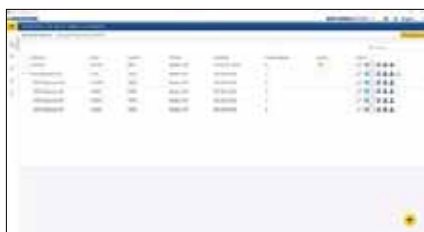
Configure the equipment via USB only



Configure the entire system with a USB connection to a DIRIS Digiware M-xx gateway



## A dashboard adapted to each type of device



D-xx displays and M-xx gateways

- List of products in the topology
- Firmware versions of connected devices
- Internal clock for connected devices
- Enabled services
- Communication diagnostics



Multifunction meters

- U/I phasor diagram
- Main electrical readings
- AutoCorrect wiring diagnostics
- Connected sensors and their ratings
- Alarms in progress



Transfer switches

- Electrical data on each source
- Status of primary and secondary sources
- Input/output state
- Alarms in progress
- Operating modes (AUTO/MANU/TEST)
- Timers

# References list

| References | Pages                       | References | Pages                  | References | Pages          | References | Pages                                         |
|------------|-----------------------------|------------|------------------------|------------|----------------|------------|-----------------------------------------------|
| 192J 8xxx  | 63, 67, 69                  | 4829 0112  | 41                     | 4829 0600  | 45             | 4850 3060  | 61                                            |
| 192J 9130  | 81                          | 4829 0113  | 41                     | 4829 0601  | 45, 47, 49, 53 | 4850 3061  | 61                                            |
| 4729 02xx  | 25                          | 4829 0114  | 53                     | 4829 0602  | 45, 47, 49, 53 | 4850 3062  | 63                                            |
| 4729 0603  | 25, 31                      | 4829 0120  | 25, 31                 | 4829 0603  | 45, 47, 49, 53 | 4850 3063  | 67                                            |
| 4825 0080  | 81, 91                      | 4829 0128  | 41                     | 4829 0605  | 41             | 4850 3064  | 67                                            |
| 4825 0082  | 81, 91                      | 4829 0129  | 41                     | 4829 0606  | 45, 47, 49, 53 | 4850 3065  | 67                                            |
| 4825 0083  | 81, 91                      | 4829 013x  | 41                     | 4829 0620  | 53             | 4850 3066  | 67                                            |
| 4825 0088  | 81, 87, 91, 100             | 4829 014x  | 55                     | 4829 065x  | 47             | 4850 3067  | 67                                            |
| 4825 0089  | 81, 91, 100                 | 4829 016x  | 37                     | 4829 0670  | 49             | 4850 3068  | 67                                            |
| 4825 009x  | 100                         | 4829 018x  | 25, 31, 33, 37, 41, 55 | 4850 300x  | 65             | 4850 307U  | 65                                            |
| 4825 02xx  | 100                         | 4829 0190  | 25, 31, 33, 37, 41, 55 | 4850 301x  | 65             | 4850 309U  | 63, 67                                        |
| 4825 0400  | 87                          | 4829 0195  | 37                     | 4850 302x  | 65             | 4853 xxx   | 69                                            |
| 4825 0401  | 87                          | 4829 0196  | 37                     | 4850 303x  | 59             | 4854 xxx   | 133                                           |
| 4825 0402  | 91                          | 4829 0200  | 25, 109                | 4850 3040  | 59             | 4899 0011  | 81, 91, 100                                   |
| 4825 0403  | 100                         | 4829 0203  | 25, 133                | 4850 3041  | 59             | 48C0 3018  | 71                                            |
| 4825 0404  | 100                         | 4829 0204  | 25                     | 4850 3042  | 59             | 48C0 3019  | 73                                            |
| 4825 0405  | 100                         | 4829 0221  | 31                     | 4850 3043  | 61             | 48C0 3020  | 75                                            |
| 4825 0406  | 100                         | 4829 0222  | 31, 133                | 4850 3044  | 61             | 48C0 3021  | 77                                            |
| 4825 0500  | 101                         | 4829 0230  | 25                     | 4850 3045  | 61             | 56xx xxx   | 81, 91                                        |
| 4825 0501  | 101, 133                    | 4829 028x  | 109                    | 4850 3046  | 61             | 5701 0017  | 25, 31, 69, 87, 100, 101, 109                 |
| 4825 0502  | 101                         | 4829 050x  | 45                     | 4850 3047  | 61             | 5701 0018  | 67, 87, 100, 101, 109                         |
| 4826 0100  | 111                         | 4829 055x  | 47                     | 4850 3048  | 61             | 5701 0019  | 33                                            |
| 4829 000x  | 109                         | 4829 057x  | 49                     | 4850 3049  | 63             | 5702 5001  | 59, 61                                        |
| 4829 001x  | 109                         | 4829 058x  | 45, 47, 49, 53         | 4850 3050  | 63             | 5703 5003  | 63, 65                                        |
| 4829 003x  | 109                         | 4829 0590  | 45, 47, 49, 53         | 4850 3051  | 63             | 6012 0000  | 25, 31, 33, 67, 69, 81, 87, 91, 100, 101, 109 |
| 4829 004x  | 109                         | 4829 0591  | 45, 47, 49, 53         | 4850 3052  | 63             | 6022 0040  | 59, 61                                        |
| 4829 0050  | 25, 31, 33, 37, 41, 55, 109 | 4829 0592  | 45, 47, 49, 53         | 4850 3053  | 63             | 6032 0080  | 63                                            |
| 4829 0101  | 25                          | 4829 0593  | 45, 47, 49, 53         | 4850 3054  | 63             | 6032 0100  | 65                                            |
| 4829 0102  | 33                          | 4829 0594  | 45, 47, 49, 53         | 4850 3055  | 63             |            |                                               |
| 4829 0103  | 25                          | 4829 0595  | 45, 47, 49, 53         | 4850 3056  | 67             |            |                                               |
| 4829 0105  | 33                          | 4829 0596  | 45, 47, 49, 53         | 4850 3057  | 67             |            |                                               |
| 4829 0106  | 33                          | 4829 0597  | 45, 47, 49, 53         | 4850 3058  | 59             |            |                                               |
| 4829 0110  | 41                          | 4829 0598  | 45                     | 4850 3059  | 59             |            |                                               |
| 4829 0111  | 41                          | 4829 0599  | 45                     | 4850 305U  | 59, 61         |            |                                               |



## Note

## Note

Model: SOCOMEC  
Production: SOCOMEC  
Photography: Martin Bernhart et Studio Objectif  
Printing:

# Socomec: our innovations supporting your energy performance

**1** independent manufacturer

**3,600** employees  
worldwide

**10** % of sales revenue  
dedicated to R&D

**400** experts  
dedicated to service provision

## Your power management expert



POWER  
SWITCHING



POWER  
MONITORING



POWER  
CONVERSION



ENERGY  
STORAGE



EXPERT  
SERVICES

## The specialist for critical applications

- Control, command of LV facilities
- Safety of persons and assets
- Measurement of electrical parameters
- Energy management
- Energy quality
- Energy availability
- Energy storage
- Prevention and repairs
- Measurement and analysis
- Optimisation
- Consultancy, commissioning and training

## A worldwide presence

**12** production sites

- France (x3)
- Italy (x2)
- Tunisia
- India
- China (x2)
- USA (x3)

**28** subsidiaries and commercial locations

- Algeria • Australia • Belgium • China • Canada
- Dubai (United Arab Emirates) • France • Germany
- India • Indonesia • Italy • Ivory Coast • Netherlands
- Poland • Portugal • Romania • Serbia • Singapore
- Slovenia • South Africa • Spain • Switzerland
- Thailand • Tunisia • Turkey • UK • USA

**80** countries

where our brand is distributed

## India corporate office

Socomec Innovative Power Solutions Pvt. Ltd.  
B1, II Floor  
Thiru-Vi-Ka Industrial Estate  
Guindy, Chennai - 600 032  
Tel: +91 44 3921 5400 / 5466  
Mob: +91 9711229993, +91 9940633654  
info.in@socomec.com



## Manufacturing facility

Socomec India Private Limited.  
756 Pace City II  
Sector 37  
Gurgaon - 122 001  
Haryana  
Tel: +91 124 4562700, 4597803  
Fax: +91 124 4562733  
CIN: U00000HR1999PTC038504

## Regional & resident offices

Ahmedabad : +91 8939008184, +91 9727753931  
Bengaluru : +91 9886323448, +91 9972578171  
Chandigarh : +91 9023154784  
Chennai : +91 9940147003  
Cochin : +91 8939550688, +91 9745012322  
Coimbatore : +91 8939550688, +91 9003032012  
Hyderabad : +91 9642528800, +91 9959444277  
Indore : +71 9827674469  
Kolkata : +91 7550078077, +91 8697709095  
Mumbai : +91 9987052602, +91 8879791802  
New Delhi : +91 9953595413, +91 9958591713  
Pune : +91 8793144968, +91 9987052604  
Trivandrum : +91 9020179364  
Vadodara : +91 9099947988  
Vijaywada : +91 9515100473

## HEAD OFFICE

### SOCOMEK GROUP

SAS SOCOMEK capital 10 749 940 €  
R.C.S. Strasbourg B 548 500 149  
B.P. 60010 - 1, rue de Westhouse  
F-67235 Benfeld Cedex  
Tel. +33 3 88 57 41 41 - Fax +33 3 88 57 78 78  
info.scp.isd@socomec.com

## YOUR DISTRIBUTOR / PARTNER

[www.socomec.co.in](http://www.socomec.co.in)

