
socomec
WEBVIEW IOT
DIRIS Digiware D-70
ALARM COM ON
+FREQUENCY
CLIM BAT ID:6CAB0B
INST
AVG MAX
U 1-2 398.5V
05.03.2014 11:10:00
U 2-3 398.4V
05.03.2014 11:10:00
U 3-1 398.5V
05.03.2014 11:10:00
F 50.01 HZ
05.03.2014 11:10:00
IP
E
OK
DIRIS Digiware U-30
ON
ALARM
COM
V1
V2
V3
VN
DIGIWARE BUS
socomec S-130
ID : DA9C99
P1
P2
I01
I02
I03

Energy measurement & management

Multi-circuit metering & measurement

DIRIS Digiware AC

Communication interfaces
DIRIS Digiware D
DIRIS Digiware C
DIRIS Digiware M
p. 310

Acquisition measurement module
DIRIS Digiware Uac
p. 328

Current measurement module
DIRIS Digiware S
DIRIS Digiware BCM
p. 330

Current measurement module
DIRIS Digiware Iac
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Residual current monitoring module
DIRIS Digiware R60
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Digital and analogue input/output modules
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DIRIS Digiware DC

Voltage acquisition module
DIRIS Digiware Udc
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Direct current acquisition module
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Modules d'entrées / sorties numériques et analogiques
DIRIS Digiware IO
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Single-circuit metering, measurement & analysis

Active energy meters for electrical distribution
COUNTIS E
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Multifunction meter
DIRIS A
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Modular multifunction meter
DIRIS B
p. 418

LoRaWAN® Power Monitoring Device
DIRIS B-10L
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Dataloggers and communication interfaces

Dataloggers
DATALOG H
consult us

Wireless communication interfaces
consult us

Software suite

Embedded web server
WEBVIEW
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Online energy management service ***N'VIEW***

Configuration software
Easy Config System
p. 508

Bluetooth sensors

Environmental sensors
B-TRH / B-MAG
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Current sensors and transformers

AC current sensors
TE, TR, iTR, TF
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Current sensors and transformers
ACCUline
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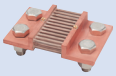
Residual Current Transformers associated with
DIRIS Digiware R-60
p. 348

DC current sensors
p. 366

Measurement devices

Current transformers
5 à 6000 A
p. 486



Shunts de mesure
p. 500

Quality analyser

DIRIS Q800
p. 434

Integrator

Integrator for RGW flexible current sensors
Intégrateur RAC-1A
p. 482

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).

Discover the video

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,
- dounts 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).

Discover the video

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

SYDIV_419_A

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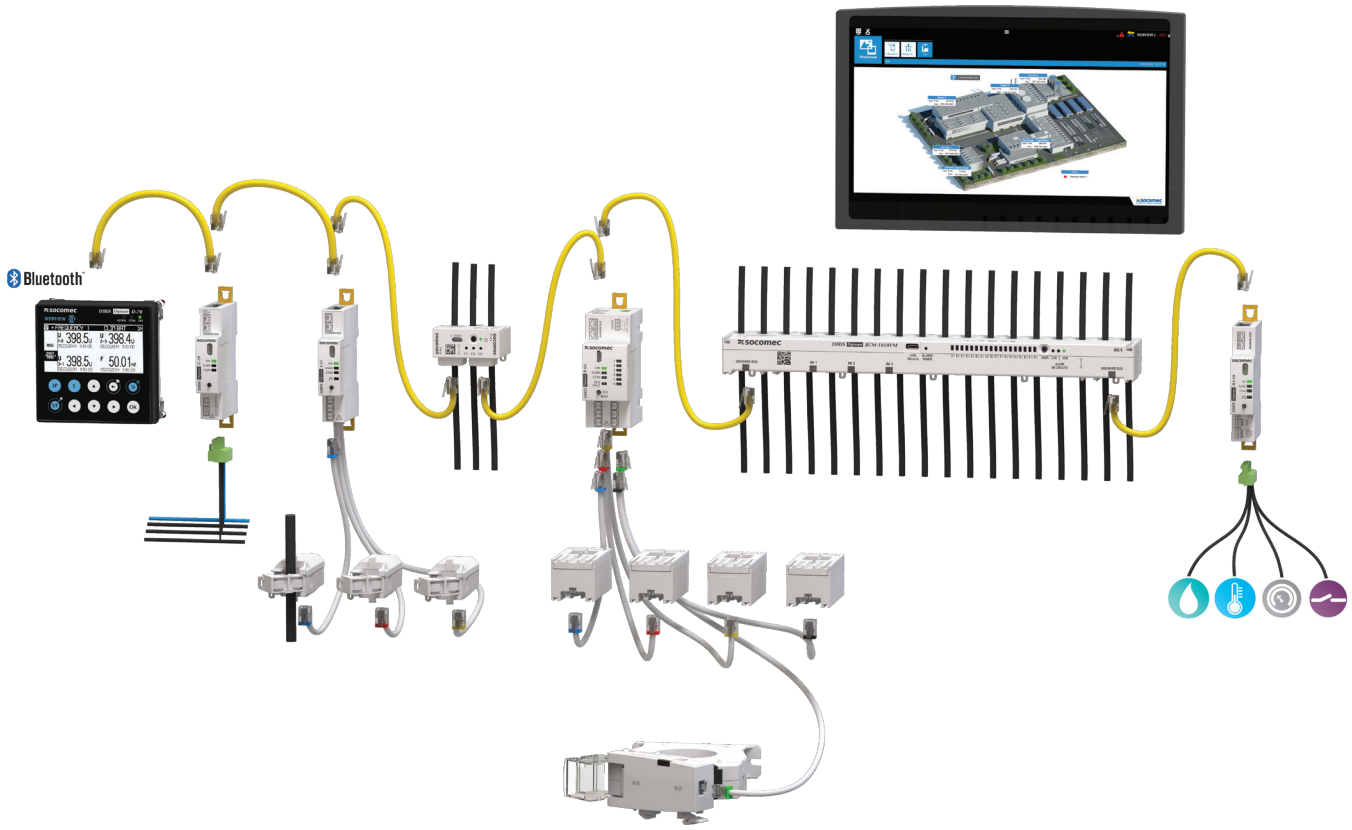
PreciSense, VirtualMonitor and AutoCorrect technologies are embedded in Socomec's power monitoring solutions.

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_227.psd

Multifunction meters

- DIRIS A-40 with iTR sensors.

diris_989.psd tore_078.eps tore_080.eps tore_074.psd

Selection guide

Power monitoring system AC

DIRIS Digiware AC

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

DIRIS Digiware BCM
21 circuits

DIRIS Digiware BCM
18 circuits

+

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.

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Control and power supply interface

Application	Centralisation and display of data				Data centralisation	Repeater
						
DIRIS Digiware	***D-50*** *p. 276*	***D-70*** *p. 276*	***M-50*** *p. 304*	***M-70*** *p. 304*	***C-31*** *p. 282*	***C-32*** *p. 282*
Function						
Centralising measurement points	•	•	•	•	•	
High-resolution LCD display (configuration, selection and visualisation display of circuits)	•	•				
Repeater						•
Power supply						
24 VDC	•	•	•	•	•	•
Communication						
RS485 Modbus	Input/Output	Input/Output	Input/Output	Input/Output	Output	
Digiware bus	•	•	•	•	•	•
Bluetooth	•	•	•	•		
Ethernet	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP		
Embedded web server	WEB-CONFIG	WEBVIEW-M	WEB-CONFIG	WEBVIEW-M		

Voltage acquisition module

Application	Metering	Analysis
		
DIRIS Digiware U	***U-10*** *p. 328*	***U-30*** *p. 328*
Multi-measurement		
U12, U23, U31, V1, V2, V3, f	•	•
U system, V system		•
Ph/N unbalance		•
Ph/Ph unbalance		•
Quality analysis		
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)		•
Alarms		
On threshold		•
History		
Average values		•
Format		
Width/number of modules	18 mm / 1	18 mm / 1

Selection guide
Power monitoring system AC
DIRIS Digiware AC

Current acquisition modules

Application	Metering			Analysis		Monitoring	Analysis	Metering			
											
DIRIS Digiware Iac	***I-30*** *p. 340*	***I-30MID*** *p. 340*	***I-31*** *p. 340*	***I-35*** *p. 340*	***I-35MID*** *p. 340*	***I-43*** *p. 340*	***I-45*** *p. 340*	***I-60*** *p. 340*	***I-60MID*** *p. 340*	***I-61*** *p. 340*	***I-61MID*** *p. 340*
Number of current inputs											
	3	3	3	3	3	**4**	4	6	6	6	6
Metering											
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•	•	•	•
Load curves			•	•	•		•			•	•
Multi-tariff			•	•	•		•			•	•
MID		•			•				•		•
Multi-measurement											
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				•	•		•				
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	18 mm / 1	27 mm / 1,5	27 mm / 1,5	36 mm / 2	36 mm / 2	36 mm / 2	36 mm / 2

○: *only for total power (P,Q,S).*
To be compliant with the MID directive, the DIRIS Digiware system must be equipped with a D-50/D-70 display.

Input/output modules

Application	Metering / monitoring / control	
		
DIRIS Digiware IO	***IO-10*** *p. 352*	***IO-20*** *p. 352*
Number of digital inputs/outputs	4/2	
Number of analogue inputs		2
Format		
Width/number of modules	18 mm/1	18 mm/1

Current acquisition module with integrated sensors

Application	Metering		Analysis	
				
DIRIS Digiware S	***S-130*** *p. 330*	***S-130MID*** *p. 330*	***S-135*** *p. 330*	***S-135MID*** *p. 330*
Number of current inputs	3	3	3	3
Basic current I_b	10 A	10 A	10 A	10 A
Maximum current I_{max}	63 A	63 A	63 A	63 A
Load type accepted	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N
Metering				
± kWh, ± kvarh, kVAh	•	•	•	•
Multi-tariff (max 8)			•	•
Load curves			•	•
MID		•		•
Multimesure				
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•
P, Q, S, PF per phase			•	•
Predictive power			•	•
Current unbalance (Inba, Inb, Idir, Iinv, Ihom)			•	•
Phi, cos Phi, tan Phi			•	•
Quality				
THDi1, THDi2, THDi3, THDin			•	•
Individual harmonics I (up to 63rd)			•	•
Crest factors U, V, I			•	•
K factor			•	•
Overcurrents			•	•
Alarms				
Thresholds and combinations			•	•
Wiring errors			•	•
Protective device	•	•	•	•
Trends				
Average values			•	•
Format				
Width	54 mm	54 mm	54 mm	54 mm

To be compliant with the MID directive, the DIRIS Digiware system must be equipped with a D-50/D-70 display.

Multi-circuit current acquisition module with integrated sensors for power distribution units (PDU)

DIRIS Digiware BCM	**BCM-1818** *p. 304*	**BCM-1818VM** *p. 304*	**BCM-2119** *p. 304*	**BCM-2119VM** *p. 304*	**BCM-2125** *p. 304*	**BCM-2125VM** *p. 304*
						
Number of current inputs	18 + 3x RJ12	18 + 3x RJ12	21 + 3x RJ12	21 + 3x RJ12	21 + 3x RJ12	21 + 3x RJ12
Nominal current In / Maximum current Imax	32...63A/80A	32...63A/80A	32...63A/80A	32...63A/80A	40...100A/120A	40...100A/120A
Load type accepted	1P+N 2P 2P+N 3P 3P+N	1P+N 2P 2P+N 3P 3P+N	1P+N 2P 2P+N 3P 3P+N	1P+N 2P 2P+N 3P 3P+N	1P+N 2P 2P+N 3P 3P+N	1P+N 2P 2P+N 3P 3P+N
Metering						
± kWh, ± kvarh, kVAh	•	•	•	•	•	•
Multi-tariff (max 8)	•	•	•	•	•	•
Load curves / demand profiles	•	•	•	•	•	•
Multi-measurement						
I1, I2, I3, In, ∑P, ∑Q, ∑S, ∑PF	•	•	•	•	•	•
P, Q, S, PF per phase	•	•	•	•	•	•
Predictive power	•	•	•	•	•	•
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)	•	•	•	•	•	•
Phi, cos Phi, tan Phi	•	•	•	•	•	•
Power Quality						
THDi1, THDi2, THDi3, THDin, THD Isys	•	•	•	•	•	•
Individual harmonics I (up to rank 63)	•	•	•	•	•	•
Crest Factor I1, I2, I3	•	•	•	•	•	•
Overcurrent	•	•	•	•	•	•
Alarms						
Thresholds	•	•	•	•	•	•
Load levels	•	•	•	•	•	•
System alarms	•	•	•	•	•	•
Protection alarms	•	•	•	•	•	•
Protection counters	•	•	•	•	•	•
Boolean combination of alarms	•	•	•	•	•	•
Trends						
Average values	•	•	•	•	•	•
Advanced features						
VirtualMonitor technology		•		•		•
AutoCorrect technology	•	•	•	•	•	•
Earth leakage monitoring	•	•	•	•	•	•
Format						
Pitch	18 mm	18 mm	19 mm / ¾in	19 mm / ¾in	25 mm / 1in	25 mm / 1in
Width	324 mm	324 mm	400 mm	400 mm	533.5 mm	533.5 mm

Current sensors

Suitable for new installations match the pitch of protective devices	Solid-core current sensors						
							
	TE-18 *p. 304*		***TE-25*** *p. 304*	***TE-35*** *p. 304*	***TE-45*** *p. 304*	***TE-55*** *p. 304*	***TE-90*** *p. 304*
Nominal current I_n (A) 5 … 2000	5 … 20	25 … 63	40 … 160	63 … 250	160 … 630	400 … 1000	600 … 2000
Real range covered (A) 0.1 … 2400	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			
				
	TR/iTR-10 *p. 308*	***TR/iTR-14*** *p. 308*	***TR/iTR-21*** *p. 308*	***TR/iTR-32*** *p. 308*
Nominal current I_n (A) 25 … 600	25 … 63	40 … 160	63 … 250	160 … 600
Real range covered (A) 0.5 … 720	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 with space constraints or with high currents		Flexible current sensors				
						
	TF-40 *p. 310*	***TF-80*** *p. 310*	***TF-120*** *p. 310*	***TF-200*** *p. 310*	***TF-300*** *p. 310*	***TF-600*** *p. 310*
Nominal current I_n (A) 100 … 6000	140 … 400	150 … 600	400 ... 2000	600 … 4000	1600 … 6000	1600 … 6000
Real range covered (A) 2 … 7200	2 … 480	3 … 720	8 ... 2400	12 ... 4800	32 … 7200	32 … 7200
Aperture (mm)	Ø 40	Ø 80	Ø 120	Ø 200	Ø 300	Ø 600
Connection	RJ12	RJ12	RJ12	RJ12	RJ12	RJ12

DIRIS Digiware D

Multi-point display and communication gateway
for the DIRIS Digiware system

Bluetooth

Configuration with Easy Config System.

diris-dw_151

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

Function

With DIRIS Digiware D-50 and D-70 remote displays, you can show data locally from DIRIS Digiware modules and centralise 24 VDC power and communication at a single point.

The D-50 and D-70 displays also act as the Ethernet gateway for all the devices connected on the Digiware or RS485 bus, and have an embedded web server to configure the network parameters and remotely display measurement data.

Displays D-50 and D-70 also feature:
- bluetooth connectivity for gathering and viewing data from environmental sensors,
- added memory for connected devices,
- automated export of data to the FTP(S) server,
- email notifications if there is an alarm on one of the connected devices (SMTPS),
- automated updates on all the system devices via SNTP.

Advantages

Plug & Play
- Direct Digiware and RS485-to-Ethernet gateway.
- Automatic detection of connected devices.
- Easy setup.
- Safety Extra-Low Voltage 24 VDC power supply.

Multi-circuit
Display measurement data from up to 196 circuits on the same screen.
10 capacitive hotkeys to easily select circuits and browse/view simple data.

Embedded webserver
A WEB-CONFIG is embedded in the D-50 display to configure the communication architecture.

WEBVIEW-M is embedded in the D-70 display – view measurements and consumption remotely and licence-free.

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.
- Options include configuring as an RS485 slave to communicate measurement data to a second PLC.

Cybersecurity
D-50 and D-70 displays include advanced cybersecurity features in compliance with IEC 62443 standards, to protect the transmission of data and reduce the risk of cyberattacks:
- customised security policy (blocking or restricting certain protocols and services), - HTTPS secured navigation using TLS/SSL certificates,
- push data transfer (FTPS, SMTPS),
- firewalls and whitelist protocols to guard against denial-of-service attacks.

Email notifications
D-50 and D-70 displays can send email notifications in case of an alarm.

General characteristics
- 96 x 96 mm format with 10 hotkeys.
- 24 VDC power supply.
- Modbus RTU/TCP, BACnet IP, SNMP v1, v2, v3 & Traps, HTTPS, FTPS, SMTPS, SNTP, DHCP.
- Displays up to 32 devices (max. 196 circuits).
- Free embedded web-based software.

The solution for
> Data centre
> Healthcare
> Energy
> Industry

Strong points
> Plug & Play
> Multi-circuit
> Embedded webserver
> Advanced connectivity
> Cybersecurity
> Email notifications

Conformity to standards
> IEC 62974-1 (Energy server)
> IEC 62443 (Cybersecurity)
> UL 61010 Guide FTRZ/PICQ File E257746
> FCC
> IC

Compatible with
> Cloud solutions
> SoData

aws Microsoft Azure

Create your project
> Find the best DIRIS Digiware configuration: **www.meter-selector.com**

METER SELECTOR DIGITAL TOOL AVAILABLE

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Application	Control and power supply interface			
				
DIRIS Digiware	***D-50***	***D-70***	***D-50 Bluetooth***	***D-70 Bluetooth***
Digiware input	•	•	•	•
RS485 input	•	•	•	•
RS485 output	•	•	•	•
Ethernet output	Modbus BACnet IP SNMP v1, v2, v3	Modbus BACnet IP SNMP v1, v2, v3	Modbus BACnet IP SNMP v1, v2, v3	Modbus BACnet IP SNMP v1, v2, v3
Bluetooth			•	•
Webserver	WEB-CONFIG	WEBVIEW-M	WEB-CONFIG	WEBVIEW-M

Functions


soft_073_b

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).

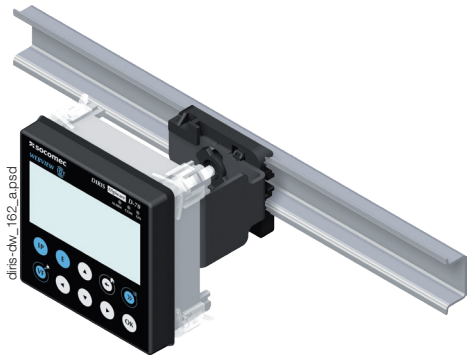
The Photoview application is available via the WEBVIEW interface embedded in the DIRIS Digiware D-70 display. It allows the display of electrical quantities on a customised background picture such as a cabinet, a wiring diagram or the map of a site.

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.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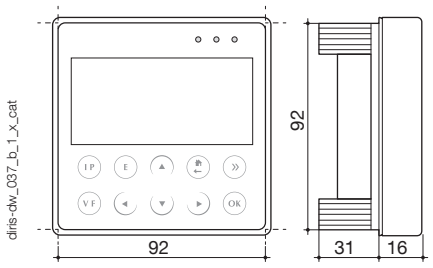
DIRIS Digiware D

Multipoint display and communication gateway

for the DIRIS Digiware system

Dimensions (mm)

DIRIS Digiware D-50/D-70



Configuration

Equipment consumption

Product	Power delivered (W)	Power consumed (W)
Power supply		
P15 100-240 VAC / 24 VDC	15	
P30 100-240 VAC / 24 VDC	20	
Cables		
50 metre package		1.5
System interfaces		
DIRIS Digiware D-50/D-70		2.5
DIRIS Digiware C-31		0.8
Module voltage		
DIRIS Digiware U-xx		0.72
DIRIS Digiware U-3xdc		0.6
Current modules		
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
Input/output modules		
DIRIS Digiware IO-10/IO-20		0.5
Repeater		
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 x 0.52 = 9.9 W)
  ⇨ **Total power = 14.62 W**

or

- 9 DIRIS Digiware current modules I-4x (9 x 1.125 = 10.125 W)
  ⇨ **Total power = 14.845 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

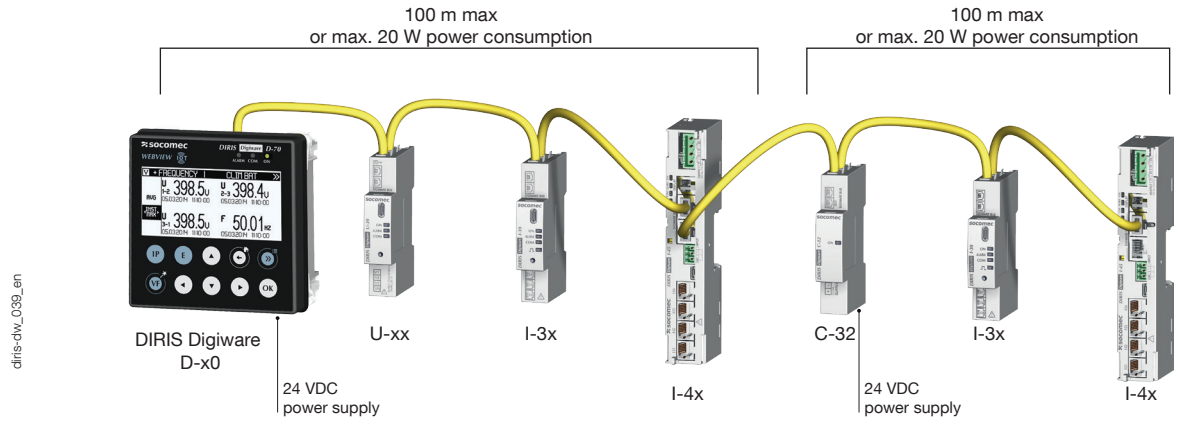
- 29 DIRIS Digiware current modules I-3x (29 x 0.52 = 15.1 W)
  ⇨ **Total power = 19.82 W**

or

- 13 DIRIS Digiware current modules I-4x (13 x 1.125 = 14.625)
  ⇨ **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.



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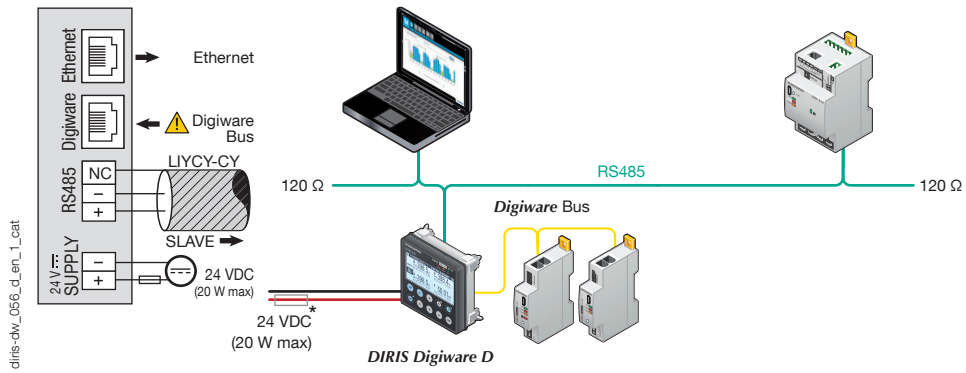
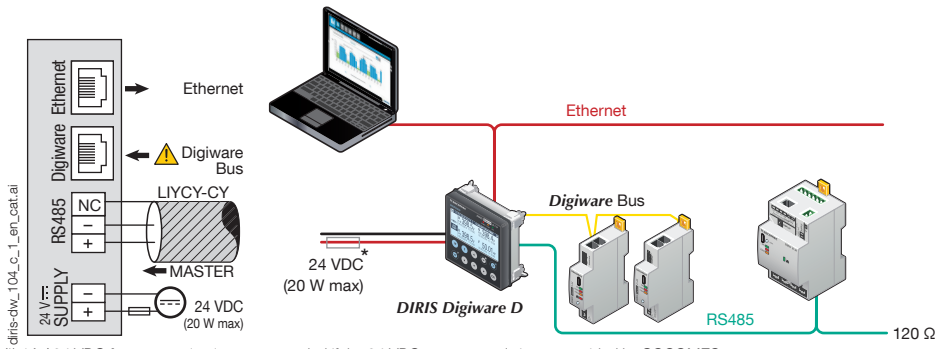
Connections

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 D

Multipoint display and communication gateway

for the DIRIS Digiware system

Technical characteristics

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): Modbus TCP BACnet IP SNMP v1, v2, v3
RJ45 Digiware	Control and power supply interface function
RS485 2-3 wires	Modbus RTU communication function Configurable as input or output
USB	Upgrade and configuration via type B micro USB connector
Electrical characteristics	
Power supply	24 VDC ±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**
D-50 Bluetooth	Multipoint display, Ethernet & RS485 output + WEB-CONFIG + Bluetooth	4829 **0206**
D-70 Bluetooth	Multipoint display, Ethernet & RS485 output + WEBVIEW-M + Bluetooth	4829 **0207**
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 D)		4829 **0180**
USB configuration cable		4829 **0050**
Accessories	**To be ordered in multiples of**	**Reference**
Repeater C-32		4829 **0103**
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**

Expert Services

EXPERT SERVICES

To constantly ensure a functional, accurate and reliable energy monitoring system, Socomec offers a wide range of services:
- Integration of units
- System audits
- Commissioning
- Staff training

What's more, ideal for ISO 50001 sites (regular checks):
- Verification of 3% measurement consistency
- Verification of 0.2% measurement precision

DIRIS Digiware C-31

Control and power supply interface

for the DIRIS Digiware system

DIRIS Digiware C-31
Centralisation

Configuration with Easy Config System.

Function

For applications without a local display, the DIRIS Digiware C-31 interface centralises all your system data and provides all this information to external software or a PLC via RS485.
The DIRIS Digiware C-31 interface is supplied with 24 VDC.

Advantages

Compact
Centralise your measurement data on a single module without a local screen, for a complete system:
- Single auxiliary 24 VDC power supply
- A single RS485 communication

24 VDC Safety Extra Low Voltage power supply
- No dangerous voltage
- The power supply feeds the entire system through the Digiware bus

The solution for

- Data centre
- Healthcare
- Energy
- Industry

Strong points

- Compact
- 24 VDC Safety Extra-Low Voltage power supply

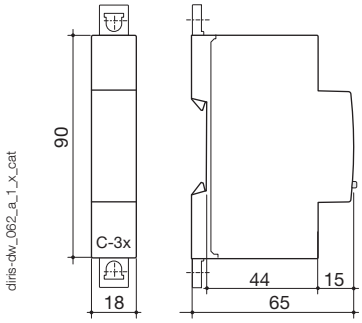
Compliance with standards

- IEC 61557-12
- UL 61010
  Guide FTRZ/PICQ
  File E257746

Create your project

- Find the best DIRIS Digiware configuration:
  www.meter-selector.com

Dimensions (mm)



Configuration

Equipment consumption

Product	Power delivered (W)	Power consumed (W)
Power supply		
P15 100-240 VAC / 24 VDC	15	
P30 100-240 VAC / 24 VDC	20	
Cables		
50 metre package		1.5
System interfaces		
DIRIS Digiware D-50/D-70		2.5
DIRIS Digiware C-31		0.8
Module voltage		
DIRIS Digiware U-xx		0.72
DIRIS Digiware U-3xdc		0.6
Current modules		
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
Input/output modules		
DIRIS Digiware IO-10/IO-20		0.5
Repeater		
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 x 0.52 = 9.9 W)
  ⇨ **Total power = 14.62 W**

or
- 9 DIRIS Digiware current modules I-4x (9 x 1.125 = 10.125 W)
  ⇨ **Total power = 14.845 W**.

Size with a 24 VDC power supply delivering a maximum of 20 W

(Power supply P30 ref: 4729 0603)

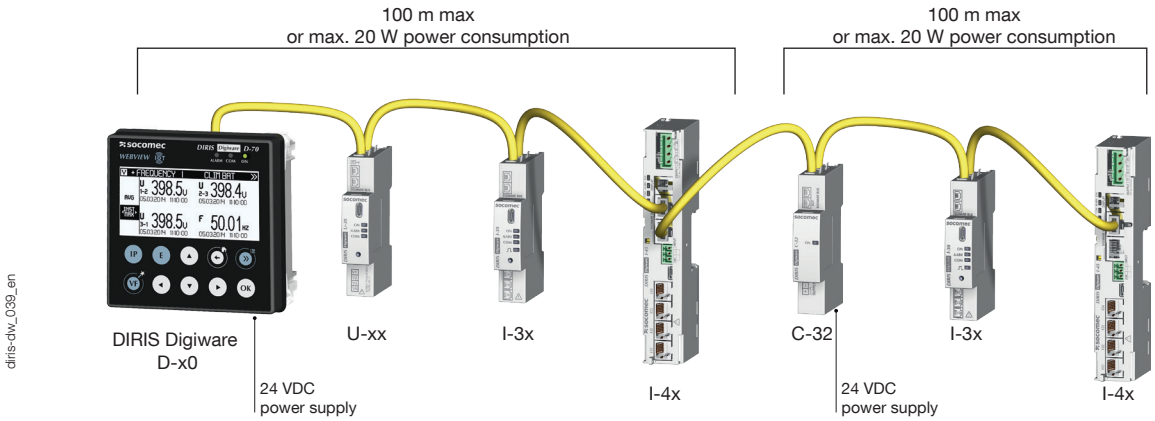
For example, it is possible to use
- 1 DIRIS Digiware D-50 display (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and
- 29 DIRIS Digiware current modules I-3x (29 x 0.52 = 15.1 W)
  ⇨ **Total power = 19.82 W**

or
- 13 DIRIS Digiware current modules I-4x (13 x 1.125 = 14.625)
  ⇨ **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.

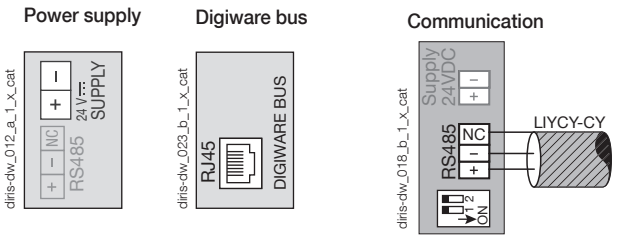


DIRIS Digiware C-31

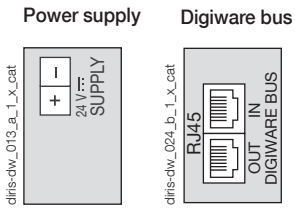
Control and power supply interface
for the DIRIS Digiware system

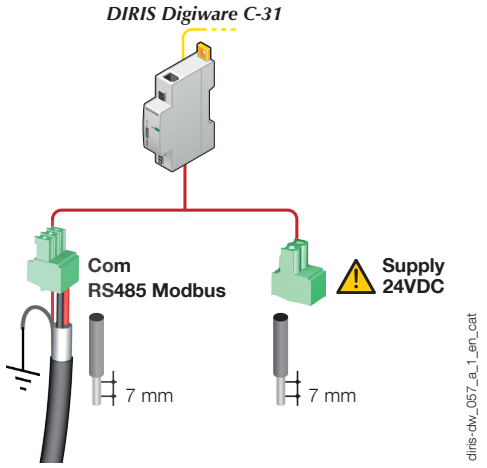
Connections

DIRIS Digiware C-31



DIRIS Digiware C-32





Technical characteristics

Electrical characteristics	
Input voltage	24 VDC ± 20% - 20 W max
Connection	Removable screw terminal block, 2 positions, stranded or solid 0.2-2.5 mm² cable
P15 power supply	Technical characteristics: 100-240 VAC/ 24 VDC - 0.63 A - 15 W 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

References

DIRIS Digiware		Reference
C-31	System interface - no display, RS485 output	4829 **0101**
C-32	Repeater	4829 **0103**

Expert Services

EXPERT SERVICES

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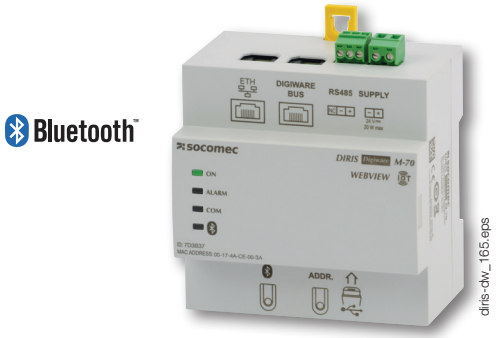
- Integration of units
- System audits
- Commissioning
- Staff training

What's more, ideal for ISO 50001 sites (regular checks):

- Verification of 3% measurement consistency
- Verification of 0.2% measurement precision

DIRIS Digiware M

Multi-protocol communication gateways
for the DIRIS Digiware system



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.

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

- Bluetooth connectivity to collect data from environmental sensors,
- 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.

Advantages

Plug & Play

- Direct Digiware and RS485 to Ethernet gateway.
- Automatic detection of connected devices.
- Easy setup.
- 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.

Embedded web server

A WEB-CONFIG is embedded in the M-50 gateway to configure the communication architecture.

WEBVIEW-M is embedded in the M-70 gateway and available without license fees to visualise measurements and consumption remotely.

Cyber security

The M-50 and M-70 gateways include advanced cyber security features following the IEC 62443 referential to secure the transmission of data and reduce the risk of cyber attacks:

- customised security policy (blocking or restricting certain protocols and services),
- secured HTTPS navigation by uploading TLS/SSL certificates,
- secured data push (FTPS, SMTPS),
- implementation of a Firewall and Whitelist rules to guard against denial-of-service attacks.

Email notifications

The M-50/M-70 gateway can send email notifications in case of an alarm.

General characteristics

- 24 VDC power supply.
- Modbus RTU/TCP, BACnet IP, SNMP v1, v2, v3 & Traps, HTTPS, FTPS, SMTPS, SNTP, DHCP.
- Up to 32 devices (max. 196 circuits) displayed.
- Free embedded web-based software.

The solution for

- Data centre
- Healthcare
- Energy

Strong points

- Plug & Play
- Advanced connectivity
- Embedded web server
- Cyber security
- Email notifications

RJ45 (Digiware bus) cables are available.

Conformity to standards

- IEC 62974-1 (Energy Server)
- IEC 62443 (Cyber security)
- UL 61010 Guide FTRZ/PICQ File E257746
- FCC
- IC

Compatible with

- Cloud solutions

aws Microsoft Azure

Create your project

- Find the best DIRIS Digiware configuration: **www.meter-selector.com**

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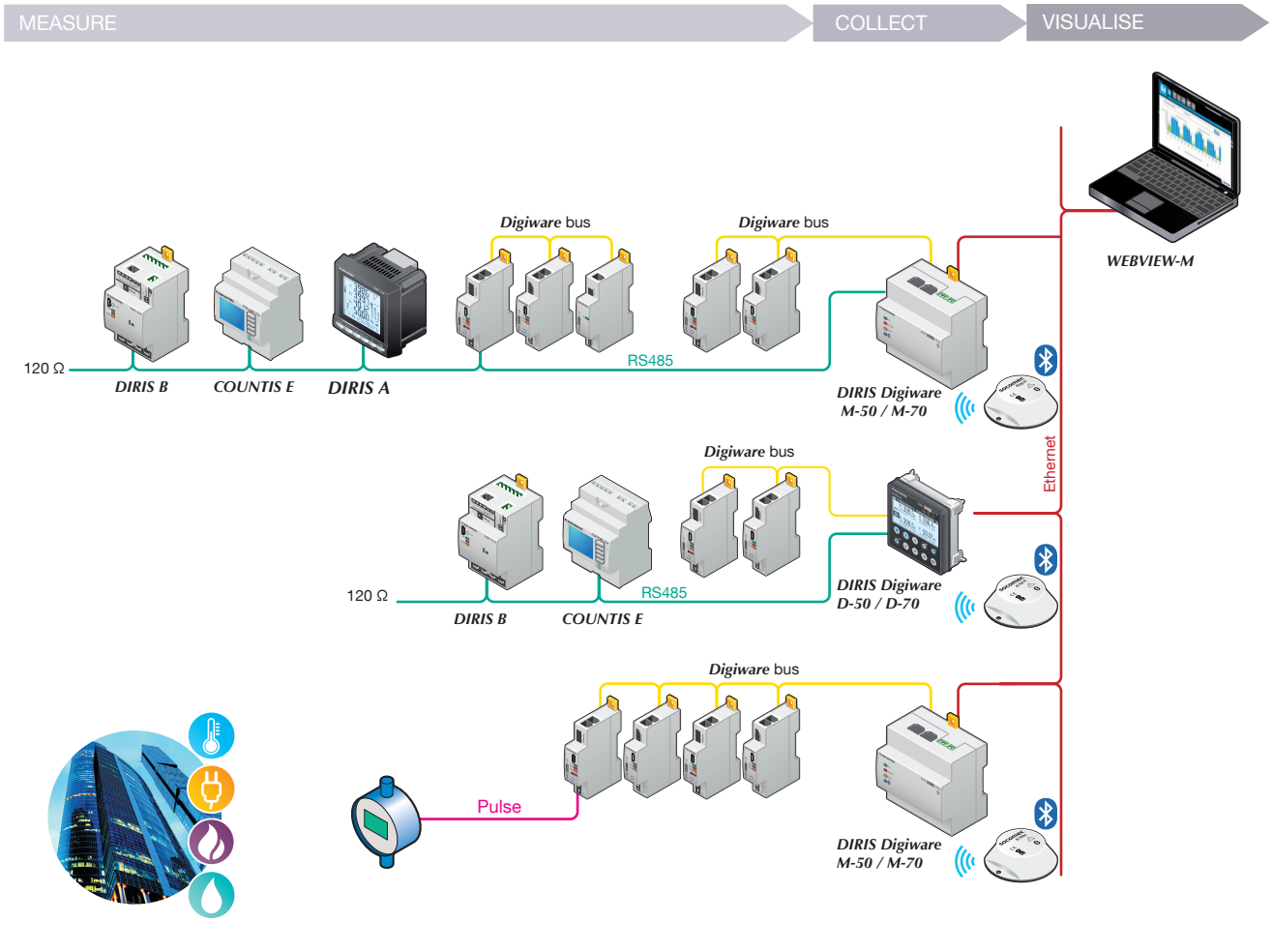
Application	Multi-protocol communication gateway	
		
DIRIS Digiware M	***M-50***	***M-70***
Digiware bus input	•	•
RS485	Input/output (1)	Input/output (1)
Ethernet output	•	•
Compatible protocols	Modbus RTU Modbus TCP BACnet IP SNMP v1, v2, v3, Traps	Modbus RTU Modbus TCP BACnet IP SNMP v1, v2, v3, Traps
Bluetooth	•	•
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



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DIRIS Digiware M

Multi-protocol communication gateways
for the DIRIS Digiware system

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.

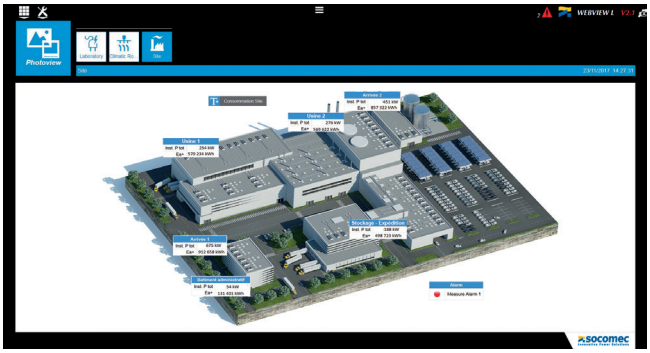
WEBVIEW-M (M-70)

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.



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Innovative Power Solutions

Configuration

Device consumption

Device	Power supplied (W)
Power supply	
P15 100-240 VAC / 24 VDC	15
P30 100-240 VAC / 24 VDC	20
Device	**Power consumed (W)**
Cables	
50-metre package	1.5
System interfaces	
DIRIS Digiware C-31	0.8
DIRIS Digiware D-50/D-70	2.5
DIRIS Digiware M-50/M-70	2.5
Voltage module	
DIRIS Digiware U-xx	0.72
DIRIS Digiware U-3xdc	0.6
Current modules	
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
Input/output modules	
DIRIS Digiware IO-10/IO-20	0.5
Repeater	
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 (29x 0.35 = 10.15 W)
  ⇨ **Total power = 14.87 W**

or
- 9 DIRIS Digiware current modules I-4x (9 x 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)

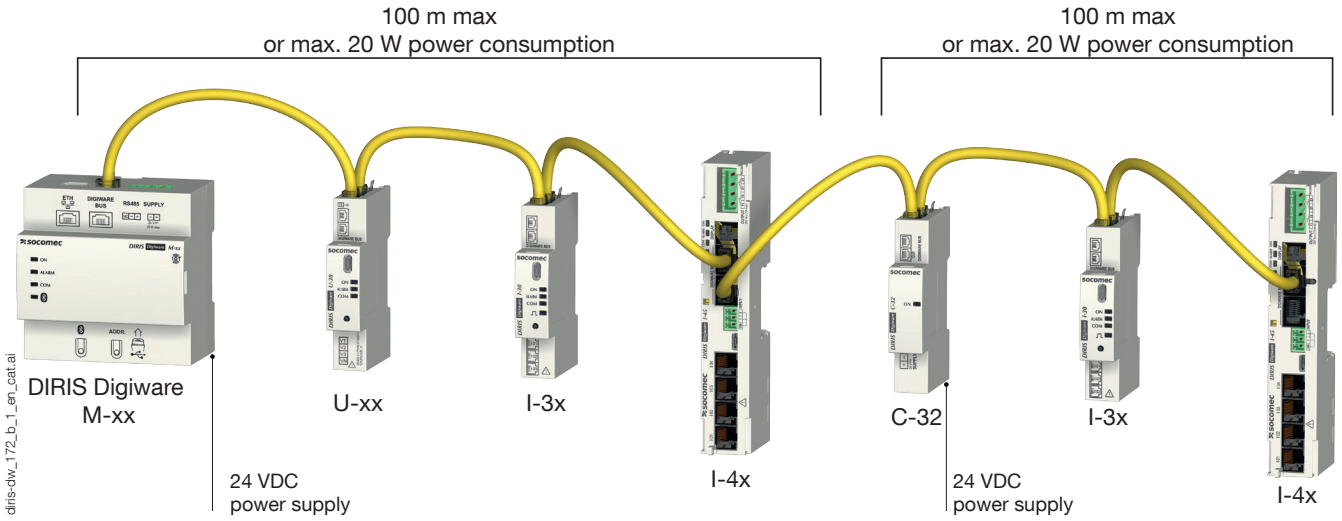
Possible options include:
- 1 DIRIS Digiware M-50 gateway (2.5 W)
- 1 DIRIS Digiware voltage module U-xx (0.72 W)
- 50 metres of cable (1.5 W)

and
- 29 DIRIS Digiware current modules I-3x (30 x 0.52 = 15.08 W)
  ⇨ **Total power = 19.8 W**

or
- 14 DIRIS Digiware current modules I-4x (13 x 1.125 = 15.72)
  ⇨ **Total power = 19.345 W**.

Repeater

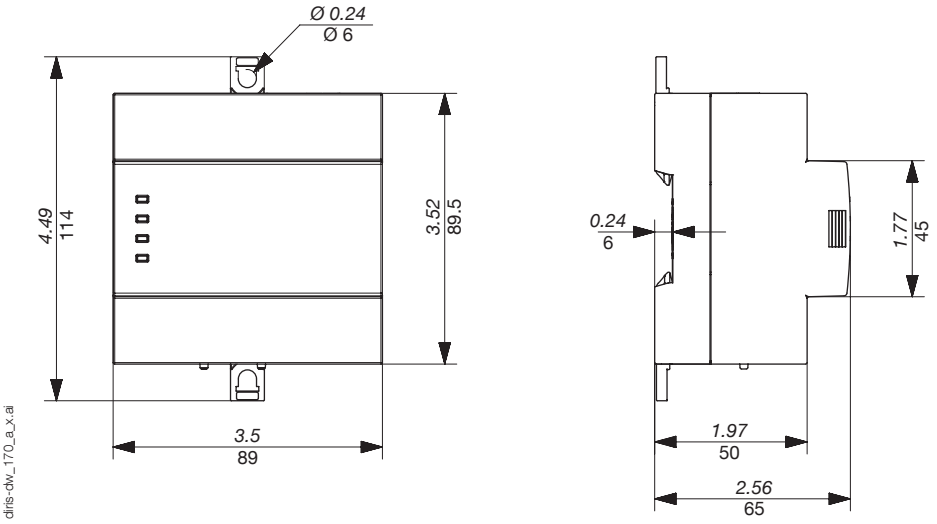
With power consumptions higher than 20 W or distances greater than 100 m, a DIRIS Digiware C-32 repeater is required.
In a DIRIS Digiware system, a maximum of 2 repeaters may be used.



DIRIS Digiware M

Multi-protocol communication gateways
for the DIRIS Digiware system

Dimensions (in/mm)



Technical characteristics

Electrical characteristics	
Power supply	24 VDC ± 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 Mbs	Gateway function (M-50/M-70): Modbus TCP BACnet IP 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) 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 **0219**
M-70	Multi-protocol Ethernet gateway with embedded WEBVIEW-M web server	4829 **0220**
M-50 Bluetooth	Multi-protocol Ethernet gateway (with Bluetooth connectivity)	4829 **0221**
M-70 Bluetooth	Multi-protocol Ethernet gateway with embedded WEBVIEW-M web server (with Bluetooth connectivity)	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 sytem 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.

Bluetooth sensors

Bluetooth environmental sensors
for the Digiware system

gamme_869.psd

The solution for
- Data centre
- Industry
- Building

Strong points
- Effortless installation
- Easy to configure
- Maximum response

Conformity to standards
- EN 300 328 v2.2.0 (Radio)
- ISO 14025

Create your own project
- Find the best power monitoring system architecture: **www.meter-selector.com**

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Expert services
SERVICES EXPERTS

Socomec offers a range of services to ensure a functional, accurate and reliable energy monitoring system as part of your ISO 50001 strategy.
- Radio inspection.
- Start-up.

To find out more, ask your Socomec representative.

Function
B-TRH and **B-MAG** sensors communicate with DIRIS Digiware M gateways and DIRIS / ISOM Digiware D displays wirelessly via Bluetooth.

The B-TRH sensor allows you to integrate temperature and humidity data into your Digiware power monitoring system. This means that when it comes to improving your energy performance as per the ISO 50001 methodologie, it is now possible to correlate energy consumption with the evolution of external factors. The sensor can also be used to anticipate maintenance work, by issuing an alert in the event of the electrical cabinet overheating or in the case of a leak, for example.

The B-MAG sensor is capable of detecting a loss of magnetic contact and will alert you upon the door opening of an electrical panel or restricted technical room.

Advantages
Effortless installation
- Integrated mounting accessory for easy installation.
- No additional wiring is required, the data is sent to the gateway or the display wirelessly via Bluetooth.
- Ultra-compact design that fits into the smallest of spaces.

Easy to configure

Automatic detection and pairing of sensors via the D-xx display or the M-xx gateway.

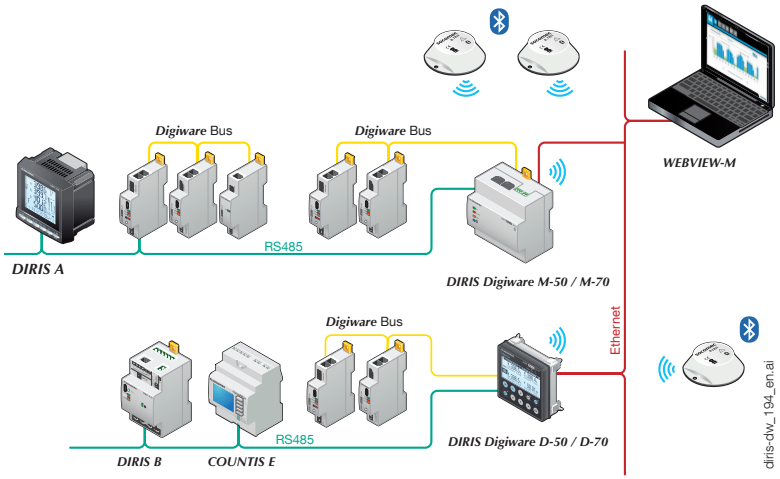
Maximum response

Sends real-time alerts when the measured temperature or humidity exceeds a predetermined threshold or when it detects a door opening.

General characteristics
Up to 16 sensors can be paired to the M-xx gateway or D-xx display to allow local and remote viewing on the WEBVIEW embedded web server.

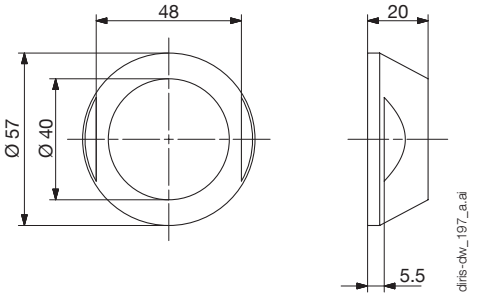
Communication architectures

The data measured by the B-TRH and B-MAG sensors can be viewed locally on the Digiware D display and on the embedded webserver WEBVIEW.
Digiware M/D gateways/displays provide this data on the Ethernet network via Modbus TCP/RTU, BACnet IP and SNMP protocols.

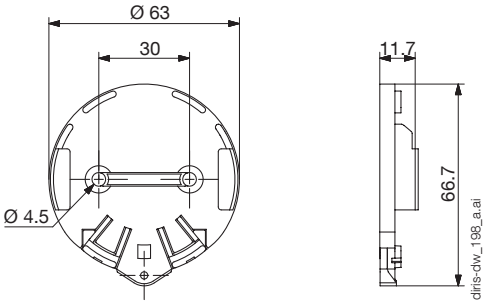


Dimensions

B-TRH and B-MAG



Mounting bracket



Technical characteristics

	B-TRH	B-MAG
Functional specifications		
Frequency	2.4 GHz – Bluetooth Low Energy 4.0/4.2	
Scope	Up to 500 metres free-field (+4 dBm)	
Transmission frequency	Adjustable from 0.1 to 10 seconds	Adjustable from 0.1 to 10 seconds
Battery properties		
Power supply	3 VDC – internal lithium battery	3 VDC – internal lithium battery
Service life	Up to 16 years	Up to 10 years
Measuring capacities		
Range	Temperature: -40 … +85 °C Humidity: 0 … 100%	-
Resolution	Temperature: 0.01 °C Humidity: 0.01%	-
Accuracy	Temperature: ± 0.4 °C Humidity: ±2.5% max (0 - 90%); ±3.5% max (90 - 100%)	-
Mechanical specifications		
Weight	41 g	41 g
Case materials	DELRIN (POM C)	DELRIN (POM C)
	Compatible with power supply units (90/128/EEC)	Compatible with power supply units (90/128/EEC)
Environmental specifications		
Protection degree	IP 65	IP 68
Temperature	-40 … +85 °C	-40 … +85 °C

References

Range of Bluetooth sensors		Reference
B-TRH	Temperature + humidity Bluetooth sensor	4829 **0800**
B-MAG	Magnetic contact Bluetooth sensor	4829 **0801**

DIRIS Digiware Uac

Voltage acquisition module

for the DIRIS Digiware system

DIRIS Digiware U-10ac/ U-30ac

Configuration with Easy Config System.

The solution for

- Industry
- Building
- Infrastructure
- Data center

Strong points

- Safe
- Compact
- A complete dedicated solution

RJ45 (Digiware Bus) cables are available.

Conformity to standards

- IEC 61557-12
- UL 61010
  Guide PICQ
  File E257746

Create your project

- Find the best DIRIS Digiware configuration:
  www.meter-selector.com

METER SELECTOR DIGITAL TOOL AVAILABLE

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

Safe
No hazardous voltage on cabinet doors.

Compact
- 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.

Adapted to all types of network: single-phase, three-phase.

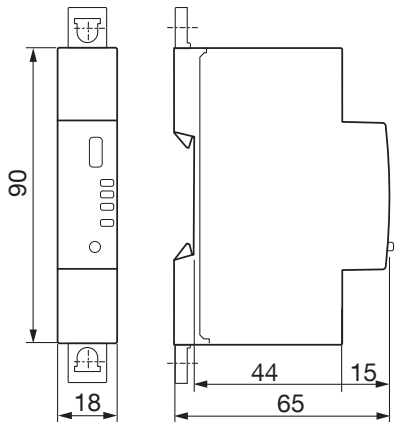
General characteristics

- Voltage accuracy class 0.2
- Frequency accuracy clas 0.02
- Compatible with all supply system types

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

Dimensions (mm)

DIRIS Digiware Uac



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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 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 mm² 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 **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**
Replacement reference: Digiware bus terminating resistor (supplied with C and D devices)		4829 **0180**
USB configuration cable		4829 **0050**

DIRIS Digiware		Reference
U-10ac	Metering	4829 **0105**
U-30ac	Analysis	4829 **0102**

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

DIRIS Digiware S

Current measurement module with built-in sensors

for 3 circuits

new

diris-dw_127.psd

DIRIS Digiware S

Configuration with Easy Config System.

The solution for

- Data centre
- Healthcare

Strong points

- Plug & Play
- Multi-circuit
- Compact
- Accurate
- MID certified and more

RJ45 (Digiware Bus) cables are available.

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.

Integrated technologies

PreciSense AutoCorrect VirtualMonitor

For more information see our website www.socomec.com

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

DIRIS Digiware S modules offer class 0.5 accuracy (IEC 61557-12) and class C (EN 50470), allowing accurate measurements ove a wide current range.

MID certified and more

DIRIS Digiware S-130MID and S-135MID current modules comply with the MID Directive and guarantee accurate and reliable metering.

“Module B+D” certification means that an outside laboratory has certified the design of the meter and its production process.

They are also fitted with innovative functions that go beyond the standard offerings on the market:

- Innovative tamper-resistance systems: the MID modules have a smart alarm system that is more effective than the standard mechanical seals offered by MID meters.
- Integrated PreciSense Technology: MID modules have a class C energy accuracy measurement, which is the most accurate class under the MID directive. In addition, as with any DIRIS Digiware system, PreciSense technology offers the best accuracy on the market across the chain.

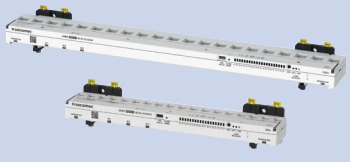
Conformity to standards

- IEC 61557-12
- UL 61010 Guide FTRZ/PICQ File E257746
- ANSI C12.20
- EN 50470-1
- EN 50470-3
- Directive 2014/32/EU

General characteristics

- 3 integrated current sensors
- Measurement up to 63 A
- Configurable as 3 single-phase circuits or 1 three-phase circuit

Also available



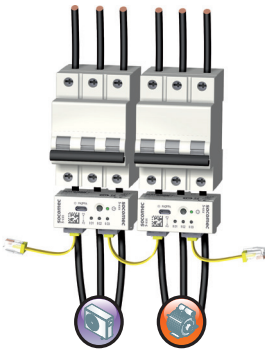
DIRIS Digiware BCM

In 18 or 21 circuits versions for the power distribution units (PDU) monitoring.

socomec Innovative Power Solutions

Functional diagram

Downstream



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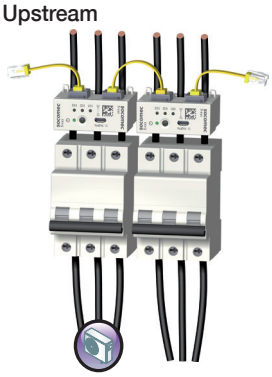
Upstream



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

Application	Current measurement module with integrated sensors			
	Metering		Analysis	
				
DIRIS Digiware S	***S-130***	***S-130MID***	***S-135***	***S-135MID***
Number of current inputs	3	3	3	3
Basic current I_b	10 A	10 A	10 A	10 A
Maximum current I_{max}	63 A	63 A	63 A	63 A
Load type accepted	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N	1P + N 2P / 2P + N 3P / 3P + N
Metering				
± kWh, ± kvarh, kVAh	•	•	•	•
Multi-tariff (max 8)			•	•
Load curves			•	•
MID		•		•
Multimesure				
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•
P, Q, S, PF per phase			•	•
Predictive power			•	•
Current unbalance (Inba, Inb, Idir, Iinv, Ihom)			•	•
Phi, cos Phi, tan Phi			•	•
Quality				
THDi1, THDi2, THDi3, THDin			•	•
Individual harmonics I (up to 63rd)			•	•
Crest factors U, V, I			•	•
K factor			•	•
Overcurrents			•	•
Alarms				
Thresholds and combinations			•	•
Wiring errors			•	•
Protective device	•	•	•	•
Trends				
Average values			•	•
Format				
Width	54 mm	54 mm	54 mm	54 mm

To be compliant with the MID directive, the DIRIS Digiware system must be equipped with a D-50/D-70 display.

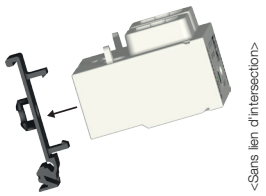
DIRIS Digiware S

Current measurement module with built-in sensors
for 3 circuits

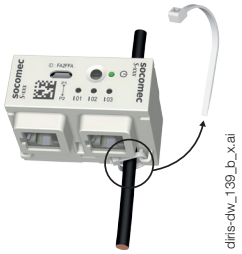
Mounting accessories

Temporary MCB insert
(for use during panel assembly)

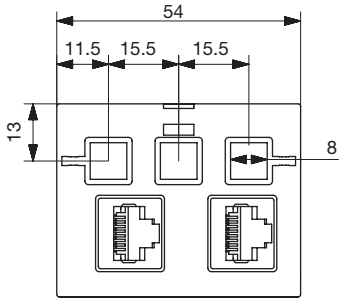
DIN rail and back plate mounting

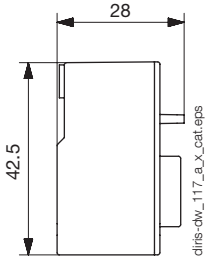


Cable tie tether



Dimensions (mm)

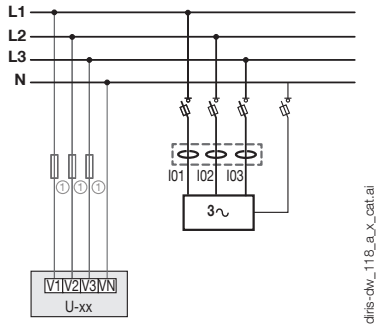




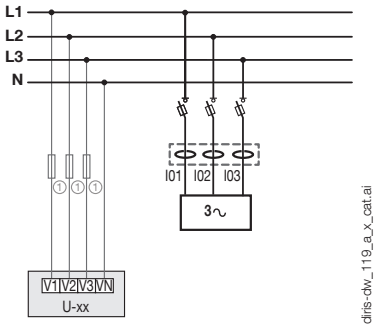
Connections

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

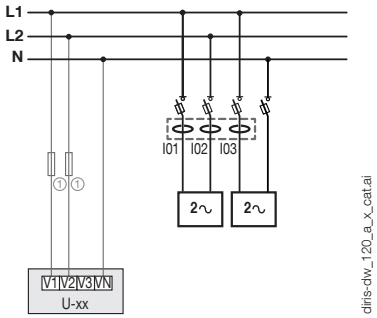
3P+N - 3CT



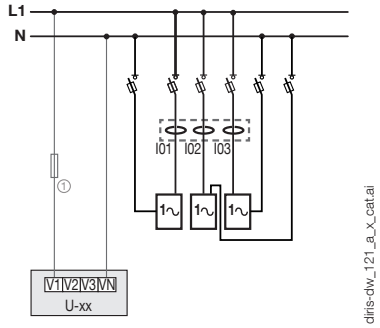
3P - 3 CT



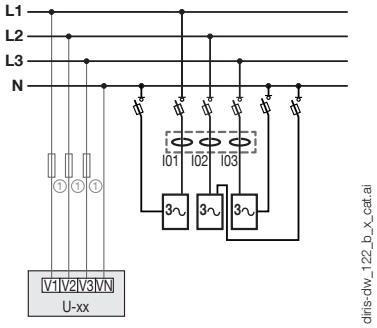
2P+N - 2CT & 2P+N - 1CT



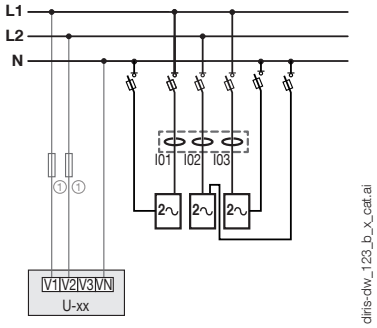
1P+N - 1 CT (3x)



3P+N - 1CT (3x)



2P+N - 1CT (3x)



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 Ib	10 A
Maximum current I_{max}	63 A
Current measurement accuracy	Class 0.5 IEC 61557-12
Measurement of energy	
Accuracy of active energy	Class 0.5 (IEC 61557-12) / Class C (EN 50470)
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

BUS Digiware	
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

Caractéristiques environnementales

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

Références

DIRIS Digiware S		Référence
S-130	Metering - 3 integrated current inputs	4829 **0160**
S-130MID	Metering - 3 integrated current inputs + MID	4829 **0163**
S-135	Analysis - 3 integrated current inputs	4829 **0161**
S-135MID	Analysis - 3 integrated current inputs + MID	4829 **0164**
Accessories		**Référence**
DIN rail and back plate mounting clip (x10)		4829 **0195**
Temporary MCB insert (x10)		4829 **0196**

To be compliant with the MID directive, the DIRIS Digiware system must be equipped with a D-50/D-70 display.

Digiware connection cables		Référence
RJ45 cables for Digiware Bus	Length 0.06 m(1)	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

EXPERT SERVICES

To continuously guarantee a functional and accurate energy monitoring system, Socomec offers a wide range of services:
- Incorporation of devices.
- System audit.
- Commissioning.
- Training for your teams.

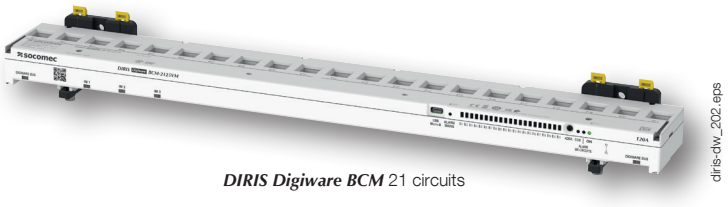
Also, Ideal for ISO 50001 sites (periodic verification):
- Measurement consistency check to 3%.
- Measurement accuracy check to 0.2%.

For more information, please call your Socomec contact

DIRIS Digiware BCM

Multi-circuit current acquisition module with integrated sensors for power distribution units (PDU)

for 18 or 21 circuits



DIRIS Digiware BCM 21 circuits

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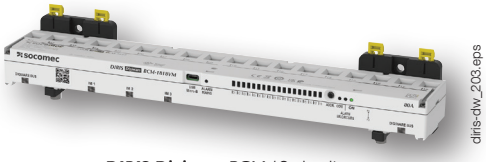


DIRIS Digiware BCM 18 circuits

diris-dw_203.eps

Function

The **DIRIS Digiware BCM** is a multi-circuit current measurement module with 18 or 21 integrated sensors and allows the monitoring of all types of power distribution units (PDUs). These modules are also equipped with three RJ12 channels allowing them to be connected to TE/TR/iTR/TF current sensors using RJ12 cables and various ΔIC differential toroids.

Advantages

3x quicker to install than standard solutions

- The integrated current sensors do not require any wiring: they are directly integrated in the module.
- Quick RJ45 connection between modules.
- RJ12 connection for external current sensors.
- Integrated AutoCorrect technology that provides automatic wiring control and an error correction feature available off-load.

2x quicker to configure than standard solutions

Easy Config System Software - free of charge – enables the configuration of multiple identical panels with a “duplication” function and also provides time-saving configuration templates enabling the initial design to be adapted with ease.

Minimal footprint

- No additional CT leads required - and therefore less cabling required.
- VirtualMonitor technology indicating the status of the protection elements eliminates the need to install auxiliary contacts.
- Connection to TE/TR/iTR/TF current sensors and ΔIC differential toroids to mutualize power consumption and residual current monitoring.

Maximum reliability

- A robust protective plastic cover safeguards the electronic components and reduces the risk of breakage. By not simply being an exposed PCB, the unit can, therefore, be handled manually.
- PreciSense technology ensures accurate and reliable measurements over a wide measurement range: class 0.5 accuracy for active energy according to IEC 61557-12 and ANSI C12.20 standards.
- Integrated VirtualMonitor technology to access the monitoring of protective devices across the entire electrical installation, both remotely and in real-time.

General characteristics

- 18/21 integrated current sensors.
- Measures up to 120 A.
- Configurable as 18/21 single-phase circuits or 6/7 three-phase circuits.

The solution for

> Data centre

Strong points

> 3x quicker to install than standard solutions
> 2x quicker to configure than standard solutions
> Minimal footprint
> Maximum reliability

Conformity to standards

> IEC 61557-12

> UL 61010
Guide FTRZ/PICQ
File E257746*

> ANSI C12.20

*for DIRIS Digiware BCM-21xx models only.

Integrated technologies

PreciSense AutoCorrect VirtualMonitor

For more information see our website www.socomec.com

Expert services

Need help to integrate this sytem 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.

socomec Innovative Power Solutions

DIRIS Digiware BCM

Multi-circuit current acquisition module with integrated sensors for power distribution units (PDU)
for 18 or 21 circuits

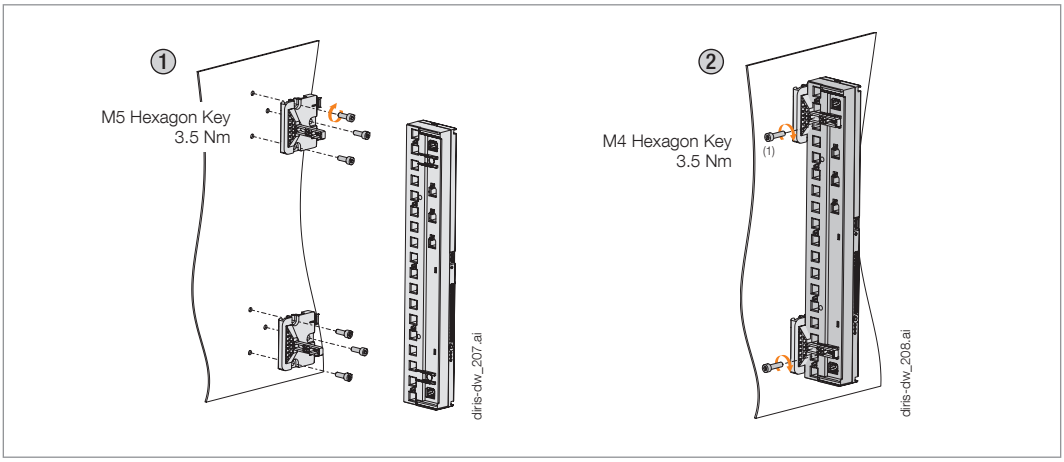
DIRIS Digiware BCM	BCM-1818	BCM-1818VM	BCM-2119	BCM-2119VM	BCM-2125	BCM-2125VM
						
Number of current inputs	18 + 3x RJ12	18 + 3x RJ12	21 + 3x RJ12	21 + 3x RJ12	21 + 3x RJ12	21 + 3x RJ12
Nominal current In / Maximum current Imax	32...63A/80A	32...63A/80A	32...63A/80A	32...63A/80A	40...100A/120A	40...100A/120A
Load type accepted	1P+N 2P 2P+N 3P 3P+N	1P+N 2P 2P+N 3P 3P+N	1P+N 2P 2P+N 3P 3P+N	1P+N 2P 2P+N 3P 3P+N	1P+N 2P 2P+N 3P 3P+N	1P+N 2P 2P+N 3P 3P+N
Metering						
± kWh, ± kvarh, kVAh	•	•	•	•	•	•
Multi-tariff (max 8)	•	•	•	•	•	•
Load curves / demand profiles	•	•	•	•	•	•
Multi-measurement						
I1, I2, I3, In, ∑P, ∑Q, ∑S, ∑PF	•	•	•	•	•	•
P, Q, S, PF per phase	•	•	•	•	•	•
Predictive power	•	•	•	•	•	•
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)	•	•	•	•	•	•
Phi, cos Phi, tan Phi	•	•	•	•	•	•
Power Quality						
THDi1, THDi2, THDi3, THDin, THD Isys	•	•	•	•	•	•
Individual harmonics I (up to rank 63)	•	•	•	•	•	•
Crest Factor I1, I2, I3	•	•	•	•	•	•
Overcurrent	•	•	•	•	•	•
Alarms						
Thresholds	•	•	•	•	•	•
Load levels	•	•	•	•	•	•
System alarms	•	•	•	•	•	•
Protection alarms	•	•	•	•	•	•
Protection counters	•	•	•	•	•	•
Boolean combination of alarms	•	•	•	•	•	•
Trends						
Average values	•	•	•	•	•	•
Advanced features						
VirtualMonitor technology		•		•		•
AutoCorrect technology	•	•	•	•	•	•
Earth leakage monitoring	•	•	•	•	•	•
Format						
Pitch	18 mm	18 mm	19 mm / ¾in	19 mm / ¾in	25 mm / 1in	25 mm / 1in
Width	324 mm	324 mm	400 mm	400 mm	533.5 mm	533.5 mm

DIRIS Digiware BCM

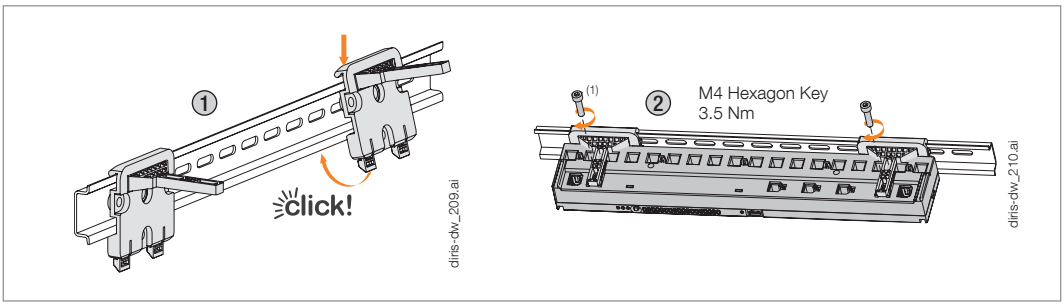
Multi-circuit current acquisition module with integrated sensors for power distribution units (PDU)
for 18 or 21 circuits

Mounting accessories

Back plate mounting



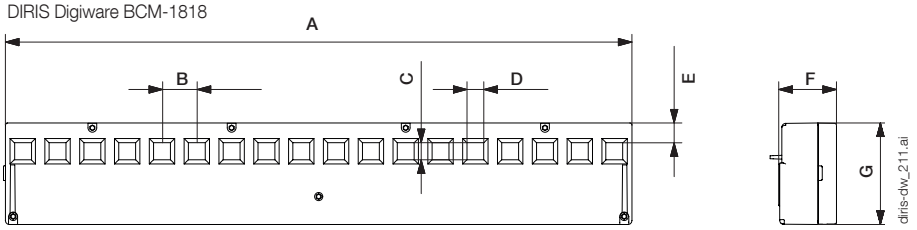
DIN rail mounting



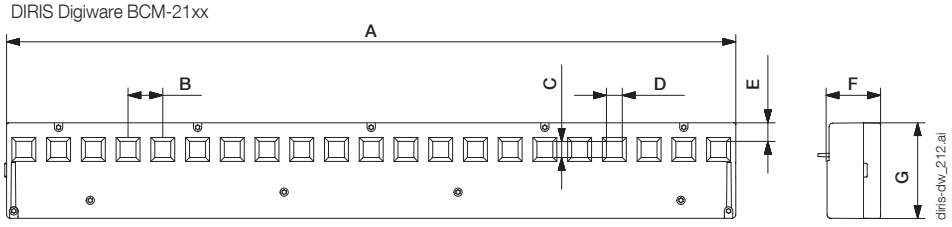
(1) 2x mounting brackets along with 2 x CHC M5 x 20 screws are included with the DIRIS Digiware BCM modules.

Dimensions (in/mm)

DIRIS Digiware BCM-1818



DIRIS Digiware BCM-21xx

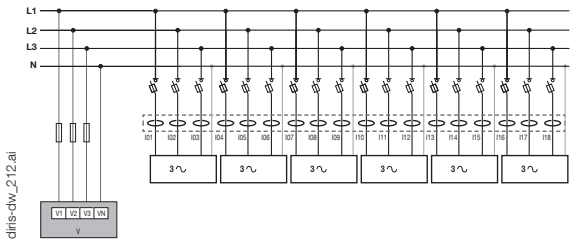


Modèle	A		B		C		D		E		F		G	
	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)	(in)	(mm)
DIRIS Digiware BCM-1818 / 1818VM	17.76	324	0.71	18	0.35	8,8	0.34	8,6	0.40	10,2	1.14	29	2.09	53
DIRIS Digiware BCM-2119 / 2119VM	15.75	400	0.75	19	0.35	8,8	0.34	8,6	0.39	10	1.18	30	2.09	53
DIRIS Digiware BCM-2125 / 2125VM	20.98	533,5	0.98	25	0.55	14	0.54	13,6	0.75	19	1.26	32	2.68	68

Connections

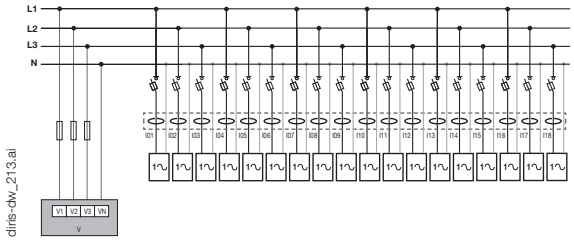
DIRIS Digiware BCM-1818

3P+N - 3 CT (x6)



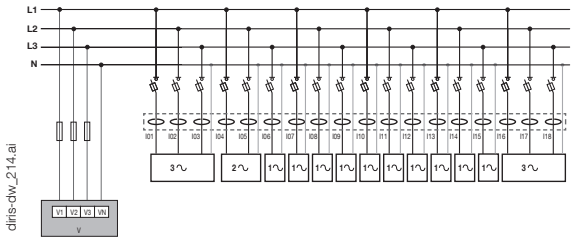
diris-dw_212.ai

1P + N (x18)



diris-dw_213.ai

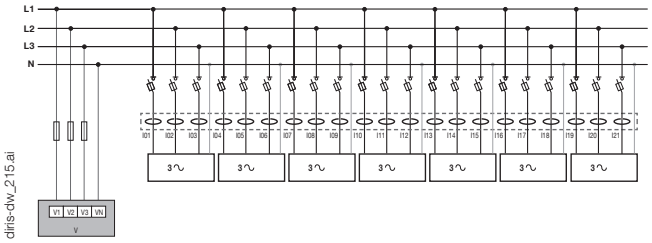
Multi-load types configuration



diris-dw_214.ai

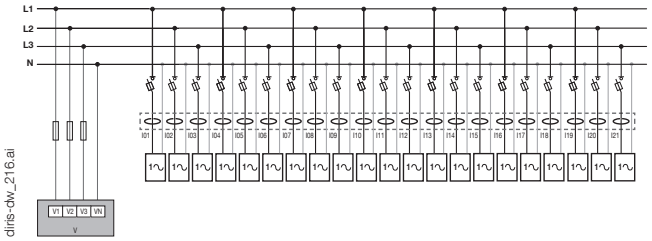
DIRIS Digiware BCM-21xx

3P+N - 3 CT (x7)



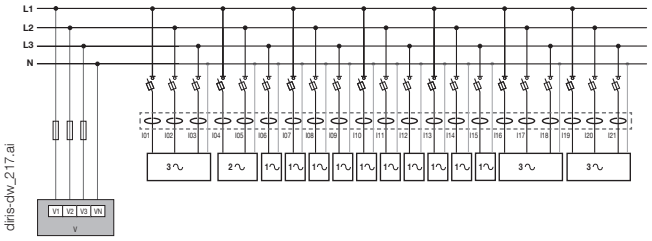
diris-dw_215.ai

1P + N (x21)



diris-dw_216.ai

Multi-load types configuration



diris-dw_217.ai

DIRIS Digiware U

DIRIS Digiware BCM

Load

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

DIRIS Digiware BCM

Multi-circuit current acquisition module with integrated sensors for power distribution units (PDU)
for 18 or 21 circuits

Technical characteristics

Measurement characteristics			
DIRIS Digiware BCM	**DIRIS Digiware BCM-1818**	**DIRIS Digiware BCM-2119**	**DIRIS Digiware BCM-2125**
Number of integrated current inputs	18	21	21
Accuracy of current measurement (integrated current inputs)	Class 0.5	Class 0.5	Class 0.5
Nominal current I^n (integrated current inputs)	32 … 63 A	32 … 63 A	40 … 100 A
Maximum current I^{max} (integrated current inputs)	80 A	80 A	120 A
Number of RJ12 current inputs	3	3	3
Associated current sensors (RJ12 current inputs)	Solid-core TE, split-core TR/iTR, flexible TF current sensors		
Accuracy of current measurement (RJ12 current inputs)	Class 0.2 DIRIS Digiware module alone Class 0.5 with TE, iTR or TF sensors Class 1 with TR sensors		
Connection (RJ12 current inputs)	Socomec RJ12 cables		
Measurement of energy (integrated and RJ12 current inputs)			
Accuracy of active energy	Class 0.5 IEC 61557-12		
Accuracy of reactive energy	Class 2 IEC 61557-12		
Mechanical characteristics			
Mounting	DIN rail or back plate mounting		
Casing protection	index IP20 / IK08		
Weight	BCM-1818: 475g / BCM-2119: 565 g / BCM-2125: 995 g		
Module power consumption	1.25 VA		
Communication specifications			
Digiware bus			
Function	Connection between DIRIS Digiware units		
Cable type	Specific Socomec cable with RJ45 connection		
USB			
Protocol	Modbus RTU over USB		
Function	Configuration of gateway and connected PMDs/meters		
Location	On each DIRIS Digiware module		
Connection	Type B micro connector		

Environmental specifications	
Ambient operating temperature	-10 … +55°C
Storage temperature	-40 … +70°C
Operating humidity	40°C / 95% RH
Operating altitude	< 2000 m

References

DIRIS Digiware		Reference
BCM-1818	18 current inputs (18 mm pitch)	4829 **0165**
BCM-1818VM	18 current inputs (18 mm pitch) + Virtual Monitor	4829 **0166**
BCM-2119	21 current inputs (19 mm / ¾in pitch)	4829 **0167**
BCM-2119VM	21 current inputs (19 mm / ¾in pitch) + Virtual Monitor	4829 **0168**
BCM-2125	21 current inputs (25 mm / 1in pitch)	4829 **0169**
BCM-2125VM	21 current inputs (25 mm / 1in pitch) + Virtual Monitor	4829 **0170**
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**
USB configuration cable		4829 **0050**
Accessories [1]		
BCM-1818/2119 DIN RAIL ACCESSORY		4829 **0197**
BCM-2125 DIN RAIL ACCESSORY		4829 **0198**

[1] *Included with the DIRIS Digiware BCM modules.*

DIRIS Digiware Iac

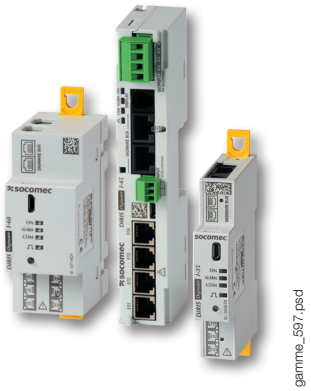
AC current measurement modules

for the DIRIS Digiware system

new

MID CERTIFIED

Configuration with Easy Config System.



gamme_597.psd

Function

DIRIS Digiware Iac modules measure consumption and monitor the installation as close as possible to loads. Their flexibility allows you to distribute the loads to meter or monitor independent current inputs (for example: 1 three-phase load or 3 single-phase loads).

Advantages

Multi-circuit

- One module can monitor up to 2 three-phase circuits or 6 single-phase circuits.
- Up to 31 current measurement modules can be added, allowing the monitoring of a large number of circuits within the same DIRIS Digiware system.

Accurate

DIRIS Digiware I modules guarantee the quality and accuracy of measurements:
- Class 0.5 from 2 to 120% In as regards the whole measurement chain, with TE/iTR/TF current sensors in class 1 from 2 to 120% In as regards the whole measurement chain with TR current sensors (IEC 61557-12).
- Class C (EN 50470).

Compact

Two-module width for monitoring 2 threephase loads or 6 single-phase loads, simplifying incorporation as close to the load as possible.

Plug & Play

- RJ45 cables for simple and fast module connection.
- Colour coded RJ12 cables to connect current sensors speedily, safely and without errors.
- Automatic sensing of the type of user load, type of current sensor and rating.
- If connected to iTR current sensors, AutoCorrect technology detects and corrects wiring errors to make the system more reliable.

Leading edge technology

- PreciSense: highest accuracy of the overall measurement chain.
- VirtualMonitor: circuit breaker status without using auxiliary contacts.
- AutoCorrect: detection and software correction of wiring errors.

MID certified and more

DIRIS Digiware I-30MID, I-35MID, I-60MID and I-61MID current modules comply with the MID Directive and guarantee accurate and reliable metering. “Module B+D” certification means that an external laboratory has certified the design of the meter and its production process.

They are also fitted with innovative functions that go beyond the standard offerings on the market:

- Innovative tamper-resistance systems: the MID modules have a smart alarm system that is more effective than the standard mechanical seals offered by MID meters.
- Integrated PreciSense Technology: MID modules have a class C energy accuracy measurement, which is the most accurate class under the MID directive. In addition, as with any DIRIS Digiware system, PreciSense technology offers the best accuracy on the market across the chain (modules and sensors).

General characteristics

- Versions with 3, 4 or 6 RJ12 current inputs.
- Compatible with TE, TR/iTR and TF current sensors.
- DIN rail assembly.

The solution for

- Data centre
- Healthcare
- Industry

Strong points

- Multi-circuit
- Accurate
- Compact
- Plug & Play
- Leading edge technology
- MID certified and more

Integrated technologies

PreciSense AutoCorrect VirtualMonitor

For more information see our website www.socomec.com

Conformity to standards

- IEC 61557-12
- UL 61010 Guide PICQ File E257746
- ANSI C12.20
- EN 50470-1
- EN 50770-3
- Directive 2014/32/EU

Create your project

- Find the best DIRIS Digiware configuration: **www.meter-selector.com**

METER SELECTOR DIGITAL TOOL AVAILABLE

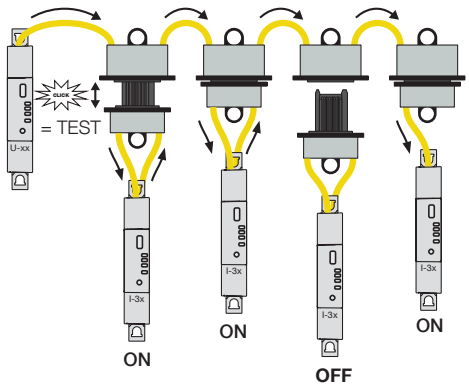
Application	Current measurement modules										
	Metering			Analysis		Monitoring	Analysis	Metering			
											
DIRIS Digiware Iac	***I-30***	***I-30MID***	***I-31***	***I-35***	***I-35MID***	***I-43***	***I-45***	***I-60***	***I-60MID***	***I-61***	***I-61MID***
Number of current inputs											
	3	3	3	3	3	**4**	4	6	6	6	6
Metering											
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•	•	•	•
Load curves			•	•	•		•			•	•
Multi-tariff			•	•	•		•			•	•
MID		•			•				•		•
Multi-measurement											
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				•	•		•				
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	18 mm / 1	27 mm / 1,5	27 mm / 1,5	36 mm / 2	36 mm / 2	36 mm / 2	36 mm / 2

○: *only for total power (P,Q,S).*
To be compliant with the MID directive, the DIRIS Digiware system must be equipped with a D-50/D-70 display.

Accessories

Digiware plug-in connector

With the Digiware plug-in connector you can disconnect a DIRIS Digiware module form 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.

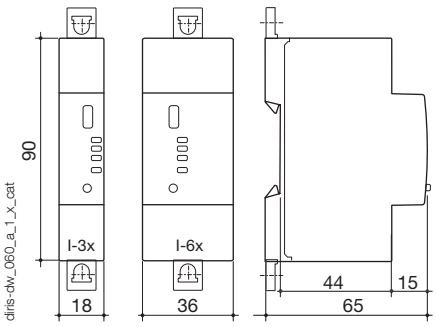


DIRIS Digiware Iac

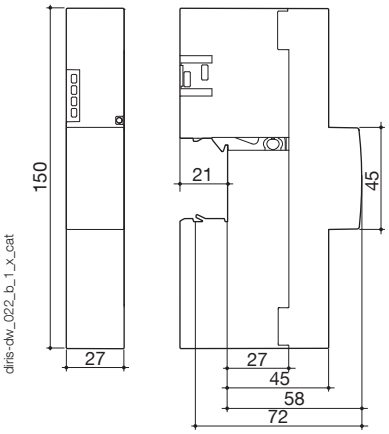
AC current measurement modules
for the DIRIS Digiware system

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.

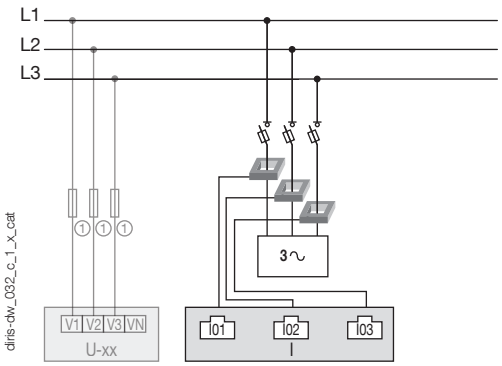
For more information see "TE, TR and TF sensors" pages.

Network and connection examples

I-3x/I-3xMID

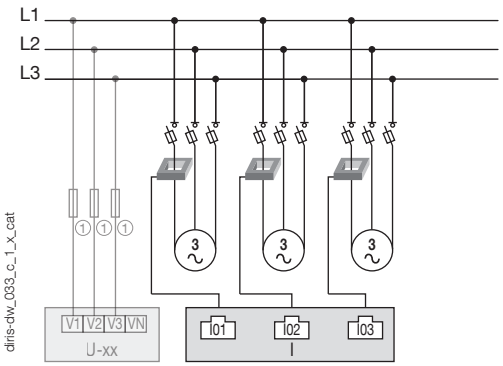
Three-phase

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



Three-phase

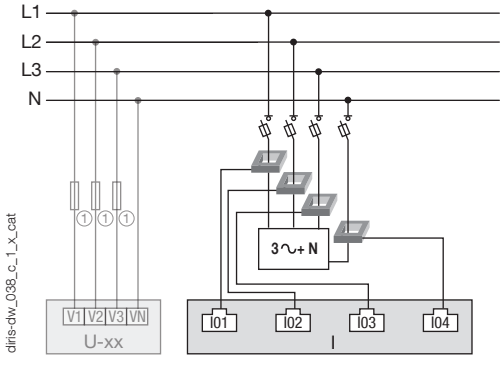
3P - 1CT (3 balanced, three-phase loads)



I-4x

Three phase + neutral

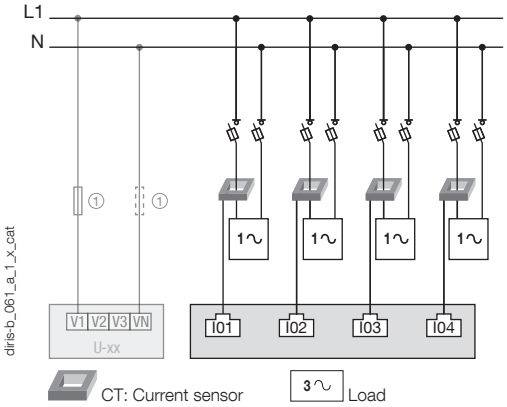
3P+N - 4CT (1 three-phase load + Neutral measured)



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

Single-phase

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



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Specifications

Measuring characteristics

Current measurement - DIRIS Digiware Iac	
Number of current inputs	I-3x / I-3xMID : 3 inputs I-4x : 4 inputs I-6x / -6xMID : 6 inputs
Associated current sensors	Solid TE, split-core TR / iTR, flexible TF current sensors
Accuracy of current measurement	0.2 DIRIS Digiware class only Class 0.5 with TE, iTR or TF sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors
Energy measurement	
Active energy accuracy	Class 0.5 (IEC 61557-12) / Class C (EN 50470)

Entrées - 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 mm² cable

Outputs - DIRIS Digiware I-45ac	
Number of outputs	2
Relay type	230 VAC ±15 % - 1 A 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 mm² 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-30MID	Metering - 3 current inputs + MID	4829 **0133**
I-31	Metering + load curve - 3 current inputs	4829 **0111**
I-35	Analysis - 3 current inputs	4829 **0130**
I-35MID	Analysis - 3 current inputs+ MID	4829 **0135**
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-60MID	Metering - 6 current inputs + MID	4829 **0134**
I-61	Metering + load curve - 6 current inputs	4829 **0113**
I-61MID	Metering + load curve - 6 current inputs + MID	4829 **0136**

Accessories	Reference
Digiware x 5 plug-in connector	4829 **0605**

To be compliant with the MID directive, the DIRIS Digiware system must be equipped with a D-50/D-70 display

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

EXPERT SERVICES

To continuously guarantee a functional and accurate energy monitoring system, Socomec offers a wide range of services:
- Incorporation of devices.
- System audit.
- Commissioning.
- Training for your teams.

Also, Ideal for ISO 50001 sites (periodic verification):
- Measurement consistency check to 3%.
- Measurement accuracy check to 0.2%.

For more information, please call your Socomec contact.

DIRIS Digiware R-60

Residual Current Monitoring module

for the DIRIS Digiware system

diris-dw_173_front

DIRIS Digiware R-60

Configuration with Easy Config System software.

The solution for

- Healthcare
- Industry

Strong points

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

Conformity to standards

- IEC 62020
- IEC 61557-12

Create your project

- Find the best DIRIS Digiware configuration: **www.meter-selector.com**

METER SELECTOR DIGITAL TOOL AVAILABLE

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 RJ 12 channels, they can be connected to a mix of ΔIC 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 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 (IΔ) thresholds are automatically set. This facilitates the determination of the maximum residual current not to be exceeded for each outgoing circuit.

General characteristics

- Combines residual current and power monitoring.
- 6 RJ12 channels, each with an alarm LED indication.
- Compatible with ΔIC residual CTs and TE/TR/iTR/TF current sensors.

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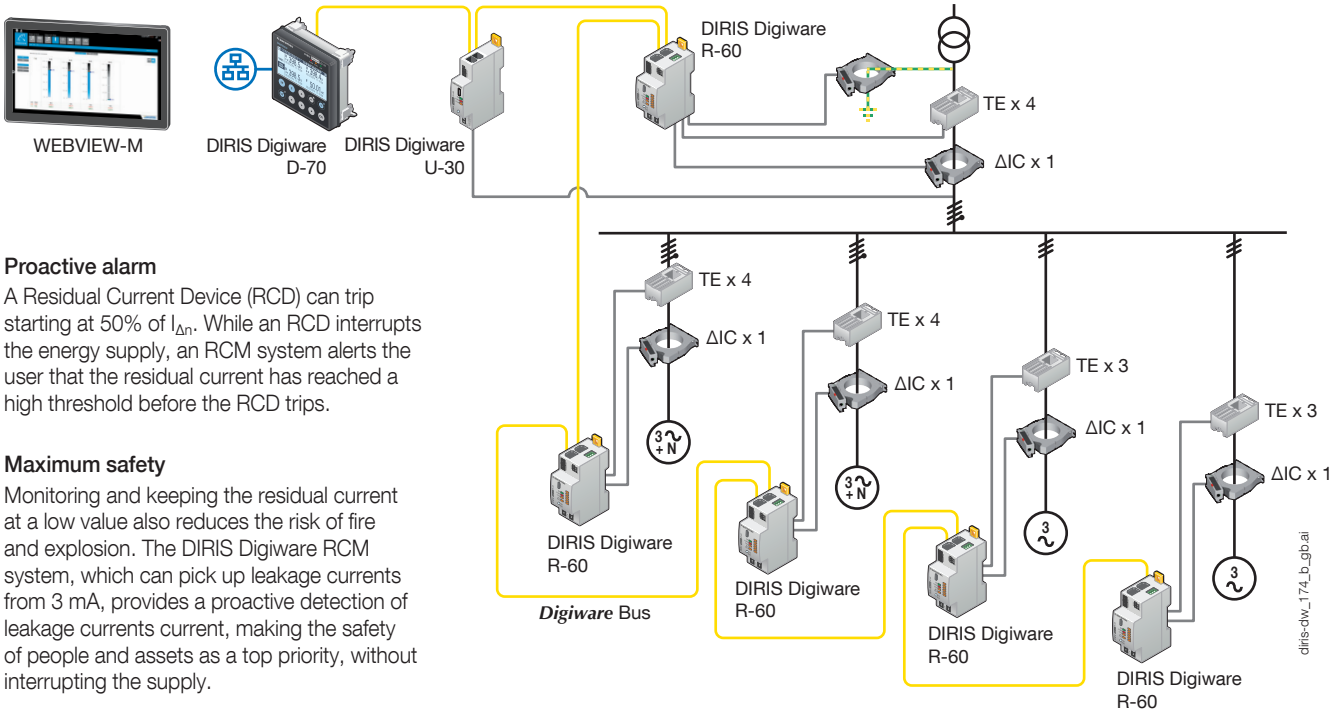
Applications



Proactive alarm

A Residual Current Device (RCD) can trip starting at 50% of $I_{\Delta n}$. While an RCD interrupts the energy supply, an RCM system alerts the user that the residual current has reached a high threshold before the RCD trips.

Maximum safety

Monitoring and keeping the residual current at a low value also reduces the risk of fire and explosion. The DIRIS Digiware RCM system, which can pick up leakage currents from 3 mA, provides a proactive detection of leakage currents current, making the safety of people and assets as a top priority, without interrupting the supply.

Protective earthing (PE) conductor

Adding a residual CT on the upstream PE conductor is essential to ensure the proper connection to earth.

It is also the easiest and cheapest way to measure the upstream residual current reliably.

Compliance with installation standards

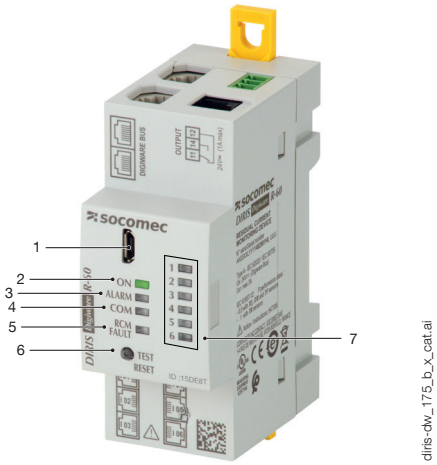
Many local electrical codes require an insulation resistance measurement as part of the Periodic Inspection and Testing. This operation is costly as it must be done on all outgoing circuits and intrusive as the main protective device must be opened.

According to IEC 60364-6 installation standards and many national transpositions, periodic insulation resistance testing is not necessary if permanently monitored by an RCM solution such as the DIRIS Digiware RCM system.

Measurements

DIRIS Digiware R-60	
Residual Current Monitoring	
I_{Δ}	•
I_{PE}	•
Metering	
+/- kWh, +/- kvarh, kVAh	•
Multi-tariff (max 8)	•
Load curves	•
Multi-measurement	
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•
P, Q, S, PF per phase	•
Alarms	
Dynamic I_{Δ} and I_{PE} thresholds	•
Overloaded neutral conductor	•
Protective device (opening, Trip, defective RCD)	•
I_{Δ} and I_{PE} comparisons	•
Trends	
I_{Δ}	•
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

for the DIRIS Digiware system

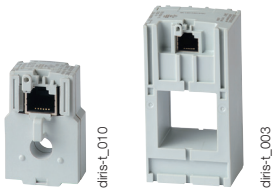
Connections

Associated sensors

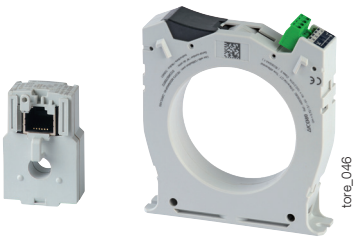
Various types of residual CTs and current sensors can be connected to the DIRIS Digiware R-60 module: ΔIC solid-core, ΔIP-R split-core residual CTs, and solid-core TE, split-core TR/iTR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A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

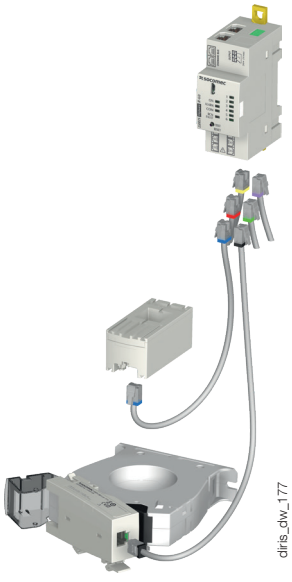
For more information: refer to the residual CTs and current sensors catalogue pages

TE solid current sensors



ΔIC solid-core residual CTs





TR/iTR split-core current sensors

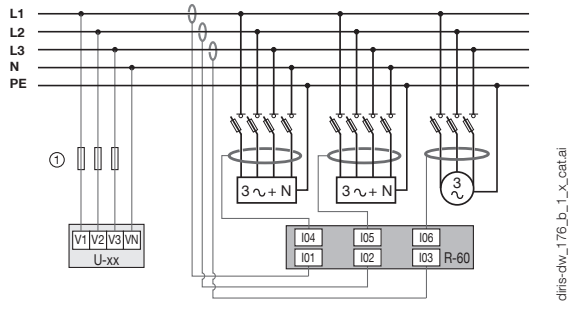
TF Flexible current sensors

ΔIP-R split-core residual CTs

Connection examples

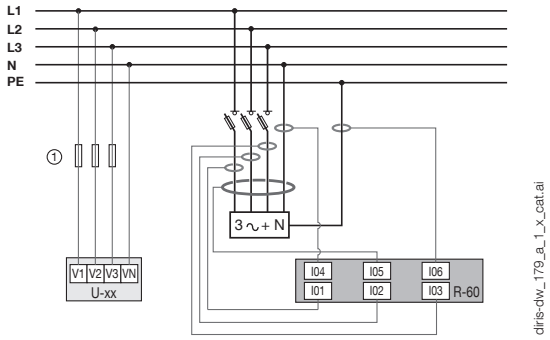
RCM (I_{Δ})– 3 x 3-Ph load

Load current monitoring – L1, L2, L3, upstream



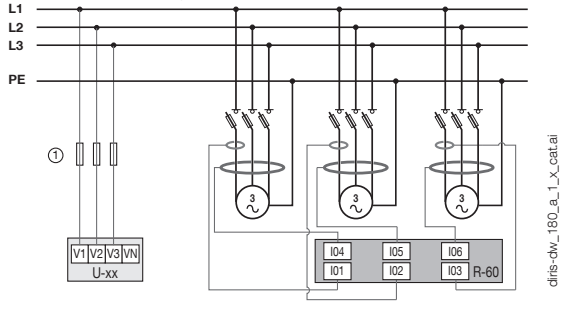
RCM (I_{Δ} + I_{PE}) – 1 x 3-Ph load

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



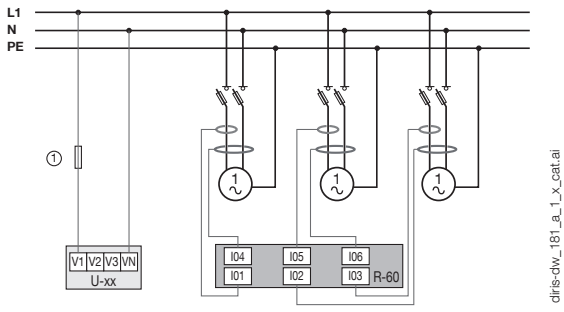
RCM (I_{Δ})– 3 x 3-Ph load

Load current monitoring – 3 x 3-Ph balanced loads



RCM (I_{Δ}) – 3 x 1-Ph load

Load current monitoring – 3 x 1-Ph loads



Balanced load | 3 ~ + N Unbalanced load | Current sensor | 2 A gG | Residual CT

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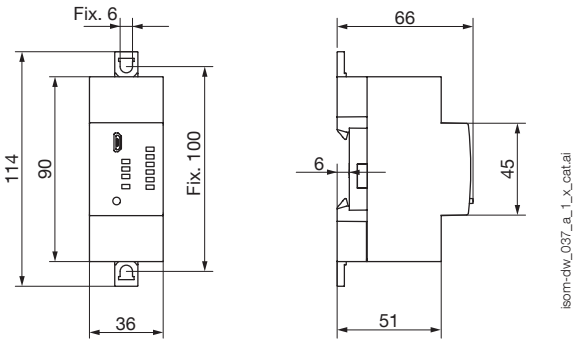
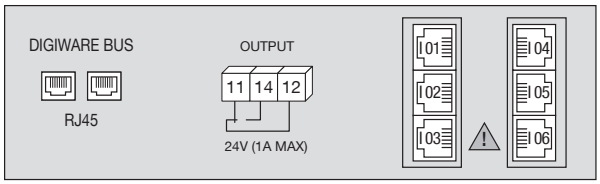
Dimensions (mm)



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

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	
Digiware bus	
Function	Connection between Digiware modules
Cable type	Specific Socomec RJ45 cable
USB	
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

Module	Reference
DIRIS Digiware R-60	4829 **0114**
Accesories	**Reference**
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	7	10	50 m reel + 100 connectors
Number of cables	**Reference**	**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**	4829 **0607**	4829 **0608**	4829 **0609**	-
4	-	-	-	4829 **0596**	4829 **0588**	4829 **0589**	-	-	-	-	-
6	4829 **0590**	4829 **0591**	4829 **0592**	4829 **0597**	4829 **0593**	4829 **0594**	-	-	-	-	-

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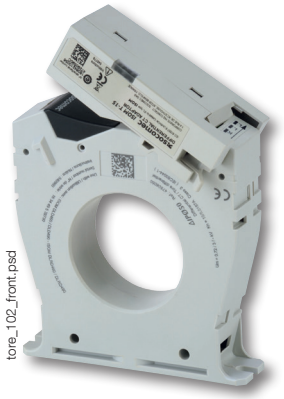
For further information, please contact your nearest SOCOMEC branch.

Residual Current Transformers – Type A

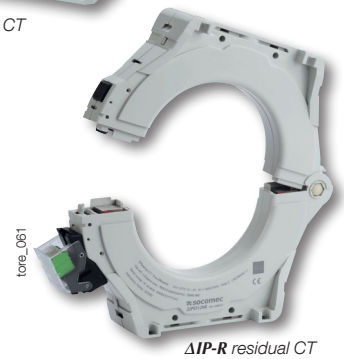
Associated with DIRIS Digiware R-60 modules

ΔIC Ø 8 mm residual CT



ΔIC residual CT

WR residual CT



ΔIP-R residual CT

The solution for

- Industries
- Data centres

Strong points

- A complete range
- Optimum performances
- High sensitivity
- Clear alarm indication
- Plug & play

Compliance with standards

- IEC 62020
- IEC 61869-1
- ISO 14025

Create your project

- Find the best DIRIS Digiware configuration: **www.meter-selector.com**

METER SELECTOR DIGITAL TOOL AVAILABLE

Function

Residual Current Transformers enclose active conductors providing the differential summation of vector currents which enables the detection of leakage currents.

Solid core (ΔIC, WR and TFR series) or split core (ΔIP-R) are adapted to all cabling configurations, for both new and existing installations.

Residual CTs can be mounted on DIN-rail, on back-plate or directly on the cable to simplifying the integration into confined spaces with high integration constraints.

The T-10 RJ12 adaptor ensures the connection of the residual CT to the DIRIS Digiware R-60 module via an RJ12 cable, available in multiple lengths.

Advantages

A complete range

All dimensions and types are available for compatibility with busbar or cable configurations of all dimensions, for single-phase or three-phase applications.

Optimum performances

Thanks to a patented innovation, the conductors are perfectly centered in the residual CT to ensure accurate measurement and enhanced immunity to network interferences. It also enables direct mounting of the residual CT onto the cable.

High sensitivity

Socomec residual CTs are able to measure leakage currents starting at 3 mA allowing to detect insulation degradations early on.

Clear alarm indication

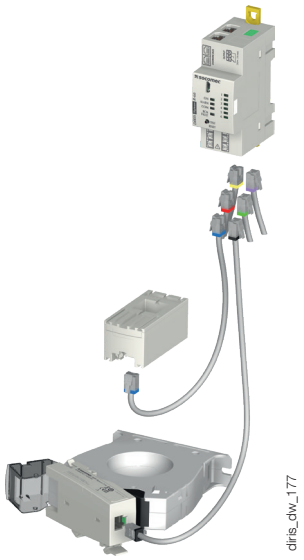
The T-10 RJ12 adaptor integrates an alarm LED to quickly locate RCM alarms inside electrical panels.

Plug & Play

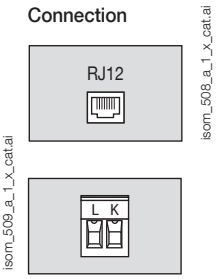
- Direct mechanical and electrical connections to the residual current transformer.
- RJ12 connection to the DIRIS Digiware R-60 for simplified integration of the Digiware system.

socomec Innovative Power Solutions

Connections



Connection

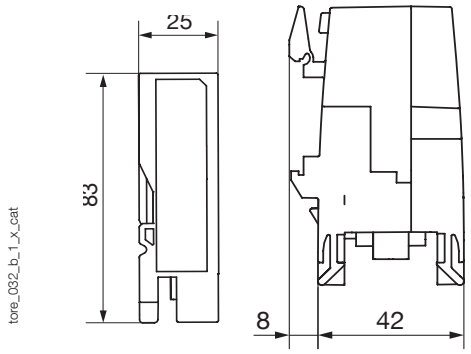


T-10 adaptor

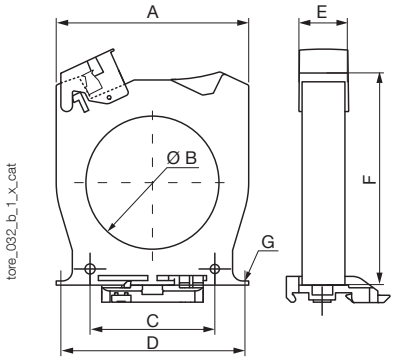
1. Clip to mechanically and electrically connect to the ΔIC residual CT.
2. Alarm LED. Lights if the high threshold RCM alarm is active or flashes if there is a connection issue with the residual CT.
3. Connection base to the ΔIC residual CT (supplied with 2-pin removable terminal block for remote connection).
4. DIN rail mounting clip.
5. RJ12 connection to DIRIS Digiware R-60.

Dimensions (mm)

T-10 RJ12 adaptor



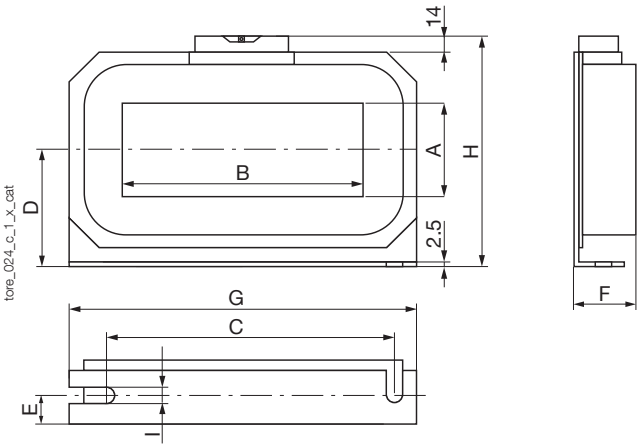
ΔIC solid core residual current transformers



Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Weight (kg)
ΔIC Ø 15	53	17,3	27,8	50	26	81	M4	0,10
ΔIC Ø 30	92	30	50	85	26	103,5	M4	0,13
ΔIC Ø 50	102,5	50	50	90	26	125	M5	0,18
ΔIC Ø 80	116	80	75	105	26	142,5	M5	0,22
ΔIC Ø 120	163	120	100	150	26	182,5	M6	0,38
ΔIC Ø 200	253	200	150	175 x 41,2	51	274	M6	0,88
ΔIC Ø 300	370	300	200	250 x 41,5	50	390	M6	1,72

A. Width
B. Diameter
C. Distance between fixing centres
D. Distance between rear fixing brackets
E. Depth
F. Height
G. Diameter of fixing screws

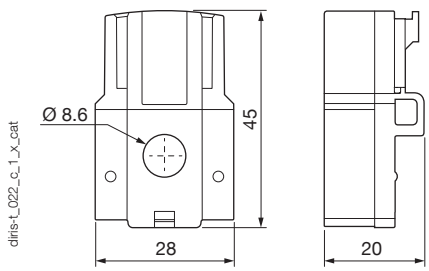
WR series solid core rectangular residual current transformers



Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	Weight (kg)
WR 70 x 175	70	175	225	85	22	46	261	176	7.5	2.9
WR 115 x 305	115	305	360	116	25	55	402	240	8	6.3
WR 150 x 350	150	350	415	140	28	55	460	285	8	8.2

A. Window width
B. Window length
C. Spacers
D. Half-height
E. Depth of mounting spacers
F. Depth
G. Width
H. Height
I. Width of oblong fixing holes

ΔIC Ø 8 mm solid core residual current transformers

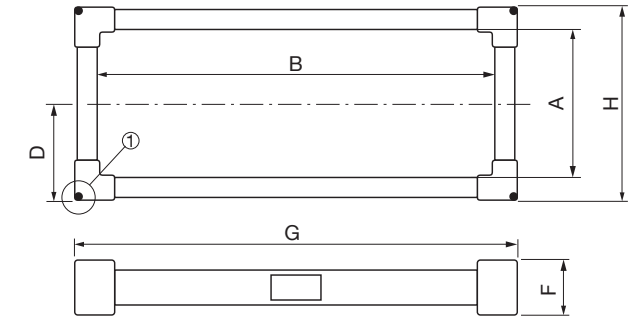


Residual Current Transformers – Type A

Associated with DIRIS Digiware R-60 modules

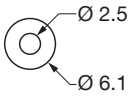
Dimensions (mm) (continued)

TFR rectangular solid core residual current transformer



tore_027_h_1_en_cat

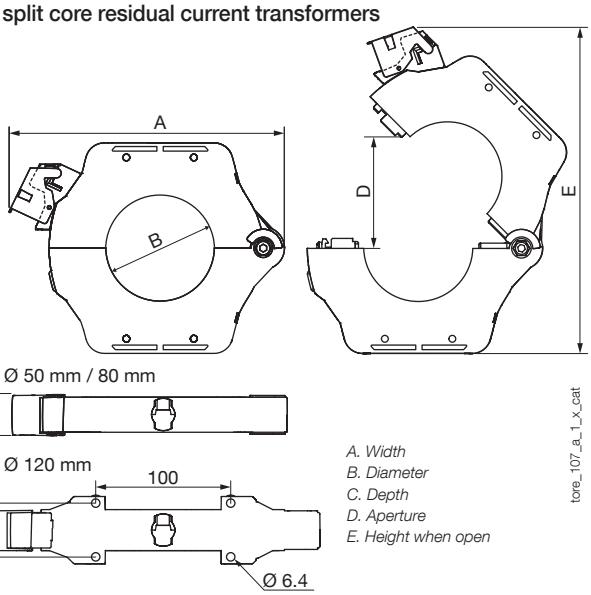
① Detail for fastening the core balance transformer



A. Window width
B. Window length
D. Half-height
F. Depth
G. Width
H. Height

Type	A (mm)	B (mm)	D (mm)	F (mm)	G (mm)	H (mm)	Weight (kg)
TFR 200 x 500	200	500	140	62	585	285	7.2

ΔIP-R split core residual current transformers

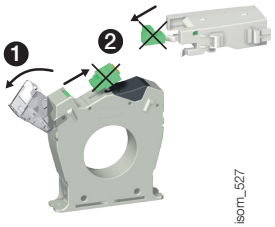


tore_107_a_1_x_cat

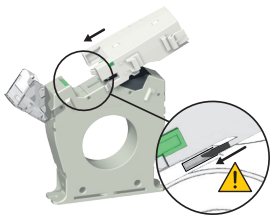
A. Width
B. Diameter
C. Depth
D. Aperture
E. Height when open

Type	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Weight (kg)
ΔIP-R Ø 50	160	49	30	77	200	
ΔIP-R Ø 80	204	79	30	108	260	0,85
ΔIP-R Ø 120	252	119	30	149	328	1,5

Accessories for residual CTs



isom_527



isom_528

T-10 RJ12 adaptor for residual current transformers	Reference
T-10	4829 **0620**

The T-10 adaptor can be mounted directly on ΔIC residual CTs, for diameters > 30 mm, and ΔIP-R residual CTs.

tore_108

tore_040

Flexible cable centering accessory	Ø (mm)	Reference
Flexible cable centering accessory	30	4950 **0011**
Flexible cable centering accessory	50	4950 **0012**
Flexible cable centering accessory	80	4950 **0013**
Flexible cable centering accessory	120	4950 **0014**

Only for ΔIC and ΔIP-R.

tore_038

Metal mounting bracket	Ø (mm)	Reference
Metal mounting bracket	30	4950 **0001**
Metal mounting bracket	50	4950 **0002**
Metal mounting bracket	80	4950 **0003**
Metal mounting bracket	120	4950 **0003**
Metal mounting bracket	200	4950 **0004**
Metal mounting bracket	300	4950 **0005**

Only for ΔIC and ΔIP-R.

tore_042

Screw-in/out terminal block	Reference
Screw-in/out terminal block (provided with ΔIC and ΔIP-R)	4950 **0041**

Only for ΔIC and ΔIP-R.

tore_037

DIN-rail clip	Reference
DIN-rail clip (provided with ΔIP-R)	4950 **0031**

Only for ΔIC and ΔIP-R.

Technical characteristics

General characteristics	ΔIC Ø 8 mm	ΔIC Ø 15 - 300 mm	ΔIP-R series	WR & TFR series
RCM type IEC 62020	Type A			
Connection type	Socomec RJ12 cables	Socomec RJ12 cables via T-10 adaptor		
Electrical characteristics				
Insulation coordination	According to IEC 60664-1			
Measurement range	3 mA - 3A			
Accuracy class	1	3		5
Winding ratio	200 / 1	600 / 1		
Max. operating voltage	300 VAC	720 VAC	720 VAC	690 VAC
Rated impulse voltage	6.4 kV	8 kV		
Rated withstand voltage	3 kV			
Operating temperature	-10 ... +55 °C	-40 ... +80 °C	-40 ... +80 °C	-10 ... +55 °C
Flammability class	UL94V-0			

References

ΔIC (1) solid core residual CTs	Ø (mm)	Reference
ΔIC Ø 8	8	4829 **0520**
ΔIC Ø 15	15	4950 **6015**
ΔIC Ø 30	30	4950 **6030**
ΔIC Ø 50	50	4950 **6050**
ΔIC Ø 80	80	4950 **6080**
ΔIC Ø 120	120	4950 **6120**
ΔIC Ø 200	200	4950 **6200**
ΔIC Ø 300	300	4950 **6300**

WR and TFR-series rectangular solid core residual CTs	Ø (mm)	Reference
WR 70 x 175	70 x 175	4795 **0717**
WR 115 x 305	115 x 305	4795 **1130**
WR 150 x 350	150 x 350	4795 **1535**
TFR 200 x 500	200 x 500	4795 **2050**

ΔIP-R (1) series split core residual CTs	Ø (mm)	Reference
ΔIP-R Ø 50	50	4750 **6051**
ΔIP-R Ø 80	80	4750 **6081**
ΔIP-R Ø 120	120	4750 **6121**

(1) ΔIC and ΔIP-R residual CTs come with a sealable protective cover, a push-in terminal block (except 15mm with fixed terminal block and without cover), and a DIN rail mounting accessory for diameters below 200 mm.

RJ12 connection cables	Cable length (m)										
	0.1	0.2	0.3	0.5	1	2	3	5	7	10	50 m reel + 100 connectors
Number of cables	Reference	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**	4829 **0607**	4829 **0608**	4829 **0609**	-
4	-	-	-	4829 **0596**	4829 **0588**	4829 **0589**	-	-	-	-	-
6	4829 **0590**	4829 **0591**	4829 **0592**	4829 **0597**	4829 **0593**	4829 **0594**	-	-	-	-	-

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DIRIS Digiware IO

Digital and analogue input/output modules

for the DIRIS Digiware system

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

DIRIS Digiware IO-20
2 analogue inputs

Configuration with Easy Config System.

The solution for

> Healthcare

Strong points

> Plug & Play
> Multifunction
> Integrated
> Compact

Compliance with standards

> IEC 61557-12

> UL 61010
Guide PICQ
File E257746

Create your project

> Find the best DIRIS Digiware configuration:
www.meter-selector.com

METER SELECTOR DIGITAL TOOL AVAILABLE

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 to 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 Didiware 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.

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

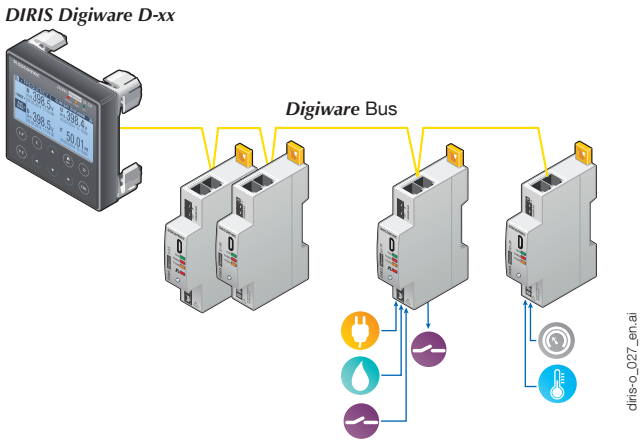
Multifunction
The combination of voltage measuring modules, current measuring modules, and input/output modules makes DIRIS Digiware a complete and versatile system.

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

General characteristics

- IO-10: 2 digital inputs for breaker status (position and trip) or collect pulses from multiutility meters.
- IO-20: 2 analogue inputs for monitoring analogue sensors and monitor fluid levels.
- Visualisation of measurements from Digiware D-xx displays and WEBVIEW.

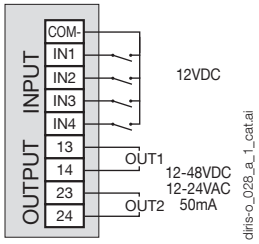
Application diagram



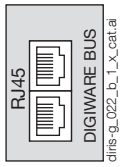
Connections

DIRIS Digiware IO-10

Digital inputs/outputs

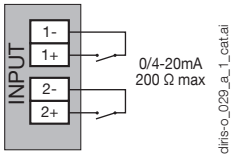


Digiware Bus

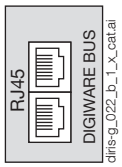


DIRIS Digiware IO-20

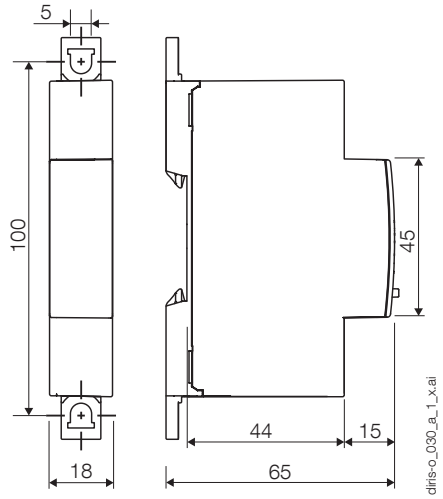
Analogue inputs



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 - Monitoring of protective devices (ON/OFF, Trip) - Pulse counter
Number of outputs	2
Type	Insulated output, 48 VDC max., 50 mA and 24 VAC max.
Output function	- Remote control of devices - 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) Stranded or solid 0.14 to 1.5 mm² 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 mm² 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

Measurement and monitoring system for DC electrical installations
DIRIS Digiware

Build your own DC system

Control and power supply interface (24 VDC)

DIRIS Digiware M
without display

or

DIRIS Digiware D-x
with display

or

DIRIS Digiware C
without display

+

Direct voltage acquisition module

DIRIS Digiware Udc

+

DC voltage adaptors

DIRIS Digiware U500dc/U1000dc/U1500dc

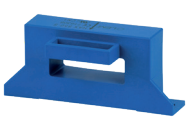
+

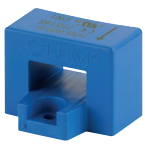
DC current acquisition module

DIRIS Digiware Idc
3 current sensor inputs

+

DC current sensors





Solid-core sensors
50 … 5000 A

Split-core sensors
50 … 2000 A

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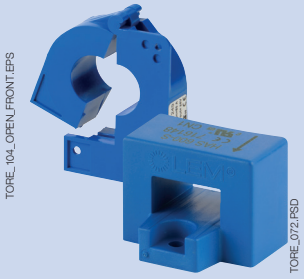
Control and power supply interface

Application	Centralisation and display of data				Data centralisation	Repeater
						
DIRIS Digiware	***M-50*** *p. 320*	***M-70*** *p. 320*	***D-50*** *p. 310*	***D-70*** *p. 310*	***C-31*** *p. 316*	***C-32*** *p. 316*
Function						
Centralising measurement points	•	•	•	•	•	
High-resolution LCD display (configuration, selection and visualisation display of circuits)			•	•		
Repeater						•
Power supply						
24 VDC	•	•	•	•	•	•
Communication						
RS485 Modbus	Master/Slave	Master/Slave	Master/Slave	Master/Slave	Slave	
Digiware Bus	•	•	•	•	•	•
Ethernet	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP	Modbus TCP BACnet IP SNMP		
Embedded web server	WEB-CONFIG	WEBVIEW-M	WEB-CONFIG	WEBVIEW-M		

DC current sensors



DC current sensors measure the load currents of a DC electrical installation and transmit the information to DIRIS Digiware Idc modules via a quick RJ12 connection with color-coded cables for an easy identification of circuits.

The range comprises solid-core and split-core sensors, from 50 to 5000 A in various sizes, suitable for new or retrofit applications.

- Easy connection to prevent wiring errors.
- Up to 3 sensors on each DIRIS Digiware Idc measurement module.

Direct voltage acquisition module (DC)

Application	**DC voltage measurement**	
		
DIRIS Digiware Udc	**U-31dc** *p.358*	**U-32dc** *p.358*
Nominal voltage range	24 … 48 VDC	60 … 150 VDC
Measuring range (min-max)	19.2 … 60 VDC	48 … 180 VDC
Multi-measurement		
DC voltage (VDC)	•	•
Power quality		
V ripple (voltage ripple)	•	•
V_{rms}	•	•
Alarms		
Thresholds and combinations	•	•
Trends		
Average values	•	•
Format		
Width/number of modules	18 mm / 1	

Application	**DC voltage adaptors**		
			
DIRIS Digiware Udc	U500dc *p.358*	U1000dc *p.358*	U1500dc *p.358*
Max. voltage range	200 … 600 VDC	400 … 1200 VDC	1200 … 1650 VDC
Association			
U-32dc	•	•	•
Format			
Width/number of modules	54 mm / 3		

Direct current acquisition module (DC)

Application	Direct current (DC) measurement modules	
		
DIRIS Digiware Idc	***I-30dc*** *p.362*	***I-35dc*** *p.362*
Number of current inputs		
	3	3
Metering		
± kWh	•	•
Load curves		•
Multi-measurement		
DC current (I DC)	•	•
DC power (P DC)	•	•
Predictive power		•
Measurement of current quality		
I ripple (current ripple)		•
I rms		•
Alarms		
Thresholds and combinations		•
Trends		
Average values		•
Format		
Width/number of modules	18 mm / 1	

Input/output modules

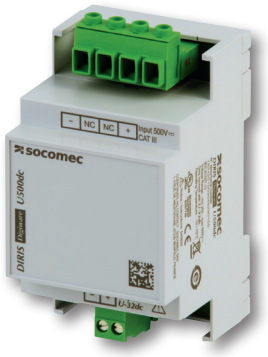
Application	Metering / monitoring / control	
		
DIRIS Digiware IO	***IO-10*** *p.352*	***IO-20*** *p.352*
Number of digital inputs/outputs	4 / 2	
Number of analogue inputs		2
Format		
Width/number of modules	18 mm / 1	18 mm / 1

DIRIS Digiware Udc

DC voltage acquisition module

dris-dw_116_a

DIRIS Digiware U-31dc/U-32dc



dris-dw_005_a_cat

DIRIS Digiware U500dc/U1000dc/U1500dc
adaptor

Configuration with Easy Config System.

Function

The **DIRIS Digiware U-3xdc** module measures DC voltage for the entire system.
It measures up to 180 VDC with a direct connection and is therefore compatible with typical nominal voltages (24 VDC, 48 VDC…).

The voltage adaptors make the system compatible with all voltage levels up to 1650 VDC to respond to the needs of all applications.

The RJ45 Digiware Bus transmits voltage measurements along with power supply and communication to all connected products.

Advantages

Single voltage measurement

- 1 single voltage measurement point for the entire system.
- Single point of protection for the voltage measurement.
- No hazardous voltage on panel doors.

Flexible

- The voltage adaptors make the measurement system compatible with all DC electrical networks.

Plug & Play

- Easy to configure from DIRIS Digiware D interfaces or from the Easy Config configuration software.

The solution for

- Data centre
- Telecommunication
- Renewable power
- Transportation

Strong points

- Centralisation of voltage measurement
- Flexible
- Plug & Play

RJ45 (Digiware Bus) cables are available.

Compliance with standards

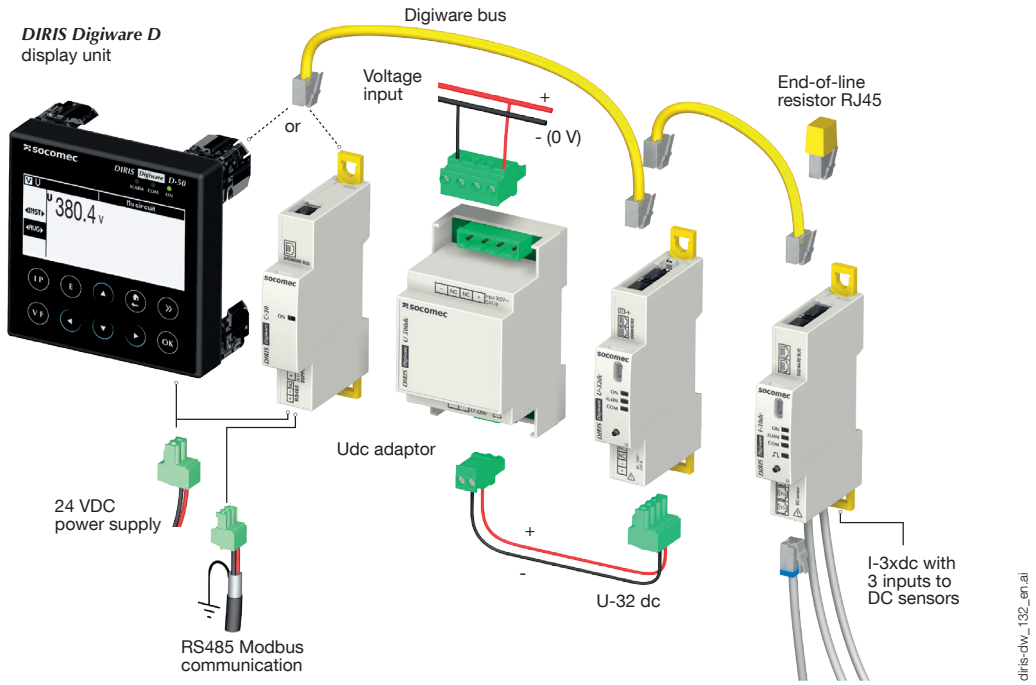
- IEC 61557-12
- ISO 14025
- UL E257746

Application	DC voltage measurement	
		
DIRIS Digiware Udc	**U-31dc**	**U-32dc**
Nominal voltage range	24 … 48 VDC	60 … 150 VDC
Measuring range (min-max)	19.2 … 60 VDC	48 … 180 VDC
Multi-measurement		
DC voltage (VDC)	•	•
Power quality		
V ripple (voltage ripple)	•	•
V_{rms}	•	•
Alarms		
Thresholds and combinations	•	•
Trends		
Average values	•	•
Format		
Width/number of modules	18 mm / 1	

Application	DC voltage adaptors		
			
DIRIS Digiware Udc	**U500dc**	**U1000dc**	**U1500dc**
Max. voltage range	200 … 600 VDC	400 … 1200 VDC	1200 … 1650 VDC
Association			
U-32dc	•	•	•
Format			
Width/number of modules	54 mm / 3		

Connections

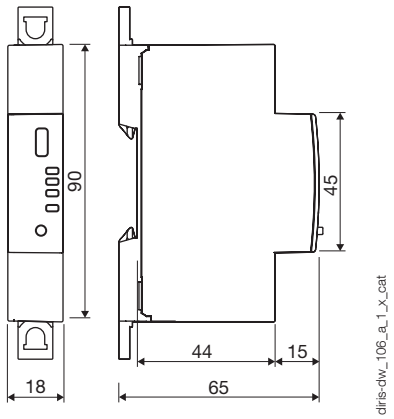
Connecting DIRIS Digiware DC adaptors



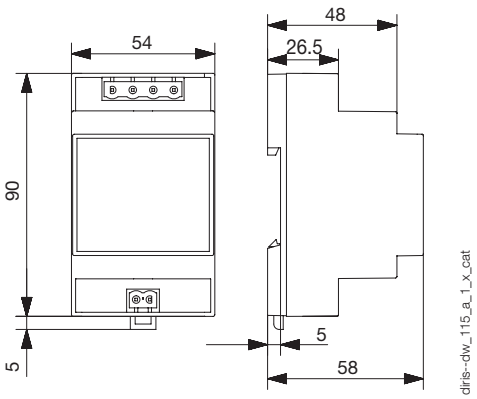
DIRIS Digiware Udc
DC voltage acquisition module

Dimensions (mm)

DIRIS Digiware U-3xdc



DIRIS Digiware adaptors U500dc/U1000dc/U1500dc



Technical characteristics

Measurement characteristics

DC voltage measurement - DIRIS Digiware U	
Features of the network measured (min-max)	Without adaptors: U-31dc : 19.2 - 60 VDC U-32dc : 48 - 180 VDC
	With adaptor: U-32dc + adaptor U500dc : 200 - 600 VDC U-32dc + adaptor U1000dc : 400 - 1200 VDC U-32dc + adaptor U1500dc : 1200 - 1650 VDC
Voltage measurement accuracy without adaptor	Class 0.5 IEC 61557-12
Voltage measurement accuracy with adaptor	Class 1 IEC 61557-12
Connection without adaptor	Removable screw terminal block, 2 positions, stranded or solid 0.2 - 2.5 mm² cable
Connection with adaptor	Adaptor input: removable screw terminal block, 2 positions, stranded or solid 0.2 … 2.5 mm² cable Adaptor output: removable screw terminal block, 2 positions, stranded or solid 0.2 … 2.5 mm² cable
Module power consumption	0.6 VA

Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20/IK06
Front panel protection index	IP40 front face in modular assembly/IK06
Weight	64 g

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

Communication specifications

USB	
Protocol	Modbus RTU on USB
Function	Configuration of DIRIS Digiware modules
Location	On each DIRIS Digiware measurement module
Connection	Type B micro USB connector
Digiware bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections

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		Reference
U-31dc	Voltage measurement 19.2 … 60 VDC	4829 **0150**
U-32dc	Voltage measurement 48 … 180 VDC	4829 **0151**
U500dc	Voltage adaptor 200 … 600 VDC	4829 **0153**
U1000dc	Voltage adaptor 400 … 1200 VDC	4829 **0154**
U1500dc	Voltage adaptor 1200 … 1650 VDC	4829 **0155**

DIRIS Digiware Idc

Direct current acquisition module

DIRIS Digiware I-30dc/I-35dc

Configuration with Easy Config System.

Function

DIRIS Digiware Idc modules measure consumption and monitor the DC electrical installation. Several Idc modules can be used within the same system, allowing the measurement of a large number of DC circuits. They are associated with DIRIS Digiware Udc voltage measurement modules.

Direct current is measured using external sensors connected by RJ12-Molex cables, available in multiple lengths. These cables are colour coded (brown, orange, white) to easily identify circuits.

The associated DIRIS Digiware D screen and the embedded webserver Webview can display electrical measurements from both DIRIS Digiware AC and DC systems simultaneously.

Advantages

Multi-circuit

- Measurement of up to 3 DC circuits per Idc module.
- Multiple Idc modules can be included. This allows the measurement of a large number of DC loads simultaneously.

Flexible

- Adapted to suit metering and quality analysis of the direct current.
- A complete range of solid core and split core DC current sensors from 50 to 5000 A.

Plug & Play

- Quick RJ45 connection between modules and RJ12-Molex to current sensors.
- Easy to configure from DIRIS Digiware D interfaces or from the Easy Config software.

Compact

One module wide to address space constraints inside electrical panels.

The solution for

- Data centre
- Telecommunication
- Renewable power
- Transportation

Strong points

- Multi-circuit
- Plug & Play
- Flexible
- Compact

RJ45 (Digiware Bus) cables are available.

Compliance with standards

- IEC 61557-12
- ISO 14025
- UL E257746

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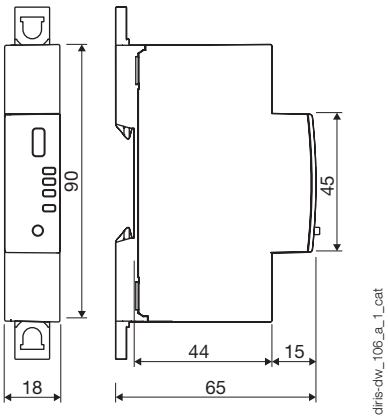
Application	Direct current (DC) measurement modules	
		
DIRIS Digiware Idc	*I-30dc*	*I-35dc*
Number of current inputs		
	3	3
Metering		
± kWh	•	•
Load curves		•
Multi-measurement		
DC current (I DC)	•	•
DC power (P DC)	•	•
Predictive power		•
Measurement of current quality		
I ripple (current ripple)		•
I rms		•
Alarms		
Thresholds and combinations		•
Trends		
Average values		•
Format		
Width/number of modules	18 mm / 1	

Dimensions (mm)

DIRIS Digiware Idc

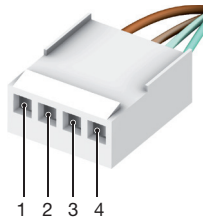


DIRIS Digiware Idc
Direct current acquisition module

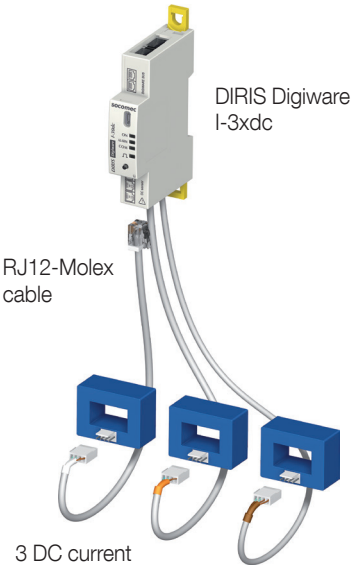
Connections

DC current is measured by external sensors connected to the DIRIS Digiware I-3xdc modules via RJ12-Molex cables. Connection of the current sensors is quick and error-free. A wide range of current sensors is available from Socomec to suit all installations and applications including split-core current sensors for retrofit applications.

- Open-loop Hall effect sensors
- Solid core or split core.
- Power supply voltage: ± 15 V.
- Power supply current: ± 25 mA depending on sensor.
- Output voltage: ± 4 V.
- 4-point male Molex terminal strip.
- Measuring range: 16 to 6000 A.
- Category III overvoltage.



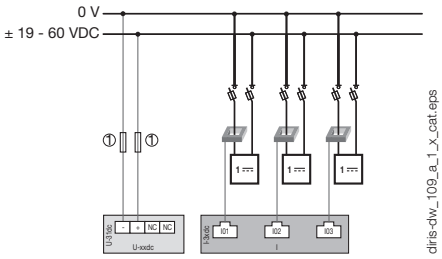
- PIN 1: + 15 V (+ Vc)
- PIN 2: - 15 V (- Vc)
- PIN 3: sensor input (M)
- PIN 4: 0 V sensor (0)



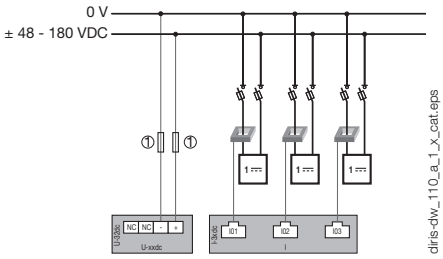
Network and connection examples

Measurement of 3 DC loads

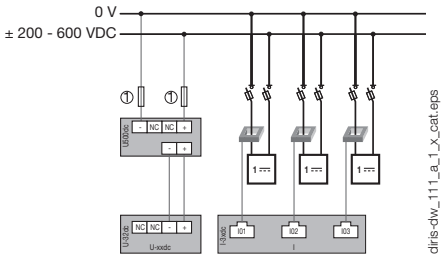
DIRIS Digiware U-31dc
Voltage (VDC): 19 - 60 V



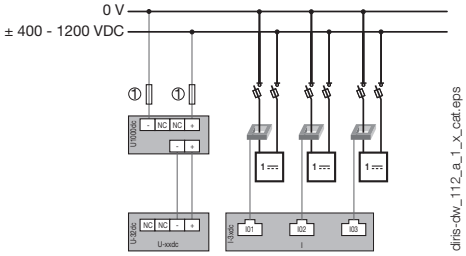
DIRIS Digiware U-32dc
Voltage (VDC): 48 - 180 V



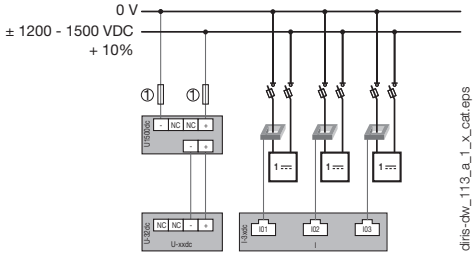
DIRIS Digiware U-32dc + adaptor U500dc
Voltage (VDC): 200 - 600 V



DIRIS Digiware U-32dc + adaptor U1000dc
Voltage (VDC): 400 - 1200 V



DIRIS Digiware U-32dc + adaptor U1500dc
VDC voltage: 1200 - 1500 V +10%



1. Fuse: 2A gPV

DC current sensor

1 ⎓ DC load

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Technical characteristics

Measurement characteristics

DC current measurement - DIRIS Digiware Idc	
Number of current inputs	3
Associated current sensors	Open-loop Hall effect
Accuracy of current measurement	Class 0.5
Precision measurement of power and energy	With U-31dc/U-32dc only: class 1 With U-32dc + adaptor: class 2
Connection	Specific Socomec cable with RJ12-Molex connectors
Power consumption of module	2 VA

Mechanical features

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 front face in modular assembly / IK06
Weight	69 g

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

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
Digiware bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections

References

DIRIS Digiware I-3xdc		Reference
I-30dc	Metering - 3 current inputs	4829 **0156**
I-35dc	Analysis - 3 current inputs	4829 **0157**

RJ12-Molex cables		
Number of cables	**Length of cables**	**Reference**
3	0.3 m	4829 **0782**
3	0.5 m	4829 **0783**
3	1 m	4829 **0784**
3	2 m	4829 **0785**
1	5 m	4829 **0786**

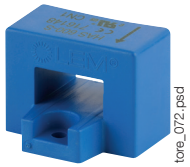
Digiware connection cables		Reference
RJ45 cables for Digiware Bus	Length 0.06 m	4829 **0189**
	Length 0.10 m	4829 **0181**
	Length 0.20 m	4829 **0188**
	Length 0.50 m	4829 **0182**
	Length 1 m	4829 **0183**
	Length 2 m	4829 **0184**
	Length 3 m	4829 **0190**
	Length 5 m	4829 **0186**
	Length 10 m	4829 **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**

Expert Services

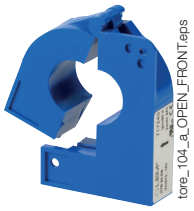
Do you require services for your metering system?
No problem for our "Expert Services" team. They will fully integrate all your Socomec devices, **audit** your system, **commission** selected equipment and **train** your staff on its use.
For further information, please contact your nearest Socomec branch.

DC current sensors

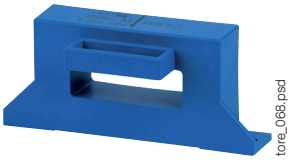
Associated with DIRIS Digiware DC



Solid-core sensors 50 … 600 A



Split-core sensors 50 … 500 A



Solid-core sensors 850 … 5000 A

Split-core sensors 800 … 2000 A

The solution for

- Data centre
- Telecommunication
- Renewable power
- Transportation

Strong points

- Plug & Play
- Wide selection of ratings
- Simplified installation

Compliance with standards

- IEC 61010-1
- UL

Function

The **DC current sensors** measure the DC load currents of an electrical installation and transmit information to the DIRIS Digiware Idc measurement modules via an RJ12 to Molex cable on the sensor side.

The range comprises solid-core and split-core sensors ranging from 50 to 5000 A in various sizes allowing them to be used in new or existing electrical installations.
Up to 3 different DC sensors can be connected to the same DIRIS Digiware Idc module.

Advantages

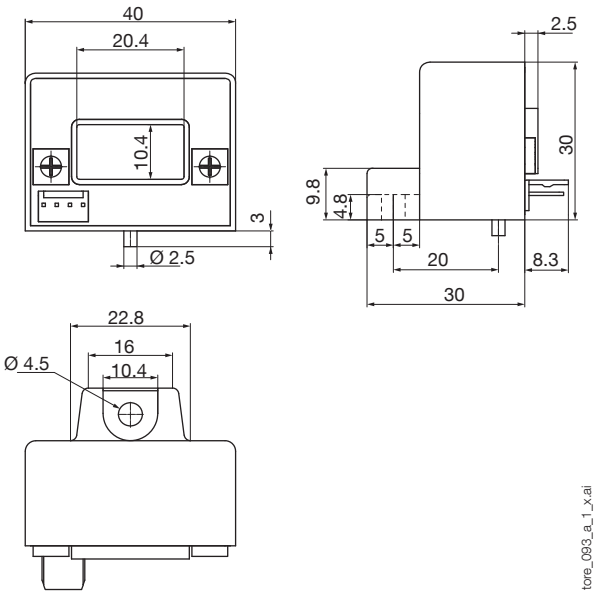
Plug & Play
- A quick RJ12 connection makes wiring easy and reliable.
- Fast configuration of the sensor's rating.

Flexible
- A complete range of solid-core and split-core sensors from 50 to 5000 A designed for new or existing electrical installations.

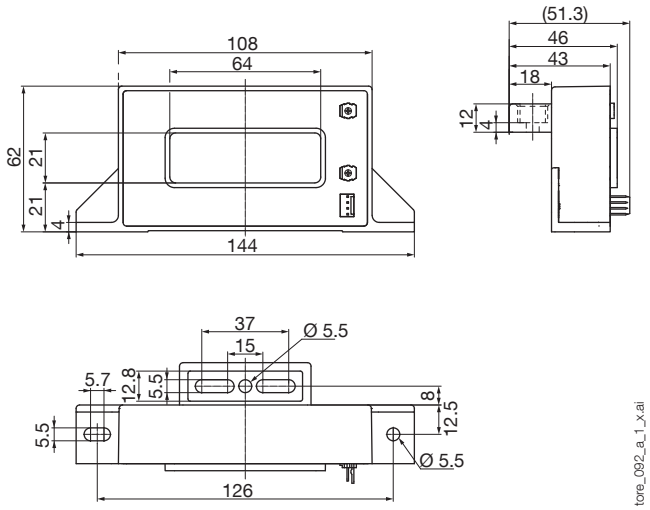
Installation
- Easy to install.
- Ideal for installations with limited space available.
- Only 4 different frame sizes cover a wide measurement range.
- Colour-coded cables for ease of identification, and to prevent wiring errors.

Dimensions (mm)

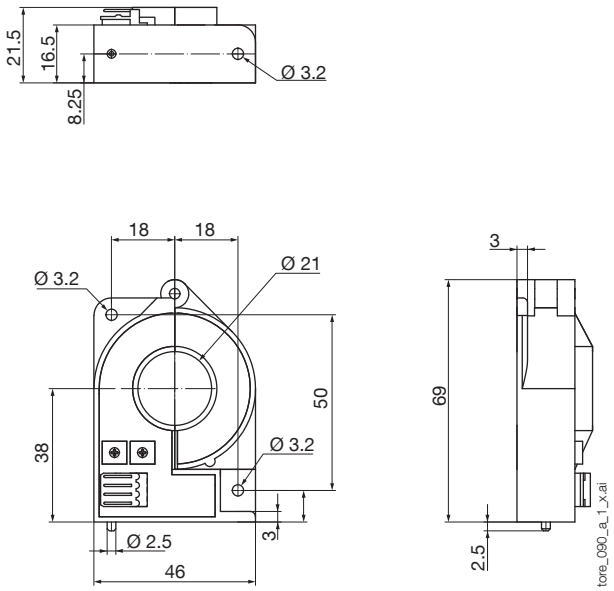
Solid-core sensors 50 … 600 A (frame size 1)



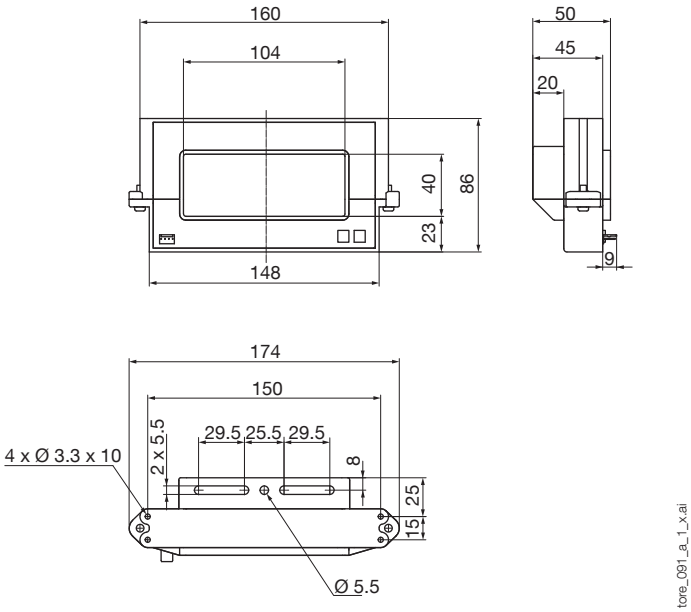
Solid-core sensors 850 … 5000 A (frame size 2)



Split-core sensors 50 … 500 A (frame size 1)



Split-core sensors 800 … 2000 A (frame size 2)

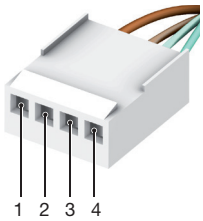


DC current sensors
Associated with DIRIS Digiware DC

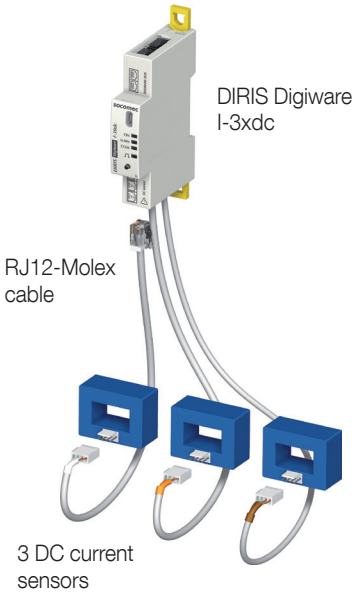
Connections

DC current is measured by external sensors connected to the DIRIS Digiware I-3xdc modules via RJ12-Molex cables. Connection of the current sensors is quick and error-free. A wide range of current sensors is available from Socomec to suit all installations and applications including split-core current sensors for retrofit applications.
The DC current sensors have the following technical characteristics:

- Open-loop Hall effect sensors
- Solid-core or split-core.
- Power supply voltage: ± 15 V.
- Power supply current: ± 25 mA depending on the sensor.
- Output voltage: ± 4 V.
- 4-point male Molex terminal strip.
- Measurement range: 16 to 6000 A.
- Category III overvoltage.



- PIN 1: + 15 V (+ Vc)
- PIN 2: - 15 V (- Vc)
- PIN 3: sensor input (M)
- PIN 4: 0 V sensor (0)



Technical characteristics

Type of current sensor	Open-loop Hall effect
Connection	Specific Socomec cable with RJ12-Molex connectors
Accuracy of current measurement	Solid-core sensors: 50 … 600 A: < 1% Solid-core sensors: 850 … 5000 A: < 1% Split-core sensors: 50 … 500 A: < 2% Split-core sensors: 800 … 2000 A: < 2%

Weight	Solid-core sensors 50 … 600 A	60 g
	Solid-core sensors 850 … 5000 A	450 g
	Split-core sensors 50 … 500 A	80 g
	Split-core sensors 800 … 2000 A	590 g
Operating temperature	Solid-core sensors 50 … 600 A	-10 … +80°C
	Solid-core sensors 850 … 5000 A	-25 … +85°C
	Split-core sensors 50 … 500 A	-10 … +70°C
	Split-core sensors 800 … 2000 A	-10 … +70°C
Storage temperature	Solid-core sensors 50 … 600 A	-25 … +80°C
	Solid-core sensors 850 … 5000 A	-25 … +85°C
	Split-core sensors 50 … 500 A	-20 … +85°C
	Split-core sensors 800 … 2000 A	-25 … +85°C

References

DC current sensors	Reference
Solid-core sensors (frame size 1)	
50 A	4829 **0700**
100 A	4829 **0701**
200 A	4829 **0702**
300 A	4829 **0703**
400 A	4829 **0704**
500 A	4829 **0705**
600 A	4829 **0706**
Solid-core sensors (frame size 2)	
850 A	4829 **0707**
1000 A	4829 **0708**
1500 A	4829 **0709**
2000 A	4829 **0710**
2500 A	4829 **0711**
5000 A	4829 **0712**
Split-core sensors (frame size 1)	
50 A	4829 **0750**
100 A	4829 **0751**
200 A	4829 **0752**
300 A	4829 **0753**
400 A	4829 **0754**
500 A	4829 **0755**
Split-core sensors (frame size 2)	
800 A	4829 **0756**
1000 A	4829 **0757**
1500 A	4829 **0758**
2000 A	4829 **0759**

RJ12-MOLEX cables		
Number of cables	**Length of cables**	**Reference**
3	0.3 m	4829 **0782**
3	0.5 m	4829 **0783**
3	1 m	4829 **0784**
3	2 m	4829 **0785**
1	5 m	4829 **0786**

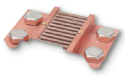
Selection guide

AC and DC energy meters, current sensors and transformers

COUNTIS

Which type of network? → Which load current? → Which accuracy?

Type	AC - Single-phase			AC - Three-phase	
Active energy meters	*COUNTIS P04/ P06*	*COUNTIS E18*	*COUNTIS P14*	*COUNTIS E28*	*COUNTIS P34/P36*
					
Main specifications	p. 376	p. 373	p. 378	p. 374	p. 380
Connection mode	Single-phase - direct 45 A	Single-phase - direct 80 A	Single-phase - direct 100 A	Three-phase - direct 80 A	Three-phase - direct 100 A
Max. number of loads measured	1	1	1	1	1
MID module B+D certification (EN 50470)	•	•	•	•	•
Width (number of DIN modules)	1	2	2	4	4
Auxiliary power supply	Self-supplied	Self-supplied	Self-supplied	Self-supplied	Self-supplied
Input voltage	230 VAC	230 VAC	230 VAC	230…400 VAC	230…400 VAC
Current input type	Direct			Direct	
Number of pulse outputs	2	0	2	1	2
Communication					
RS485 Modbus RTU	•/-	-	•	-	•/-
M-Bus	-/•	-	-	-	-/•
Ethernet Modbus TCP with integrated Web server	-	•	-	•	-
Functions					
Total / partial bidirectional energy (kWh, kvarh, kVAh)	•	•	•	•	•
Instantaneous measurements (I, V, P, Q, S, F and FP)	•	•	•	•	•
Digital input for dual-tariff management	-	-	•	-	•
Max. number of tariffs managed	4	4	4	4	4
WEBVIEW software compatibility	•	•	•	•	•/-
Accuracy					
Active energy (IEC 62053-21)	Class 1	Class 1	Class 1	Class 1	Class 1
Reactive energy (IEC 62053-23)	Class 2	Class 2	Class 2	Class 2	Class 2
Active energy (EN 50470-1/3)	Class B	Class B	Class B	Class B	Class B

Current sensors and transformers	Three-phase current transformers	Flexible Rogowski coils	Current transformers	Shunts
				
	p. 388	p. 454	p. 486	p. 500
Models	QCT-C-xx	RGW	TCx	Shunts
Current type	AC	AC	AC	DC
Product type	Solid-core	Split-core and flexible	Solid- and split-core	In series wiring
Meter compatibility	COUNTIS P44-xQCT	COUNTIS P44-RGW	COUNTIS P44/P46/E48	COUNTIS P43-DC
Connection mode	Via RJ12 quick-connect cable	On 2-wires terminal block	On 2-wires terminal block	Via screws on the shunt
Max. current	Up to 1000 A	Up to 6000 A	Up to 10 000 A	Up to 4000 A
Secondary output signal	100 mV	100 mV	1 A / 5 A	100 mV

socomec Innovative Power Solutions

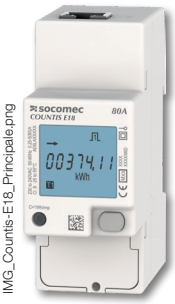
MID certification? → Which communication protocol? → View data on the web server?

	AC - Three-phase				DC
	COUNTIS E48	COUNTIS P44-2QCT / P44-4QCT	COUNTIS P44-RGW	COUNTIS P44 / P46	COUNTIS P43-DC
					
	p. 375	p. 385	p. 384	p. 383	p. 386
	Three-phase - via CT 1/5 A	Three-phase via quickconnect three-phase CT blocks	Three-phase - via Rogowski coils	Three-phase - via CT 1/5 A	Via shunts up to 4000 A
	1	2 (-2QCT), 4 (-4QCT)	1	1	1
	•	•	•	•	-
	4	4	4	4	2
	Self-supplied	85-276 VAC 120-240 VDC	85-276 VAC 120-240 VDC	85-276 VAC 120-240 VDC	9-60 VDC
	230…400 VAC	230…400 VAC	230…400 VAC	230…400 VAC	1000 VDC
	1A / 5A	QCT-C 3ph CT blocks	RGW Rogowski coils	1 A / 5 A	Shunts 100 mV
	1	0	2	2	1
	-	•	•	•/-	•
	-	-	-	-/•	-
	•	-	-	-	-
	•	•	•	•	•
	•	•	•	•	•
	-	-	•	•	-
	4	4	4	4	4
	•	•	•	•/-	•
	Class 0,5s	Class 1	Class 1	Class 0,5s	Class 1 (IEC 62053-41)
	Class 2	Class 2	Class 2	Class 2	-
	Class C	Class B	Class B	Class C	-

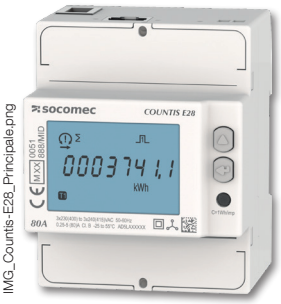
COUNTIS E

Modular active energy meters

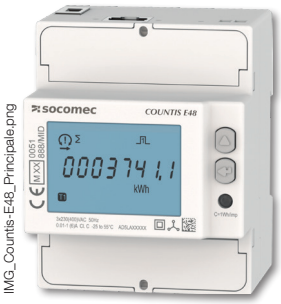
direct 80 A or via current transformers



COUNTIS E18



COUNTIS E28



COUNTIS E48

The solution for

- Data centre
- Energy
- Building

Strong points

- Ethernet communication with embedded webserver
- MID certification
- Multi-tariff
- Complete ecosystem for easy integration

Associated products

- For a complete ecosystem, combine with a DIRIS Digiware M-70 or D-70 communication gateway.

DIRIS Digiware M-70 & D-70

Conformity to standards

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

Function

COUNTIS E is a range of modular electrical energy meters that provide an overview of energy consumed and produced, and also display power information and other measurements directly on the backlit LCD.

COUNTIS E meters have native Ethernet communication capability and are fully integrated into the SOCOMEC monitoring ecosystem including Webview, screens, gateways and configuration software.

Advantages

Ethernet communication with embedded webserver

COUNTIS E meters have native built-in Ethernet communication which enables data to be read remotely through MODBUS TCP protocol. Additionally, all meter information can be analysed through its integrated webserver page.

MID certification

The whole range complies with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. The “module B+D” certification attests that an external laboratory has verified the design and production process of these devices.

Multi-tariff

Up to 4 tariffs enable the assignment of different time slots (every hour, dip times) or different sources (normal, back-up) to your energy readings, enabling you to monitor your energy consumption in detail.

Complete ecosystem for easy integration

COUNTIS E meters are natively compatible with the WEBVIEW energy monitoring software. Thanks to the automatic detection of the meters for quick configuration, this software is very easy to use. It is accessible via a DIRIS Digiware M-70 or D-70 gateway.

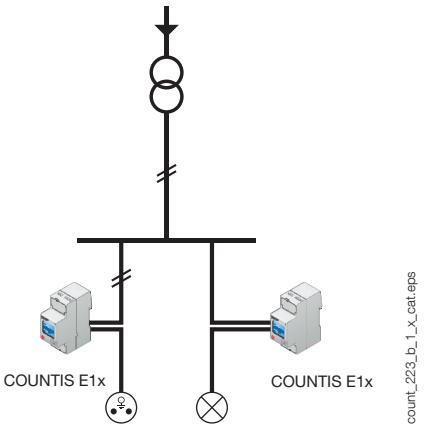
COUNTIS E18

Active-energy meter

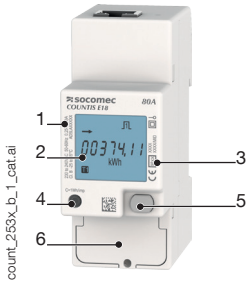
single-phase - direct 80 A

Countis E18

Functional diagram

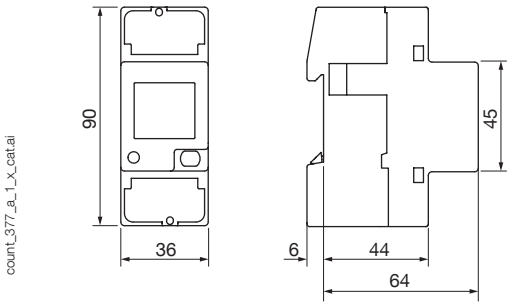


Front panel



1. Serial number.
2. Backlit LCD.
3. MID marking
4. Metrological LED.
5. Navigation button.
6. Voltage, current, neutral terminals with terminal shrouds

Dimensions (mm)



Type	Modular
Number of modules	2
Dimensions W x H x D	36 x 90 x 64 mm
Casing protection degree	IP 20
Front panel protection degree	IP 51(1)
Display type	Backlit LCD
Cross-section of rigid connecting cable	1.5 to 35 mm²
Cross-section of flexible connecting cable	1.5 to 35 mm²
Weight	215 g

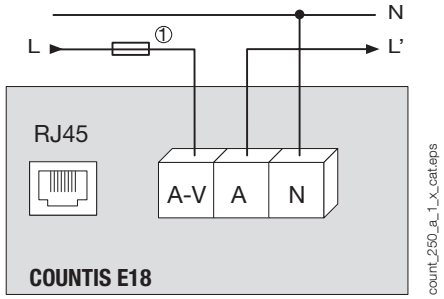
(1) Cabinet installations require a protection degree of at least IP51.

Electrical characteristics

Measurement of currents	
Type	Single-phase - direct 80 A
Input consumption	Max. 0.5 VA
Inrush current (Icfst/cf)	20 mA
Minimum current (I_{min})	0.25 A
Transient current (Icftr/cf)	0.5 A
Reference current (I_{ref})	5 A
Permanent overload (I_{max})	80 A
Transient overload	30 I_{max} over 10 ms
Voltage measurement	
Measurement range	230 to 240 V ± 20%
Consumption (VA)	3.5 VA max.
Permanent overload	290 V phase-neutral
Power monitoring 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
Operating conditions	
Operating temperature	-25 to 55°C
Storage temperature	-25 to 75°C
Relative humidity	80%

Communication	**COUNTIS E18**
Link	RJ45
Type	Bi-directional mode (full duplex)
Protocol	MODBUS TCP, HTTP, NTP, DHCP
Baudrate	10/100 Mbps

Connections



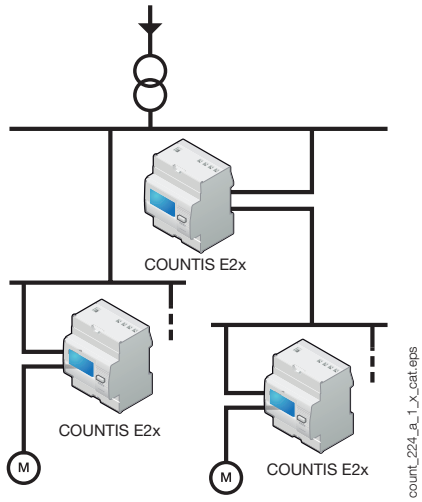
References

COUNTIS		
E18	Direct 80 A - Dual-tariff + Ethernet Modbus TCP communication + MID	4850 **3048**

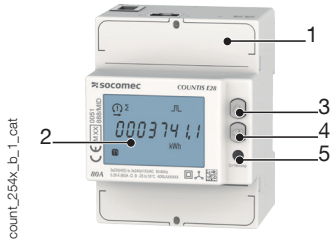
Accessories	**Available for order in multiples of**	**Reference**
10x sealing kits, 2U		4850 **306U**
Fuse disconnect switches for voltage input protection (RM type) 1-pole	6	5703 **5001**
gG 22x58 80 A fuses	10	6032 **0080**

Countis E28

Functional diagram

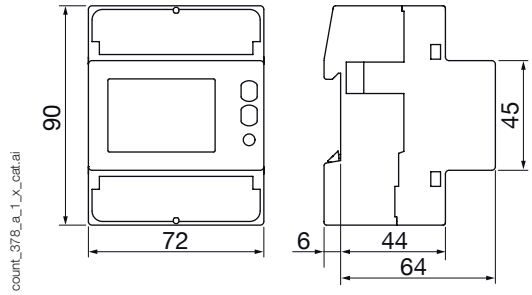


Front panel



1. Neutral terminal.
2. Backlit LCD.
3. Navigation button.
4. ENTER key.
5. 5. Metrological LED.

Dimensions (mm)



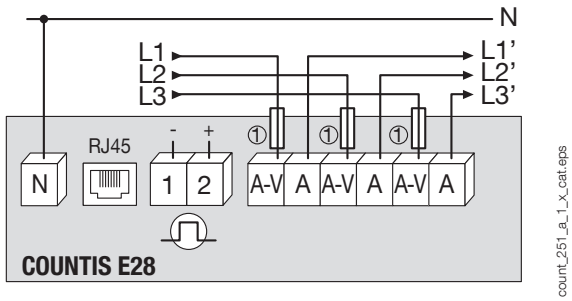
Type	Modular
Number of modules	4
Dimensions W x H x D	72 x 90 x 64 mm
Casing protection degree	IP 20
Front panel protection degree	IP 51(1)
Display type	Backlit LCD, 8 digits
Cross-section of rigid connecting cable	1.5 to 35 mm²
Cross-section of flexible connecting cable	1.5 to 35 mm²
Weight	440 g

(1) Cabinet installations require a protection degree of at least IP51.

Electrical characteristics

Measurement of currents		
Type	Three-phase - direct 80 A	
Input consumption	0.5 VA max. per phase	
Inrush current (Icfst/cf)	20 mA	
Minimum current (I_{min})	0.25 A	
Transient current (Icftr/cf)	0.5 A	
Reference current (I_{ref})	5 A	
Permanent overload (I_{max})	80 A	
Transient overload	30 I_{max} over 10 ms	
Voltage measurement		
Measurement range	230 to 240 V ±20%	
Consumption (VA)	3.5 VA max. (1 W) per phase	
Permanent overload	290 V phase-neutral / 500 V phase-phase	
Power monitoring 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)		
Optocoupler (IEC 62053-31)	27VDC 27mA max.	
Number	1	
Fixed pulse	100 Wh	
Pulse duration	50 ± 2 ms ON time 30 ± 2 ms OFF time	
Operating conditions		
Operating temperature	-25 to 55°C	
Storage temperature	-25 to 75°C	
Relative humidity	80%	
Communication	**COUNTIS E28**	
Link	RJ45	
Type	Bi-directional mode (full duplex)	
Protocol	MODBUS TCP, HTTP, NTP, DHCP	
Baudrate	10/100 Mbps	

Connections



1. Fuses 0,5 A gG/0,5 A classe CC

IMPORTANT: Neutral connection is mandatory on COUNTIS E28 (neutral is represented by the solid line in the image opposite).

References

COUNTIS		
E28	Direct 80 A - Dual-tariff + Ethernet Modbus TCP + MID	4850 **3055**

Accessories	**Available for order in multiples of**	**Reference**
Panel mounting kit, 4 modules		192J **8015**
10x sealing kits, 4U*		4850 **309U**
Fuse disconnect switches for voltage input protection (RM type) 3-pole	2	5703 **5003**
gG 22x58 80 A fuses	10	6032 **0080**

** seal kits are supplied with MID counters*

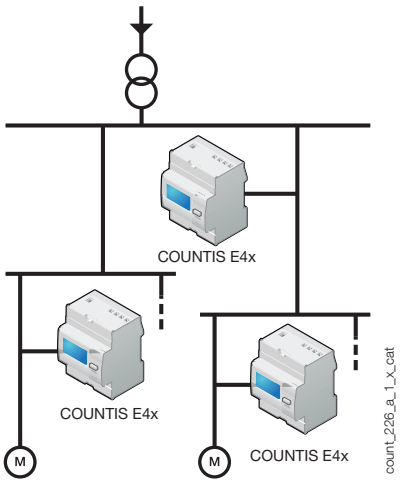
COUNTIS E48

Active-energy meter

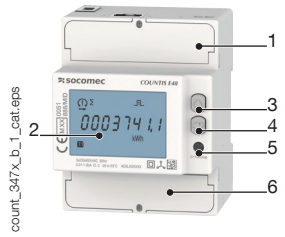
three-phase - connection to current transformers

Countis E48

Functional diagram

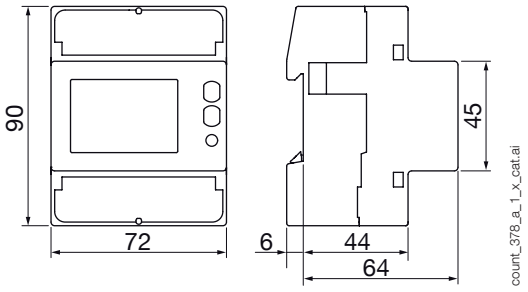


Front panel



1. Terminal shroud
2. Backlit LCD.
3. Navigation button.
4. ENTER key.
5. Metrological LED.
6. Current/voltage terminals and terminal shrouds

Dimensions (mm)



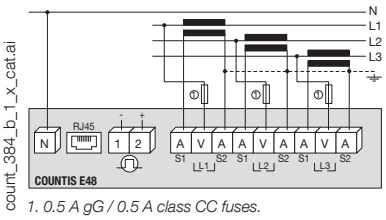
Type	Modular
Number of modules	4
Dimensions W x H x D	72 x 90 x 64 mm
Casing protection degree	IP20
Front panel protection degree	IP51
Display type	Backlit LCD, 8 digits
Cross-section of rigid connecting cable	1.5 to 6 mm^2
Cross-section of flexible connecting cable	1.5 to 6 mm^2
Weight	322 g

Electrical characteristics

Current measurement	
Type	Three-phase on CT 1 and 5A up to 12000 A
Input consumption	0.5 VA max. per phase
Inrush current (Icfst/cf)	1 mA - Class C 2 mA - Class 1
Minimum current (I_{min})	10 mA
Transient current (Icftr/cf)	50 mA
Reference current (I_{ref})	1 A
Permanent overload (I_{max})	6 A
Transient overload	120 A for 0.5 s
Voltage measurement	
Measurement range	230 to 240 V ± 20%
Consumption (VA)	Max. 3.5 VA (1 W) per phase
Permanent overload	290 V phase-neutral / 500 V phase-phase
Power monitoring accuracy	
Active (according to IEC 62053-21)	Class 1
Active (according to EN 50470)	Class C
Reactive (according to IEC 62053-22)	Class 2
Power supply	
Self-powered	Yes
Frequency	50 / 60 Hz
Output (pulses)	
Number	1
Type of optical coupler	27 V DC - 27 mA
Pulses	1 Wh ⇨ CT = 1 to 4 5 Wh ⇨ TC = 5 to 24 25 Wh ⇨ TC = 25 to 124 125 Wh ⇨ TC = 125 to 624 1000 Wh ⇨ CT = 625 to 3124 10000 Wh ⇨ TC = 3125 to 12000
Pulse duration	50 ± 2 ms ON time 30 ± 2 ms OFF time
Environment	
Operating temperature	-25 to +55°C
Storage temperature	-25 to +75°C
Relative humidity	80%
Communication	**COUNTIS E48**
Link	RJ45
Type	Bi-directional mode (full duplex)
Protocol	MODBUS CTP, HTTP, NTP, DHCP
Baudrate	10/100 Mbps

We recommend:

- Connecting CT secondaries is strictly prohibited with IT earthing arrangements; it is, however, optional in TT/TN earthing arrangements.
- When disconnecting the COUNTIS device, it is essential to short-circuit the secondaries of each current transformer. This operation can be carried out automatically by a PTI, which can be found in the SOCOMEC catalogue. Contact us



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

ATTENTION : The neutral conductor must be connected on models COUNTIS E48 (the neutral conductor is represented by the solid line in the image).

References

COUNTIS		
E48	Via CT - Dual-tariff + communication via Ethernet Modbus CTP + MID(1)	4850 **3057**

(1) 4-tariff via RS485 communication.

Accessories	Available for order in multiples of	Reference
Panel mounting kit, 4 modules		192J **8015**
10x sealing kits, 4U*		4850 **309U**
Fuse disconnect switches to protect 3-pole voltage inputs(RM type)	2	5703 **5003**
gG 10x38 0,5 A fuses	10	6032 **0080**

** seal kits are supplied with MID counters*

COUNTIS P0x

Modular active-energy meters

single-phase - direct 45 A

count-p_001.psd

The solution for

- Energy
- Industry
- Buildings

Strong points

- Compact design
- MID certification
- Extended temperature range
- Complete ecosystem for easy integration
- Multi-interfaces

Associated products

- For a complete ecosystem, combine with a DIRIS Digiware M-70 or D-70 communication gateway.

DIRIS Digiware M-70 & D-70

Conformity to standards

- IEC 62053-21
- IEC 62053-23
- IEC 62053-31
- IEC 62052-11
- IEC 61010-1
- EN 50470-1
- EN 50470-3

Function

COUNTIS P0x are single-phase modular electrical energy meters that enable viewing of the different energies consumed and produced, and also of powers and other measurements directly on the backlit LCD display. They enable direct connection up to 45 A and are suitable for use in sub-billing applications thanks to their MID certification.

Advantages

Compact design
Only one module wide for measuring single-phase loads up to 45 A to save space in electrical panels.

MID certification
The whole range complies with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. The “module B+D” certification attests that an external laboratory has verified the design and production process of these devices.

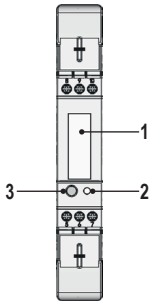
Wide temperature range
Meters in the COUNTIS P series can operate over a temperature range of -40 to +70°C.

Complete ecosystem for easy integration
COUNTIS P0x meters are natively compatible with the WEBVIEW energy monitoring software. Thanks to the automatic detection of the meters for quick configuration, this software is very easy to use. It is accessible via a DIRIS Digiware M-70 or D-70 gateway.

Multi-interfaces
COUNTIS P0x meters are equipped with:

- Two pulse outputs, enabling energy consumption information to be emitted in the form of pulses.
- An RS485 (MODBUS RTU) or M-BUS communication output, which enables all meter data to be read remotely via the communication protocol.
- Up to 4 managed tariffs, to distinguish between consumption according to tariff periods.

Front panel



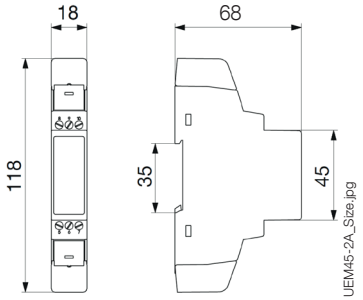
1. Backlit LCD display
2. Metrological LED
3. Button

Electrical characteristics

Current measurement (TRMS)	
Type	Single-phase - direct 45 A
Max. consumption	3 VA
Transient overload	30 Imax 10ms
Startup current (Ist)	0.02 A
Base current (Ib)	5 A
Minimum current (Imin)	0.25 A
Maximum Current (Imax)	45 A
Voltage measurement (TRMS)	
Overvoltage category	300 V CAT III - UC1 in accordance with IEC 61010-1
AC voltage (Un)	230 V, Overvoltage category III
Voltage range	176 - 276 VAC
Frequency	45-55Hz (MID), 45-65Hz (IEC)
Transient overvoltage withstand	4 kV 1 minute, 6kV 1.2 µs
Measurement accuracy	
U,V / I / F / P,Q,S / PF	0.5% / 1% / 0.2% / 1% / 1% according to IEC61557-12
Active energy	Class B in accordance with EN 50470-1/3 Class 1 in accordance with IEC 62053-21
Reactive energy	Class 2 in accordance with IEC 62053-23
Tariff management	4 tariffs, via communication
Power supply	
Auxiliary power supply	Self-powered
Pulse output	
Number	2
Type of optocoupler	5-27 VDC - 27 mA max.
Pulse duration	60 / 100 / 200 ms
Pulse output 1	Configurable: 0.001 / 0.01 / 0.1 / 1 kWh per pulse
Pulse output 2	fixed at 1 Wh / pulse
Environment	
Operating temperature	-40 to +70°C
Ambient storage temperature	-40 to +75°C
Relative humidity	0 to 95%, condensation-free

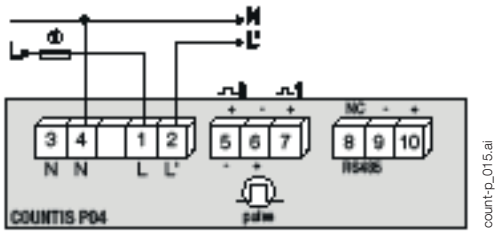
Communication	**P04**	**P06**
Link	RS485	EN 13757-2
Type	2-wires half duplex	2-wires half duplex
Protocol	Modbus RTU	M-BUS
Speed	2.4 / 4.8 / 9.6 / 19.2 / 38.4 kbps	300 / 600 / 1.2k / 2.4 k 4.8 k / 9.6 kbps

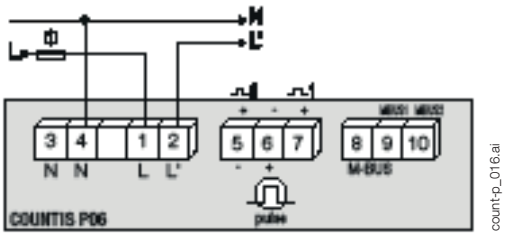
Dimensions (mm)



Type	Modular
Number of modules	1
Front degree of protection	IP 51
Case degree of protection	IP20
Dimensions W x H x D	18 x 118 x 68 mm
Display type	Backlit LCD display
Connection cross-section and torque for measuring terminals (A & V)	2.5…10 mm² / 1.5 Nm
Connection cross-section and torque for terminals S0, COM	0.5…1.5 mm² / 0.2 Nm

Connections





N - L: network input.
N' - L': network output.
1. 45 A gG / 45 A class CC fuses.

References

COUNTIS P0x		
P04	45 A direct single-phase – 2 pulse outputs + MODBUS RS485 communication + MID	4850 **5004**
P06	45 A direct single-phase – 2 pulse outputs + M-BUS communication + MID	4850 **5006**

COUNTIS P1x

Modular active-energy meters

single-phase - direct 100 A

count-p_003.psd

The solution for

- Energy
- Industry
- Buildings

Strong points

- Compact design
- MID certification
- Extended temperature range
- Complete ecosystem for easy integration
- Multi-interfaces

Associated products

- For a complete ecosystem, combine with a DIRIS Digiware M-70 or D-70 communication gateway.

DIRIS Digiware M-70 & D-70

Conformity to standards

- IEC 62053-21
- IEC 62053-23
- IEC 62053-31
- IEC 62052-11
- IEC 61010-1
- EN 50470-1
- EN 50470-3

Function

COUNTIS P1x are single-phase modular electrical energy meters that enable viewing of the different energies consumed and produced, and also of powers and other measurements directly on the backlit LCD display. They enable direct connection up to 100 A and are suitable for use in sub-billing applications thanks to their MID certification.

Advantages

Compact design
Only two modules wide for measuring single-phase loads up to 100 A to save space in electrical panels.

MID certification
The whole range complies with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. The “module B+D” certification attests that an external laboratory has verified the design and production process of these devices.

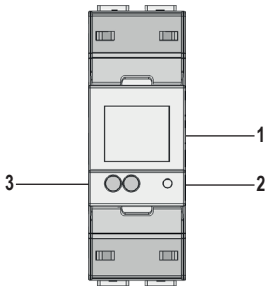
Wide temperature range
Meters in the COUNTIS P series can operate over a temperature range of -40 to +70°C.

Complete ecosystem for easy integration
COUNTIS P1x meters are natively compatible with the WEBVIEW energy monitoring software. Thanks to the automatic detection of the meters for quick configuration, this software is very easy to use. It is accessible via a DIRIS Digiware M-70 or D-70 gateway.

Multi-interfaces
COUNTIS P1x meters are equipped with:

- Two pulse outputs, enabling energy consumption information to be emitted in the form of pulses.
- An RS485 (MODBUS RTU) communication output, which enables all meter data to be read remotely via the communication protocol.
- Digital input to manage 2 tariffs, or up to 4 tariffs via communication, to distinguish consumption according to tariff periods.

Front panel



UEM100-2A_Render-FRONT.psd

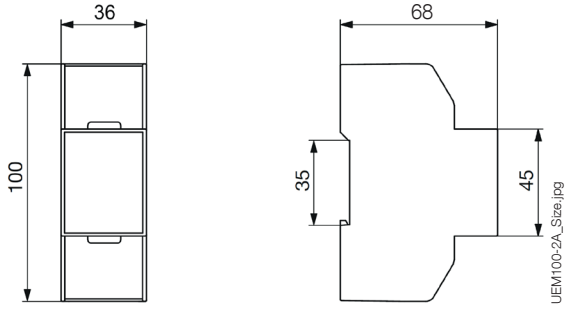
1. Backlit LCD display
2. Metrological LED
3. Button

Electrical characteristics

Current measurement (TRMS)	
Type	Single-phase - direct 100 A
Max. consumption	5 VA
Transient overload	30 Imax 10 ms
Startup current (Ist)	0.04 A
Base current (Ib)	10 A
Minimum current (Imin)	0.5 A
Maximum Current (Imax)	100 A
Voltage measurement (TRMS)	
Overvoltage category	300 V CAT III - UC1 in accordance with IEC 61010-1
AC voltage (Un)	230 V, Overvoltage category III
Voltage range	176 - 276 VAC
Frequency	45-55Hz (MID), 45-65Hz (IEC)
Transient overvoltage withstand	4 kV 1 minute, 6kV 1.2 µs
Measurement accuracy	
U,V / I / F / P,Q,S / PF	0.5% / 1% / 0.2% / 1% / 1% in accordance with IEC61557-12
Active energy	Class B in accordance with EN 50470-1/3 Class 1 in accordance with IEC 62053-21
Reactive energy	Class 2 in accordance with IEC 62053-23

Tariff management	2 tariffs, via 0-230 V digital input 4 tariffs, via communication
Power supply	
Auxiliary power supply	Self-supplied
Pulse output	
Number	2
Type of optocoupler	5-27 VDC - 27 mA max.
Pulse duration	60 / 100 / 200 ms
Pulse output 1	Configurable: 0.001 / 0.01 / 0.1 / 1 kWh per pulse
Pulse output 2	fixed at 1 Wh / pulse
Environment	
Operating temperature	-40 to +70°C
Ambient storage temperature	-40 to +75°C
Relative humidity	0 to 95%, condensation-free
Communication	**P14**
Link	RS485
Type	2-wire half duplex
Protocol	Modbus RTU
Speed	2.4 / 4.8 / 9.6 / 19.2 kbps

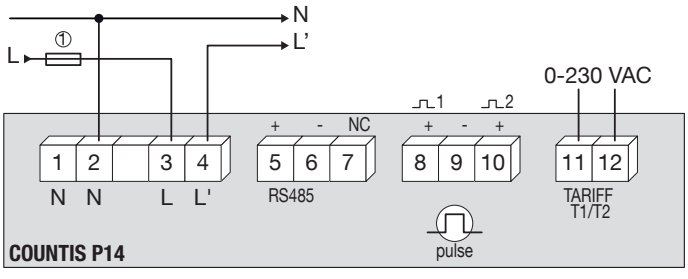
Dimensions (mm)



UEM100-2A_Size.jpg

Type	modular
Number of modules	2
Front degree of protection	IP 51
Case degree of protection	IP20
Dimensions W x H x D	36 x 100 x 68 mm
Display type	Backlit LCD display
Connection cross-section and torque for measuring terminals (A & V)	4…45 mm² / 2.5 Nm
Connection cross-section and torque for terminals S0, COM, tariff input	0.5…1.5 mm² / 0.2 Nm

Connections



count-p_023.ai

N - L: network input
N' - L': network output.
1. 100 A gG / 100 A class CC fuses.

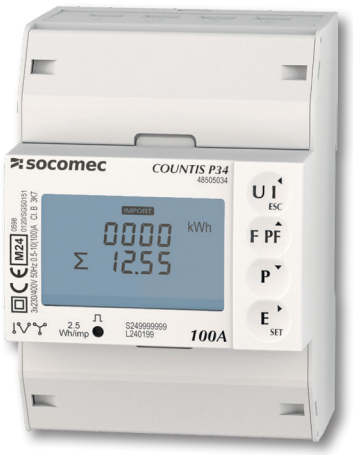
References

COUNTIS P1x		
P14	100 A direct single-phase – 2 pulse outputs + MODBUS RS485 communication + MID	4850 **5014**

COUNTIS P3x

Modular active-energy meters

three-phase - direct 100 A



count-p_004.psd

The solution for

- Energy
- Industry
- Buildings

Strong points

- Compact design
- MID certification
- Versatile
- Complete ecosystem for easy integration
- Multi-interfaces

Associated products

- For a complete ecosystem, combine with a DIRIS Digiware M-70 or D-70 communication gateway.

DIRIS Digiware M-70 & D-70

Conformity to standards

- IEC 62053-21
- IEC 62053-23
- IEC 62053-31
- IEC 62052-11
- IEC 61010-1
- EN 50470-1
- EN 50470-3

Function

COUNTIS P3x are three-phase modular electrical energy meters that enable viewing of the different energies consumed and produced, and also of powers and other measurements directly on the backlit LCD display. They enable direct connection up to 100 A and are suitable for use in sub-billing applications thanks to their MID certification.

Advantages

Compact design

Only four modules wide for measuring three-phase loads up to 100 A to save space in electrical panels.

MID certification

The whole range complies with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. The “module B+D” certification attests that an external laboratory has verified the design and production process of these devices.

Versatile

- Operating temperature range from -40 to +70°C.
- Possibility of connection to a single-phase network with possible per-phase reading of energies.

Easy integration

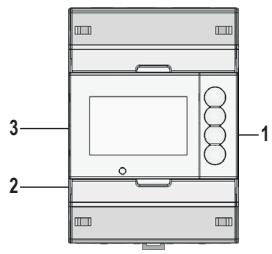
COUNTIS P3x meters are natively compatible with the WEBVIEW energy monitoring software. Thanks to the automatic detection of the meters for quick configuration, this software is very easy to use. It is accessible via a DIRIS Digiware M-70 or D-70 gateway.

Multi-interfaces

COUNTIS P3x meters are equipped with:

- Two pulse outputs, enabling energy consumption information to be sent in the form of pulses.
- An RS485 (MODBUS RTU) or M-BUS communication output, which enables all meter data to be read remotely via the communication protocol.
- A digital input to manage 2 tariffs, or up to 4 tariffs via communication, to distinguish between consumption according to tariff periods.

Front panel



UEM100-A_Render-FRONT.psd

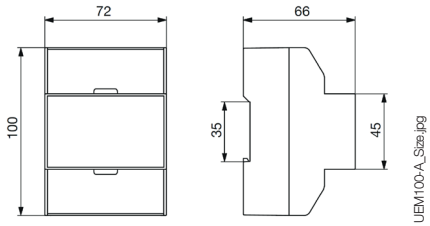
1. Backlit LCD display
2. Metrological LED
3. Buttons

Electrical characteristics

Current measurement (TRMS)	
Type	Three-phase - direct 100 A
Max. consumption	3 VA
Transient overload	30 Imax 10ms
Startup current (Ist)	0.04 A
Base current (Ib)	10 A
Minimum current (Imin)	0.5 A
Maximum Current (Imax)	100 A
Voltage measurement (TRMS)	
Overvoltage category	300 V CAT III - UC1 in accordance with IEC 61010-1
AC voltage (Un)	400 V, Overvoltage category III
Voltage range	320 - 480 VAC
Frequency	45-55Hz (MID), 45-65Hz (IEC)
Transient overvoltage withstand	4 kV 1 minute, 6kV 1.2 µs
Measurement accuracy	
U,V / I / F / P,Q,S / PF	0.5% / 1% / 0.2% / 1% / 1% in accordance with IEC61557-12
Active energy	Class B in accordance with EN 50470-1/3 Class 1 in accordance with IEC 62053-21
Reactive energy	Class 2 in accordance with IEC 62053-23
Tariff management	2 tariffs, via 0-230 V digital input 4 tariffs, via communication
Power supply	
Auxiliary power supply	Self-powered
Pulse output	
Number	2
Type of optocoupler	5-27 VDC - 27 mA max.
Pulse duration	60 / 100 / 200 ms
Pulse output 1	Configurable: 0.01 / 0.1 / 1 / 10 /100 kWh per pulse
Pulse output 2	fixed at 2.5 Wh / pulse
Environment	
Operating temperature	-40 to +70°C
Ambient storage temperature	-40 to +75°C
Relative humidity	0 to 95%, condensation-free

Communication	**P34**	**P36**
Link	RS485	EN 13757-2
Type	2-wire half duplex	2-wire half duplex
Protocol	Modbus RTU	M-BUS
Speed	2.4 / 4.8 / 9.6 / 19.2 / 38.4 kbps	300 / 600 / 1.2 k / 2.4 k / 4.8 k /9.6 kbps

Dimensions (mm)

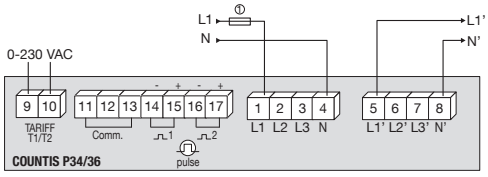


UEM100-A_Size.jpg

Type	modular
Number of modules	4
Front degree of protection	IP 51
Case degree of protection	IP20
Dimensions W x H x D	72 x 100 x 66 mm
Display type	Backlit LCD display
Connection cross-section and torque for measuring terminals (A & V)	4…25 mm² / 2.5 Nm
Connection cross-section and torque for terminals S0, COM, tariff input	0.5…1.5 mm² / 0.2 Nm

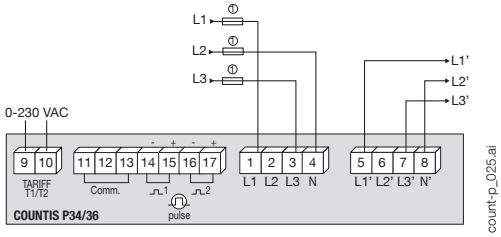
Connections

Single-phase 2-wire (1P+N)



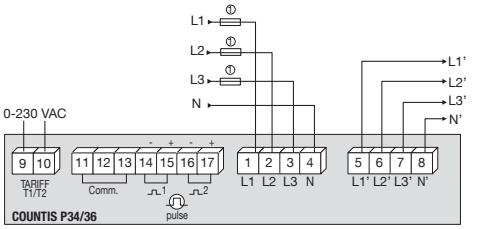
count-p_024.ai

Three-phase 3-wire (3P)



count-p_025.ai

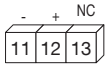
Three-phase 4-wire (3P+N)



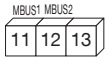
count-p_026.ai

N - L: network input.
N' - L': network output.

Communication terminals for RS485:



Communication terminals for M-bus:



1. 100 A gG / 100 A class CC fuses.

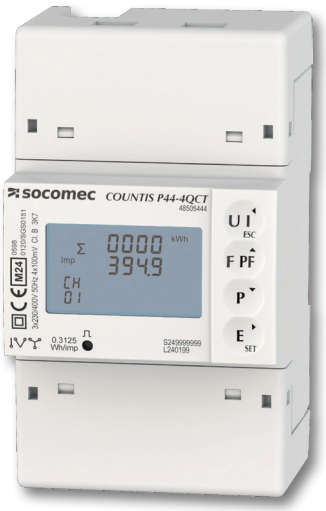
References

COUNTIS P3x		
P34	100 A direct three-phase – 2 pulse outputs + MODBUS RS485 communication + MID	4850 **5034**
P36	100 A direct three-phase – 2 pulse outputs + M-BUS communication + MID	4850 **5036**

COUNTIS P4x

Modular active-energy meters

three-phase - connection via transformers up to 10 000 A



count-p_007.psd

The solution for

- Energy
- Industry
- Buildings

Strong points

- Quick and easy wiring
- MID certification
- Versatile
- Complete ecosystem for easy integration
- Multi-interfaces
- Space-saving

Associated products

For a complete ecosystem, combine with a communication gateway and current sensors and current transformers

Communication gateway

Current transformers

Flexible current sensors

QuickConnect three-phase current transformers

Conformity to standards

- IEC 62053-21
- IEC 62053-23
- IEC 62053-31
- IEC 62052-11
- IEC 61010-1
- EN 50470-1
- EN 50470-3

Function

COUNTIS P4x are three-phase modular electrical energy meters that enable viewing of the different energies consumed and produced, and also of powers and other measurements directly on the backlit LCD display. They connect indirectly via a wide range of current transformers and current sensors.

They are suitable for use in sub-billing applications thanks to their MID certification.

Advantages

Quick and easy wiring

The COUNTIS P4x range is compatible, depending on the model, with:

- QCT-C-xx three-phase current transformers thanks to an RJ12 “QuickConnect” connection (one cable for the 3 phases).
- Rogowski coils, suitable for all sizes of cables or bars.
- Current transformers with 1/5A output.

MID certification

Complies with the MID directive to guarantee accuracy and reliability when metering, compulsory for energy billing applications. The “module B+D” certification attests that an external laboratory has verified the design and production process of these devices.

Versatile

- Wide operating temperature range from -40 to +70°C.
- Possibility of connection to a single-phase network with possible per-phase reading of energies.

Complete ecosystem for easy integration

COUNTIS P4x meters are natively compatible with the WEBVIEW energy monitoring software. Thanks to the automatic detection of the meters for quick configuration, this software is very easy to use. It is accessible via a DIRIS Digiware M-70 or D-70 gateway.

Multi-interfaces

COUNTIS P4x meters are equipped with:

- Two pulse outputs, enabling energy information to be sent in the form of pulses.
- An RS485 (MODBUS RTU) or M-BUS communication output, which enables all meter data to be read remotely via the communication protocol.
- A digital input to manage 2 tariffs, or up to 4 tariffs via communication, to distinguish between consumption according to tariff periods.

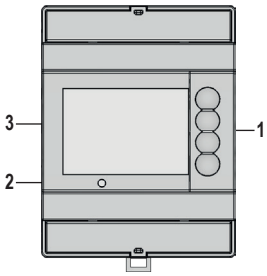
Space-saving

A single meter to measure up to 2 (2QCT) or 4 (4QCT) loads for real space saving in the enclosure.

socomec Innovative Power Solutions

COUNTIS P44/P46

Front panel



UEMCT-A_Render-FRONT.psd

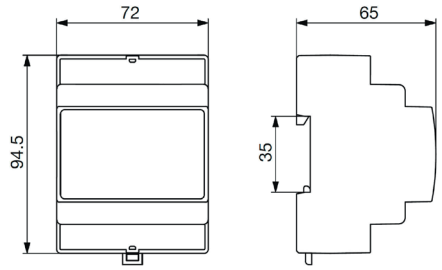
1.Backlit LCD display
2.Metrological LED
3.Buttons

Electrical characteristics

Current measurement (TRMS)	
Type	Three-phase - indirect 1/5 A
Transient overload	20 Imax 0.5 s
Startup current (Ist)	0.01 A
Base current (Ib)	5 A
Minimum current (Imin)	0.25 A
Maximum Current (Imax)	6 A
Voltage measurement (TRMS)	
Overvoltage category	300 V CAT III - UC1 in accordance with IEC 61010-1
AC voltage (Un)	400 V, Overvoltage category III
Voltage range	320 - 480 VAC
Frequency	45-55Hz (MID), 45-65Hz (IEC)
Transient overvoltage withstand	4 kV 1 minute, 6kV 1.2 µs
Measurement accuracy	
U,V / I / F / P,Q,S / PF	0.5% / 1% / 0.2% / 1% / 1% in accordance with IEC61557-12
Active energy	Class C in accordance with EN 50470-1/3 Class 0.5s in accordance with IEC 62053-21
Reactive energy	Class 2 in accordance with IEC 62053-23
Tariff management	2 tariffs, via 0-230 V digital input 4 tariffs, via communication
Power supply	
Auxiliary power supply	85-276 VAC or 120-240 VDC
Max. consumption	3 VA
Pulse output	
Number	2
Type of optocoupler	5-27 VDC - 27 mA max.
Pulse duration	60 / 100 / 200 ms
Pulse output 1	Configurable: 0.01 / 0.1 / 1 / 10 /100 / 1000 kWh per pulse
Pulse output 2	fixed at 0.3125 Wh/pulse (not affected by CT ratio)
Environment	
Operating temperature	-40 to +70°C
Ambient storage temperature	-40 to +75°C
Relative humidity	0 to 95%, condensation-free

Communication	**P44**	**P46**
Link	RS485	EN 13757-2
Type	2-wire half duplex	2-wire half duplex
Protocol	Modbus RTU	M-BUS
Speed	2.4 / 4.8 / 9.6 / 19.2 / 38.4 kbps	300 / 600 / 1.2 k / 2.4 k /4.8 k / 9.6 k bps

Dimensions (mm)

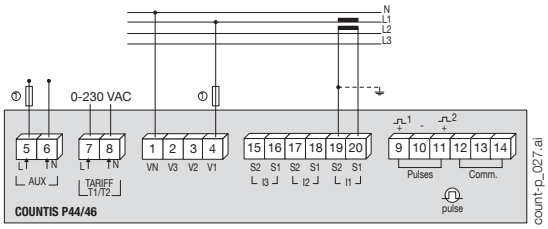


UEMCT-A_Size.jpg

Type	modular
Number of modules	4
Front degree of protection	IP 51
Case degree of protection	IP20
Dimensions W x H x D	72 x 94.5 x 65 mm
Display type	Backlit LCD display
Connection cross-section and torque for measuring terminals (A & V)	0.5…2.5 mm² / 0.2 Nm
Connection cross-section and torque for terminals S0, COM, tariff input	0.5…2.5 mm² / 0.2 Nm

Connections

Single-phase, 2-wire with 1 CT (1P+N)



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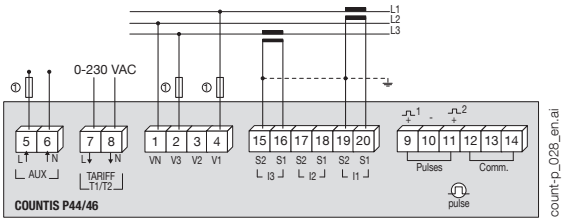
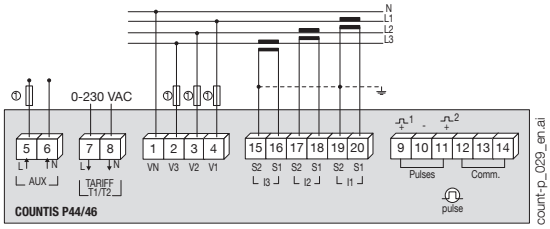
Three-phase, 3-wires with 2 CTs (3P)



count-p_028_en.ai

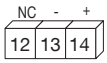
Three-phase, 4-wires with 3 CTs (3P+N)



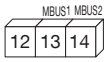
count-p_029_en.ai

N - L: network input.
N' - L': network output.

Communication terminals for RS485



Communication terminals for M-bus



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

References

COUNTIS P4x		
P44	Indirect three-phase via 1/5A CT – 2 pulse outputs + MODBUS RS485 communication + MID	4850 **5044**
P46	Indirect three-phase via 1/5A CT – 2 pulse outputs + M-BUS communication + MID	4850 **5046**

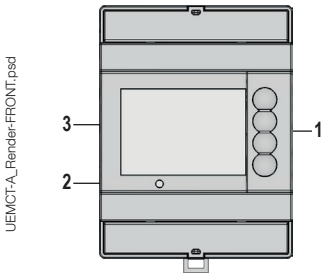
COUNTIS P4x

Modular active-energy meters

three-phase - connection via transformers up to 10 000 A

COUNTIS P44 RGW

Front panel



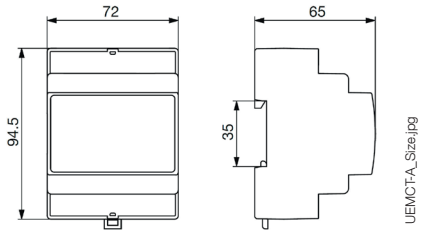
1. Backlit LCD display
2. Metrological LED
3. Buttons

Electrical characteristics

Current measurement (TRMS)				
Type	Three-phase - indirect via Rogowski loop			
Input (RMS value) for Rogowski loop	100 mV / kA @ 50 Hz			
Rogowski primary full scale	0.5 / 1 / 5 / 20 kA			
The following settings change depending on the primary full scale configured (A)				
	500	1000	5000	20,000
Startup current (Ist)	0.8	1.6	8	32
Minimum current (Imin)	4	8	40	160
Transition current (Itr)	20	40	200	800
Reference current (Iref)	400	800	4000	16,000
Maximum current (Imax)	500	1000	5000	20,000
Voltage measurements (TRMS)				
Overvoltage category	300V CAT III - UC1 in accordance with IEC 61010-1			
AC voltage (Un)	400 V, Overvoltage category III			
Voltage range	320 - 480 VAC			
Frequency	45-55Hz (MID), 45-65Hz (IEC)			

Transient overvoltage withstand	4 kV 1 minute, 6kV 1.2 µs
Measurement accuracy	
U,V / I / F / P,Q,S / PF	0.5% / 1% / 0.2% / 1% / 1% in accordance with IEC61557-12
Active energy	Class C in accordance with EN 50470-1/3 Class 0.5s in accordance with IEC 62053-21
Reactive energy	Class 2 in accordance with IEC 62053-23
Tariff management	2 tariffs, via 0-230V V digital input 4 tariffs, via communication
Power supply	
Auxiliary power supply	85-276 VAC or 120-240 VDC
Max. consumption	3 VA
Pulse output	
Number	2
Type of optocoupler	5-27 VDC - 27 mA max.
Pulse duration	60 / 100 / 200 ms
Pulse output 1	Configurable: 0.001 / 0.01 / 0.1 / 1 /10 / 100 kWh per pulse
Pulse output 2	fixed at 0.3125 Wh/pulse (not affected by CT ratio)
Environment	
Operating temperature	-40 to +70°C
Ambient storage temperature	-40 to +75°C
Relative humidity	0 to 95%, condensation-free
Communication	**P44-RGW**
Link	RS485
Type	2-wire half duplex
Protocol	Modbus RTU
Speed	2.4 / 4.8 / 9.6 / 19.2 / 38.4 kbps

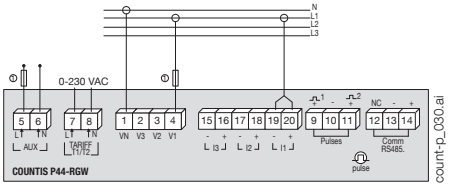
Dimensions (mm)



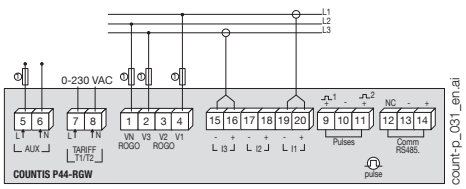
Type	modular
Number of modules	4
Front degree of protection	IP 51
Case degree of protection	IP20
Dimensions W x H x D	72 x 94.5 x 65 mm
Display type	Backlit LCD display
Connection cross-section and torque for measuring terminals (A & V)	0.5…2.5 mm² / 0.2 Nm
Connection cross-section and torque for terminals S0, COM, tariff input	0.5…2.5 mm² / 0.2 Nm

Connections

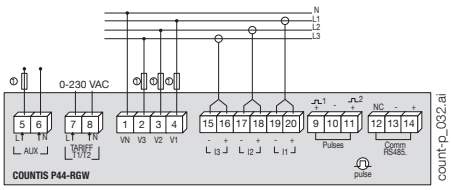
Single-phase, 2-wire with 1 CT (1P+N)



Three-phase, 3-wires with 2 CTs (3P)



Three-phase, 4-wires with 3 CTs (3P+N)



N - L: network input.
N' - L': network output.

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

References

COUNTIS P44-RGW		
P44-RGW (1)	Indirect three-phase via Rogowski coils – 2 pulse outputs + MODBUS RS485 communication + MID	4850 **5144**

1. Available soon. Contact us for more information.

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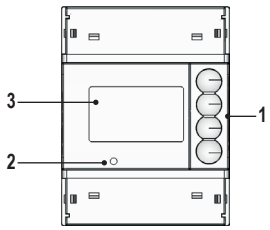
COUNTIS P4x-xQCT

Front panel



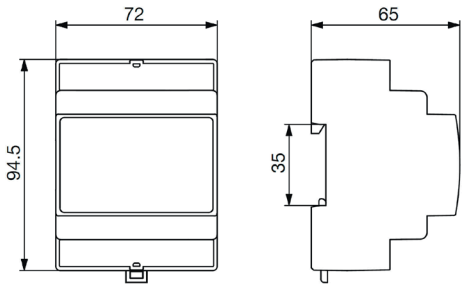
1. Backlit LCD display
2. Metrological LED
3. Buttons

Electrical characteristics

Current measurement (TRMS)				
Type	Three-phase via 3 x 100 mV phases three-phase block			
The following settings change depending on the primary full scale configured (A)				
	QCT-C-25	QCT-C-35	QCT-C-45	QCT-C-55
Startup current (Ist)	0.64	1	2.52	4
Base current (Ib)	160	250	630	1000
Minimum current (Imin)	3.2	5	12.6	20
Maximum Current (Imax)	192	300	630	1000

Voltage measurements (TRMS)	
Overvoltage category	300V CAT III - UC1 in accordance with IEC 61010-1
AC voltage (Un)	400 V, Overvoltage category III
Voltage range	320 - 480 VAC
Frequency	45-55Hz (MID), 45-65Hz (IEC)
Transient overvoltage withstand	4 kV 1 minute, 6kV 1.2 µs
Measurement accuracy	
U,V / I / F / P,Q,S / PF	0.5% / 1% / 0.2% / 1% / 1% in accordance with IEC61557-12
Active energy	Class B in accordance with EN 50470-1/3 Class 1 in accordance with IEC 62053-21
Reactive energy	Class 2 in accordance with IEC 62053-23
Power supply	
Auxiliary power supply	85-276 VAC or 120-240 VDC
Max. consumption	3 VA
Environment	
Operating temperature	-40 to +70°C
Ambient storage temperature	-40 to +75°C
Relative humidity	0 to 95%, condensation-free
Communication	**P44-2QCT -4QCT**
Link	RS485
Type	2-wire half duplex
Protocol	Modbus RTU
Speed	2.4 / 4.8 / 9.6 / 19.2 / 38.4 kbps

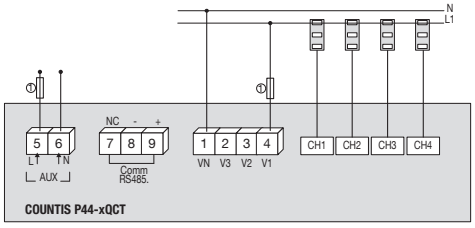
Dimensions (mm)



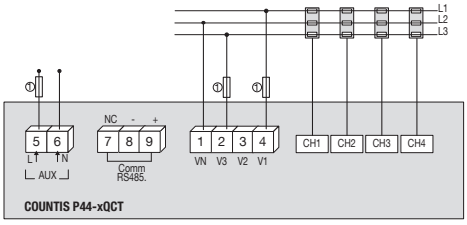
Type	modular
Number of modules	4
Front degree of protection	IP 51
Case degree of protection	IP20
Dimensions W x H x D	71.7 x 122.5 x 66 mm
Display type	Backlit LCD display
Connection cross-section and torque for measuring terminals (A & V)	0.5…2.5 mm² / 0.2 Nm
Connection cross-section and torque for terminals S0, COM, tariff input	0.5…2.5 mm² / 0.2 Nm

Connections

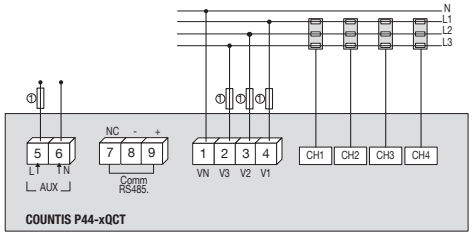
Single-phase, 2-wire with 1 CT (1P+N)



Three-phase, 3-wires with 2 CTs (3P)



Three-phase, 4-wires with 3 CTs (3P+N)



N - L: network input.
N' - L': network output.

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

References

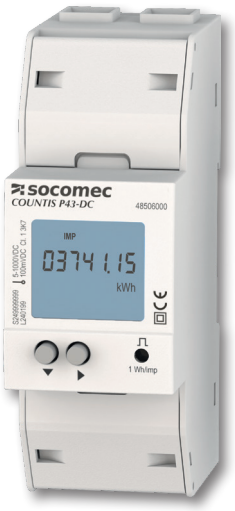
COUNTIS P44-xQCT		
P44-2QCT [1]	Indirect three-phase via 3P CT block (max 2 per meter) – MODBUS RS485 communication+ MID	4850 **5244**
P44-4QCT [1]	Indirect three-phase via 3P CT block (max 4 per meter) – MODBUS RS485 communication+ MID	4850 **5444**

1. Available soon. Contact us for more information.

COUNTIS P43-DC

Modular DC energy meters

connection via shunts up to 4000 A



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The solution for

- Energy
- Industry
- Buildings
- Infrastructure & transport

Strong points

- Wide selection of shunts
- Multi-interfaces
- Complete ecosystem for easy integration
- Wide temperature range

Associated products

- For a complete ecosystem, combine with a DIRIS Digiware M-70 or D-70 communication gateway.

DIRIS Digiware M-70 & D-70

Conformity to standards

- IEC 62053-41
- IEC 62052-11
- IEC 61010-1

Function

COUNTIS P43-DC are modular electrical energy meters for direct current (DC), that enable viewing of the different energies consumed and produced, and also of powers and other measurements directly on the backlit LCD display. They connect indirectly via a wide range of measurement shunts.

Advantages

Wide selection of shunts

The range is compatible with measurement shunts ranging from 1 to 4000 A to accommodate the majority of DC loads.

Multi-interfaces

COUNTIS P43-DC meters are equipped with:

- A pulse output, enabling energy consumption information to be sent in the form of pulses.
- An RS485 (MODBUS RTU) communication output, which enables all meter data to be read remotely via the communication protocol.

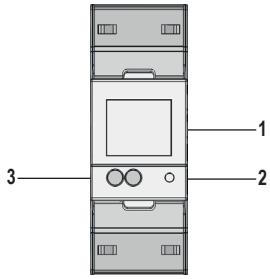
Complete ecosystem for easy integration

COUNTIS P43-DC meters are natively compatible with the WEBVIEW energy monitoring software. Thanks to the automatic detection of the meters for quick configuration, this software is very easy to use. It is accessible via a DIRIS Digiware M-70 or D-70 gateway.

Wide temperature range

Wide operating temperature range from -40 to +70°C.

Front panel

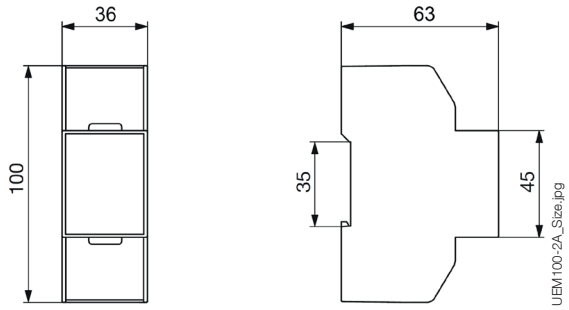


1.Backlit LCD display
2.Metrological LED
3.Buttons

Electrical characteristics

Current measurement (TRMS)	
Type	Direct current (DC)
Max. consumption	5 VA
Current measurement	via 100 mV shunts from 1 to 4000A
Voltage measurement (TRMS)	
Overvoltage category	300V CAT III - UC1 in accordance with IEC 61010-1
AC voltage (Un)	230 V, Overvoltage category III
Voltage range	5 - 1000 VDC
Transient overvoltage withstand	4.4 kV 1 minute, 6.4kV 1.2/50 µs waveform
Measurement accuracy	
U,V / I / F / P,Q,S / PF	0.5% / 1% / 0.2% / 1% / 1% in accordance with IEC61557-12
Active energy	Class 1 in accordance with IEC 62053-41
Power supply	
Auxiliary power supply	9 - 60 VDC
Max. consumption	5 VA
Pulse output	
Number	1
Type of optocoupler	5-27 VDC - 27 mA max.
Pulse duration	60 / 100 / 200 ms
Pulse output	Configurable: 0.01 / 1 kWh per pulse
Environment	
Operating temperature	-40 to +70°C
Ambient storage temperature	-40 to +75°C
Relative humidity	0 to 95%, condensation-free
Communication	**P43-DC**
Link	RS485
Type	2-wire half duplex
Protocol	Modbus RTU
Speed	2.4 / 4.8 / 9.6 / 19.2 kbps

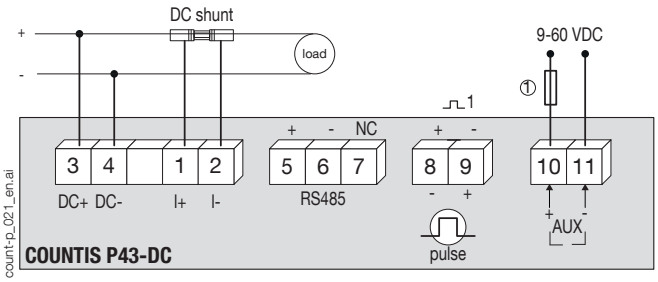
Dimensions (mm)



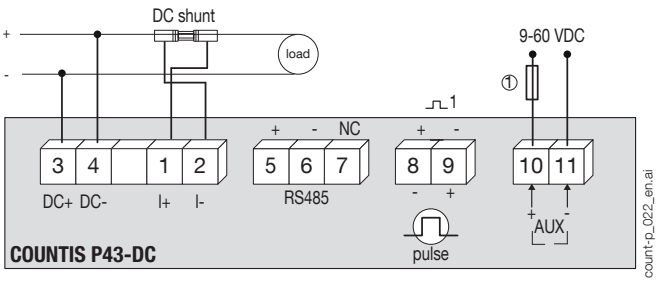
Type	modular
Number of modules	2
Front degree of protection	IP 51
Case degree of protection	IP20
Dimensions W x H x D	36 x 100 x 63 mm
Display type	Backlit LCD display
Connection cross-section and torque for measuring terminals (A & V)	0.5…2.5 mm² / 0.2 Nm
Connection cross-section and torque for terminals S0, COM, tariff input	0.5…1.5 mm² / 0.2 Nm

Connections

Shunt positive connection:



Shunt negative connection:



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

References

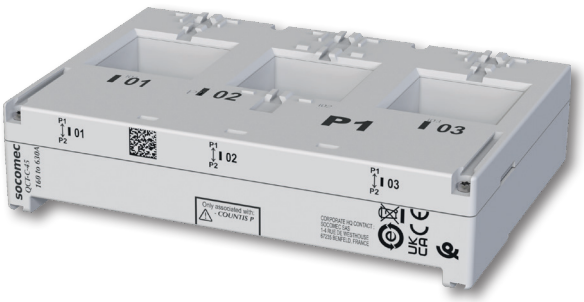
COUNTIS P43-DC		
P43-DC (1)	Indirect via 100 mV shunts – 1 pulse output + MODBUS RS485 communication	4850 **6000**

(1) Available soon. Contact us for more information.

QCT-C-xx

QuickConnect three-phase CTs combined with COUNTIS P44-xQCT meters

from 5 to 1000 A



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The solution for

- Energy
- Industry
- Buildings

Strong points

- Easy installation in any type of cabinet
- Overall accuracy class 0.5
- Record wiring time
- High-level performance

Conformity to standards

- IEC 61557-12
- IEC 61869

Associated products

COUNTIS P44-xQCT

Function

QCT-C-xx three-phase current transformers measure the load currents of an electrical system and send the data to meters via an RJ12 output. With a wide measuring range, QCT-C-xx three-phase current transformers cover the entire current range from 5 to 1000 A with just 4 references. They are combined with COUNTIS P44-xQCT meters.

Thanks to a complete range of accessories, they can be installed in any type of cabinet.

Advantages

Easy installation in any type of cabinet

- Pitch mounting, on bar or DIN rail. Entirely compatible with the pitch of protection devices.
- Mounting accessories supplied.

Overall accuracy class 0.5

- Class 0.5 for the overall measurement chain (energy meter + QCT-C-xx three-phase current transformers) from 2 to 120% of nominal current In.
- Conformity to standard IEC 61557-12.

Record wiring time

- Quick connection via RJ12 cable for easy, error-free connection.
- Sensors can be mounted in either direction.

High-level performance

- Made in Europe.
- Only 4 references to measure all loads up to 1000 A, thanks to accuracy over the whole measurement range.

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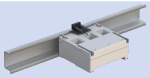
QuickConnect three-phase CTs combined with COUNTIS P44-xQCT meters
from 5 to 1000 A

Mounting

In-line mounting at circuit breaker pitch(1)

DIN rail mounted

QCT-C-45 /QCT-C-55



QCT-C-25 /QCT-C-35

Cable mounting

Back-plate mounting

Bar mounting

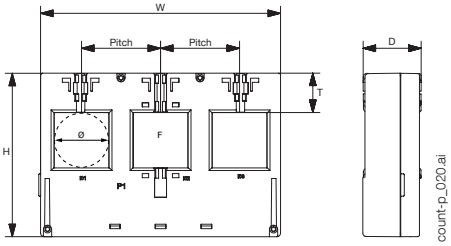
1. Accessory sold separately (ref. 4829 0598)

Mounting accessories

Mounting accessories supplied with QCT-C-xx three-phase current transformers.

Mounting accessories provided		QCT-C-25	QCT-C-35	QCT-C-45	QCT-C-55
	Back-plate	4 pcs	4 pcs	4 pcs	4 pcs
	DIN rail	2 pcs	2 pcs	4 pcs	4 pcs
	Bar	-	2 pcs	2 pcs	2 pcs

Dimensions (mm)



Model	Pitch (mm)	H x W x D (mm)	T (mm)	ØF (mm)
QCT-C-25	24.8	71 X 75 X 32.8	17.5	13.5
QCT-C-35	35	78 x 105 x 32.8	17.5	21
QCT-C-45	45	92 x 135 x 32.8	19.5	31
QCT-C-55	55	106 x 165 x 32.8	21.5	41

Electrical characteristics

Model	QCT-C-25	QCT-C-35	QCT-C-45	QCT-C-55
Nominal current range In (A)	40 … 160	63 … 250	160 … 630	400 … 1000
Actual coverage range (A)	0.8 … 192	1.26 … 300	3.2 … 756	8 … 1200
Max. current (A)	192	300	756	1200
Weight (g)	150	200	350	500
Max. voltage (phase/neutral)	600 V			
Rated withstand voltage	3.6 kV / 1min			
Frequency	50/60 Hz			
Intermittent overload	10 x In over 1 sec			
Measurement category	CAT III			
Ingress Protection rating	IP30 / IK06			
Operating temperature	-10 ... +70 °C			
Ambient storage temperature	-25 … +85°C			
Relative humidity	95% RH condensation-free			
Altitude	< 2000 m			
Connection	Socomec RJ12 cable			

References

Three-phase current transformers	Reference
QCT-C-25	194S **0425**
QCT-C-35	194S **0435**
QCT-C-45	194S **0445**
QCT-C-55	194S **0455**

Accessories	Reference
Coupling link (20 linear assembly parts)	4829 **0598**

RJ12 connection cables	Cable length (m)										
	0.1	0.2	0.3	0.5	1	2	3	5	7	10	50 m reel + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	4829 **0611**	4829 **0612**	4829 **0613**	4829 **0602**	-	4829 **0603**	4829 **0601**
3	4829 **0580**	4829 **0581**	4829 **0582**	4829 **0595**	4829 **0583**	4829 **0584**	4829 **0606**	4829 **0607**	4829 **0608**	4829 **0609**	-
4	-	-	-	4829 **0596**	4829 **0588**	4829 **0589**	-	-	-	-	-
6	4829 **0590**	4829 **0591**	4829 **0592**	4829 **0597**	4829 **0593**	4829 **0594**	-	-	-	-	-

MULTIS L50

Digital panel meter

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

MULTIS L50

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

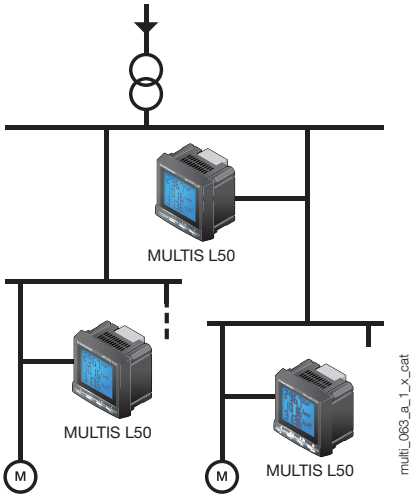
Conformity to standards

- 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.

Principle diagram



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.

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(1)
RS485 with MODBUS protocol

Output
- Remote command of device
- Pulse report

Inputs
- Remote status device

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

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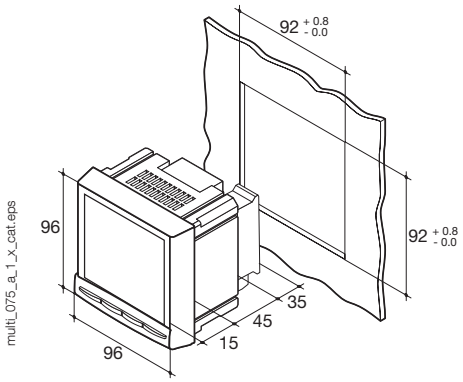
Front panel

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^2
Current connection cross-section	0.5 … 6 mm^2
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)

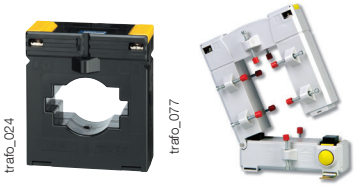
3 inputs, 1 output

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

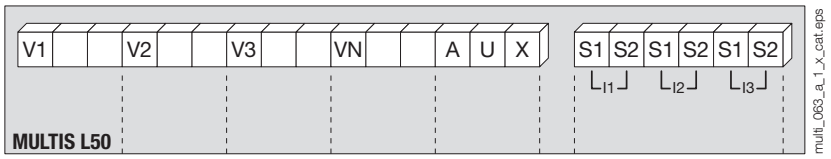
three-phases - via CT up to 6000 A dimensions 96 x 96 mm

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_n 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	≤ 10^8
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 %

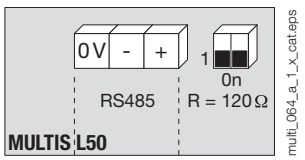
Terminals



S1 - S2: current inputs.

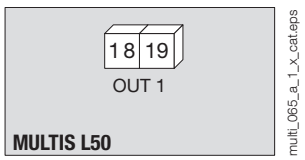
AUX: auxiliary power supply U_s.
V1, V2, V3 & VN: voltage inputs.

Communication module



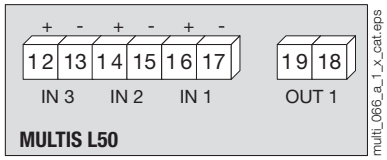
RS485 link.
R = 120 Ω: selectable internal resistance for RS485 end of line termination.

Output or alarm module



18 - 19: output n°1

3 inputs, 1 output module



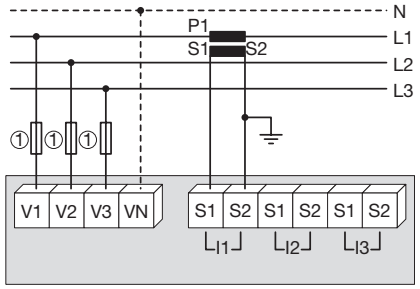
Connection

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.

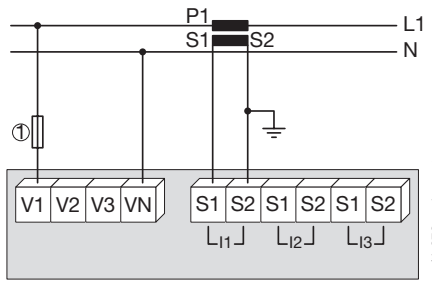
Low voltage balanced network

3/4 wires with 1 CT



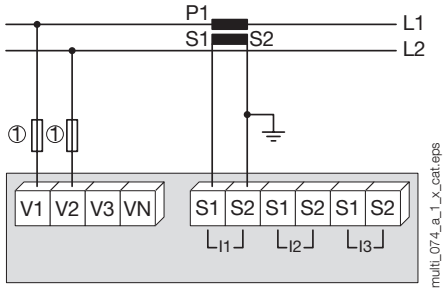
Use of 1 CT reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.
1. Fuses 0.5 A gG / 0.5 A class CC.

Single-phase



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

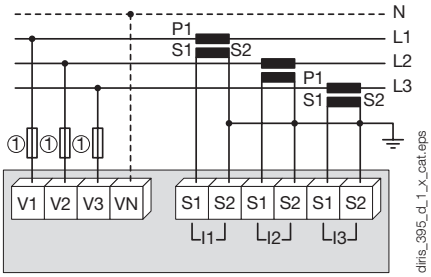
Two-phase



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

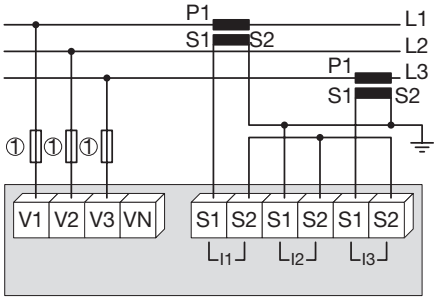
Low voltage unbalanced network

3/4 wires with 3 CTs



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

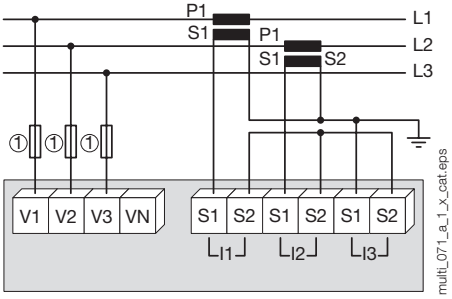
3 wires with 2 CTs



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

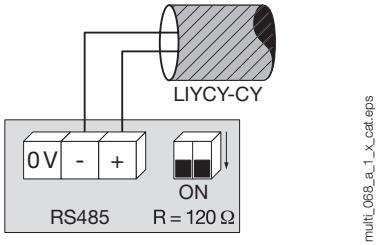


Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

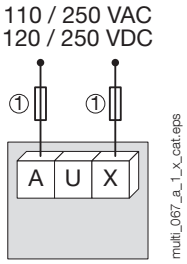
1. Fuses 0.5 A gG / 0.5 A class CC.

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 Reference
MULTIS L50		192J **9120**
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

Which application? ▶ Which functions?

					
		DIRIS A-10 *p. 396*	**DIRIS A-14 DIN** *p. 400*	**DIRIS A-14 96 x 96** *p. 400*	
	Functions	**CURRENT TRANSFORMERS**			
General characteristics	Remote display				
	Number of loads	1	1	1	
	Mounting	DIN	DIN or 96*96	DIN or 96*96	
	Power supply	AC	AC	AC	
	All In One	•	•	•	
	Optional modules				
	Ethernet (Modbus TCP / Bacnet IP)	o / -	o / -	o / -	
	RS485 (Modbus / Bacnet MSTP)	• / -	• / -	• / -	
	LoRaWAN				
	Profibus DPV1				
	Webserver / File export	o / -	o / o	o / o	
	Max. number of inputs (digital / analogue)	1 / -			
	Max. number of outputs (digital / analogue)	1 / -			
Manage energy consumptions	4-quadrant energy metering	•	•	•	
	Load curves (local memory)		•	•	
	Rebilling of energy (MID approved)		•	•	
	Multi-tariff management	2	4	4	
Monitor the electrical installation	Instantaneous, average, min and max values	•	•	•	
	Voltage unbalance measurement				
	Neutral current (measured / calculated)	- / •	- / •	- / •	
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?

									
	DIRIS A-20 *p. 404*	**DIRIS A-30/A-41** *p. 408*	**DIRIS A-60** *Consult us*	**DIRIS B-10** *p. 418*	**DIRIS B-10L** *p. 426*	**DIRIS B-30** *p. 418*	**DIRIS A-40** Modbus *p. 414*	**DIRIS A-40** Modbus + Profibus *p. 414*	**DIRIS A-40** Modbus + Ethernet *p. 414*
	CURRENT TRANSFORMERS			**SMART SENSORS**					
				•	•	•			
	1	1	1	1 to 4	1 to 4	1 to 4	1		
	96 x 96	96 x 96	96 x 96	DIN	DIN	DIN	96 x 96		
	AC	AC/DC	AC/DC	AC	AC	AC	AC/DC		
							•		
	•	•	•	•	•	•			
	o/-	o/-	o/-	•/o		•/o	-/-	-/-	•/•
	•/-	•/-	o/-	•/o		•/o	•/-	•/-	•/-
					•				
		o		o		o	-	•	-
	o/o	Via DIRIS G		o/o		o/o	o/o	o/o	•/•
	3/-	6/4	6/4	2/2			3/-		
	1/-	6/4	6/4	2/2			2/-		
	•	•	•	•	•	•	•		
		o	•			•	•		
				8		8	4		
	•	•	•	•	•	•	•		
		•	•	•	•	•	•		
	-/•	• (with A-41)	•	•/•	•/•	•/•	-/•		
	•/-	•/•	•/•	•/-	•/•	•/•	•/•		
			•			•	•		
			•			•	•		
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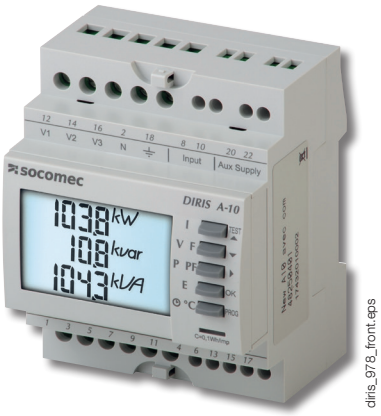
	•	•	•	•		•	•		
	•/-	•/-	•/-	•/-	•/•	•/•	•/•		
	•	•	•	•	•	•	•		
		•	•		•	•	•		

DIRIS A-10

Multifunction meters - PMD

measuring and monitoring - modular format



diris_978_front.eps

DIRIS A-10

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

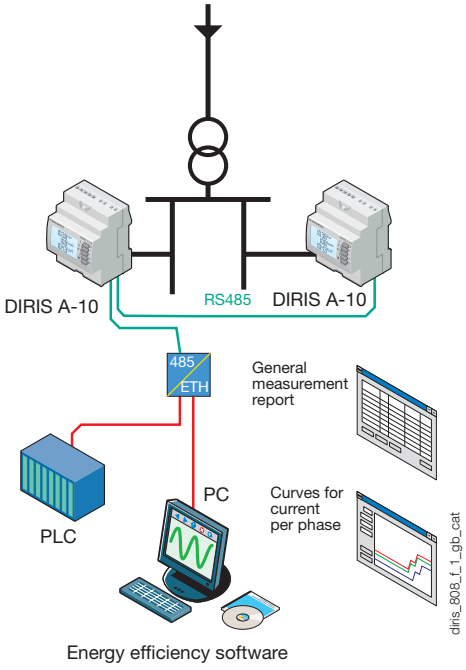
An integrated test function can be utilised to detect incorrect wiring and to automatically correct CT installation errors.

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



diris_808_f_1_gb_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
- 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(1)

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).

The solution for

- Industry
- Infrastructures
- Tertiary

Strong points

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

Conformity to standards

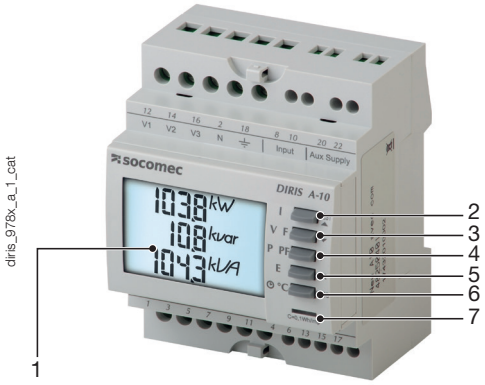
- IEC 61557-12
- IEC 62053-22 class 0.5S
- IEC 62053-23 class 2
- UL

Associated with current transformers

See "Current transformers".

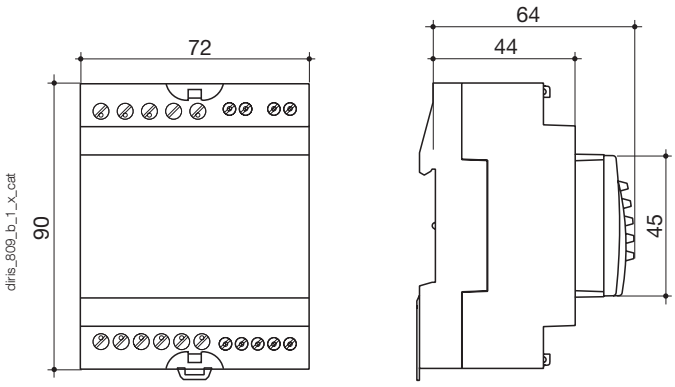
socomec Innovative Power Solutions

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^2
Connection cross-section for AUX supply, input, output and comms.	2.5 mm^2
Weight	205 g (4825 0010) - 215 g (4825 0011)

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_n 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	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 %

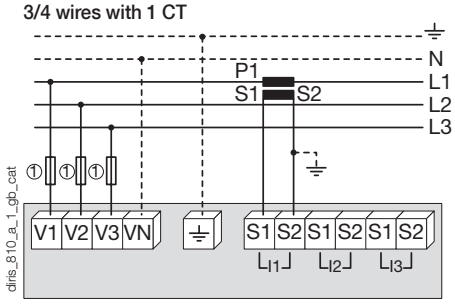
Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Auxiliary power supply	
Voltage	110 ...277 VAC / 120 ... 300 VDC
AC tolerance	± 15 %
Frequency	50 / 60 Hz
Consumption	< 3 VA
Digital output (pulses)	
Number	1
Optocoupler type (IEC 62053-31)	Class A and B (10 ... 30 VDC, 27mA)
Input (tariff)	
Number	1
Type	0 VAC: T1 / 200-277 VAC: T2
Communication	
Link	RS485
Type	2 … 3 half duplex wires
Protocol	MODBUS RTU
MODBUS® speed	2400 … 38400 bauds
Operating conditions	
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.

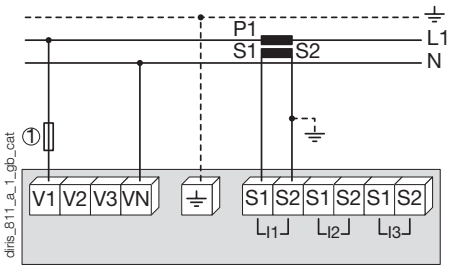
Low voltage balanced network

3/4 wires with 1 CT



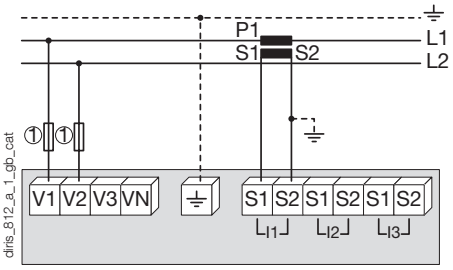
1. Fuses 0.5 A gG / 0.5 A class CC.

Single-phase



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

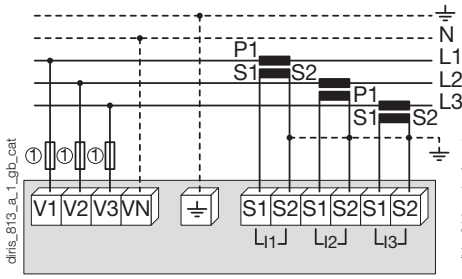
Two-phase



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

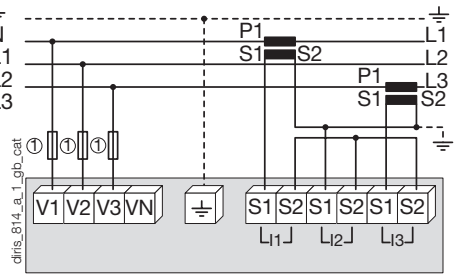
Low voltage unbalanced network

3/4 wires with 3 CTs



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

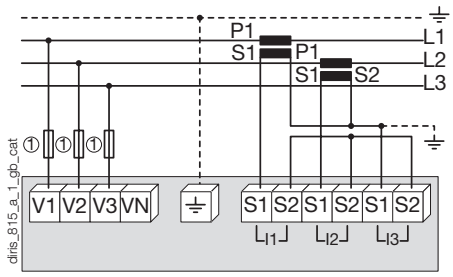
3 wires with 2 CTs



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

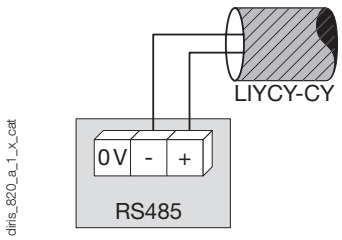


Use of 2 CTs reduces by 0.5% the accuracy of the phases, the current of which is worked out by vector calculation.

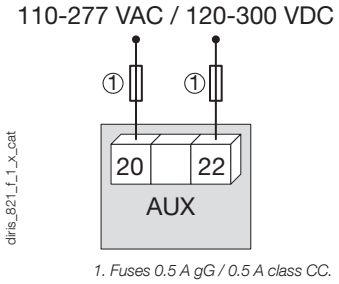
1. Fuses 0.5 A gG / 0.5 A class CC.

Additional information

Communication via RS485 link

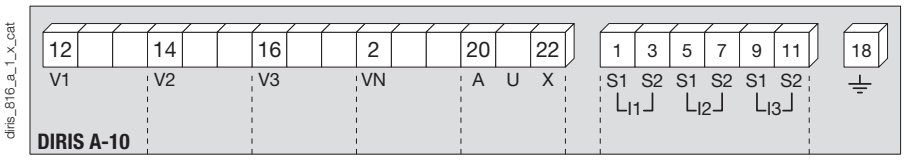


AC auxiliary power supply



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

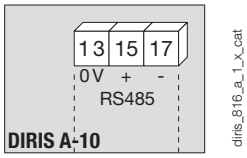
Terminals



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

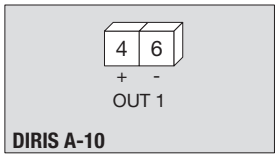
S1 - S2: current inputs.

Communication terminals



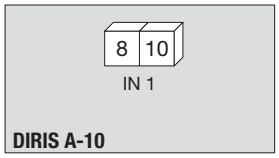
RS485 link.

Pulse or alarm output terminals



4 - 6: output n°1

Input terminals



8 - 10: input n°1

References

Basic device **Description**		**DIRIS A-10** **Reference**
DIRIS A-10		4825 **0400**
DIRIS A-10 with RS485 MODBUS communication		4825 **0401**
Accessories	**To be ordered in multiples of**	**Reference**
Fuse disconnect switches for the protection of voltage inputs (type RM) 3 poles	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 A14

PMD - MID multifunction measuring unit

measuring and monitoring - modular format

DIRIS A14 panel mounted

DIRIS A14 DIN rail mounted

The solution for

- Industry
- Infrastructures
- Data centers

Strong points

- Single-phase and three-phases MID certified
- Bi-directional metering
- Multi-measurement and load curves
- IEC 61557-12 measuring method
- Detection of connection errors

Compliance with standards

- IEC 61557-12
- IEC 62053-23 class 2
- EN50470-1
- EN50470-3 class C

Associated with current transformers

See "Current transformers".

Function

The **DIRIS A14** is an MID approved multifunction meter - for measuring electrical values in low voltage networks.

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

Advantages

Single-phase and three-phases MID certified

DIRIS A14 products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary, whether on a three-phase or single-phase network. "Module B+D" certification guarantees that the design and manufacturing process of products are approved by an accredited laboratory.

Bi-directional metering (four quadrants)

This function is for metering energy production or energy consumption.

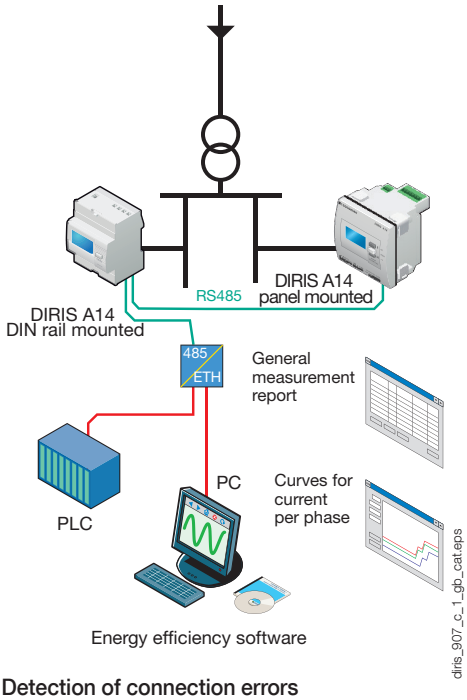
Multi-measurement and load curve

Display of electrical values (I, U, V, ΣP, ΣQ, ΣS, PF) and P+ load curve over a 7 day period via communication.

IEC 61557-12 measuring method

IEC 61557-12 is a high-level standard covering all PMDs (Performance Monitoring Devices). By using the measuring method of IEC 61557-12 ensures a high level of equipment performance, in terms of metrology.

Functional diagram



Detection of connection errors

The product is protected against phase/neutral inversion and detects wiring errors. The power supply internally derived from the voltage connections ensures realtime MID counting as soon as the mains voltage is present.

Functions

Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Frequency
- Voltages
  - instantaneous: V1, V2, V3, U12, U23, U31, F
- Powers
  - instantaneous: ΣP, ΣQ, ΣS
  - maximum average: ΣP, ΣQ, ΣS
- Power factor (cos φ)
  - instantaneous: Σ cos φ
  - maximum average: Σ cos φ

Total and partial metering

- Active energy: + kWh, - kWh
- Reactive energy: + kvarh, - kvarh

Harmonic analysis (via communication)

- Total harmonic distortion (rank 63)
  - 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

Multi tariff function (via communication)

- Selection of one out of 4 billing tariffs

Events (via communication)

- Active energy consumption: day n-1 / week n-1 / month n-1
- Active power load curves: P 10 minutes over 7 days with time-log

Communications

- RS485 with MODBUS protocol

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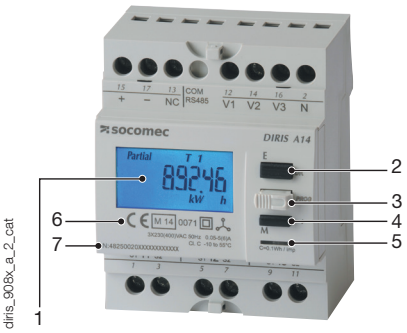
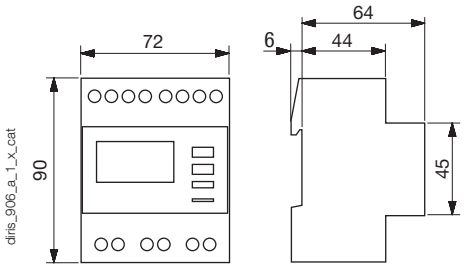
Front panel



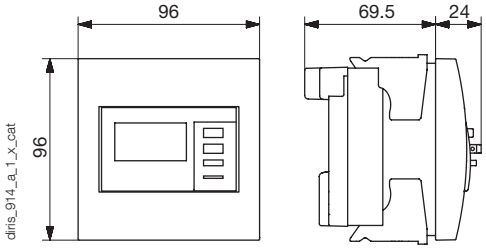
1. Backlit LCD display
2. Direct access for energies and validation key
3. Programming key
4. Navigation key for measurements
5. Metrological LED
6. MID marking
7. Serial Number

Case

DIRIS A14 DIN rail mounted



DIRIS A14 door mounted



	DIRIS A14 DIN rail mounted	DIRIS A14 door mounted
Type	modular	Recessed
Number of modules	4	-
Dimensions W x H x D	72 x 90 x 64 mm	96 x 96 x 69.5 mm
Case degree of protection	IP20	
Front degree of protection	IP51	
Display type	Backlit LCD	
Rigid cable cross-section	1.5 … 10 mm²	
Flexible cable cross-section	1 … 6 mm²	
Weight	240 g	450 g

Electrical characteristics

Current measurement (TRMS)	
Via CT primary	10 … 2500 A
Via CT secondary	5 A
Input consumption	0.6 VA
Startup current (Ist)	5 mA
Minimum current (Imin)	50 mA
Transmission current (Itr)	250 mA
Reference current (Iref)	5 A
Measurement updating period	1 s
Accuracy	0.5%
Permanent overload	6 A
Intermittent overload	120 A for 0.5 s
Voltage measurements (TRMS)	
Direct measurement (four phases)	50 …460 VAC
Input consumption	2 VA
Measurement updating period	1 s
Accuracy	0.2%
Permanent overload	480 V (phase-to-phase measurement)
Power measurement	
Measurement updating period	1 s
Accuracy	0.5%
Power factor measurement (cos φ)	
Measurement updating period	1 s
Accuracy	0.01

Energy accuracy	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
Active (according to EN 50470)	Class C
Metrological LED (EA^+,EA^-)	
Pulse weight	10000 pulses/kWh
Colour	Red
Auxiliary power supply	
Self-powered	Yes
Frequency	50 / 60 Hz
Communication	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® RTU
MODBUS® speed	4800 … 38400 bauds
Operating conditions	
Operating temperature	-10 … +55°C
Storage temperature	-20 … +70°C
Relative humidity	95% non-condensing

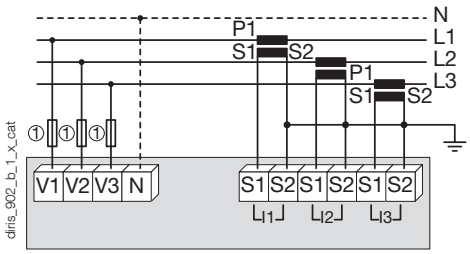
Connection

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.

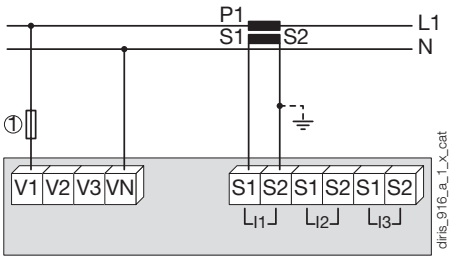
Low voltage unbalanced network

3/4 wires with 3 CTs



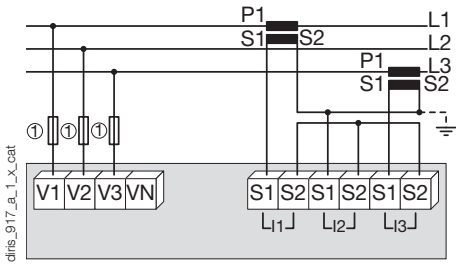
1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase



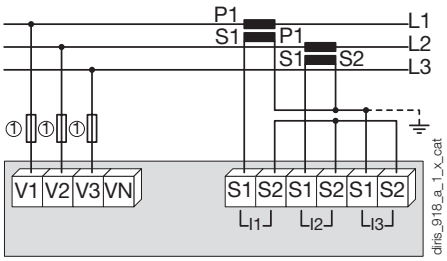
1. 0.5 A gG / 0.5 A class CC fuses.

3 wires with 2 CTs



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

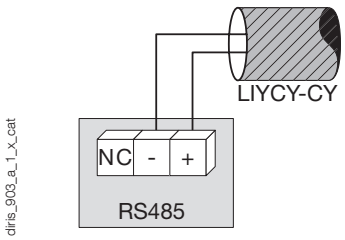
3 wires with 2 CTs



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

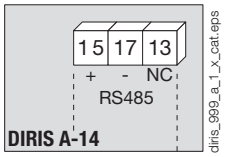
Additional information

Communication via RS485 link

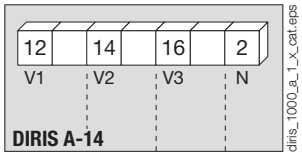


Terminals

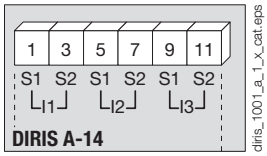
Communication Module



RS485 link.



V1, V2, V3 & N : voltage inputs.



S1 - S2 : current inputs.

References

Basic device **Description**		**DIRIS A14** **Reference**
DIRIS A14 MID DIN rail mounted		4825 **0020**
DIRIS A14 MID door mounted		4825 **0021**
Accessories	**To be ordered in multiples of**	**Reference**
Fuse disconnect switches for the protection of voltage inputs (type RM)	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 type	10	6012 **0000**
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

diris_981_front.eps

DIRIS A-20

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

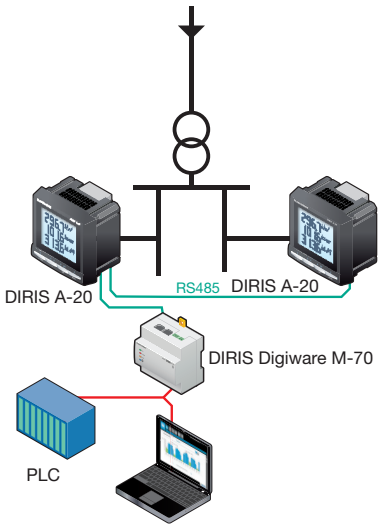
- To use Socomec PMDs effectively, we can offer you several dedicated software tools.
  See “Easy Config System” pages.

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.

Functional diagram



DIRIS_576_i_1_en_cat

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.

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 (1)

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).

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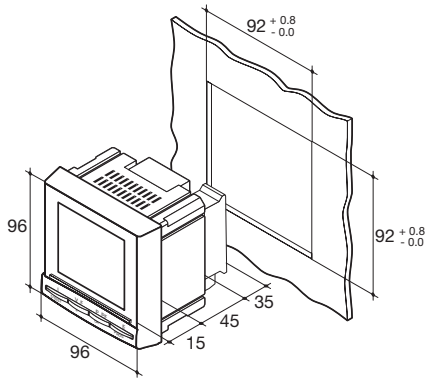
Front panel

DIRIS_981x_b_1_cat

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



DIRIS_577_e_1_x_cat

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^2
Section for connection of currents	0.5 … 6 mm^2
Weight	400 g

Plug-in optional modules

DIRIS® A-20

DIRIS_773_a_1_cat

diris_445_

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

diris_447

Communication

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

diris_449

3 inputs , 1 output

3 inputs can be configured into:
- Information report from an external contact.

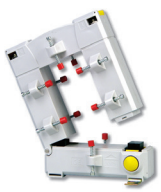
1 output that can be configured for:
- pulses: configurable (type, weight, duration) to kWh or kVarh.
- Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
- Equipment control

Accessories

Current transformer

See “Current transformers” pages.

trafo_024



trafo_077

IP65 protection

DIRIS_720

DIRIS A-20

Multifunction measuring unit - PMD

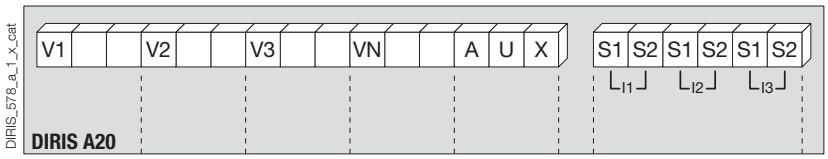
measurement and monitoring - door mounting

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_n 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	≤ 10^8
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%

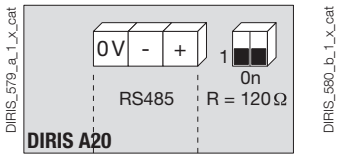
Terminals



S1 - S2: current inputs.

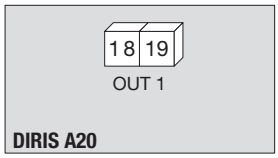
AUX: auxiliary power supply U_s.
V1, V2, V3 & VN: voltage inputs.

Module communication



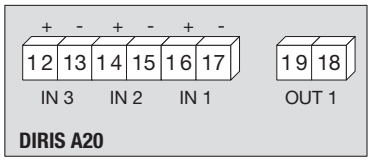
RS485 link.
R = 120 Ω : internal resistance for the RS485 link.

Output or alarm module



18 - 19: output n°1

Module with 3 inputs, 1 output



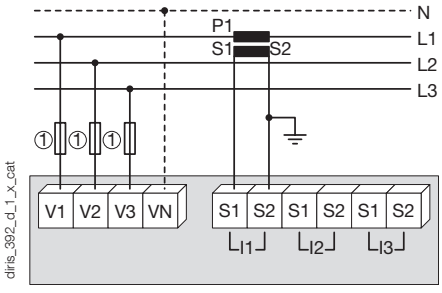
Connection

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.

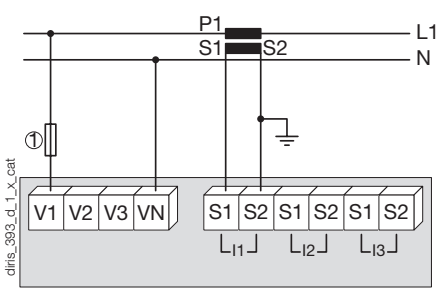
3/4 wires with 1 CT



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

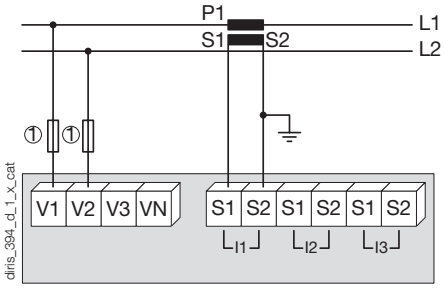
1. 0.5 A gG / 0.5 A class CC fuses.

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.

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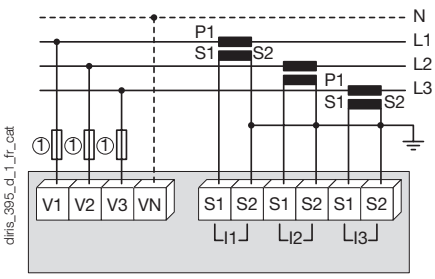
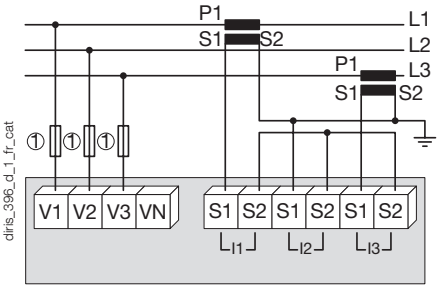
Low voltage unbalanced network

3/4 wires with 3 CTs



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

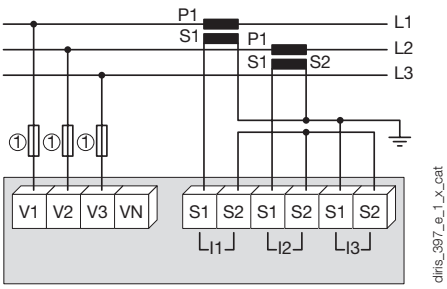
3 wires with 2 CTs



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

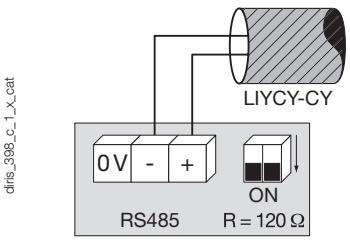


The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

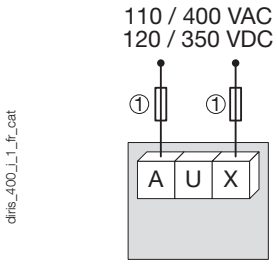
1. 0.5 A gG / 0.5 A class CC fuses.

Additional information

Communication via RS485 link



AC and DC auxiliary power supply



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

References

Basic device **Auxiliary power supply U_s**		**DIRIS A-20** **Reference**
110 … 400 VAC / 120 … 350 VDC		4825 **0402**
Options **Plug-in modules**		 **Reference**
On/Off output.		4825 **0080**
RS485 MODBUS® communication		4825 **0082**
3 inputs, 1 output		4825 **0083**
Accessoires	**To be ordered in multiples of**	**Reference**
Protection IP65	1	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)	4	5601 **0018**
1-pole + neutral fuse disconnect switches to protect the auxiliary supply (RM type)	6	5601 **0017**
gG 10x38 0.5 A fuses	10	6012 **0000**
Ferrite for use with communication modules	1	4899 **0011**
Current transformer range	1	See “Current transformers” pages
Software associated with DIRIS	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-30/A-41

Multifunction measuring unit - PMD

measurement and advanced monitoring - door mounting

diris_984_front.eps

DIRIS A-30

diris_956.psd

DIRIS A-41

The solution for

- Healthcare
- Energy
- Industry

Strong points

- Easy to use
- Detects wiring errors
- Customisable
- Compliant with IEC 61557-12

Conformité aux normes

- IEC 61557-12
- IEC 62053-22 Class 0.5 S
- IEC 62053-23 Class 2
- UL

Compatible with

- **Current sensors and transducer:**

***RGW** sensors & **RAC-1A** integrator*

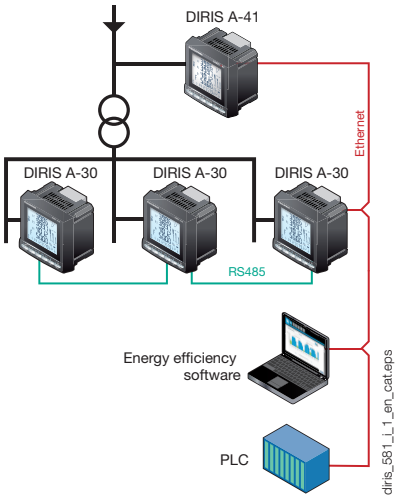
RGW flexible current sensors with RAC 1A integrator: up to 5000A, choice of 6 diameters, ideal for existing installations.

Function

The **DIRIS A-30** and **A-41** are power monitoring device that provides 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.

Functional diagram



diris_581_I_1_en_cat.eps

Advantages

Easy to use

With its large backlit multiple-display screen with 6 hot keys, the DIRIS A-30 and A-41 are easy to use.

Detects wiring errors

The DIRIS A-30 and A-41 are provided with a correction function for CT wiring errors.

Customisable

The DIRIS A-30 and A-41 can be equipped with additional modules that give the user flexibility throughout the service life ofthe product. Communication modules and additional digital or analogue inputs/outputs can be used to increase its range of functionality.

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 service 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 (1)
  - 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 (1)

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

Events (1)

- Alarms on all electrical parameters.

Communications (1)

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

Inputs/ Outputs (1)

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

Analogue output

- Analogue 0/4- 20 mA

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

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Front panel

diris_984x_b_1_cat

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_773_a

DIRIS® A-41*

diris_774_a

** With current measurement module for Neutral as standard.*

diris_445_a_1_cat

Pulse outputs

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

diris_447_a_1_cat

MODBUS® communication

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

diris_775_a_1_cat

PROFIBUS® DP communication

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

diris_448_a_1_cat

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, ±ΣP, ±ΣQ, ΣS, ΣPFL/C, Isys, Vsys, Usys, Ppred, Qpred, Spred, T°C internal, T°C 1, T°C 2, T°C3 and to 30 VDC power supply.

diris_449_a_1_cat

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, ±ΣP, ±ΣQ, ΣS, ΣPFL/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.

diris_682_a_1_cat

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, ΣP±, ΣQ±, ΣS, 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).

diris_777_a_1_cat

Ethernet communication

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

diris_776_a_1_cat

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

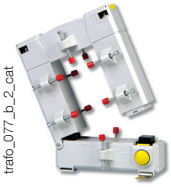
Accessories

Current transformer

See “Current transformers” pages.

trafo_024_a_2_cat

trafo_077_b_2_cat



Rogowski sensors

rac_003.eps

rac_001.eps

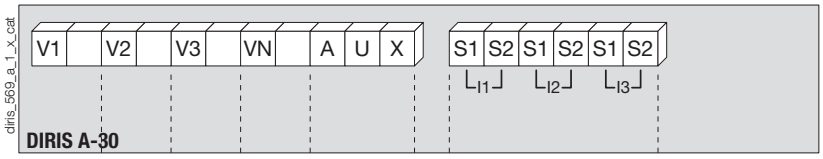
IP65 protection

diris_720_a_2_cat

Terminals

DIRIS A-30

diris_569_a_1_x_cat



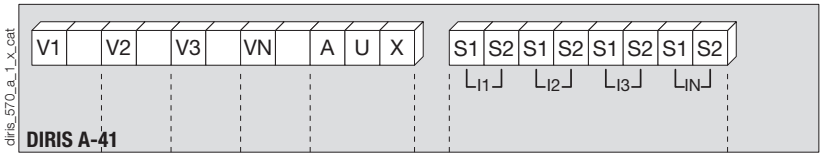
S1 - S2: current inputs

AUX: auxiliary power supplies U_s

V1 - V2 - V3 - VN: voltage inputs

DIRIS A-41

diris_570_a_1_x_cat



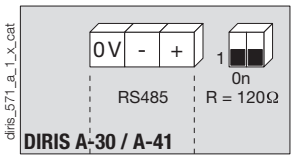
S1 - S2: current inputs

AUX: auxiliary power supplies U_s

V1 - V2 - V3 - VN: voltage inputs

Communication module

diris_571_a_1_x_cat

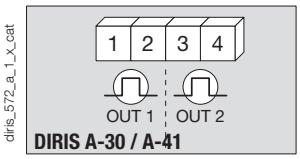


RS485 link.

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

Pulse output module

diris_572_a_1_x_cat

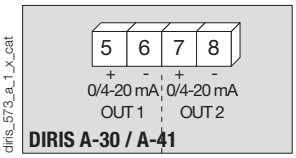


1 - 2: pulse output n°1.

3 - 4: relay output n°2.

Analogue output module

diris_573_a_1_x_cat

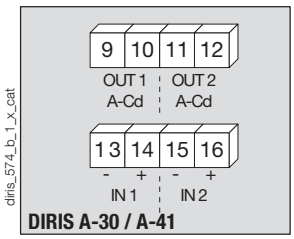


5 - 6: analogue output n°1.

7 - 8: analogue output n°2.

2 input / 2 output module

diris_574_b_1_x_cat



9 - 10: relay output n°1.

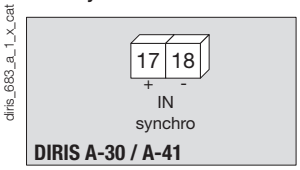
11 - 12: relay output n°2.

13 - 14: optical input n°1.

15 - 16: optical input n°2.

Memory module

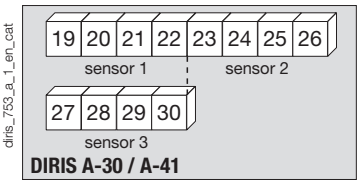
diris_683_a_1_x_cat



17 - 18: synchronisation input.

Temperature module

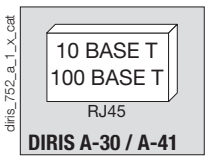
diris_753_a_1_en_cat



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

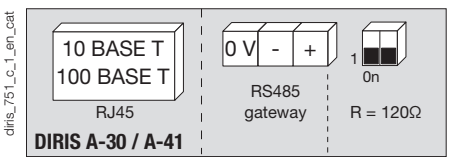
Ethernet module

diris_752_a_1_x_cat



Ethernet module + RS485 MODBUS gateway

diris_751_c_1_en_cat



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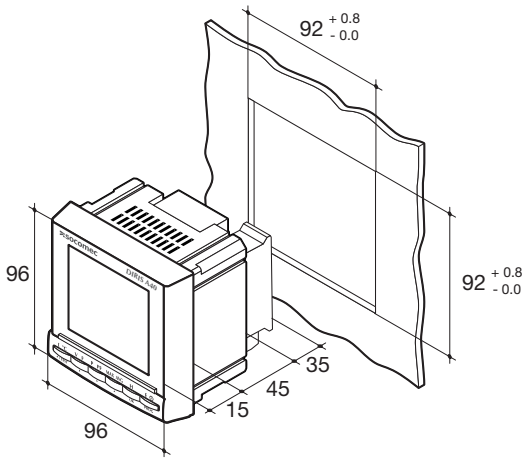
Electrical characteristics

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_n 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(1)
Type	250 VAC - 5 A - 1150 VA
Module 2 inputs - 2 outputs: optical coupler inputs	
Number	2(1)
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	≤ 10^8
Analogue output module	
Number of outputs	2(2)
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



diris_582_f_1_x_cat

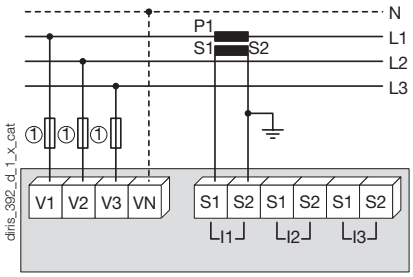
Type	Panel mounting
Dimensions W x H x D	96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	Backlit LCD display
Type of terminal strips	Fixed or detachable
Section of connection for voltages and other terminals	0,2 … 2.5 mm^2
Section of connection for currents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

Connections

Balanced low-voltage network for DIRIS A-30

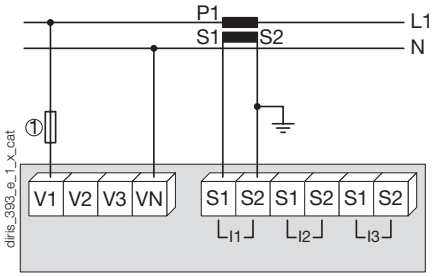
Recommendation: When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us.
In TNC mode, it is advisable to connect the DIRIS A-30/A-41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

3/4 wires with 1 CT



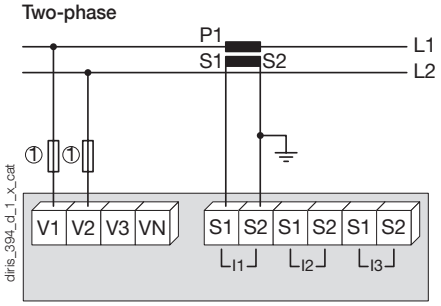
The use of 1 TC reduces by 0.5% the accuracy of the phases, the current for which is worked out by vector calculation.
1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase



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

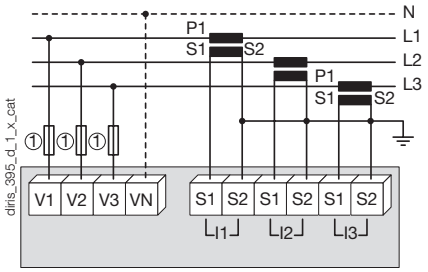
Two-phase



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

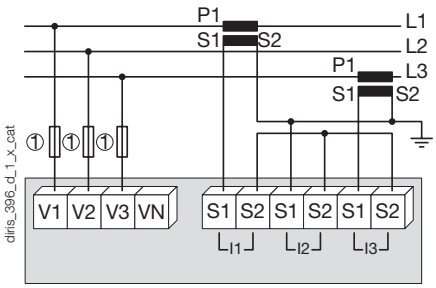
Balanced low-voltage network for DIRIS A-30

3/4 wires with 3 CTs



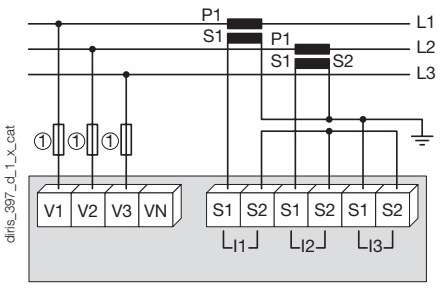
1. 0.5 A gG / 0.5 A class CC fuses.

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.

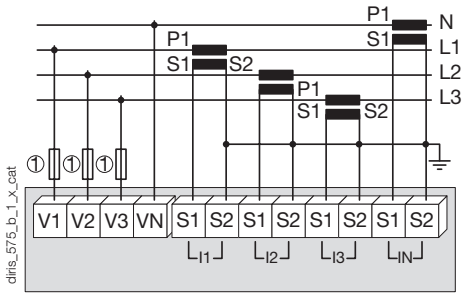
3 wires with 2 CTs



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

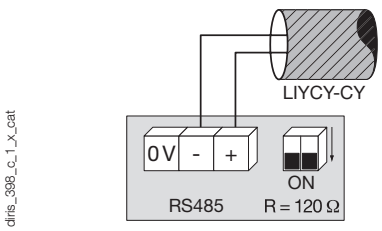
4 wires with 4 CTs



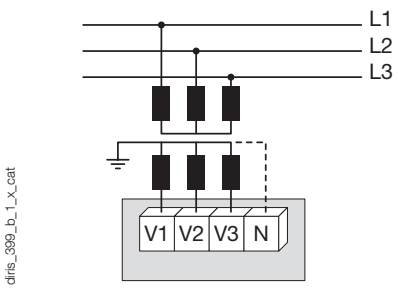
1. 0.5 A gG / 0.5 A class CC fuses.

Additional information

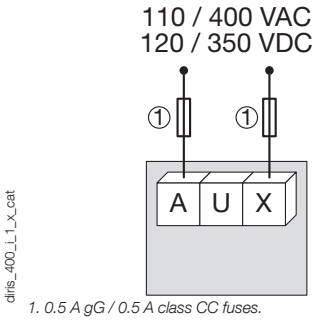
Communication via RS485 link



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 Auxiliary power supply U_s	DIRIS A-30 Reference		DIRIS A-41 With CT on the neutral Reference
110 ... 400 VAC / 120 ... 350 VDC	4825 **0403**		4825 **0404**
12 ... 48 VDC	4825 **0405**		4825 **0406**

Options Plug-in modules[1]	Reference		Reference
Pulse outputs	4825 **0090**		4825 **0090**
RS485 MODBUS® communication	4825 **0092**		4825 **0092**
PROFIBUS® 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[2]	4825 **0203**		4825 **0203**
Ethernet communication + RS485 gateway[2]	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 in multiples of	Reference	To be ordered 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 transformers” pages	1	See “Current 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

SERVICES EXPERTS

To constantly ensure a functional, accurate and reliable energy monitoring system, Socomec offers a wide range of services:

- Integration of units
- System audits
- Start-up
- Staff training

What’s more, ideal for ISO 50001 sites (regular checks):

- Verification of 3% measurement consistency
- Verification of 0.2% measurement precision

To find out more, ask your Socomec representative.

DIRIS A-40

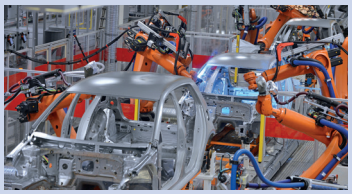
Multifunction measuring unit - PMD

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

DIRIS A-40

The solution for

- Industry
- Building
- Infrastructure



Strong points

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

Integrated technologies

PreciSense AutoCorrect VirtualMonitor

For more information see our website www.socomec.com

Conformity to standards

- IEC 61557-12
- UL E257746
- EN 50160

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.

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.

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.

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.

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

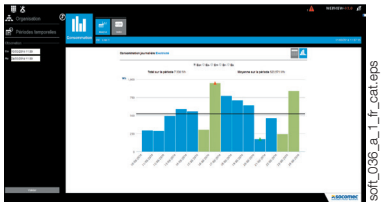
Functions

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.


soft_027_a_1_fr_cat.eps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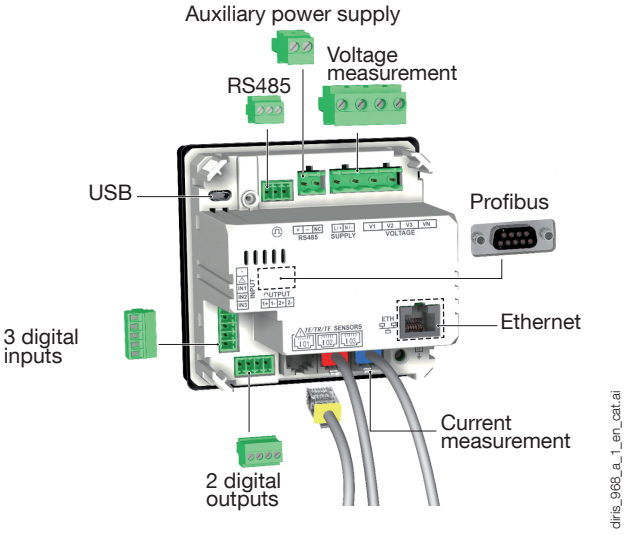
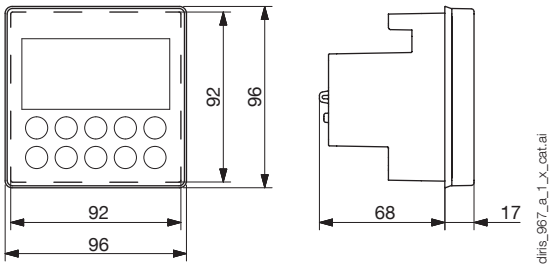
soft_025_a_1_fr_cat.eps

Terminals



diris_968_a_1_en_cat.ai

Dimensions (mm)



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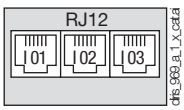
Current measurement



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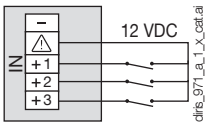
3 inputs supplied by the product



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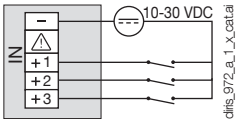
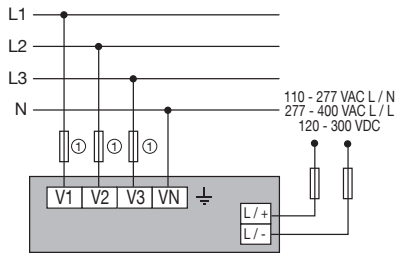
3 inputs with external power supply



diris_972_a_1_x_cat.ai

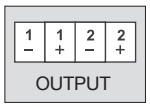
Voltage connections inc auxiliary power supply



diris_977_a.ai

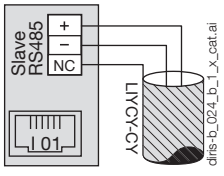
1. 0.5 A gG / 0.5 A class CC fuses.

2 outputs



Earth

RS485



diris-b_024_b_1_x_cat.ai

Connections

Associated current sensors

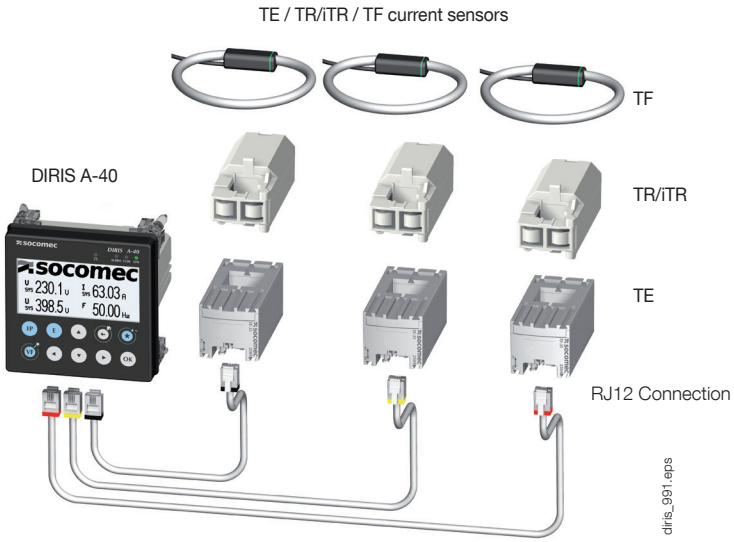
Various types of current sensors can be connected to the DIRIS A-40: solid-core (TE), split-core (TR/iTR) or Rogowski (TF). This range of sensors is suitable for all types of new or existing installations. A quick RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS A-40 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

TR/iTR split-core current sensors

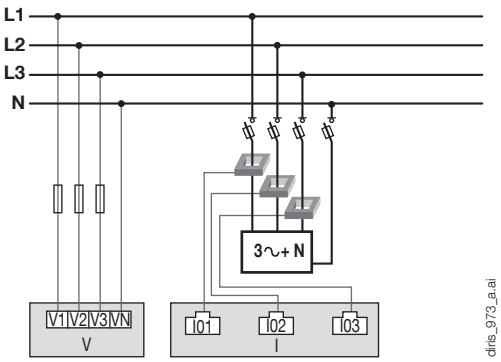
TF Rogowski current sensors

TE / TR/iTR / TF current sensors

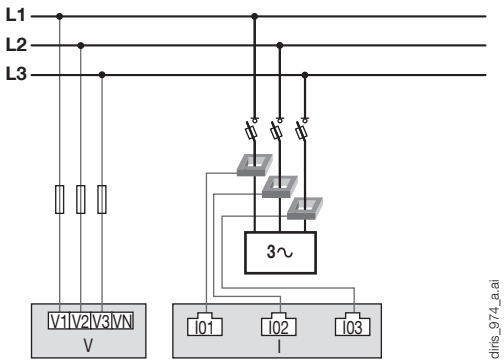


Network and connection examples

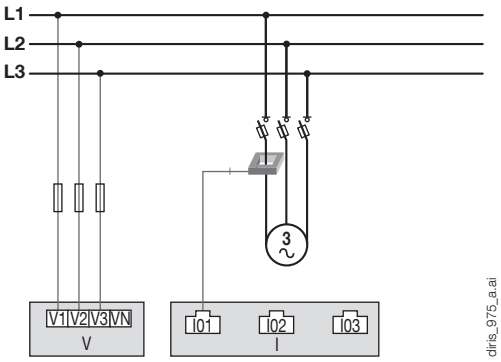
Three-phase + Neutral
3P+N - 3 CT (1 three-phase load + calculated Neutral)



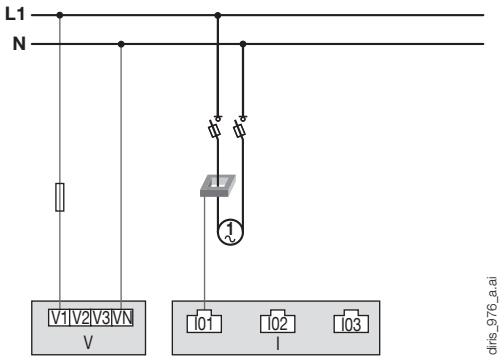
Three-phase
3P - 3CT (1 three-phase load)



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 3~ 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) 8VA AC / 2,5VA DC (48250501 & 48250502)
Connection	Removable spring-cage terminal block, 2x 2 positions, 0.5 - 2.5 mm² solid cable or 0.25 - 1.5 mm² stranded cable with end piece

Measurement characteristics

Power and energy measurement	
Accuracy Active energy and active power	Class 0.2 DIRIS A-40 only Class 0.5 with TE, TF or iTR sensors Class 1 with TR sensors
Accuracy of reactive energy	Class 0,5s DIRIS A-40 Class 2 with TE, TR/iTR or TF sensors

Power factor measurement	
Accuracy	Class 0.5 with TE, TF or iTR sensors 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 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 mm² solid cable or 0.25 - 1.5 mm² 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 Class 0.5 with TE, TF or iTR sensors 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 mm² 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 mm² 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

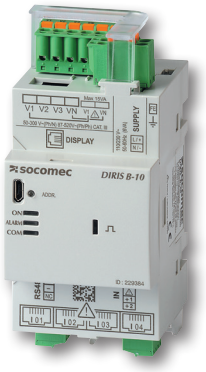
DIRIS A-40 monitoring devices		**Reference**
DIRIS A-40	RS485 Modbus - 3 inputs / 2 outputs	4825 **0500**
DIRIS A-40	Ethernet Modbus TCP or BACnet IP - webserver - RS485 Modbus - 3 inputs / 2 outputs	4825 **0501**
DIRIS A-40	Profibus DPV1 - RS485 Modbus - 3 inputs / 2 outputs	4825 **0502**

Accessories	**To be ordered in multiples of**	**Reference**
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 B

Multifunction measuring unit - PMD

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



diris-b_038.eps

DIRIS B-10 / B-30
RS485

Configuration with Easy Config System.

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

Conformity to standards

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

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

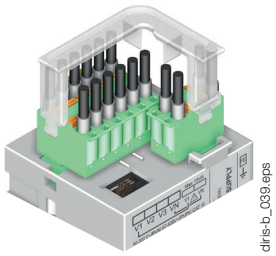
- The DIRIS B can be connected to:
  - a remote DIRIS D-30 screen for displaying measurement and metering data,
  - DIRIS Digiware M-50/M-70 gateways for centralisation and communication of data via Ethernet. DIRIS Digiware M-70 embeds WEBVIEW-M, a webserver for remote visualisation of measurement data,
  - 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.

Application	Local metering	Local analysis
		
DIRIS B	***B-10*** RS485	***B-30*** RS485
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, Iinv, 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 63rd)		•
Individual harmonics I (up to 63rd)		•
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

diris-d_001_a_1_cat

Connection

diris-d_004_b_1_x_cat

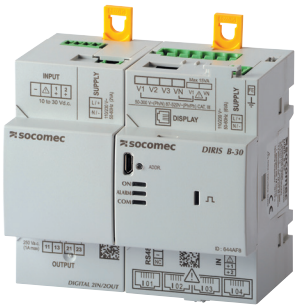
DIRIS D-30 — DIRIS B

Optional modules

DIRIS O

diris-b_031_a

Optional module ***DIRIS B***



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_019_a

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_018_a

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_020_a

DIRIS O-it

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

diris-o_024_a

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.

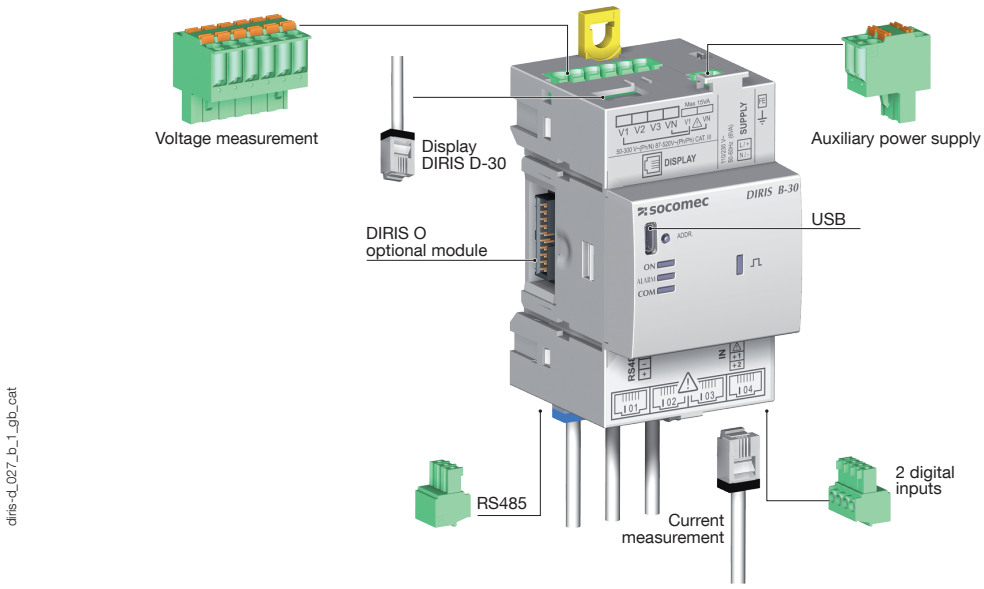
diris-o_023_a

DIRIS O-p

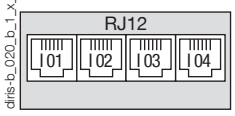
- Adds a PROFIBUS DPV1 communication port to the DIRIS B.

socomec Innovative Power Solutions

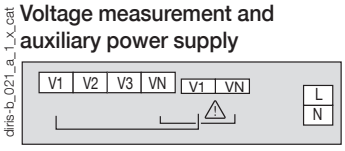
DIRIS B terminals



Current measurement

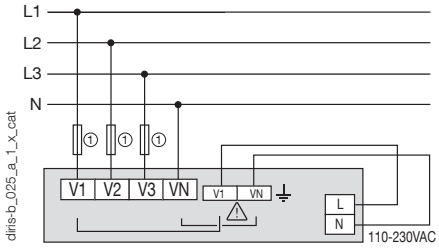


Voltage measurement and auxiliary power supply



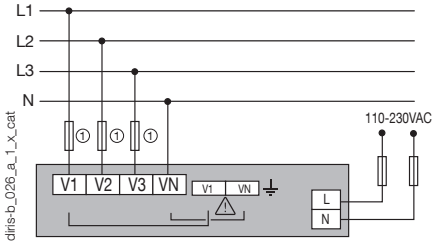
Self supply

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



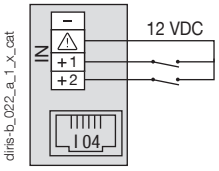
1. Fuses 0.5 A gG / 0.5 A class CC.

Separate power supply

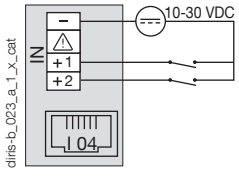


1. Fuses 0.5 A gG / 0.5 A class CC.

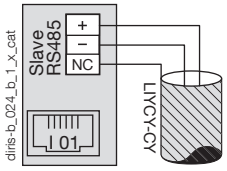
2 inputs supplied by the product



2 inputs with external power supply

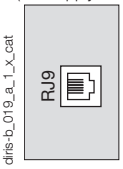


RS485



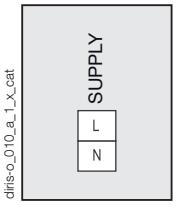
RJ9 for DIRIS D-30

(self-supply and data)

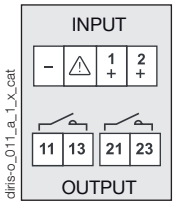


Terminals of optional DIRIS O modules

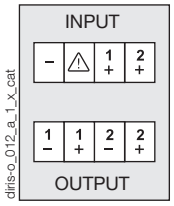
Optional module power supply



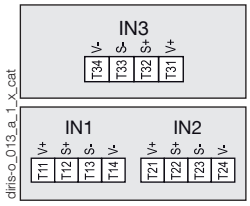
DIRIS O-iod



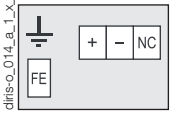
DIRIS O-ioa



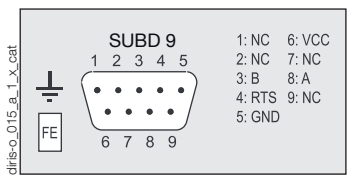
DIRIS O-it



DIRIS O-m RS485



DIRIS O-p

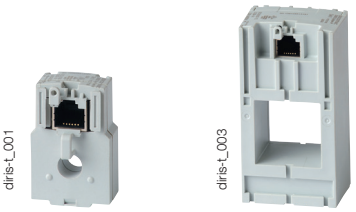


Connections

Associated current sensors

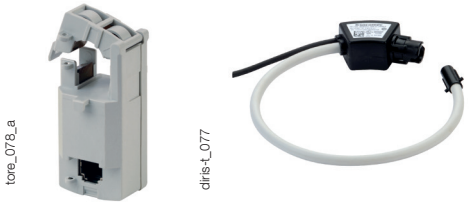
Various types of current sensors can be connected to the DIRIS B: solid-core TE , split-core TR/iTR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The 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.

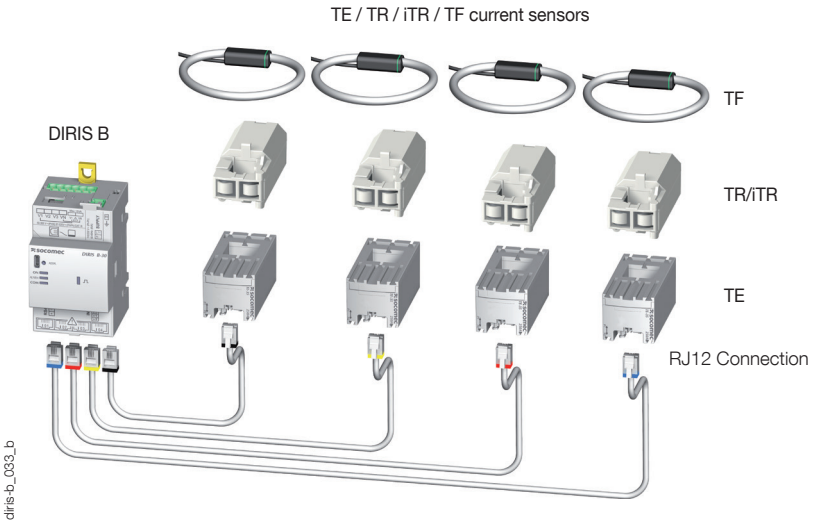
TE solid-core current sensors



TR/iTR split-core current sensors

TF flexible current sensors

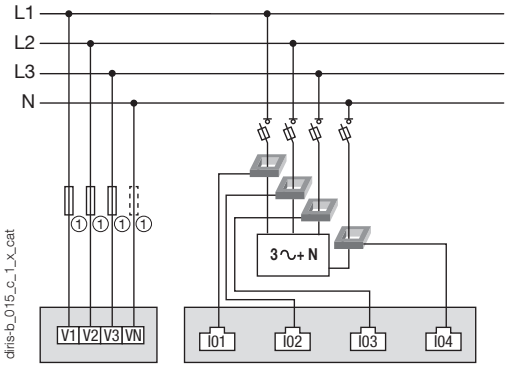




Network and connection examples

Three-phase + neutral

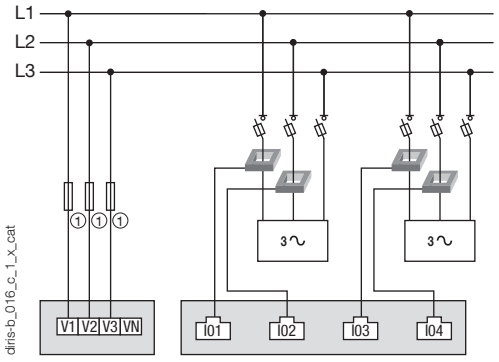
3P+N - 4CTs (measurement for 1 three-phase load + Neutral)



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

Three-phase

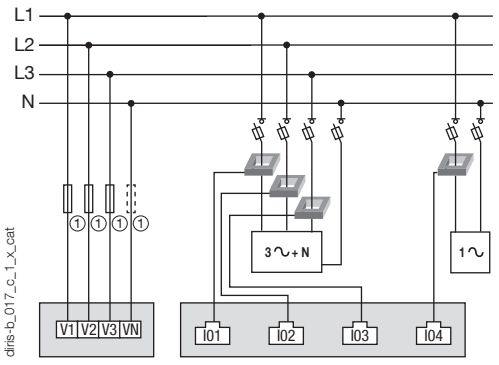
3P - 2CTs (2 three-phase loads without neutral)



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

Three-phase

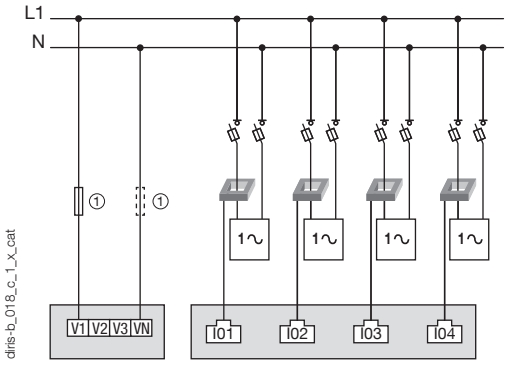
3P+N - 3CTs & 1P+N - 1CT (1 three-phase load & 1 single-phase load)



1. Fuses 0.5 A gG / 0.5 A class CC.
In case of self-supply, a fuse must be added on the neutral.

Single-phase

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

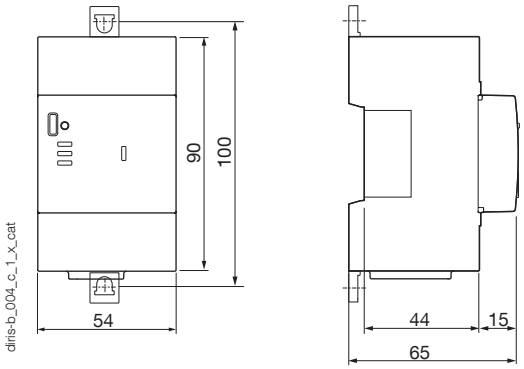


1. Fuses 0.5 A gG / 0.5 A class CC.

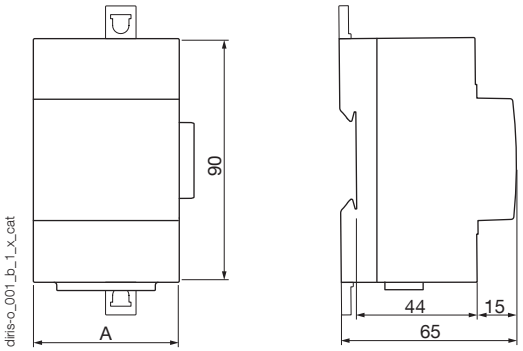
CT: Current sensors 3~ Load

Dimensions (mm)

DIRIS B

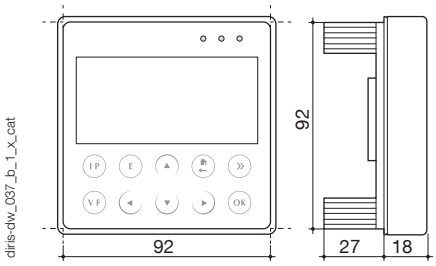


DIRIS O optional modules



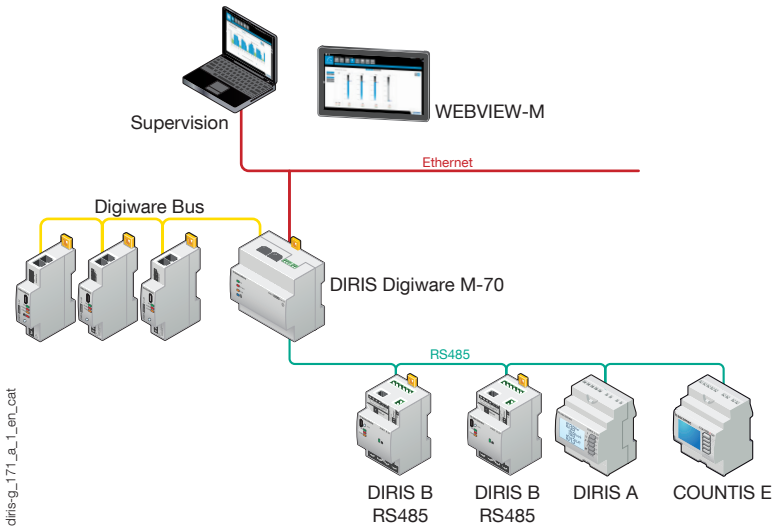
DIRIS O optional modules	A (mm)
DIRIS O-iod - DIRIS O-ioa - DIRIS O-it	45
DIRIS O-m - DIRIS O-p	54

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 ±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 mm² solid cable or 0.25 … 1.5 mm² stranded cable with ferrule

Measurement characteristics

Energy and power measurement	
Accuracy Active energy and active power	Class 0.2 DIRIS B alone Class 0.5 with TE, iTR or TF current sensors 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 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 Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 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 mm² solid cable or 0.25 … 1.5 mm² 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 Class 0.5 with TE, iTR or TF current sensors 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 ± 10 %) or external polarisation (10-30 VDC ± 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(1)	
AC voltage	110-230 VAC ±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 ± 10 %) or external polarisation (10-30 VDC ± 10%)
Function	Logic status or pulse meter
Number of outputs	2 per optional modules - max. 4 optional modules
Type	Relay / 230 VAC ±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 mm² 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

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 mm² stranded or solid cable

DIRIS O-p - PROFIBUS communication	
Protocol	PROFIBUS DPV1

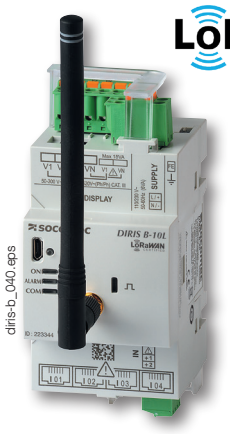
References

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	To be ordered in multiples of	Reference
DIRIS D-30 - Single-point display		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 B-10L*

LoRaWAN® Power Monitoring Device



DIRIS B-10L

Configuration with Easy Config System.

Function

The **DIRIS B-10L** is a modular power monitoring device embedding a LoRaWAN® wireless communication.

Its four independent RJ12 current inputs make it possible to manage several types of loads: e.g. 4 single-phase loads or one 3-phase load + 1 single-phase load.

The DIRIS B-10L is associated with current sensors (RJ12 connection), suitable for any type of installation: TE solid core, TR / iTR split core and TF flexible current sensors.

Advantages

Plug & Play

The connection is simple thanks to the RJ12 rapid connector which limits the risk of wiring errors. Addressing and automatic configuration of the product (type of load, type and size of current sensor) make it possible to simplify the implementation and to save time.

Accurate

- In accordance with standard IEC 61557-12.
- Class 0.2 for just the DIRIS B-10L alone.
- Class 0.5 for the global measuring chain (DIRIS B-10L + TE/iTR/TF current sensors) from 2 to 120% of rated current In.

Wireless communication

LoRaWAN® communication permits the transmission and use of data from remote isolated measuring points that do not have wired communication.

Long range

The choice of use over both private or operated LoRaWAN® networks makes it possible to cover single-site or multi-site applications, reducing the range limitations.

Secure communication

Communication between B-10L and the LoRaWAN gateways feature end-to-end encryption that ensures confidentiality and integrity of measurement data.

*Europe only

The solution for

> Industry
> Buildings
> Infrastructure

Strong points

> Plug & Play
> Accurate
> Wireless communication
> Long range
> Secure communication

Compliance with standards

> IEC 61557-12
> LoRaWAN®
> ISO 14025

Services experts

Socomec offers a range of services to ensure a functional, accurate and reliable energy monitoring system as part of your ISO 50001 strategy.

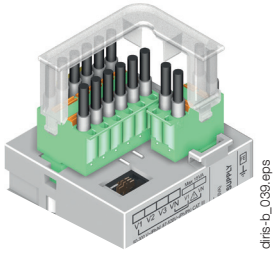
- Verification of LoRaWAN® network coverage on site.
- Commissioning of equipment.
- Verification of consistent data reporting in the EMS software.

For more information, contact your Socomec representative.omec.

Application	
	
	DIRIS B-10 LoRaWAN®
Metering	
± kWh, ± kvarh, kVAh	•
Multi-measurement	
U12, U23, U31, V1, V2, V3, f	•
U system, V system	•
I1, I2, I3, In, ΣP, ΣQ, ΣS, PF	•
P, Q, S, PF per phase	•
Predictive power	•
Phi, cos Phi, tan Phi	•
Temperatures	•
Analysis of quality	
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31	•
THDi1, THDi2, THDi3, THDin	•
Voltage imbalances Ph/N and Ph/Ph	•
Current imbalance (Inba, Idir, Iinv, Ihom, Inb)	•
Alarms	
Systems (CT disconnected, VI association, bad CT primary)	•
Protection (VirtualMonitor)	•
Logical (digital inputs)	•
Measurement	•

Accessories

Sealing kit for DIRIS B-10L
Prevents access to the cabling of the monitoring device.



Wireless antenna kit, extended length 3 m
The antenna can be extended outside the cabinet in which the DIRIS B-10L is housed. This allows to improve the transmission range within constraining infrastructures.

USB configuration cable (2 m)
The configuration of the DIRIS B-10L is done from the Easy Config System software via a direct USB connection to a PC.

DIRIS B-10L
LoRaWAN® Power Monitoring Device

DIRIS D-30 monitor

DIRIS D-30

diris-d_001_a_1_cat

Connection

diris-b_043_b_1_x_cat.ai

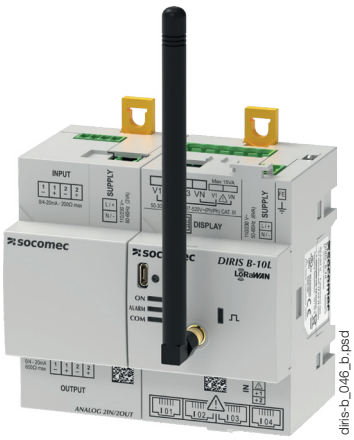
DIRIS D-30 DIRIS B-10L

Optional modules

DIRIS O

diris-b_045_a.psd

Optional module **DIRIS B-10L**



diris-b_046_b.psd

Optional modules (4 max.)*
- Digital inputs/outputs
- Temperature inputs

** A maximum of 4 modules with a maximum of 1 temperature module.*

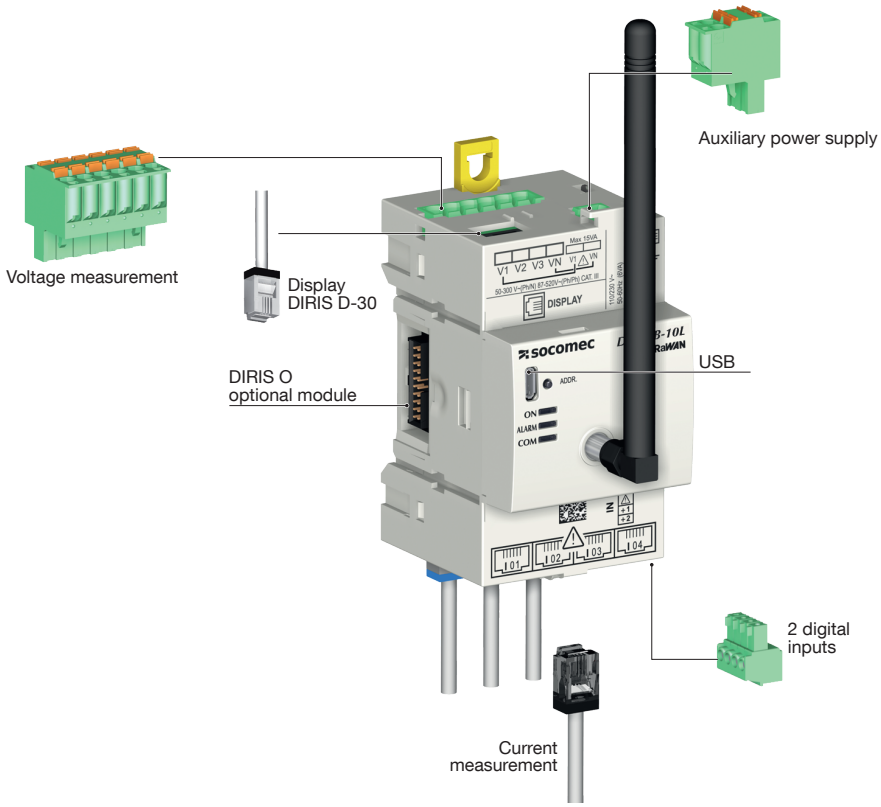

diris-o_019_a

DIRIS O-iod
- 2 digital inputs enable meter impulses to be retrieved, or the uploading of information relating to the statuses of 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_020_a

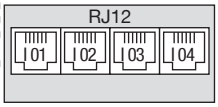
DIRIS O-it
- 3 temperature inputs to be connected to PT100 or PT1000 sensors.
- Ambient temperature

DIRIS B terminal strips



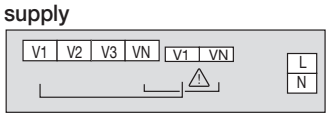
diris-b_050_b_1_en_cat.ai

Current measurement



diris-b_020_b_1_x_cat

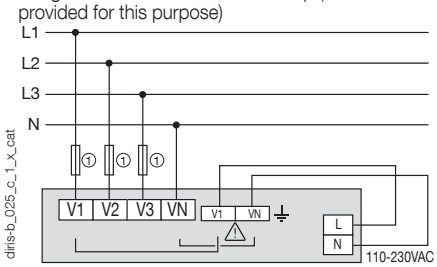
Voltage measurement and auxiliary power supply



diris-b_021_a_1_x_cat

Self-powered

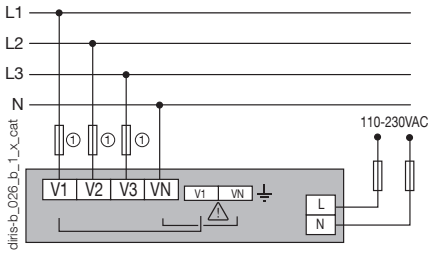
Scope for simplifying linking up the power supply using the measurement terminal strip (terminals provided for this purpose)



diris-b_025_c_1_x_cat

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

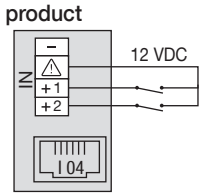
Separate power sources



diris-b_026_b_1_x_cat

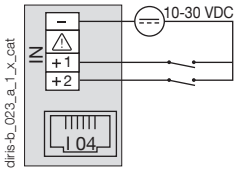
1. 0.5 A gG / 0.5 A class CC fuses.

2 inputs supplied with power by the product



diris-b_022_a_1_x_cat

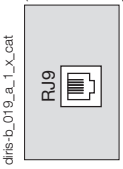
2 inputs with an external power source



diris-b_023_a_1_x_cat

RJ9 for DIRIS D-30

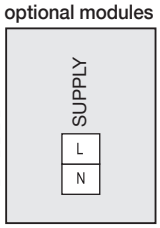
(Autonomous power supply and data)



diris-b_019_a_1_x_cat

Terminals of DIRIS O optional modules

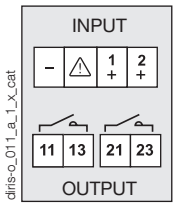
Power supply for optional modules



diris-o_010_a_1_x_cat

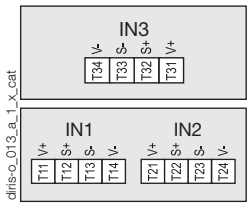
NC: not connected

DIRIS O-iod



diris-o_011_a_1_x_cat

DIRIS O-it



diris-o_013_a_1_x_cat

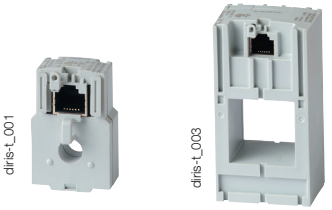
Connections

Associated current sensors

Various types of current sensors can be connected to the DIRIS B-10L: 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-10L automatically recognises the type of sensor used and its current rating. This guarantees the overall accuracy of the DIRIS B-10L + current sensor measurement chain.

For more information: see "TE, TR/iTR, TF sensors" pages.

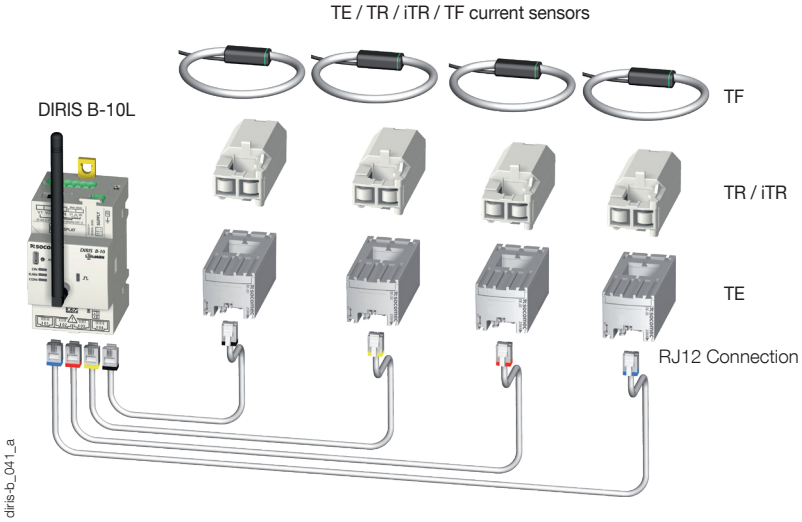
TE solid-core current sensors



TR/iTR split-core current sensors

TF Flexible current sensors

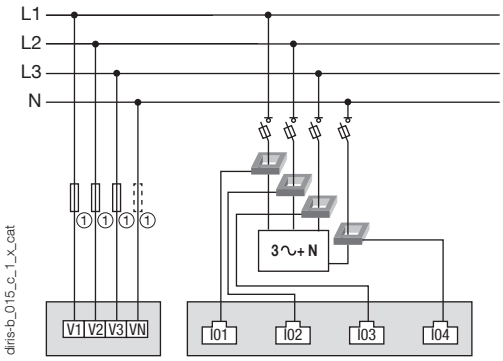
TE / TR / iTR / TF current sensors



Network and connection examples

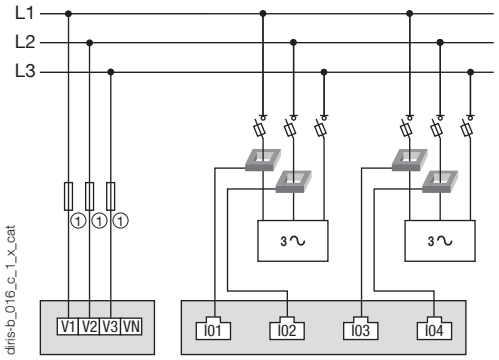
Three-phase + Neutral

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



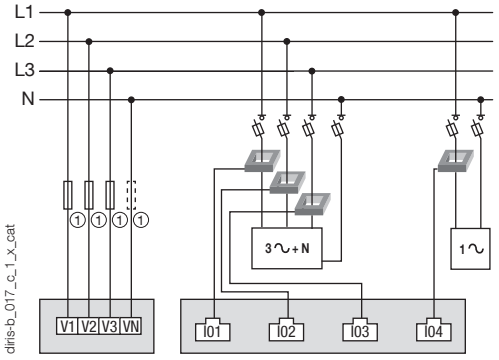
Three-phase

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



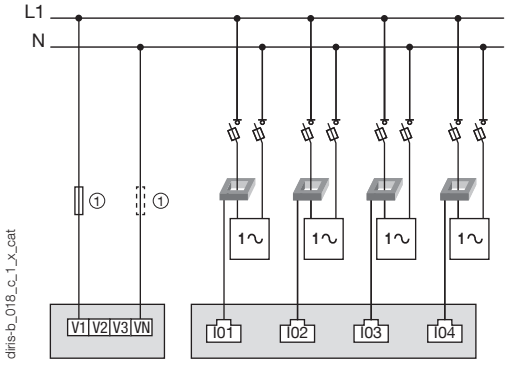
Three-phase

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



Single-phase

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

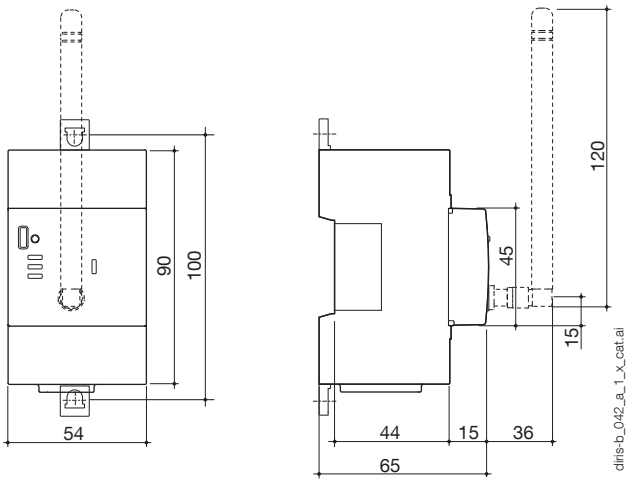


1. 0.5 A gG / 0.5 A class CC fuses.
On units with an autonomous power supply, a fuse must be added to the neutral wire.

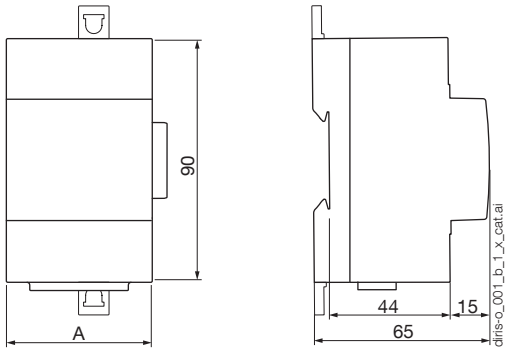
CT: Current sensor 3~ Load

Dimensions (mm)

DIRIS B-10L

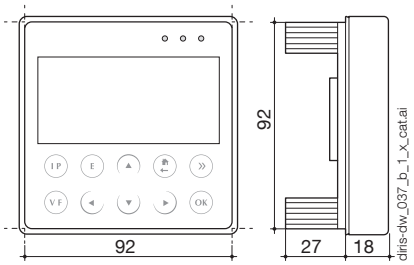


DIRIS O optional modules



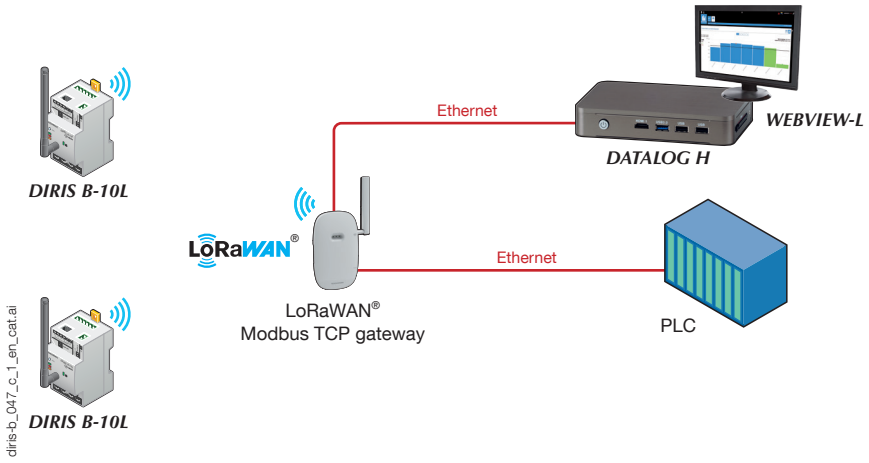
DIRIS O optional modules	A (mm)
DIRIS O-iod - DIRIS O-it	45

DIRIS D-30

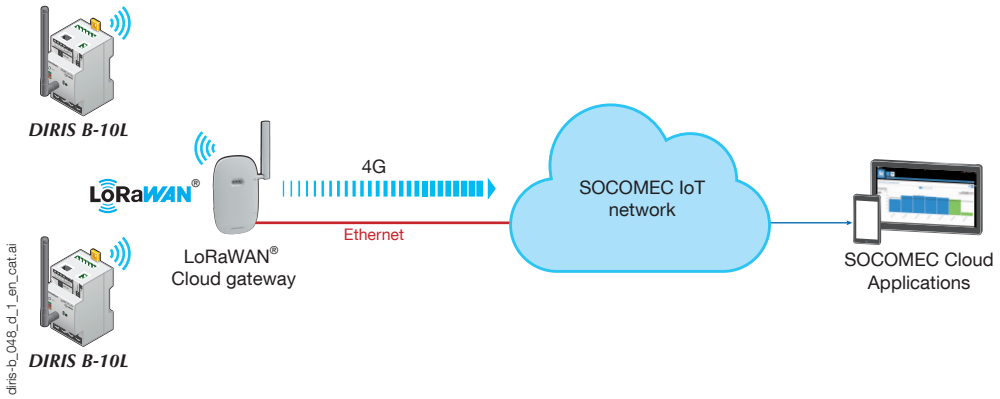


Communication architecture

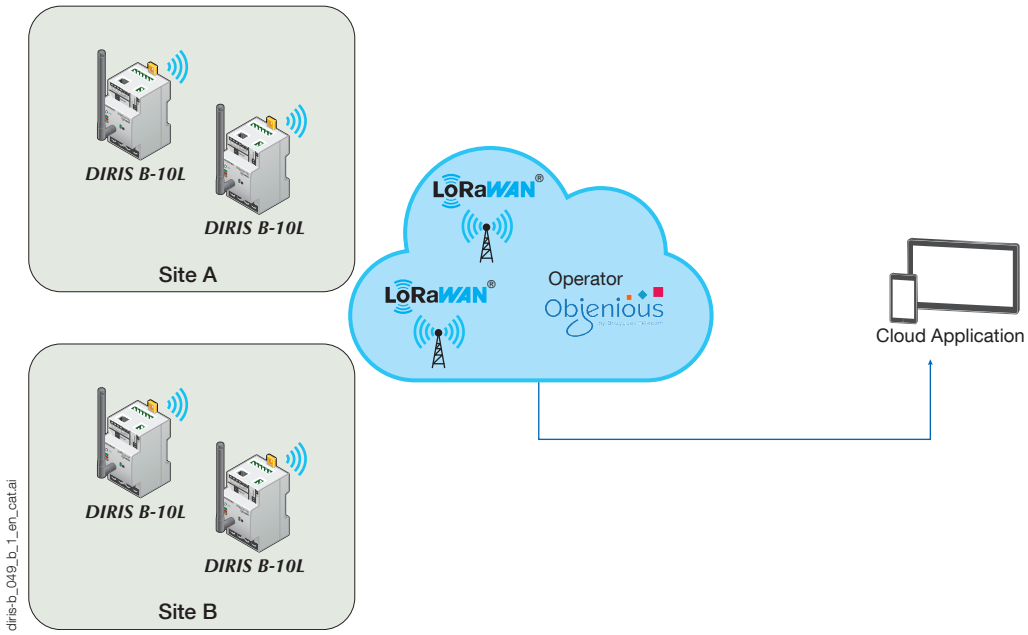
Architecture of private network and local retrieval of data



Cloud Architecture – private network



Cloud Architecture – operated network



DIRIS B-10L characteristics

Electrical characteristics

Auxiliary power supply	
AC voltage	110-230 VAC ±15% (Ph/N or Ph/Ph) Cat III
Frequency	50/60 Hz
Power consumption	< 2 VA without display unit, < 6 VA with display unit
Connection	Unpluggable spring-cage terminal strip, 2 x 2 positions, rigid cable 0.5 … 2.5 mm² or flexible with tip 0.25 … 1.5 mm²

Measurement characteristics

Measurement of energy and power levels	
Accuracy Active energy and active power	Class 0.2 DIRIS B-10L alone Class 0.5 with TE, iTR or TF sensors Class 1 with TR sensors
Reactive energy accuracy	Class 2 with TE, TR/iTR or TF sensors

Measurement of power factor	
Accuracy	Class 0.5 with sensors TE, iTR or TF Class 1 with TR sensors

Voltage measurement	
Characteristics of the measured network	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 / 3-phase / 3-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC 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	Pullout spring-cage terminal strip, 2 x 6 positions, rigid cable 0.5 … 2.5 mm² or flexible with tip 0.25 … 1.5 mm²

Measurement of currents	
Number of current inputs	4
Associated current sensors	Solid TE sensors, split-core TR/iTR, flexible TF
Accuracy	Class 0.2 DIRIS B-10L alone Class 0.5 with TE, iTR or TF sensors Class 1 with TR sensors
Connection	Specific Socomec cable with RJ12 connectors

Communication characteristics

Link	Wireless radio frequency
Protocol	LoRaWAN®
Frequency range	863-870 MHz
Class	Class C
Version	1.0.3
Activation method	OTAA
Use	Europe

Environmental characteristics

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

Characteristics of the DIRIS D-30 display unit

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

DIRIS O optional modules characteristics

Power supply(1)	
AC voltage	110-230 VAC ±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 module - max. 4 optional modules
Type	Optocoupler, internal polarisation (12 VDC ± 10%) or external (10-30 VDC ± 10%)
Function	Logical status or pulse collection
Number of outputs	2 per optional module - max. 4 optional modules
Type	Relay / 230 VAC ±15 % - 1A
Function	Alarm report on digital outputs
Connection of inputs / outputs	Unpluggable screw-type terminal strip, 4 positions, rigid or flexible cable, 0.14 to 1.5 mm²

DIRIS O-it - 3 temperature inputs	
Number of inputs	3 external inputs + 1 ambient measurement
Dynamic	-20 … +150 °C
Type	PT100 or PT1000

References

Power Monitoring Device		Reference
DIRIS B-10L	LoRaWAN® - 230 VAC	4829 **0900**
DIRIS O optional modules		**Reference**
DIRIS O-iod	2 digital inputs/2 digital outputs	4829 **0030**
DIRIS O-it	3 temperature inputs PT 100 / PT 1000	4829 **0032**

Accessories	Reference
DIRIS D-30 - Single-point display unit	4829 **0200**
RJ9 cable for DIRIS D-30 monitor - 1.5 m	4829 **0280**
RJ9 cable for DIRIS D-30 monitor - 3 m	4829 **0281**
USB configuration cable	4829 **0050**
Remote antenna kit (antenna + 3 m extension cable + mounting bracket)	4829 **0922**

DIRIS Q800

Electrical network analyser

quality analysis of electrical energy and power grids

diris-q_012_a

DIRIS Q800

The solution for

- Data centres
- Energy
- Infrastructure & Transport
- Industry
- Buildings

Strong points

- Large colour touchscreen
- Regulatory compliance
- Multiple communication channels

Conformity to standards

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

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 volumes 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 colour touchscreen is tactile, easy to operate and provides intuitive navigation.

Regulatory compliance

By its conformity to 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 Wi-Fi port.
- 1 RS485 port.
- 1 USB port.
- GPS synchronisation.
- Built-in Web server.
- Protocols: HTTP, HTTPS, FTP, NTP,
- MODBUS, PQDIF, SMTP.

Functions

Measurements

- 4-quadrant metering.
- 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 60th for voltage and current.
- Flicker (Pst, Plt).
- Current and voltage unbalance.
- Remote control signals.
- Current and power demand: average and maximum (timestamped)

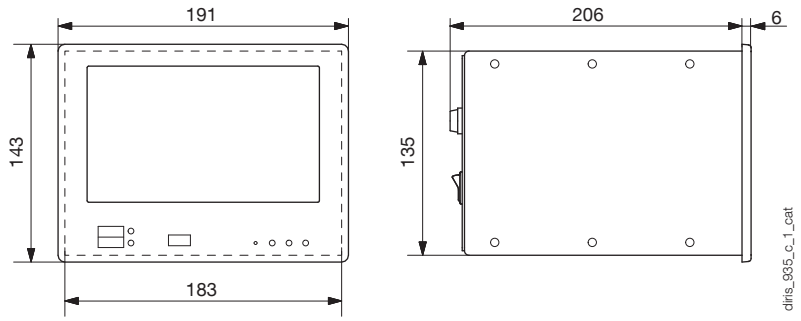
Logging

- EN 50160 events ½ period (10 ms): voltage dips, interruptions and overvoltages.
- 1/2 cycle current events (10 ms): inrush current
- 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



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

Technical characteristics

Auxiliary power supply	
Voltage range	100 ... 240 VAC / 65 … 250 VDC
Frequency	50/60 Hz
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 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%
4th 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 Wi-Fi 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
Operating 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
Pollution Degree	2 (EN 61010-1)
Protection rating	IP40 front, IP20 rear
Directive	RED §3.1a Health EN 62311:2008 RED § 3.1b EMC

References

Description	Reference
DIRIS Q800 100 ... 240 VAC / 65 … 250 VDC	4826 **0100** (1)

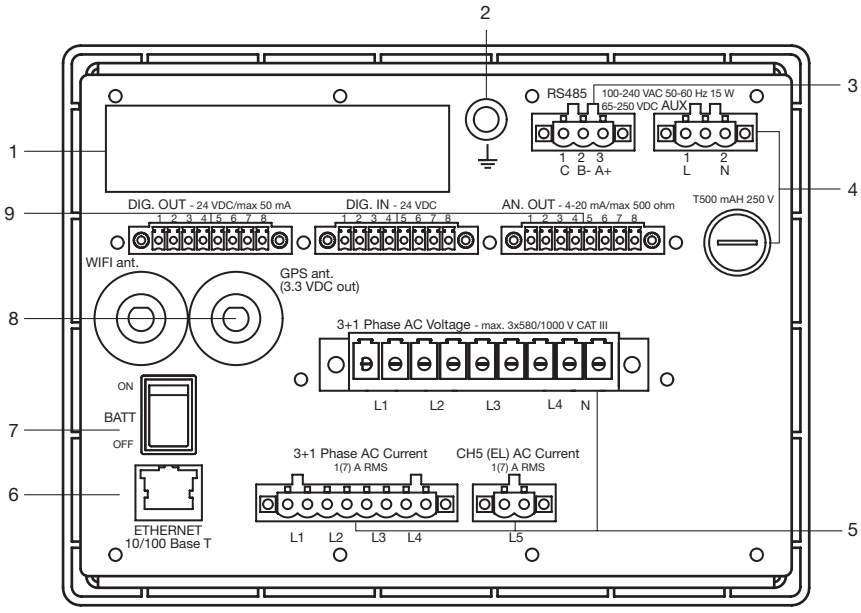
(1) Power supply voltage 19 ... 60 VDC: please contact us.

DIRIS Q800

Electrical network analyser

quality analysis of electrical energy and power grids

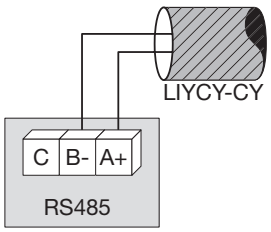
Terminal blocks



diris_933_a_1_x_cat

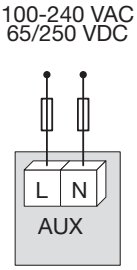
1. Product label
2. Earth connection
3. RS485 MODBUS RTU communication
4. Auxiliary power supply and fuse
5. Voltage and current inputs
6. Auto MDIX ETHERNET port
7. Battery switch
8. GPS and Wi-Fi antenna
9. Logical outputs, analogue inputs/outputs

Communication via RS485 link



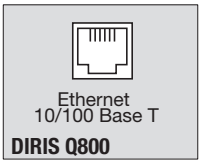
diris_920_a_1_x_cat

AC & DC auxiliary power supply



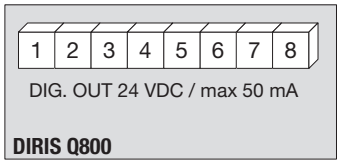
diris_921_a_1_x_cat

Ethernet communication



diris_928_a_1_x_cat

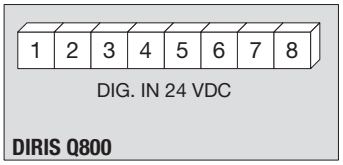
Digital outputs



diris_922_a_1_x_cat

1-2: optocoupler output 1
3-4: optocoupler output 2
5-6: optocoupler output 3
7-8: optocoupler output 4

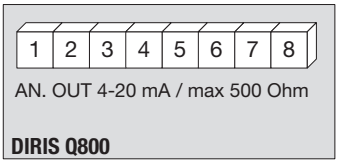
Digital inputs



diris_923_a_1_x_cat

1-2: optocoupler input 1
3-4: optocoupler input 2
5-6: optocoupler input 3
7-8: optocoupler input 4

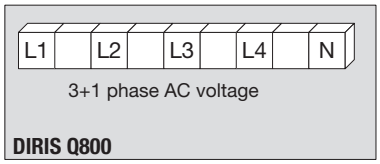
Analogue outputs



diris_924_a_1_x_cat

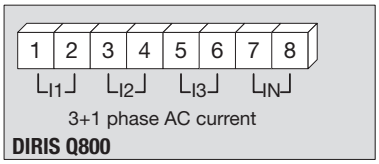
1-2: analogue output 1
3-4: analogue output 2
5-6: analogue output 3
7-8: analogue output 4

Current and voltage inputs



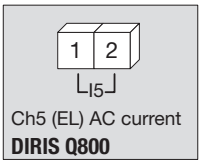
diris_925_a_1_x_cat

L1, L2, L3, L4, N: voltage inputs



diris_926_a_1_x_cat

1-2: current input i1
3-4: current input i2
5-6: current input i3
7-8: current input iN



diris_927_a_1_x_cat

1-2: residual CT connection

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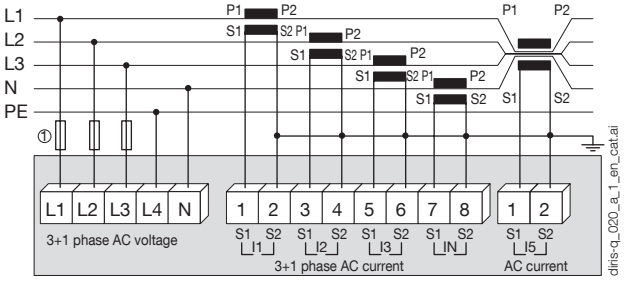
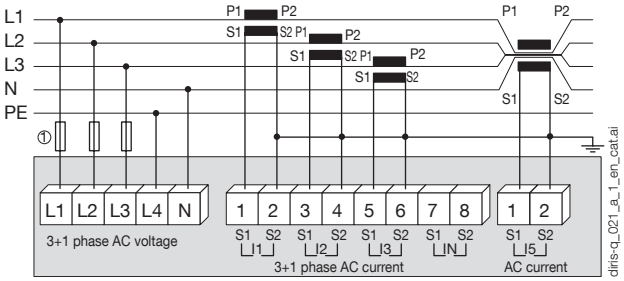
Connections

Three-phase + neutral, 4 CT + differential measurements (1/5 A)



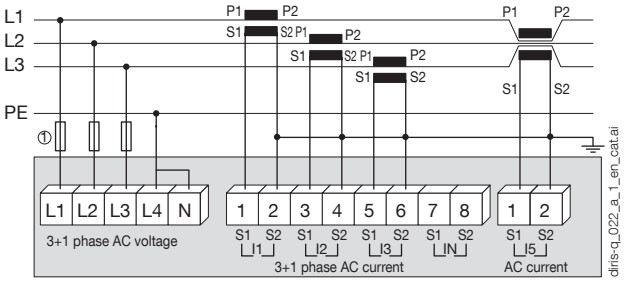
1. 0.5 A gG / 0.5 A class CC fuses.

Three-phase + neutral, 3 CT + differential measurements (1/5 A)



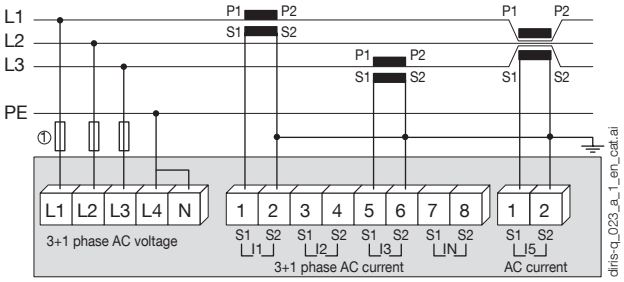
1. 0.5 A gG / 0.5 A class CC fuses.

Three-phase + neutral, 3 CT + differential measurements (1/5 A)



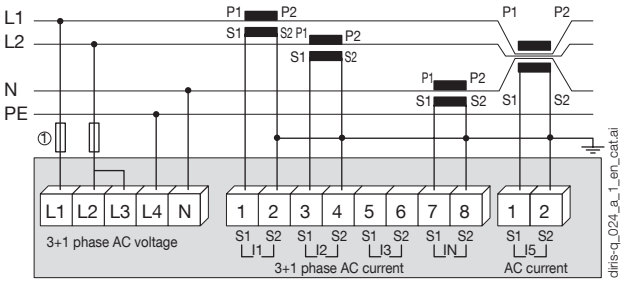
1. 0.5 A gG / 0.5 A class CC fuses.

Three-phase + neutral, 2 CT + differential measurements (1/5 A)



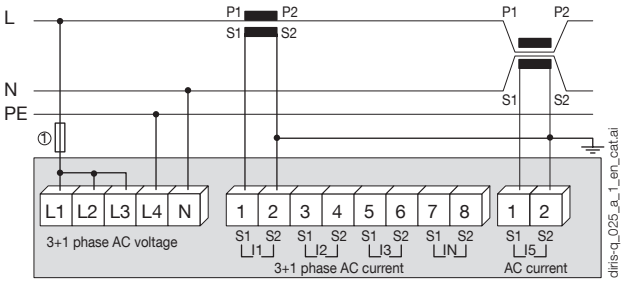
1. 0.5 A gG / 0.5 A class CC fuses.

Two-phase + neutral, 3 CT + differential measurements (1/5 A)



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

Single-phase + neutral, 1 CT + differential measurements (1/5 A)



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

Expert Services

EXPERT SERVICES

Socomec offers a wide range of services:

- Commissioning, training, configuration and operation of the DIRIS Q800.
- Electrical power quality training.
- Study of logged data (PQDIF files) with analysis, report, maintenance plan, manufacturer's recommendation.

Carrying out audits of the energy quality of your electrical installations (nuisance tripping, process disruptions, equipment breakage):

- Study of your installation: telephone interview with our consulting engineers.
- Audit of your installation (EMC studies, harmonic studies, neutral regime, earthing plan, differential protections).

For further information, please talk to your Socomec contact.

DIRIS A-100/A-200

Power quality meter

up to 10000 A via current sensors

diris_1045.psd

Configuration with Easy Config System.

The solution for

- Data centre
- Industry
- Building

Strong points

- The ultimate all-purpose power quality meter
- Plug & play
- Fully customizable
- Advanced features*
- Best-in-class accuracy
- Easy data management

Conformity to standards

- IEC 61557-12
- IEC 62053-21 -24
- UL 61010-1 File E257746
- ISO 14025
- EN50160

Function

The DIRIS A-100 / A-200 are panel-mounted power quality meters that can communicate either via MODBUS RTU over RS485, MODBUS TCP over Ethernet or BACnet IP. The device's four RJ12 independent current inputs enable the management of multiple circuits of several different types: for example, 4 single-phase loads or 1 three-phase load + 1 single-phase load. A core-balance toroid can be fitted onto the A-200 for additional residual current monitoring. Most types of sensors are compatible: solid-core, split-core or flexible Rogowski coils through quick-connect RJ12 sensors.

Advantages

The ultimate all-purpose power quality meter

- Native universal communication and digital inputs/outputs, eliminating the need for additional optional modules.
- Power supply up to 600VAC and network voltage monitoring up to 1039VAC.
- Multi-load management – up to 4 loads monitored on the same DIRIS A-100/A-200.

Plug & play

- Unique RJ12 technology enables the quick, error-free and safe connection of current sensors.
- Simple and fast configuration through a step-by-step wizard, even for the most advanced features.
- Integrated Virtual Monitor technology enables the smart monitoring of protective devices with no auxiliary contacts and no extra wiring.

Fully customizable

- Splash screen and embedded webserver are easy to customise with your own brand logo and pictures.
- Customisable stand-by screen will display the measurement datasets that matter most to you.

Advanced features *

- Waveform capture automatically triggered upon power quality events (voltage sag, swell, interruption, overcurrent) for the rapid identification of power system disturbances.
- ITIC/CBEMA curves management.
- Residual current monitoring through corebalanced toroids.

**Applies only to the DIRIS A-200 product*

Best-in-class accuracy

PreciSense technology provides industryleading accuracy which exceeds standards for billing, ensuring reliable and repeatable measurements under all conditions:

- Class 0.1 for the meter alone, according to IEC 61557-12 standard.
- Class 0.5 from 2% to 120% of the CT rating for the global measurement chain.
- Class 0.1s for active energy (Ea), according to standard IEC 62053-22.

Easy data management

- Embedded webview software that's easy to configure and use.
- Real-time notification (email alert - on phone).
- Photoview (allows the user to build and visualise customised dashboards with ease).
- Advanced tariff management through complete and easy to configure calendar function for viewing consumption precisely according to utility contract.

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Application	Smart RJ12 Current sensors	
		
DIRIS A	***A-100*** RS485	***A-200*** RS485 + Ethernet
Number of sensor inputs	4	4
Mounting	Door mounted, 96 x 96 mm	Door mounted, 96 x 96 mm
Electrical		
Power supply	110 - 600 VAC	110 - 600 VAC
Voltage measurement	50 - 1039 VAC L-N	50 - 1039 VAC L-N
Communication		
RS485 Modbus RTU	•	•
Ethernet (Modbus TCP/BACnet IP)	-	Dual Ethernet •
Embedded webserver	o	•
Cybersecurity compliant	•	•
I/O		
Digital inputs	3	3
Digital output	1	1
Energy metering		
4-quadrant energy metering (+/-kWh, +/- kvarh, +/- kVAh)s	•	•
Demand and peak demand	•	•
Multi-tarif	4 with full calendar management	4 with full calendar management
Power monitoring		
Instantaneous, average, min and max values	•	•
Voltage unbalance	•	•
Neutral current (measured or calculated)	•	•
Earth leakage monitoring	-	•
Fast metrology RMS values	-	•
Power quality		
Harmonic analysis (THD/individual) up to 63rd	• / only THDs	•
Power quality events (sags, swells, interruptions, overcurrents)	-	•
Waveform capture	-	•
ITIC/CBEMA curves management		•
Load management		
Operating hours	•	•
Number of operations (info/alarm)	•	•
Protective device monitoring (on/off/tripped)	•	•

•: native to the product.
o: optional via DIRIS Digiware M-70 or D-70 gateways.

DIRIS A-100/A-200

Power quality meter

up to 10000 A via current sensors

Functions

Monitoring

- Real-time visualization of all electrical parameters, available under several formats (bar graphs, tables)
- Phasor diagram to identify potential CT wiring errors

soft_027_a_1_fr_cat.eps

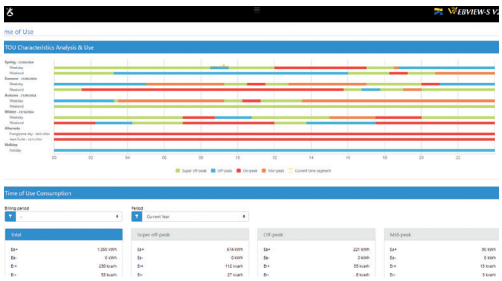
Consumption curves

- Recording of active (kWh), reactive (kvarh) and apparent (kVAh) energies
- Graphical view of monthly, weekly, daily or hourly energy consumptions to detect drifts

soft_036_a_1_fr_cat.eps

Advanced tariff management

- Custom calendar management
- Energy consumption displayed according to the utility's daily rates, weekdays, seasons and holiday schedules



soft_168_a.eps

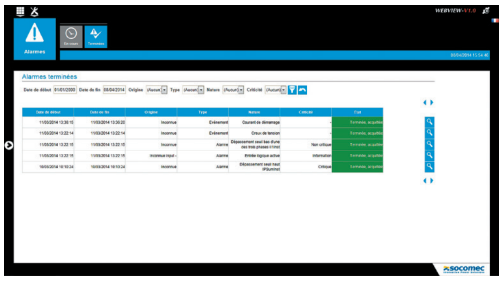
Measurement history

- History of all electrical parameters (V, I, P, Q, S, THD etc.)
- Time period selection (year, month, day etc.)
- Easy correlation, by displaying multiple parameters on the same graph

soft_169_a.eps

Alarms & Events

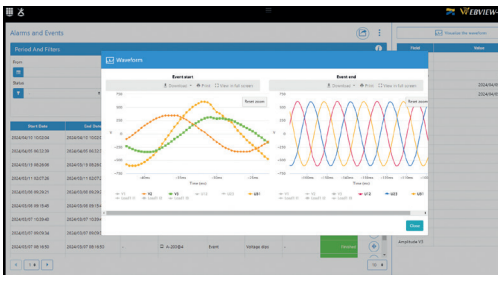
- View active alarms and power quality events
- Access to details (duration, amplitude etc.)
- Log of finished alarms & events



soft_025_a_1_fr_cat.eps

Waveform

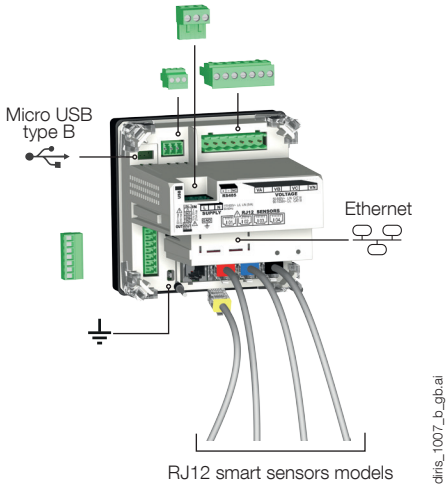
- Automatic waveform captures following power quality events.
- Waveform picture and samples can be downloaded from the webserver
- ITIC/CBEMA curves for automatically classifying fast voltage events on a standardized graphic depending on their severity.



soft_170_a.eps

socomec Innovative Power Solutions

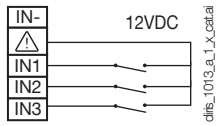
Terminals



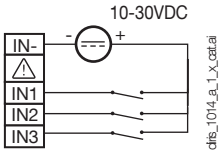
INPUTS:
If remote switch contact inputs are passive ('dry' contacts), please use terminal ⚠ for supplying one of the 3 inputs with 12V.
If remote switch contacts are active ('wet' contacts), please use terminal IN- and make sure the voltage applied is within the 10-30VDC range.

OUTPUT:
optocoupler, apply max 30VDC and 20 mA of current.

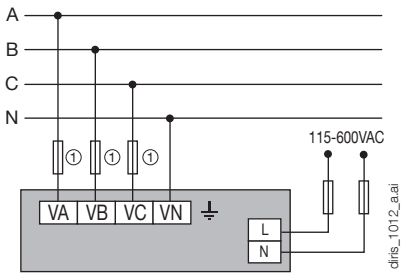
3 Digital inputs Self-supplied by PMD



External power supply

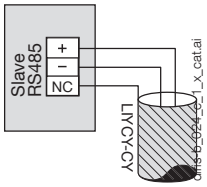


Voltage and power supply connections

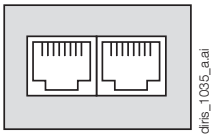


1. 1 A gG / 1 A class CC Listed fuses for UL application.

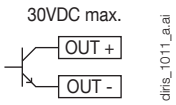
RS485



Dual ethernet

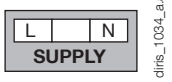


1 digital output

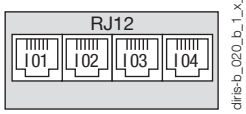


Ground

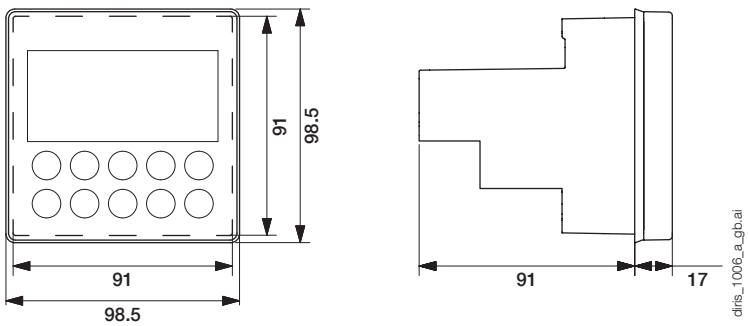
Power supply



Current measurement RJ12 version



Dimensions (mm)



Current sensors

Associated current sensors

Various types of current sensors are connected to the DIRIS A-100 / A-200: solid-core (TE), split-core (TR, iTR) or flexible (TF) for A-100/A-200 RJ12 models. It is also possible to fit core-balanced ΔIC/ΔIP-R CTs for earth leakage monitoring on the DIRIS A-200 RJ12 model (reference 4825 0604). The variety between these sensors means they can be adapted to any type of new, existing or high-current existing installation.

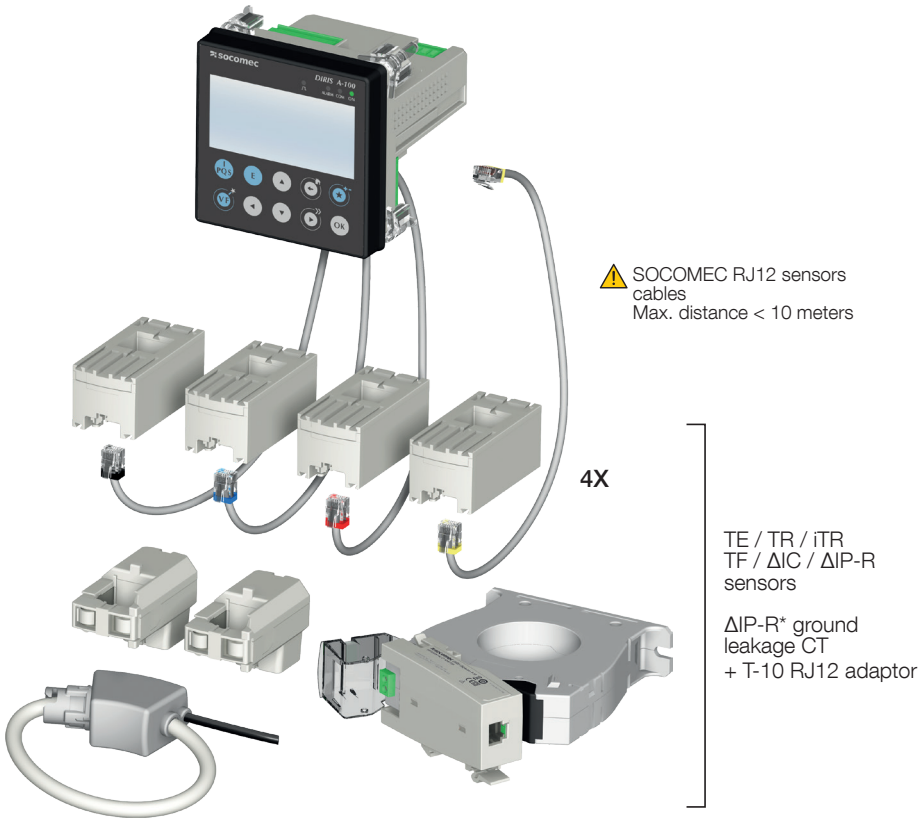
TE solid current sensors

TR/iTR split-core current sensors

TF Rogowski current sensors

DELTA IC/IP

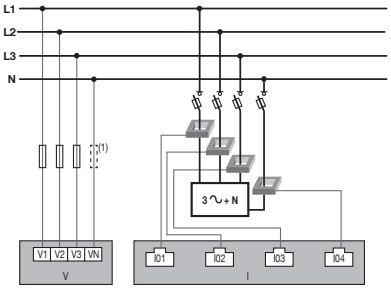
RJ12 smart current sensors



(*) Notes regarding the use of core-balanced toroïds :
1. ΔIC / ΔIP-R core-balanced toroïds for earth leakage monitoring are only compatible with the DIRIS A-200 (part no 48250604).
2. Only one ΔIC / ΔIP-R may be connected on the DIRIS A-200 power meter.
3. DIRIS T-10 RJ12 adaptor (part no 48290620) must be used and ordered separately to connect ΔIC / ΔIP-R to the DIRIS A-200 power meter.

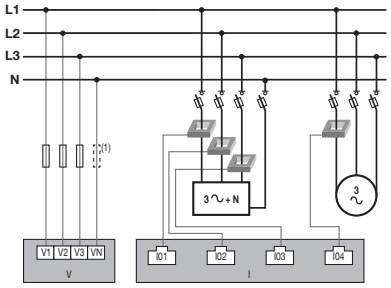
Current sensor connections

Three-Phase, Four Wires
3P+N – 4CT
(1 three-phase load + measured neutral)



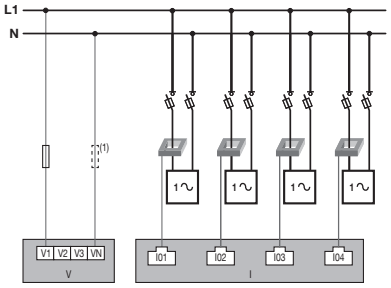
diris_1016_a.ai

Three-Phase, Four Wires
3P+N – 3CT & 3P – 1CT
(1 unbalanced three-phase load + calculated Neutral + 1 three-phase balanced load)



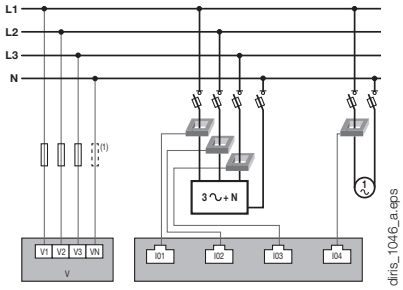
diris_1017_a.ai

Single-Phase, Two-Wires
1P+N – 1CT (x4)
(4 single-phase loads)



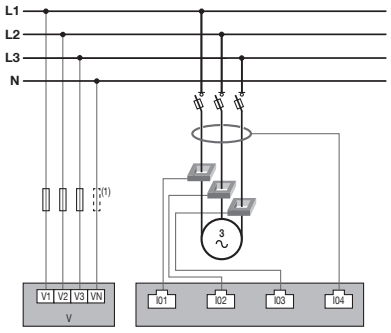
diris_1021_a.ai

Three-phase + Neutral
3P+N – 3CT & 1P+N – 1CT
(1 three-phase load + calculated Neutral + 1 single-phase load)



diris_1046_a.eps

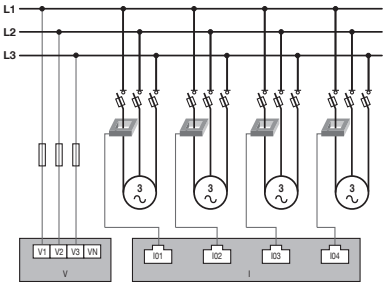
Three-Phase, Four Wires
3P+N – 3CT
(1 three-phase load with RCM* (IΔ))



diris_1026_a.ai

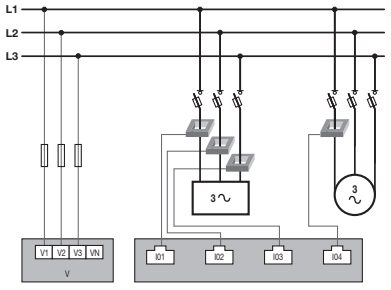
* only for DIRIS A-200 ref. 48250604.

Three-Phase, Three Wires
3P – 1CT (x4)
(4 three-phase balanced loads)



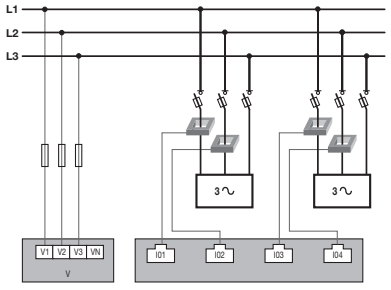
diris_1023_a.ai

Three-phase
3P – 3CT & 3P – 1CT
(1 unbalanced three-phase load + 1 three-phase balanced load)



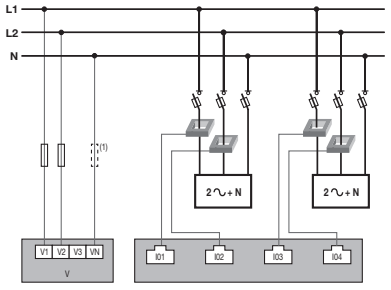
diris_1047_a.eps

Three-phase
3P – 2CT (x2)
(2 three-phase loads*)



diris_1048_a.eps

Two-phase + Neutral
2P+N – 2CT (x2)
(2 two-phase loads)



diris_1049_a.eps

diris_1039_a.eps
Fuse: 1 A gG / 1 A class CC


diris_1040_a.eps
TE / TR / iTR / TF current sensors

diris_1038_a.eps
Balanced load

diris_1037_a.eps
Unbalanced load


diris_1043_a.ai
Core-balanced toroïds

(1) For connection to IT system earthing, adapt the protection in accordance with the installation standards currently in force.

DIRIS A-100/A-200

Power quality meter

up to 10000 A via current sensors

DIRIS A-100 / A-200 characteristics

Electrical characteristics

Power supply	
Voltage	115-600 VAC L/N L/L, Overvoltage category III
Frequency	45 to 65 Hz
Power consumption	A-100: 5VA, A-200: 7VA
Connection (Use copper conductors only)	Removable spring-cage terminal block, 2 positions, 1-2.5 mm² solid or stranded cable with end piece

Measurement characteristics

Standards		
Active energy accuracy	IEC 61557-12	Class 0.1 DIRIS A-100/A-200 alone Global accuracy class from 2% to 120% of In (meter + sensors): - Class 0.5 system accuracy with TE, iTR, TF - Class 1 system accuracy with TR
Reactive energy accuracy	IEC 62053-24	Class 1 DIRIS A-100/A-200 alone Class 2 system accuracy with TE, TR/iTR or TF current sensors
Voltage measurement		
Voltage range		50-1039 VAC L-L IEC CAT III
Frequency range		45 to 65 Hz
Network type		Single-phase/ Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer		Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption		≤ 0.1 VA
Connection (Use copper conductors only)		Removable spring-cage terminal block, 4 positions,1-2.5 mm² solid or stranded cable with end piece
Current measurement		
Number of current inputs	4	
Associated current sensors	- RJ12 100mV smart sensors : solid-core TE, split-core TR and iTR, flexible TF current sensors - ΔIC circular solid-core and ΔIP-R circular split-core core-balanced toroïds with T-10 RJ12 adaptor	

Input/output characteristics

Inputs	
Number	3
Type / Power supply	Optocoupler with internal (12 VDC ± 10%) or external (10-30 VDC) polarisation 27 mA max.
Input function	Logical state, pulse meter, circuit breaker status or synchronisation pulse (input 1)
Connection	Removable screw terminal block, 5 positions, stranded or solid 0.5-1.5 mm²
Outputs	
Number	1
Type	Optocoupler 30 VDC max 20 mA max - SELV
Output function	Configurable alarm signal (current, power, etc.) when threshold is exceeded or remote controlled through communication command
Connection	Removable screw terminal block, 4 positions, stranded or solid 0.5-1.5 mm²

Communication characteristics

RS485	
Link	RS485
Connection type	2 to 3 half duplex wires - SELV
Protocol	Modbus RTU
Baud rate	9600 to 115200 bauds
Environmental specifications	
Storage temperature	-40 ... +85°C
Operating temperature	-25 ... +70°C
Humidity	5 to 95% RH non condensing
Degree of pollution	2
Ethernet	
Link	Ethernet RJ45
Connection type	Dual Ethernet (2 ports) 10/100 Base-T - SELV
Protocol	Modbus TCP (port 502), Modbus RTU over TCP (port 503) BACnet, SNTP, SMTP(S), FTP(S), HTTP(S), BACNet IP, DHCP
USB	
Connection type	USB 2 - Micro USB
Protocol	Modbus RTU over USB
Function	Configuration and data reading, Firmware upgrade

References

DIRIS A-100 / A-200 Power quality meters		Reference
DIRIS A-100	RS485 Modbus – RJ12 smart sensors	4825 **0600**
DIRIS A-200	RS485 Modbus + Ethernet Modbus TCP - RJ12 smart sensors	4825 **0604**

Accessories	To be ordered in multiples of	Reference
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**

Solid-core current sensors				Reference
Model	**Nominal current range (A)**	**Real range covered (A)**	**Window size (in/mm)**	
TE-18	5 … 20	0.1 … 24	Ø 0.33 / 8.6	4829 **0500**
TE-18	25 ... 63	0.5 … 75	Ø 0.33 / 8.6	4829 **0501**
TE-25	40…160	0.8 … 192	0.53 x 0.53 / 13.5 x 13.5	4829 **0502**
TE-35	63 … 250	1.26 … 300	0.82 x 0.82 / 21 x 21	4829 **0503**
TE-45	160 … 630	3.2 … 756	1.22 x 1.22 / 31 x 31	4829 **0504**
TE-55	400 … 1000	8 … 1200	1.61 x 1.61 / 41 x 41	4829 **0505**
TE-90	600 … 2000	12 … 2400	2.52 x 2.52 / 64 x 64	4829 **0506**

Split-core current sensors				Reference
Model	**Nominal current range (A)**	**Real range covered (A)**	**Window size (in/mm)**	
TR-10	25 … 63	0.5 … 75.6	Ø 0.39 / 10	4829 **0555**
iTR-10	25 … 63	0.5 … 75.6	Ø 0.39 / 10	4829 **0655**
TR-14	40 … 160	0.8 … 192	Ø 0.55 / 14	4829 **0556**
iTR-14	40 … 160	0.8 … 192	Ø 0.55 / 14	4829 **0656**
TR-21	63 … 250	1.26 … 300	Ø 0.83 / 21	4829 **0557**
iTR-21	63 … 250	1.26 … 300	Ø 0.83 / 21	4829 **0657**
TR-32	160 … 600	3.2 … 720	Ø 1.26 / 32	4829 **0558**
iTR-32	160 … 600	3.2 … 720	Ø 1.26 / 32	4829 **0658**

Flexible Rogowski current sensors (*)				Reference
Model	**Nominal current range (A)**	**Real range covered (A)**	**Window size (in/mm)**	
TF-40	100 … 400	2 … 480	Ø 1.57 / 40	4829 **0573**
TF-80	150 … 600	3 … 720	Ø 3.15 / 80	4829 **0574**
TF-120	400 … 2000	8 … 2400	Ø 4.72 / 120	4829 **0575**
TF-200	600 … 4000	12 … 4800	Ø 7.87 / 200	4829 **0576**
TF-300	1600 … 6000	32 … 7200	Ø 11.81 / 300	4829 **0577**
TF-600	1600 … 6000	- 110-480 VAC pow r suppl	Ø 23.62 / 600	4829 **0578**
Set of 3 RJ12 female/female connectors for RJ12 lead extension between DigiBOX A and TF sensors				4829 **0670**

(*) TF Rogowski sensors come with a 2 meters lead with RJ12 male connector

RJ12 connection cables	Cable length (m)										
	0.1	**0.2**	**0.3**	**0.5**	**1**	**2**	**3**	**5**	**7**	**10**	**50 m reel + 100 connectors**
Number of cables	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**	**Reference**
1	-	-	-	-	-	-	-	4829 **0602**	-	4829 **0603**	4829 **0601** (1)
3	4829 **0580**	4829 **0581**	4829 **0582**	4829 **0595**	4829 **0583**	4829 **0584**	4829 **0606**	4829 **0607**	4829 **0608**	4829 **0609**	-
4	-	-	-	4829 **0596**	4829 **0588**	4829 **0589**	-	-	-	-	-
6	4829 **0590**	4829 **0591**	4829 **0592**	4829 **0597**	4829 **0593**	4829 **0594**	-	-	-	-	-

(1) The maximal length between the sensor and the current module = 10m.

Commissioning		Reference
1/2-day remote commissioning	Remote commissioning including installation verification, programming and communication testing	9230 **100027**
1/2-day on-site commissioning	On-site commissioning including installation verification, programming and communication testing	9230 **100004**

Expert Services

> Our local team offers complete support to ensure the success of your project, from consultation to implementation of your metering system.

Selection guide

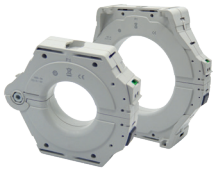
Current sensors and transformers

ACCUline, *RGW* and *CT 5A*

Function? → Current range? → Window size?

Application	Measurement and metering				
	load current				
					
Models	**ROG-O** *p.476*	**RGW-XXX** *p.480*	**CT-O** *p.456*	**5 A Current transformer** *p.486*	
Current type	AC	AC	AC	AC	
Rated current range (A)	0 … 10 000	0 … 5 000	20 … 4 000	5 … 5 000	
Window size (mm)	40 … 1 000	40 … 600	40 … 120	14 … 165	
Product type	Split-core and flexible	Split-core and flexible	Split-core	Solid- and split-core	
Standard	IEC 61869-10 UL 61010 UL 2808	IEC 61869-10	IEC 61869-2 UL 61010 UL 2808	IEC 61869-2	
Accuracy class	0,5 A1 / 1 A3	1	0.2S … 3	0.2S … 1	
Secondary signal	40 … 333 mV/kA without integrator 333 mV with integration - integrable current range 200...5000 A	100 mV	100 … 333 mV 1-5 A	5 A	
Output type	Pre-wired Ferrule RJ12	Pre-wired	Pre-wired Terminal block RJ12	Terminal block	
Customisable	•		•		

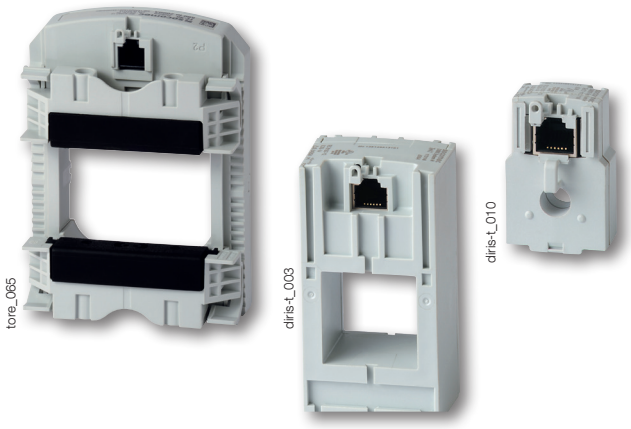
Product type *(split, solid, flexible)*? → Accuracy level and signal type? → Output type?

	Metering	Protection	Residual	
	for billing			
				
	BCT-C *p.460*	**PCT-C** *p.472*	**DCT-C** *p.464*	**DCT-O** *p.468*
	AC	AC	AC	AC
	100 … 2 000	40 … 4 000 A in rated current 120 kA in overload current	36 to 630 A per phase 3 mA to 30A of fault current	85 to 250 A per phase 3 mA to 30A of fault current
	40 ... 105*42	20 … 105	15 … 300	50 … 120
	Solid-core	Solid-core	Solid-core	Split-core
	IEC 61869-2 IEC 61010	IEC 61869-2 IEC 61010	IEC 61869-1 UL 508 IEC 60947-2 Annex M IEC 62020	IEC 61869-1 UL 508 IEC 60947-2 Annex M IEC 62020
	0.2S / 0.2S max	5P5 … 5P30	3	3
	1 A, 5 A, 333 mV	1-5 A	10 … 100 mV	10 … 100 mV
	Terminal block	Terminal block	Pre-wired Terminal block Ferrule RJ12	Pre-wired Terminal block Ferrule RJ12
	•	•	•	•

TE sensors

Solid-core current sensors

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



***TE** solid sensors*

The solution for

- Data centre
- Healthcare
- Building

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**

METER SELECTOR DIGITAL TOOL AVAILABLE

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 rating/transformation ratio.
- The sensors can be installed in both directions.

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 In.

Installation

The TE closed sensor range is specially designed for new installations, being totally in tune with protection units.

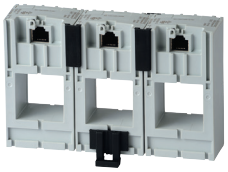
General characteristics

- Range from 5 to 2000A.
- Used with DIRIS Digiware, DIRIS A-40 and DIRIS B.

socomec Innovative Power Solutions

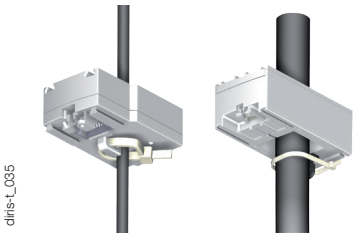
Mounting

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

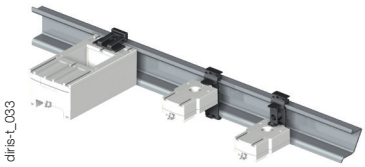


Staggered assembly
TE-18 / TE-35 / TE-45 / TE-55

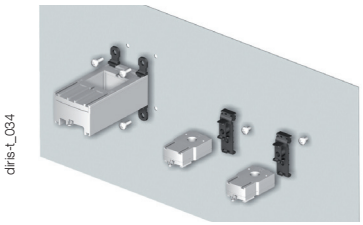
Cable mounting



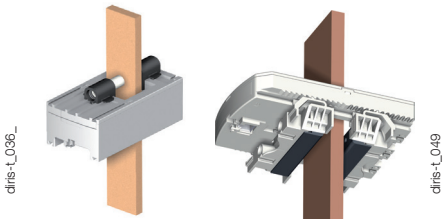
DIN rail mounted



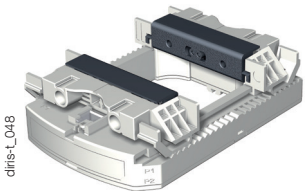
Back-plate mounting



Bar mounting

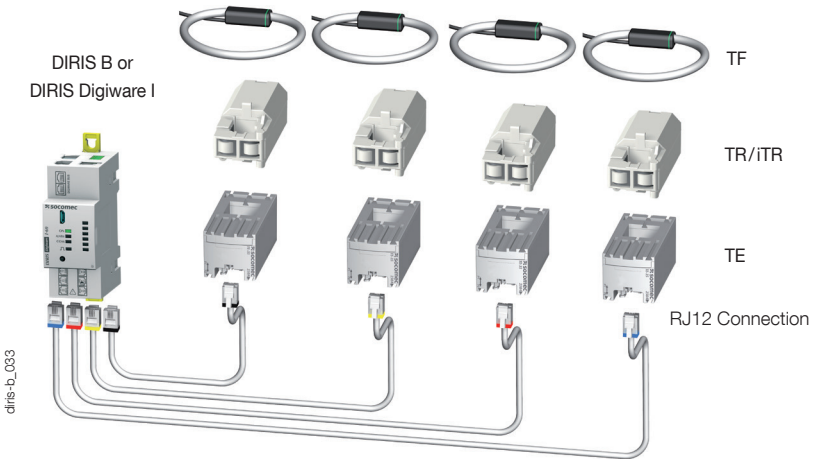


TE-90 clamps



Connections

TE /TR /iTR/TF current sensors



TE sensors

Solid-core current sensors

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

Mounting accessories

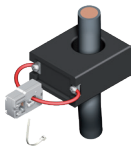
Mounting accessories delivered with TE sensors:

Switch mounting		TE-18	TE-25	TE-35 TE-45 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	

diris-t_042_a - 043_a - 044_a - 045_a

Compatible accessories

Adapter for CT with 5A secondary

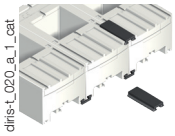


diris-t_041_a_1_cat

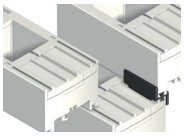
- With this adapter you can use a current transformer with a 1 A or 5 A output on DIRIS Digiware I, DIRIS B and DIRIS A-40.
  For use with 5 A CTs (measurement up to 10 000 A) or 1 A CTs (measurement up to 2000 A). The dimensions are the same as the TE-18.

Coupling link

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

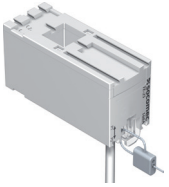


diris-t_020_a_1_cat



Sealable cover

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

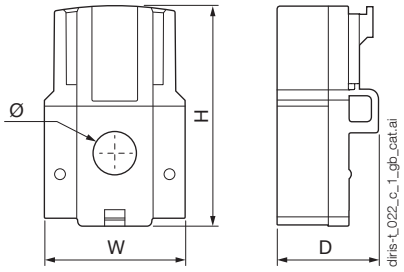


diris-t_046_a_1_cat

Dimensions (mm)

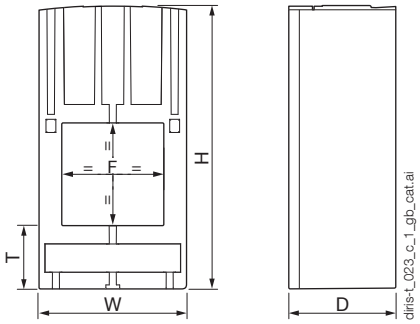
TE - Solid current sensors

TE-18



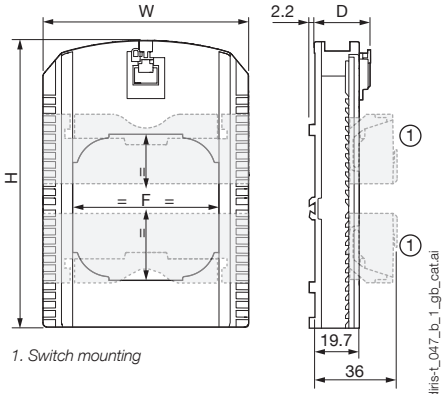
diris-t_022_c_1_gb_cat.ai

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



diris-t_023_c_1_gb_cat.ai

TE-90



1. Switch mounting

diris-t_047_b_1_gb_cat.ai

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					600 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**

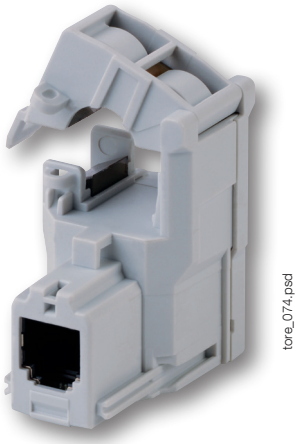
Accessories	Reference
Coupling link (20 linear assembly parts and 10 for staggered assembly)	4829 **0598**
5 A CT adapter (max primary current 2000 A /1 A or 10 000 A /5 A)	4829 **0599**
Sealable caps (20 pieces)	4829 **0600**

	Cable length (m)									
RJ12 connection cables	**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 monitorign 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 Virtual Monitor status monitoring technologies and to AutoCorrect automatic configuration.

Advantages of the TR and iTR ranges

Smart sensors

- Sensors with an extended range of functionality.
- Automatic detection of rating.
- Disconnection in secured load.
- Rapid connection by RJ12 and identification of cables by colour coding.

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 technology guarantees that your measurement system will function properly by:

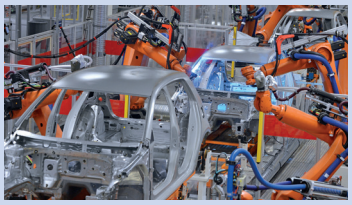
- Automatically checking the wiring (locating of phase sequencing and automatic configuration of the direction of current).
- Correcting errors.

General characteristics

- Range from 25 to 600A.
- Used with power monitoring device DIRIS Digiware, DIRIS A-40, DIRIS B.
- PreciSense technology: global protection class in accordance with standard IEC 61557-12.
- Easy installation and configuration.

The solution for

- Data centre
- Healthcare
- Energy
- Building



Strong points

- Smart sensors
- Accurate
- VirtualMonitor technology
- AutoCorrect technology

Integrated technologies(1)

PreciSense AutoCorrect VirtualMonitor

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

For more information see our website www.socomec.com

Conformity to standards

- IEC 61557-12
- ISO 14025
- UL

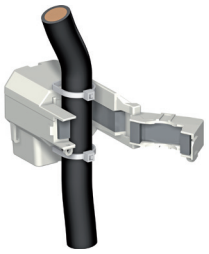
Create your project

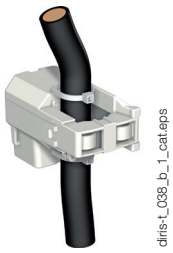
- Find the best DIRIS Digiware configuration: **www.meter-selector.com**

METER SELECTOR DIGITAL TOOL AVAILABLE

Installation

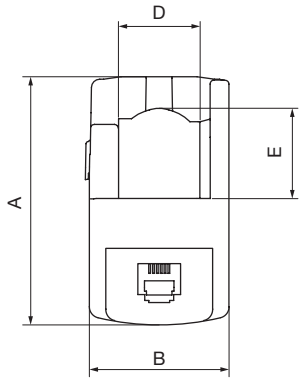
Cable mounting



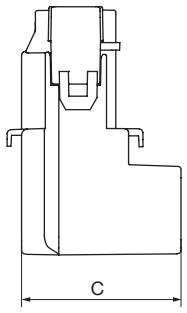


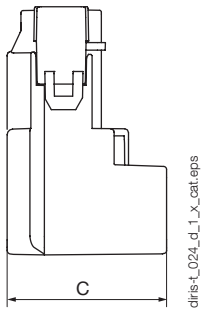
Dimensions (mm)

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



iTR/TR-10





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_n (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_n 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	7	10	50 m reel + 100 connectors
Number of cables	Reference	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**	4829 **0607**	4829 **0608**	4829 **0609**	-
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

- Data centre
- Healthcare
- Energy

Strong points

- Plug & Play
- Accuracy as per standard IEC 61557-12
- Safe locking mechanism
- Installation
- Simplified installation

Integrated technologies

PreciSense

For more information see our website 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**

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/transformation ratio.
- The sensors can be installed in both directions.

Accuracy as per standard IEC 61557-12

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

Safe locking mechanism

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 restricted by strict integration constraints or with highintensity currents.

Simplified installation

- The TF sensor electronics are integrated into the RJ12 cable itself for a quick and compact setup (no DIN rail assembly required) inside electrical panels.
- The integrator is self supplied by the PMD through the RJ12 cable and does not need an external power supply.

General characteristics

- Range from 150 to 6000A.
- Used with DIRIS Digiware, DIRIS A-40 and DIRIS B.

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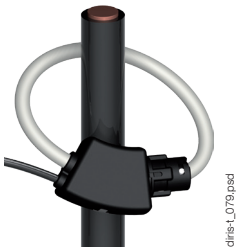
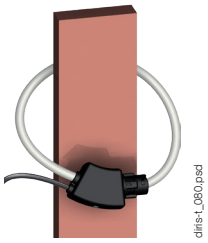
Installation

Cable mounting

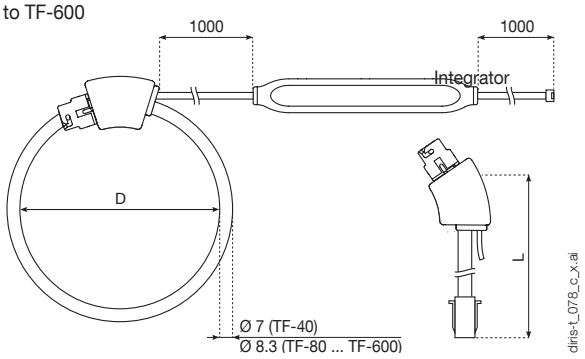


Bar mounting



Dimensions (mm)

TF-40 and TF-80 to TF-600



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-80	150 ... 600	3 ... 720	80	251
TF-120	500 ... 2000	10 ... 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-80	TF-120	TF-200	TF-300	TF-600
Nominal current range I_n (A)	100 ... 400	150 ... 600	500 ... 2000	600 ... 4000	1600 ... 6000	1600 ... 6000
Real range covered (A)	2 ... 480	3 ... 720	10 ... 2400	12 ... 4800	32 ... 7200	32 ... 7200
Weight (g)	114	130	142	164	193	274
Max. voltage	600V (Ph/N) / 1000V (Ph/Ph)					
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 In for 1 s					
Measurement category	1000V CAT III / 600V CAT IV					
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-80	150 ... 600	3 ... 720	80	251	4829 **0574**
TF-120	500 ... 2000	10 ... 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	Reference
Female/female connector for extension of the RJ12 connection between PMD and TF sensor	4829 **0670**

RJ12 connection cables	Cable length (m)										
	0.1	0.2	0.3	0.5	1	2	3	5	7	10	50 m reel + 100 connectors
Number of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	-	4829 **0602**	-	4829 **0603**	4829 **0601** (1)
3	4829 **0580**	4829 **0581**	4829 **0582**	4829 **0595**	4829 **0583**	4829 **0584**	4829 **0606**	4829 **0607**	4829 **0608**	4829 **0609**	-
4	-	-	-	4829 **0596**	4829 **0588**	4829 **0589**	-	-	-	-	-
6	4829 **0590**	4829 **0591**	4829 **0592**	4829 **0597**	4829 **0593**	4829 **0594**	-	-	-	-	-

(1) The maximal length between the sensor and the current module = 10m.

ACCUline CT-O

Customisable split-core measurement current transformer

from 5 A to 4800 A

gamme_895.psd

The solution for

- Data centres
- Infrastructure & Transport
- Industry
- Buildings

Strong points

- Highly accurate
- Wide range of measurement
- Universal
- Optimum compactness
- Save time in mounting
- Infinitely customisable

Conformity to standards

- IEC 61869-2
- UL 61010
- UL 2808

Function

CT-Os are measurement transformers perfectly suitable for existing installations thanks to their secure opening. They provide high accuracy measurement, whether on bars or cables.

Advantages

Highly accurate
Available in Classes 0,2 S / 0,5 and 1 in accordance with IEC 61869-2.

Wide range of measurement
CT-O covers a current range from 5 to 4800A using the minimum number of different frames needed, saving considerable time and space.

Universal
Available in current output or voltage output, the CT-O range is compatible with any measurement system.

Optimum compactness
Among the most compact on the market, the CT-O range easily adapts to tight spaces.

Save time in mounting
Whether on a DIN rail or on the backplate, the CT-O range is easy to mount thanks to a dedicated accessory.

Infinitely customisable
The technical specifications are fully customisable, from rated current to the number of turns desired.

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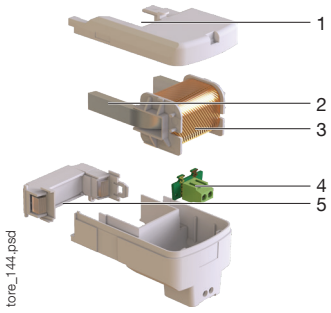
Current transformers adaptable to all your requirements

Socomec's CT-O range can meet all your requirements thanks to its high capacity for customisation. From secondary values to rated primary current, the technical specifications can be adjusted to perfectly align with the requirements of your installation.

List of customisable characteristics



1. Window size:
- 10…120 mm

2. Rated current range:
- 20…4000 A

3. Accuracy class
- 0.2S…3

4. Secondary signal:
- 100…333 mV
- 1-5 A

Output type:
- Terminal block
- Pre-wired
- RJ12

5. Product type:
- Split-core current transformer

Selection guide

Need to configure your current transformers? Use the table below to guide your selection. Start by selecting the dimensions of your frame. The technical specifications can be fully adapted.

Parameters	CT-O-10	CT-O-14	CT-O-21	CT-O-32	CT-O-50	CT-O-80	CT-O-120	CT-O-20	CT-O-45	without frame
Rated current range (A)[1]	20…75	40…200	63…300	125…750	60…1000	75…2000	100…4000	5…250	250…600	Contact us
Actual current range (A)[2]	1…90	2…240	3.15…360	6.25…900	3…1200	3.75…2400	5…4800	0.25…300	12.5…720	
Window size (mm)	10	14	21	32	50	80	120	20	45	
Accuracy class	0.5 1 3				0.2 0.5 1 3			0.5S 0.5 1	0.2S 0.2 0.5S 0.5 1	
Secondary signal	100 mV... 333 mV		100 mV...333 mV 1 A		100 mV...333 mV 1 A...5 A			333 mV...1 V		
Frequency (Hz)	50…60							50…60 / 50…400		
Standards	IEC 61869-2 IEC 61439-1 UL 61010							UL 2808 IEC 60044-1		
Output type	Terminal block Pre-wired RJ12							Pre-wired		
Phase-neutral voltage	300 V							600 V		
Measurement category	CAT III							CAT IV		
Rated withstand voltage	3 kV									
IP Rating	IP20 / IK 07							IP20		
Operating altitude	<2000 m							<3000 m		
Operating temperature	-10…+70 °C							-30°C... 55°C	-30°C... 75°C	
Storage temperature	-25…+85 °C							-30°C... 55°C	-30°C... 75°C	

1. The rated current is within the range of values specified.
2. In accordance with IEC 61869-2, the accuracy class is specified for a current between 0.05In and 1.2In. For example, a current transformer with CT-O-32, having a rated current of 750 A and an accuracy class of 0.5, covers a current range of 38 A to 900 A.

References

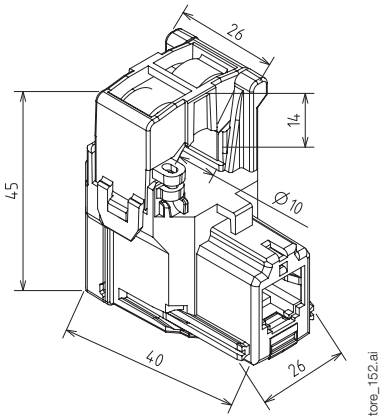
The ACCUline range offers the ability to adjust all parameters to create the perfect current transformer for your requirements. Do not hesitate to ask for advice or to obtain a quote by contacting your local Socomec dealer.

ACCUline CT-O

Customisable split-core measurement current transformer
from 5 A to 4800 A

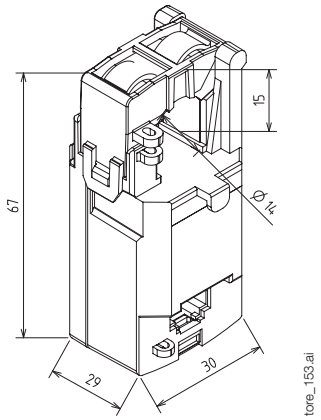
Dimensions (mm)

CT-O-10



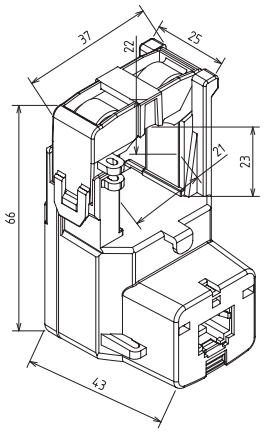
tore_152.ai

CT-O-14



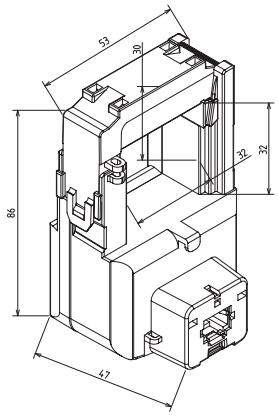
tore_153.ai

CT-O-21



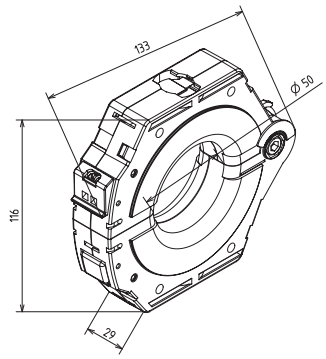
tore_154.ai

CT-O-32



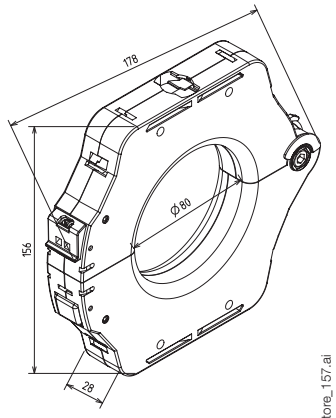
tore_155.ai

CT-O-50



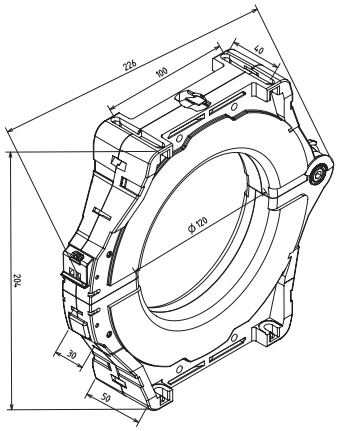
tore_156.ai

CT-O-80



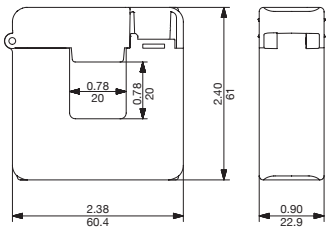
tore_157.ai

CT-O-120



tore_158.ai

CT-O-20



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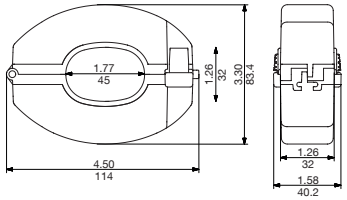
CT-O-45



trafo_221_a.ai

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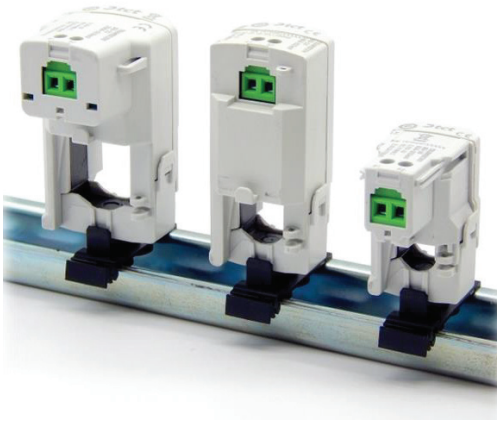
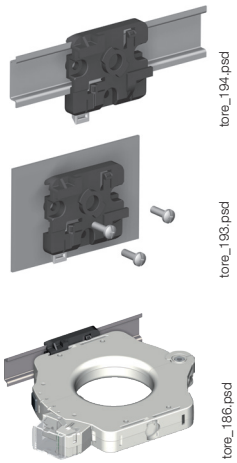
Compatible accessories

Mounting


tore_185.psd

(Optional) mounting accessory available for CT-O-10, CT-O-14, CT-O-21 and CT-O-32


tore_194.psd
tore_193.psd
tore_186.psd


tore_188.psd
tore_187.psd

Mounting accessory for CT-O-50 and CT-O-80 and for CT-O-120

Connection

The (optional) quick connection kit simplifies connection of wires to the current transformer secondary. This accessory reduces mounting time compared to a screw-on connector.


tore_189.psd

Standard connection


tore_190.psd

Quick connection kit

Sealing

CT-O-10 to CT-O-32 and CT-O-45 can inherently be sealed. CT-O-50 to CT-O-120 have an (optional) sealable cover. Sealing enables the cover to be sealed to prevent any undesirable modifications.


tore_191.psd


tore_192.psd


tore_178.psd

ACCUline BCT-C

Customisable high-accuracy current transformer for billing
from 0.2 to 2400 A

gamme_900.psd

The solution for

> Energy
> Infrastructure & Transport
> Industry

Strong points

> Exceptional accuracy
> Multiple ratings
> Easy to install
> Infinitely customisable

Conformity to standards

> IEC 61869-2
> IEC 61010

Function

BCT-Cs are current transformers that offer accurate measurement of currents up to 2400 A. BCT-C current transformers play a crucial role in billing applications and those that require state-of-the-art accuracy. Their level of accuracy ensures extremely reliable and true-to-life measurements.

Advantages

Exceptional accuracy
Accuracy class 0.2S ensures very high quality measurement, even at very low loads. Accuracy class 0.2Smax, exclusive to Socomec, ensures extremely accurate measurements, from 0.2 to 120% In, with a constant accuracy of 0.2% over the entire range.

Ultra-wide measurement range
BCT-C performance reduces the number of references needed in the field. A single BCT-C can cover a current range from 4 to 2400 A.

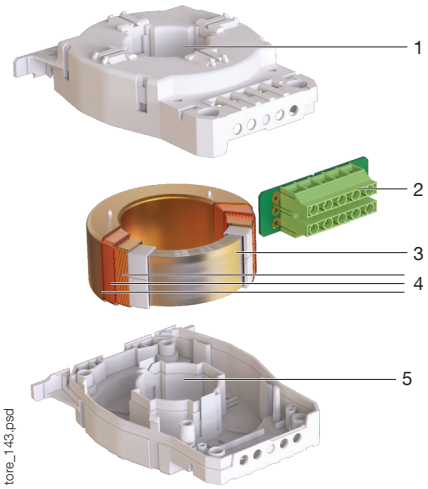
Easy to install
Several mounting options are available, enabling installation on a backplate, a DIN rail or directly on the bar or cable itself.

Infinitely customisable
The technical specifications are fully customisable, from rated current to the number of turns desired.

Current transformers adaptable to all your requirements

Socomec's BCT-C range can meet all your requirements thanks to its high capacity for customisation. From primary current rating to number of turns, the technical specifications can be adjusted to perfectly align with the requirements of your applications.

List of customisable characteristics



1. Product type:
- Solid-core current transformer

2. Secondary signal:
- 1 A, 5 A, 333 mV

Output type:-
- Terminal block

3. Accuracy class:
- 0.2S / 0.2S max

4. Rated current range:
- 100…2000 A
- Optimisation of measurement range with three separate windings

5. Aperture size:
- 40...105*42

Selection guide

Need to configure your current transformers? Use the table below to guide your selection. Start by selecting the dimensions of your frame. The technical specifications can be fully adapted.

Parameters	BCT-C-40	BCT-C-90	BCT-C-105.42	without frame
Rated current range (A)[1]	100…500	200…2000	500...2000	Contact us
Actual current range (A)[2]	0.2…600	0.4…2400	1...2400	
Aperture size (mm)	40	90	105*42	
Accuracy class	0.2S 0.2S max			
Secondary signal	1 A 5 A 333 mV			
Frequency (Hz)	50			
Output type	Terminal block			
Phase-neutral voltage	720 V			
Measurement category	CAT III			
Rated withstand voltage	3 kV			
IP Rating	IP20 / IK 07			
Operating altitude	<2000 m			
Operating temperature	-10…+70 °C			
Ambient storage temperature	-25…+85 °C			

1. The rated current of the current transformer is within the range of values specified.
2. In accordance with IEC 61869-2, accuracy class 0.2S is specified for a current between 0.01In and 1.2In.
For example, a current transformer with BCT-C-90, having a rated current of 2000 A and an accuracy class of 0.2S, covers a current range of 20 to 2400 A, while 0.2Smax units provide an accuracy of 0.2% from 0.002 In to 1.2 In.

References

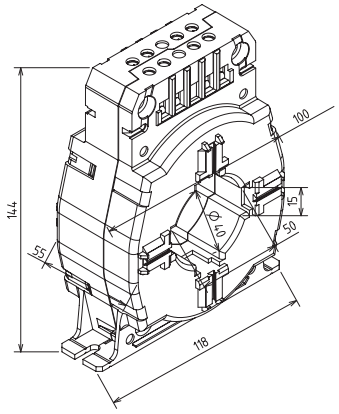
The ACCUline range offers the ability to adjust all parameters to create the perfect current transformer for your requirements. Do not hesitate to ask for advice or to obtain a quote by contacting your local Socomec dealer.

ACCUline BCT-C

Customisable high-accuracy current transformer for billing
from 0.2 to 2400 A

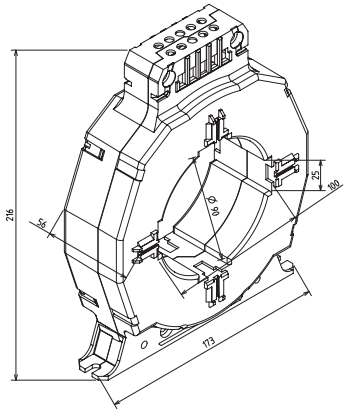
Dimensions (mm)

BCT-C-40



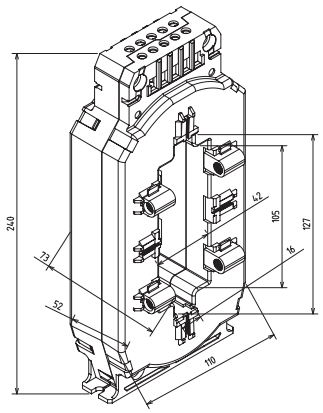
tore_149.ai

BCT-C-90



tore_150.ai

BCT-C-105.42

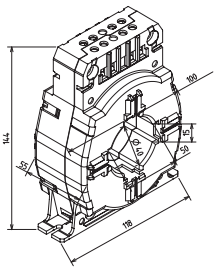


tore_151.ai

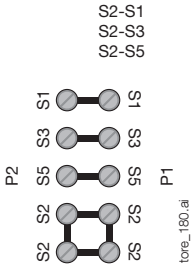
Multi-ratings

The BCT-C range frames are equipped with various output terminal blocks and grouped under a single reference, which makes it possible to cover a current range from 20 to 2400 A while maintaining accuracy class 0.2S. The advantage of using a single reference is in its versatility, enabling use in various locations. Gain agility during your installations and optimise your resources.

As BCT-Cs are multi-rating, selection of the ratio is made with reference to the diagram below.



tore_149.ai



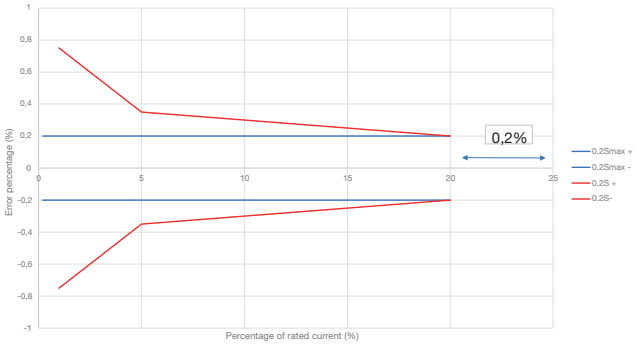
tore_180.ai

Ratio	Connection
2000/5(1)	S2-S1
1000/5(1)	S2-S3
5000/5(1)	S2-S5

(1). The specified ratios are given as an example and can be adjusted according to your requirements.

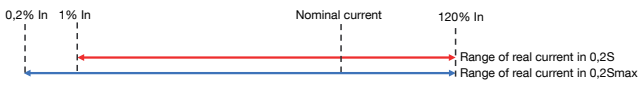
Discover the 0.2Smax accuracy class

Socomec's 0.2Smax class offers you unequalled performance. BCT-C current transformers in class 0.2Smax are 40% more efficient in amplitude and 30% more efficient in phase shift than current transformers in class 0.2S at low load. This efficiency gain enables you to minimise technical losses.



tore_218_en.ai

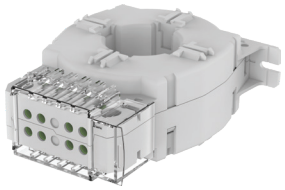
Accuracy class 0.2Smax enables even wider measurement ranges to be achieved, while guaranteeing 0.2% accuracy over the entire range.



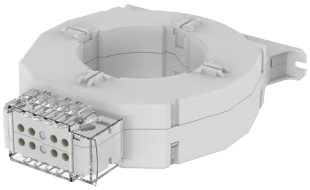
tore_217_en.ai

Sealing

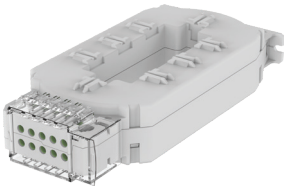
(Optional) sealing enables the cover to be sealed preventing any unauthorised modification of the connections.



tore_173.psd



tore_174 .psd



tore_175.psd

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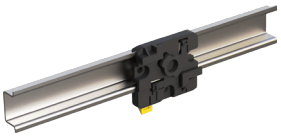
Compatible accessories

Simplified installation

The design of the BCT-C range simplifies installation. Whether in a conventional environment (DIN rail or backplate) or not, you can choose between the following mounting options:

On DIN rail


tore_214.tif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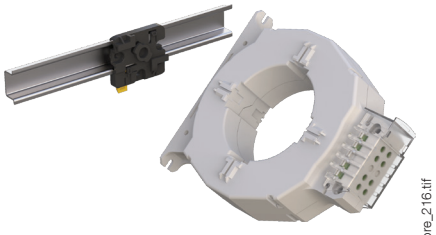
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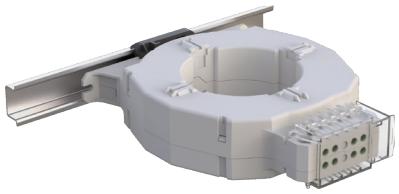
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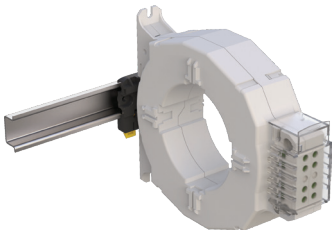
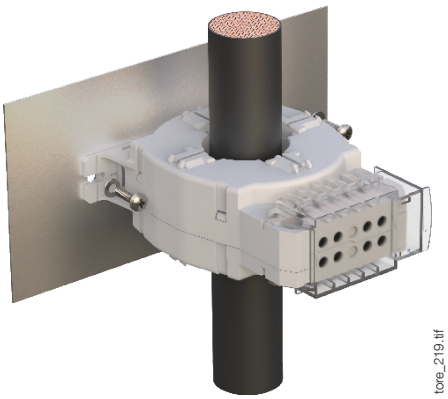
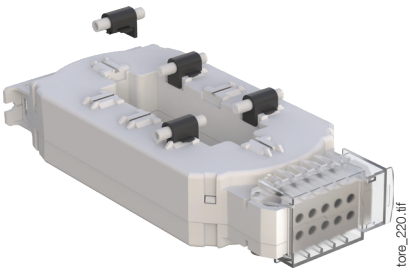

tore_215.tif

On backplate


tore_219.tif

On bar or on cable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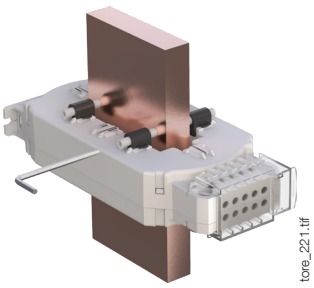
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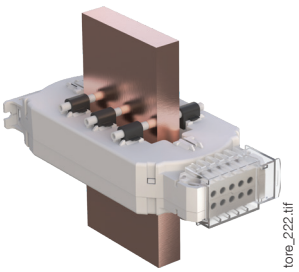
tore_222.tif

The entire BCT-C range is equipped with fixing screws for installation on one or more bars.

ACCUline DCT-C

Customisable solid-core residual current transformer

from 36 to 630 A per phase – 3 mA to 30 A of fault current

tore_127.psd

The solution for

- Data centres
- Energy
- Infrastructure & Transport
- Industry
- Buildings

Strong points

- Wide range of measurement
- High immunity
- Suitable for all cable diameters
- Infinitely customisable
- Universal

Conformity to standards

- IEC 61869-1
- IEC 60947-2 Annex M
- IEC 62020
- UL 508

Function

DCT-C solid-core residual current transformers are designed to measure type A residual current. If there are no faults, the vector sum of the currents is zero. DCT-C cores perform a vector sum of currents in the circuit to identify any anomalies. They are designed for residual current protection and monitoring.

Advantages

Wide range of measurement
The DCT-C range offers a wide current range, from 36 to 630 A per phase, in accordance with IEC 61869-1.

High immunity
The accuracy of the DCT-C range comes from the integral winding around the core. It thereby eliminates the measurement errors associated with the arrangement of the conductors.

Suitable for all cable diameters
The DCT-C ranges offers an unequalled variety of sizes, from 17 to 300 mm. This enables selection of the core most suitable for the application.

Infinitely customisable
From primary current to transformation ratio, the technical specifications are fully customisable.

Universal
The secondary output voltage adapts to any differential and protection relays.

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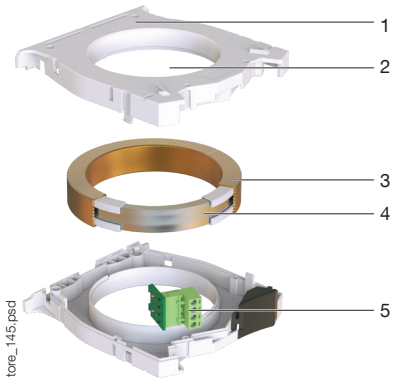
Current transformers adaptable to all your requirements

Socomec's DCT-C range can meet all your requirements thanks to its high capacity for customisation. From primary current to transformation ratios, the technical specifications can be adjusted to perfectly align with the requirements of your installation.

List of customisable characteristics



1. Product type:
- Solid-core current transformer

2. Window size
- 15…300 mm

3. Transformation ratio
- 500…8000/1

4. Per-phase current:
- 36…630 A

Fault current:
- 3 mA …30 A

5. Secondary signal:
- 10…100 mV

Output type:
- Terminal block
- Pre-wired

Selection guide

Need to configure your current transformers? Use the table below to guide your selection. Start by selecting the dimensions of your frame. The technical specifications can be fully adapted. The rated operational current (A) represents the current flowing in a single phase, while the rated primary current (A) represents the residual current of the installation, also known as the fault current.

Parameters	DCT-C-17	DCT-C-30	DCT-C-50	DCT-C-80	DCT-C-120	DCT-C-200	DCT-C-300	without frame
Rated operational current (A)	36	65	85	160	250	400	630	Contact us
Primary rated current range (A)	0.003….30							
Window size (mm)	17	30	50	80	120	200	300	
Transformation ratio	500/1…8000/1							
Secondary signal	10…100 mV							
Frequency (Hz)	50…60							
Output type	Terminal block Pre-wired							
Phase-neutral voltage	300 V							
Measurement category	CAT III							
Rated withstand voltage	3 kV							
IP Rating	IP20 / IK 07							
Operating altitude	<2000							
Operating temperature	-10…+70 °C							
Storage temperature	-25…+85 °C							

References

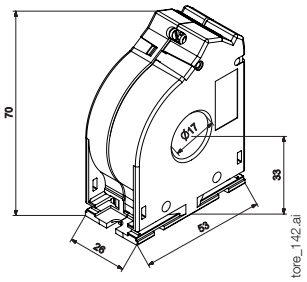
The ACCUline range offers the ability to adjust all parameters to create the perfect current transformer for your requirements. Do not hesitate to ask for advice or to obtain a quote by contacting your local Socomec dealer.

ACCUline DCT-C

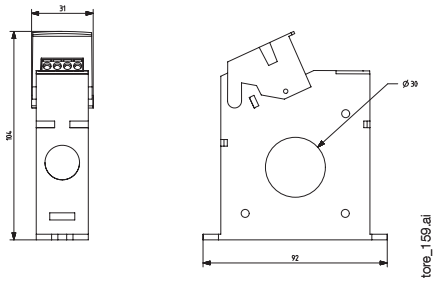
Customisable solid-core residual current transformer
from 36 to 630 A per phase – 3 mA to 30 A of fault current

Dimensions (mm)

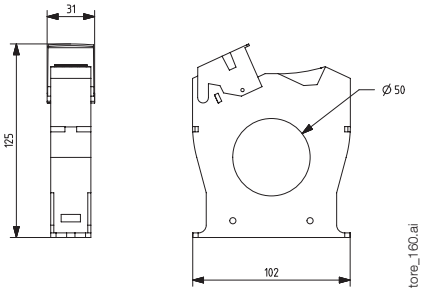
DCT-C-17



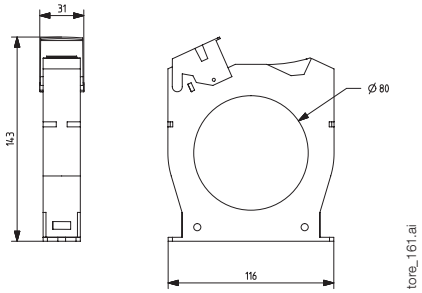
DCT-C-30



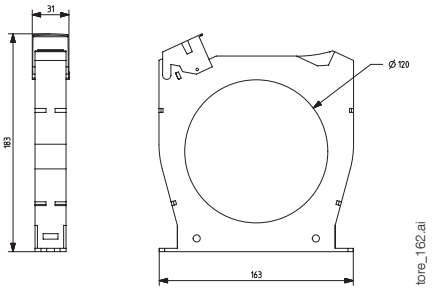
DCT-C-50



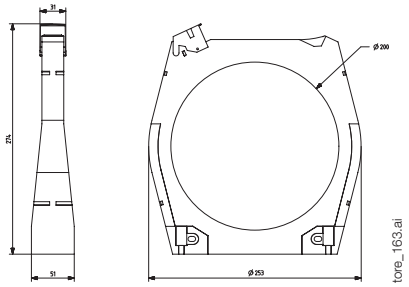
DCT-C-80



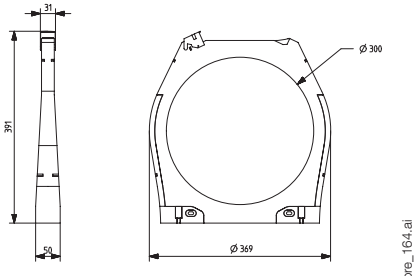
DCT-C-120



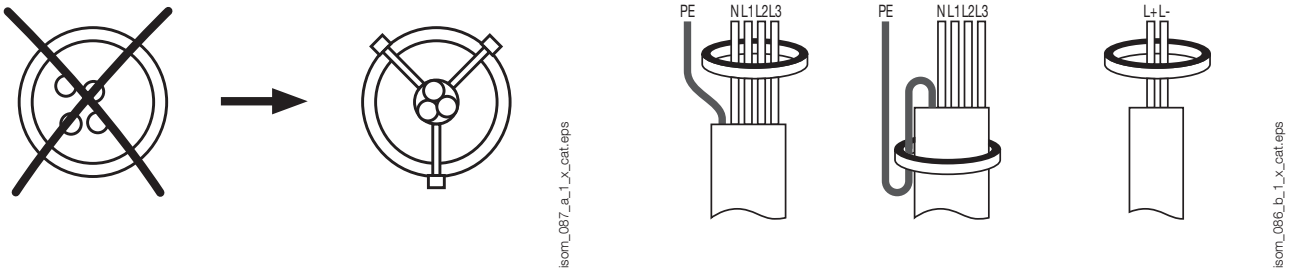
DCT-C-200



DCT-C-300



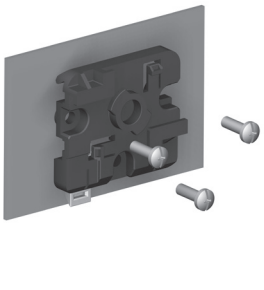
Placement of primary conductors

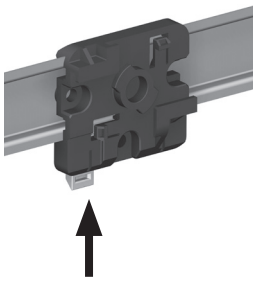


Compatible accessories

Mounting

With a single accessory you are free to mount the core on DIN rail and/or backplate in either orientation (vertical or horizontal).


tore_193.psd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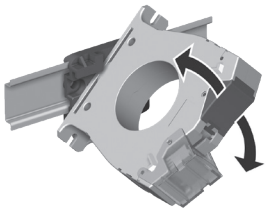
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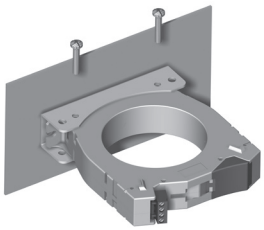

tore_196.psd

Sealing

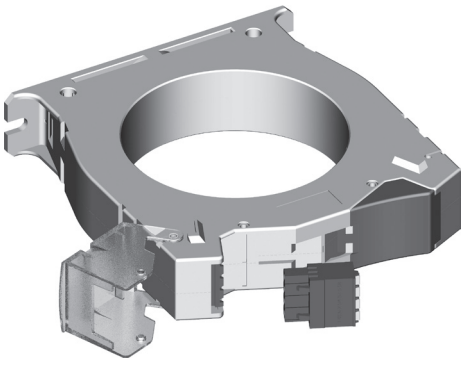
Sealing enables the cover to be sealed preventing any unauthorised modification of the connections.


tore_197.psd


tore_198.psd

Connection

The quick connection kit simplifies connection of the wires to the secondary of the current transformer, which reduces installation time compared with a terminal block.


tore_199.eps

ACCUline DCT-O

Customisable split-core residual current transformer

from 85 to 250 A per phase - 3 mA to 30 A of fault current

gamme_901.psd

The solution for

- Data centres
- Energy
- Infrastructure & Transport
- Industry
- Buildings

Strong points

- Multiple mounting
- High immunity
- Secure closure
- Faster connection time
- Infinitely customisable

Conformity to standards

- IEC 61869-1
- IEC 60947-2 Annex M
- IEC 62020
- UL 508

Function

DCT-O are split-core residual current transformers that measure type A residual current. In a circuit without faults, the vector sum of the currents is zero. DCT-O perform a vector sum of currents in the circuit to detect any anomalies. They are designed for residual current monitoring and protection.

Advantages

Multiple mounting

The DCT-O range offers various mounting options thanks to its versatile accessory. Whether on DIN rail or on backplate (front panel), DCT-Os are adaptable to your specific requirements.

High immunity

The DCT-O range is distinguished by its complete winding around the core, offering unequalled accuracy by eliminating the inaccuracies associated with the arrangement of the conductors. Combined with the Socomec patented cable centralizer, this association enables electrical measurements of outstanding absolute reliability.

Secure closure

The "One Click" system ensures fast, reliable closure, even under severe mechanical conditions.

Faster connection time

Thanks to its quick connection kit, the DCT-O range makes it quick and easy to connect secondary wires, providing quick and easy installation.

Infinitely customisable

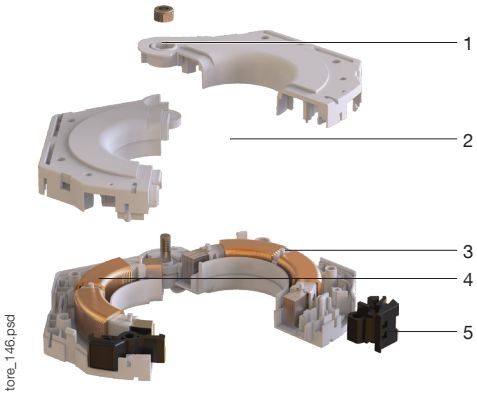
The specifications are fully adjustable, enabling full customisation, from primary current to transformation ratio.

socomec Innovative Power Solutions

Current transformers adaptable to all your requirements

Socomec's DCT-O range can meet all your requirements thanks to its high capacity for customisation. From primary current to transformation ratios, the technical specifications can be adjusted to perfectly align with the requirements of your installation.

List of customisable characteristics



1. Product type:

- Split-core current transformer

2. Window size:
- 50...120 mm

3. Per-phase current:
- 85…250 A

Fault current:
- 3 mA …30 A

4. Transformation ratio
500…8000/1

5. Secondary signal:
- 10…100 mV

Output type:
- Terminal block
- Pre-wired

Selection guide

Need to configure your current transformers? Use the table below to guide your selection. Start by selecting the dimensions of your frame. The technical specifications can be fully adapted. The rated operational current (A) represents the current flowing in a single phase, while the rated primary current (A) represents the residual current of the installation, also known as the fault current

Parameters	DCT-O-50	DCT-O-80	DCT-O-120	without frame
The rated operational current (A)	85	160	250	Contact us
Primary rated current range (A)	0.003…30			
Window size (mm)	50	80	120	
Transformation ratio	500/1…8000/1			
Secondary signal	10…100 mV			
Frequency (Hz)	50…60			
Output type	Terminal block Pre-wired			
Phase-neutral voltage	300 V			
Measurement category	CAT III			
Rated withstand voltage	3 kV			
IP Rating	IP20 / IK 07			
Operating altitude	<2000			
Operating temperature	-10…+70 °C			
Storage temperature	-25…+85 °C			

References

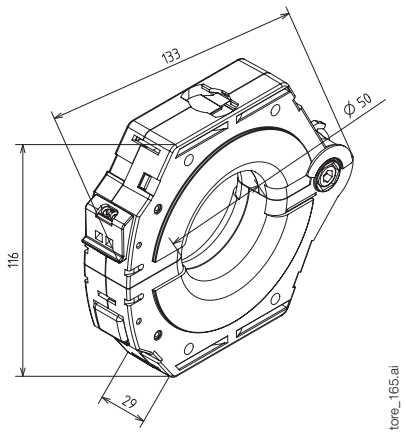
The ACCUline range offers the ability to adjust all parameters to create the perfect current transformer for your requirements. Do not hesitate to ask for advice or to obtain a quote by contacting your local Socomec dealer.

ACCUline DCT-O

Customisable split-core residual current transformer
from 85 to 250 A per phase – 3 mA to 30 A of fault current

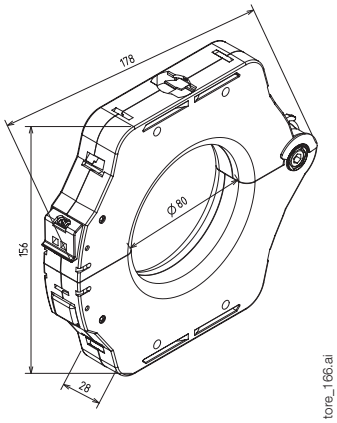
Dimensions (mm)

DCT-O-50



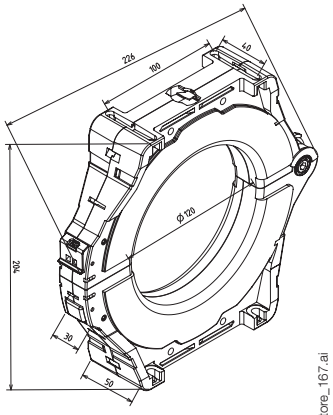
tore_165.ai

DCT-O-80



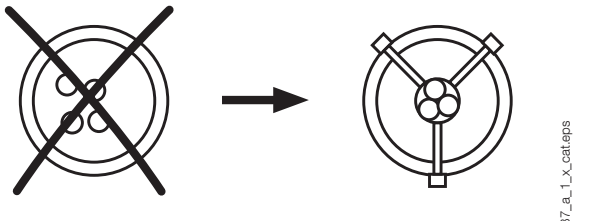
tore_166.ai

DCT-O-120



tore_167.ai

Placement of primary conductors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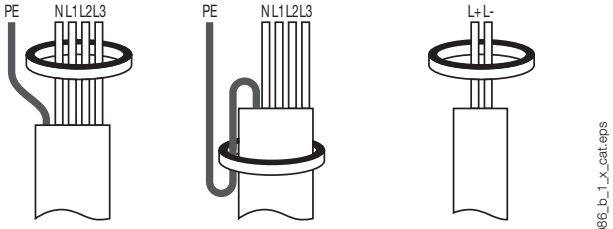
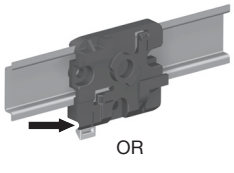


isom_086_b_1_x_cat.eps

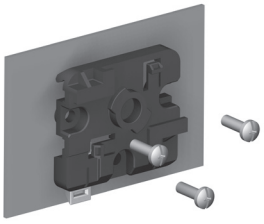
Compatible accessories

Mounting

With a single accessory you are free to mount the core on DIN rail and/or backplate in either orientation (vertical or horizontal).

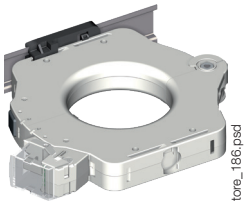


tore_194.psd


tore_193.psd

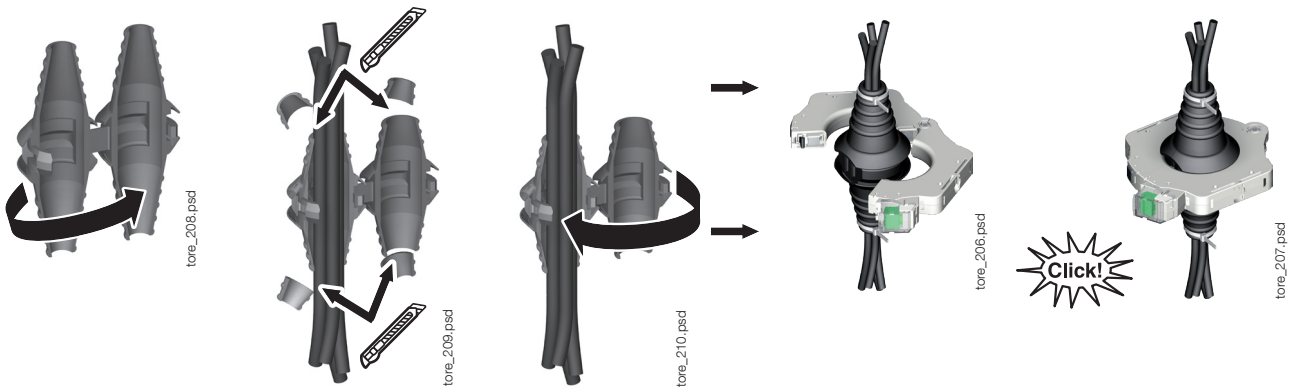

tore_188.psd


tore_187.psd


tore_186.psd

Cable centralizer

The Socomec patented cable centralizer reduces errors associated with incorrect placement of the primary conductors at the centre of the core. If the conductors are not correctly centred, the measurement values can be incorrect, leading to spurious trips.



Connection

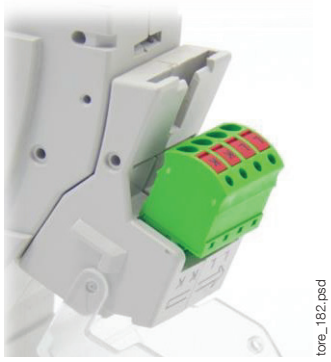
The (optional) quick connection kit simplifies connection of wires to the current transformer secondary. This accessory reduces mounting time compared to a screw-on connector.

Standard connection

Quick connection kit

Sealing

All DCT-O frames have an (optional) sealable cover. Sealing enables the cover to be sealed preventing any modification of the connections.



Sealing with quick connection kit

Sealing without quick connection kit

ACCUline PCT-C

Customisable protection current transformer

from 40 to 4000 A rated - 120 kA in overload current

gamme_902.psd

The solution for

- Energy
- Infrastructure & Transport
- Industry

Strong points

- Wide range of measurement
- Versatile installation
- Universal
- Infinitely customisable

Conformity to standards

- IEC 61869-2
- IEC 61010

Function

Protection current transformers measure the current load in the circuit. In the event of an abnormal current, such as a short circuit or overload, the protection current transformer can be paired with a relay that can trip protection devices to isolate the faulty part of the system and prevent possible damage.

Advantages

Wide range of measurement

The PCT-C range offers exceptional current coverage of up to 30 times the rated value to detect very large current faults.

Versatile installation

The PCT-C range offers installation flexibility, providing various mounting options whether on DIN rail or backplate. Furthermore, if the environment does not enable conventional installation, this equipment can be fitted directly onto the bar or cable.

Universal

The secondary current of the PCT-C range is available in 1 or 5 A. This versatility enables the PCT-C range to be used on all protection relays.

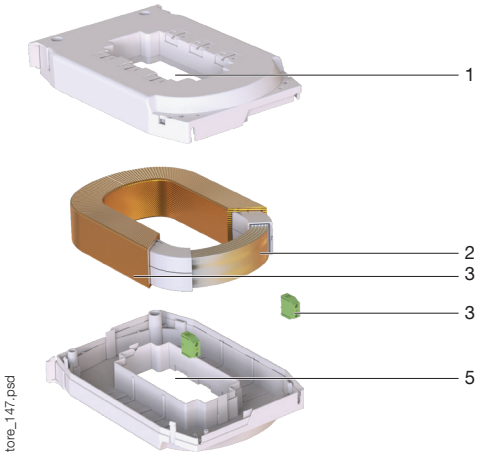
Infinitely customisable

The technical specifications are fully customisable, from rated current to the secondary current desired.

Current transformers adaptable to all your requirements

Socomec's PCT-C range can meet all your requirements thanks to its high capacity for customisation. From rated current to number of turns, the technical specifications can be adjusted to perfectly align with the requirements of your installation.

List of customisable characteristics



1. Window size:
- 20…105 mm

2. Rated current range:
- 40…4000 A

3. Accuracy class:
- 5P5…5P30

4. Secondary signal:
- 1-5 A

Output type:
- Terminal block

5. Product type:
Solid-core current transformer

Selection guide

Need to configure your current transformers? Use the table below to guide your selection. Start by selecting the dimensions of your frame. The technical specifications can be fully adapted.

Parameters	PCT-C-20	PCT-C-40	PCT-C-90	PCT-C-105.42	PCT-C-105.62	without frame
Rated current range (A)(1)	40…600		40…1250	100…4000		Contact us
Actual current range (kA)(2)	0.04…3	0.04…6	0.04…18.75	0.1…80	0.1…120	
Window size (mm)	20	40	90	105*42	105*62	
Accuracy class	5P5	5P5 5P10	5P5 5P10 5P15	5P5 5P10 5P15 5P20	5P5 5P10 5P15 5P30	
Secondary signal	5 A...1 A					
Frequency (Hz)	50…60					
Output type	Terminal block Pre-wired					
Phase-neutral voltage	300 V					
Measurement category	CAT III					
Rated withstand voltage	3 kV					
IP Rating	IP20 / IK 07					
Operating altitude	<2000					
Operating temperature	-10…+70 °C					
Storage temperature	-25…+85 °C					

1. The rated current of the current transformer is within the range of values specified.
*2. In accordance with IEC 61869-2, accuracy class 5PXX means that the current transformer is accurate to 1% at 1*In and 5% at XX*In for a specified period. For example, a PCT-C-90 current transformer, with a rated current of 1250 A and an accuracy class of 5P15, can measure currents of up to 18.75 kA for a given amount of time.*

References

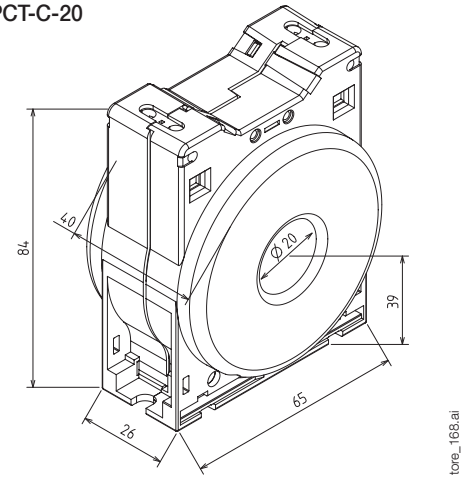
The ACCUline range offers the ability to adjust all parameters to create the perfect current transformer for your requirements. Do not hesitate to ask for advice or to obtain a quote by contacting your local Socomec dealer.

ACCUline PCT-C

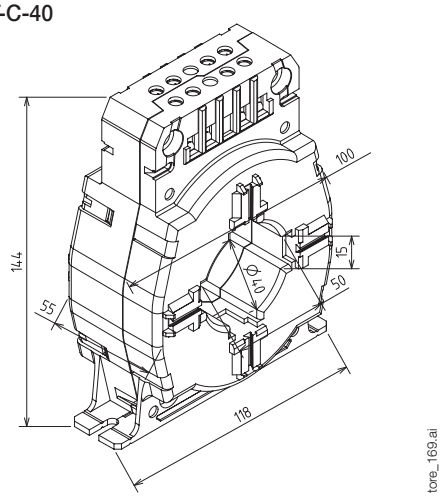
Customisable protection current transformer
from 40 to 4000 A rated - 120 kA in overload current

Dimensions (mm)

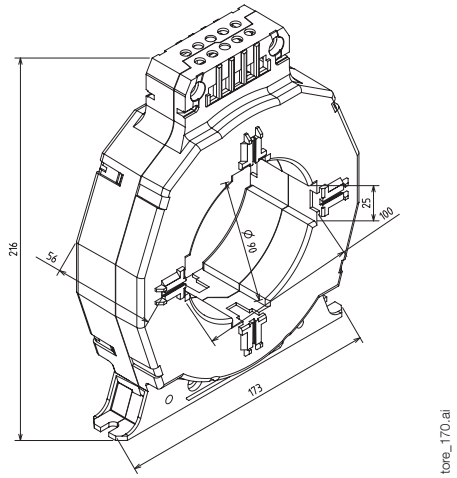
PCT-C-20



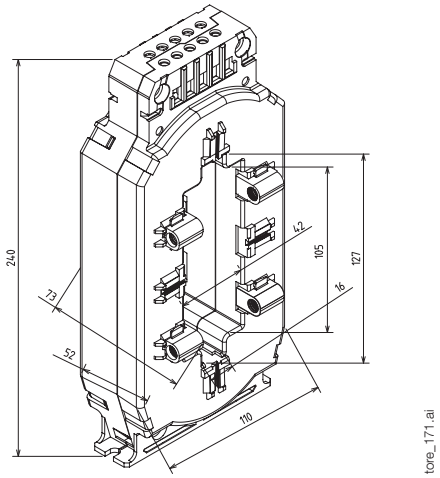
PCT-C-40



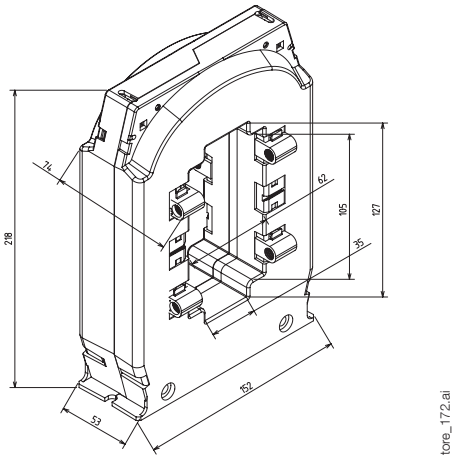
PCT-C-90



PCT-C-105.42



PCT-C-105.62



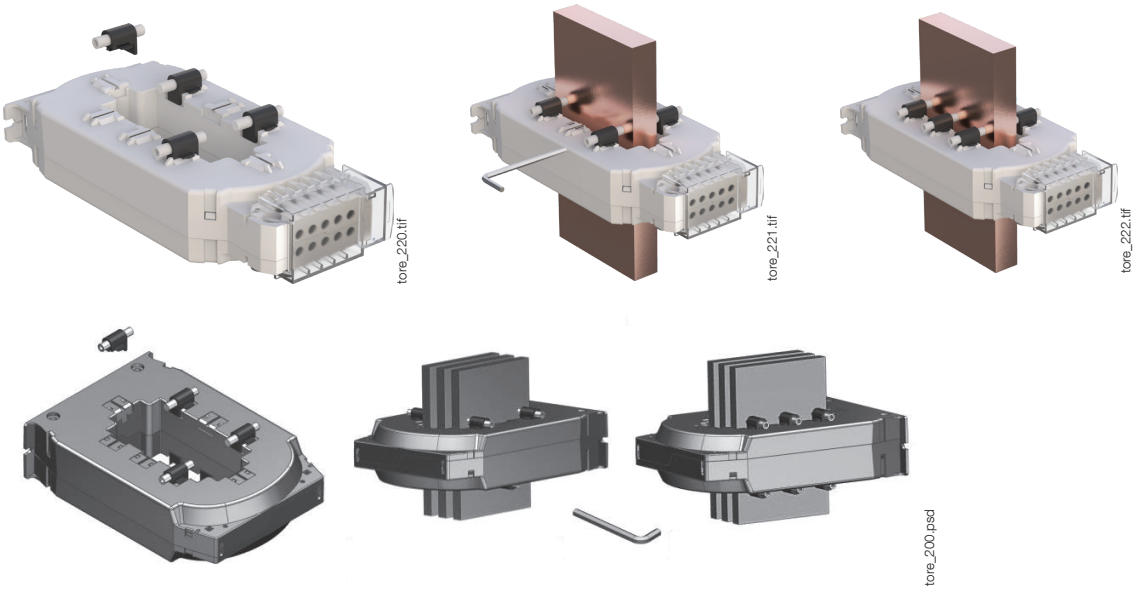
socomec
Innovative Power Solutions

Compatible accessories

Versatile installation

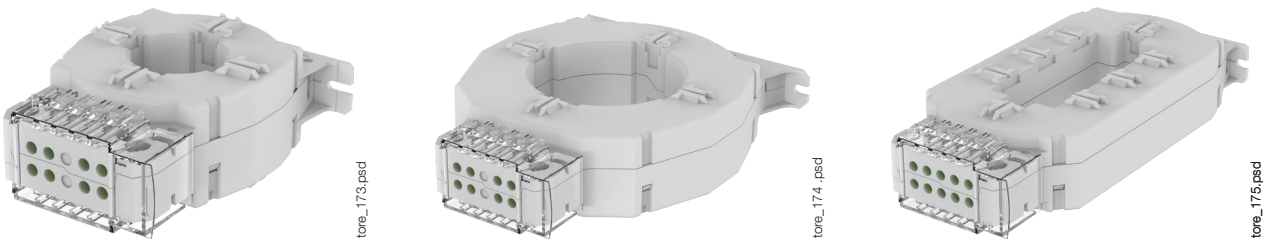
Designed to simplify installation, the PCT-C range can be mounted conventionally (on DIN rail or front panel) or on bar or cable. This saves time and adds flexibility during installation.

The entire PCT-C range is equipped with fixing screws for installation on one or more bars. This functionality is available for all frames except the PCT-C-62 frame.



Sealing

Sealing enables the cover to be sealed preventing any unauthorised modification of the connections. This functionality is available for the whole PCT-C range except the PCT-C-20 and PCT-C-105.62 frames.



ACCUline ROG-O

Customisable Rogowski sensor
from 20 A to 10 000 A

The solution for

- Energy
- Infrastructure & Transport
- Industry

Strong points

- Easy to install
- Optimum compactness
- Wide range of measurement
- Secure closure
- Infinitely customisable
- Insensitive to position

Conformity to standards

- IEC 61869-10
- UL 61010
- UL 2808

Function

ROG-O sensors are designed to measure vast ranges of current while being open and flexible, which facilitates their integration into existing applications. The ROG-O range offers the possibility of integrating the signal via various modules to eliminate the phase shift between the primary and secondary current, which is introduced by the principle of any Rogowski sensor.

Advantages

Easy to install
Sensor installation is simplified thanks to their flexibility and the opening of the loop, which speeds things up and facilitates installation.

Optimum compactness
The ROG-O range offers easy installation even in hard-to-reach and restrictive environments, thanks to its flexibility, tailored sizing and compact design.

Wide range of measurement
The ROG-O range offers a very wide measurement range, capable of covering currents from 20 to 10,000 A, all with a single sensor diameter.

Secure closure
The secure locking function of the junction frame called “safe lock” ensures reliable mounting, even under mechanical stress.

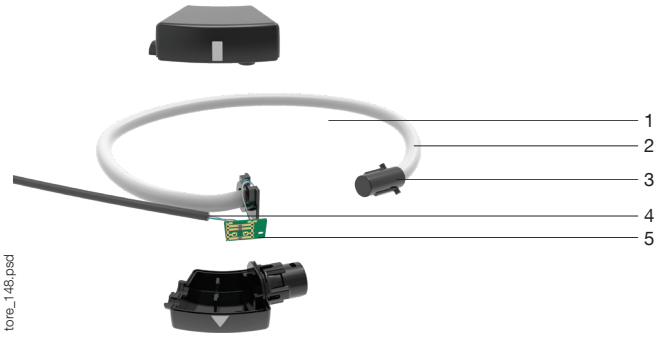
Infinitely customisable
The technical specifications are fully customisable, enabling you to adjust every parameter, from secondary circuit voltage to signal processing.

Insensitive to position
accurate measurements regardless of conductor location, thanks to full shielding across the entire sensor.

The Rogowski sensors are adaptable to all your requirements

Socomec's ROG-O range can meet all your requirements thanks to its high capacity for customisation. From rated current to loop size, ROG-Os can be customised to perfectly align with your use case and requirements.

List of customisable characteristics



1. Product type:
- Flexible and opening

2. Window size:
- 40…1000 mm

3. Accuracy class
- 0,5A1 / 1A3

4. Secondary signal:
- 100…333 mV
- 1 **A** Output type:
- Pre-wired
- RJ12
- Ferrule

5. Signal integration:
- Integrator on PCB
- External integrator
- No integrator

Selection guide

Need to customise your Rogowski sensor? Start by selecting the desired rated current. Socomec also offers ROG-O sensors with (internal/external) signal integration or without integrator. The purpose of the integrator is to eliminate the phase shift between the primary and secondary signals. The table below will guide you in your selection.

Parameters	ROG-O sensor	
Rated current range (kA)	0.002…10	
Window size (mm)	40…1000	
Length of connection cable (m)	3…15	
Standard	IEC 61869-10 UL 61010 UL 2808	
Accuracy class	0,5A1 / 1A3	
Secondary signal	Without integrator 40...150 mV/kA 50 Hz 333 mV/kA 50 Hz Others	With integrator 333 Hz to 50 Hz Others
Integration range (A)	(empty)	200…5000
Frequency (Hz)	50…60	
Output type	Tin-plated cable Ferrules RJ12	
Phase-neutral voltage	600 V	
Measurement category	1000 V CAT III, 600 V CAT IV	
Rated withstand voltage	3.6 kV	
IP Rating	IP67, IP68	
Operating altitude	<2000 m	
Operating temperature	-30 ... +80°C	
Storage temperature	-40 ... +80°C	

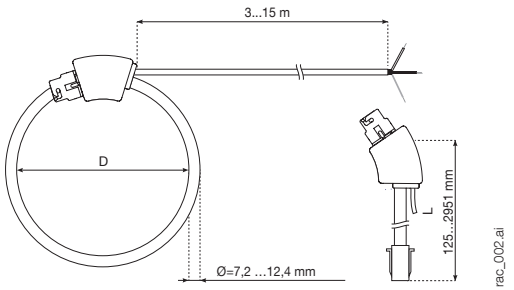
Reference

The ACCUline range offers the ability to adjust all parameters to create the perfect current sensor for your requirements. Do not hesitate to ask for advice or to obtain a quote by contacting your local Socomec dealer.

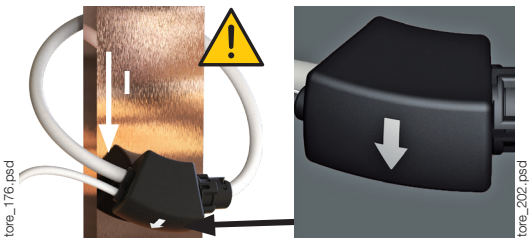
ACCUline ROG-O

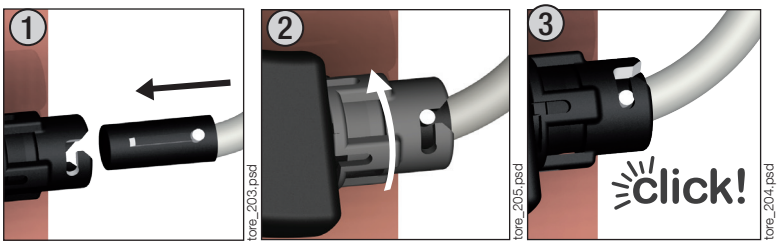
Customisable Rogowski sensor
from 20 A to 10 000 A

Dimensions (mm)

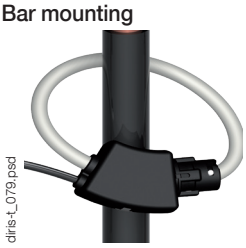


Mounting





Bar mounting

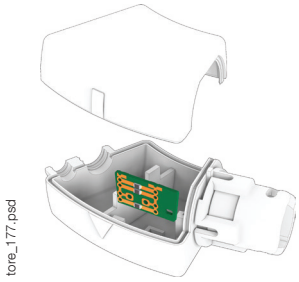


Cable mounting

Compatible accessories

To eliminate the phase shift phenomenon naturally induced between the primary and secondary by Rogowski coil technology, Socomec offers four distinct integration modules. Namely the integrator included in the junction box, the RAC-1A, the RPS50 and the FCS3000. Each of these modules provides integration and offers additional functionalities to meet your requirements

Model	Power supply	Rating available			Output signal	
		Option 1	Option 2	Option 3	Option 4	Option 5
Integrated integrator	4-26 VDC	0.2-0.25-0.6-1-2-5 kA	>5 kA, contact us	-	333 mV	contact us
RAC-1A	80…265 VAC	0.1-0.5-1-5 kA	-	-	1 A	
RPS50	80…265 VAC	0.5-2.5-10 kA	2.5-10-50 kA	10-50-250 kA	1V 3V	0…10 VDC
FCA3000	80…265 VAC	3 kA	10 kA	-	0...20 mA 4...20 mA	0...10 VDC



Integrator included in the junction box

The PCB integrator is an exceptionally compact solution, that can be integrated into the ROG-O junction box or along the output signal cable. There is no limitation regarding the maximum primary rated current for integration.

Connected device compatibility:

- Meters and power monitoring devices with voltage inputs.

Strong points:

- Wide range of integrable current, according to your requirements
- Extremely compact integrator
- IP 68 via integration of the PCB into the junction box.

rac_001.eps

RAC-1A integrator

The RAC-1A integrator ensures absolute compatibility between ROG-Os and measurement devices with 1A inputs. It integrates the signal from the sensors and delivers a current of 1 A at its secondary.

Connected device compatibility:

- Meters, power monitoring devices and regulators with 1 A current inputs.

Strong points:

- Four scales of integration: coverage range from 100 to 5000A so you can choose the integration closest to your requirements
- Modular format
- Easy installation: can be mounted on DIN rail.

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RPS50 integrator

In addition to integration, several output options are available:

- Voltage: 1 VAC, 3 VAC or 10 VDC
- Current: 0…20 mA, or 4…20 mA

Its flexibility makes it compatible with a wide range of products.

Connected device compatibility:

- Meters and power monitoring devices with voltage inputs
- Programmable logic controllers (PLCs).

Key points

- Three integration ranges available:
  - Small scale: 0.5 - 2.5 - 2.5 kA
  - Medium scale: 2.5 - 10 - 50 kA
  - Large scale: 10 - 50 - 250 kA
- Compact design: Its compact modular design makes it ideal for installation with restricted space
- Easy integration into DIN rail.

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FCA3000 integrator

The FCA3000 can integrate up to three Rogowski sensors at the same time. It provides three distinct output signals and an additional output that combines the three signals. This design offers space and performance benefits in any installation. Several output options are available:

- Voltage: 0…10 VDC
- Current: 0…20 mA, or 4…20 mA

Compatibility:

- Counters and power monitoring devices with voltage inputs
- Programmable logic controllers (PLCs).

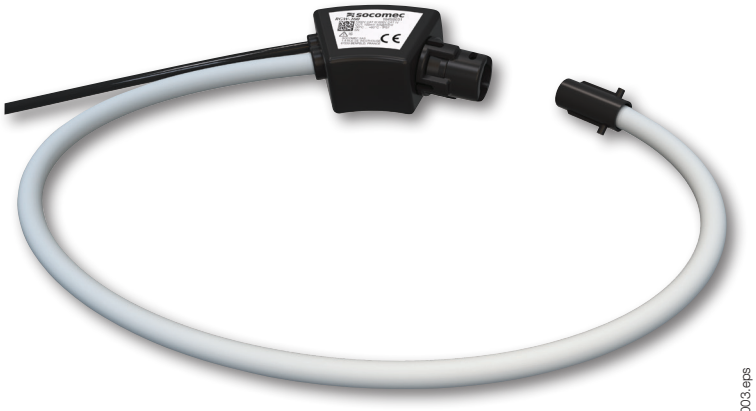
Key points

- Output flexibility: choice between voltage or current output
- Response time adjustable between 50...150 ms to facilitate association between your devices and the FCA3000
- Three independent outputs and a summing output.
- Modular: its 9-module design integrates easily onto a DIN rail.

RGW sensors

Flexible current sensors for the RAC-1A integrator

from 100 to 5000 A



rac_003.eps

The solution for

- Infrastructure & Transport
- Industry

Strong points

- Excellent accuracy
- Secure locking
- Installation

Conformity to standards

- IEC 60529
- IEC 61869-10
- UKCA

Associated products

RAC-1A

Compatible with

- COUNTIS
- DIRIS

Function

RGW * flexible **current sensors** measure load currents and are especially suitable for existing installations. RGW sensors have an extended measurement range up to 5000A and a 6-diameter opening to provide the measurement solution to best meet your needs. It is possible to transmit the measurement signal to the counters and monitoring devices with 1A input(s).

** only compatible with the addition of the RAC-1A integrator*

Advantages

Excellent accuracy

Thanks to its technology, the range of RGW flexible current sensors boasts excellent linearity by reducing the position error to 1%.

Secure locking

The locking system prevents loops and guarantees sensor function and accuracy even in harsh environments.

Installation

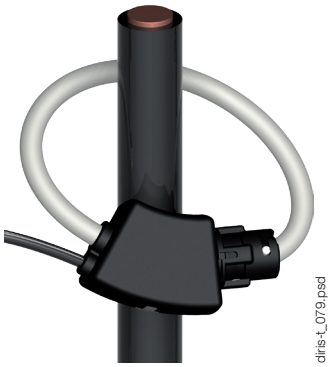
The range of RGW flexible current sensors has been specially designed for existing installations with significant integration constraints or high-intensity currents.

General characteristics

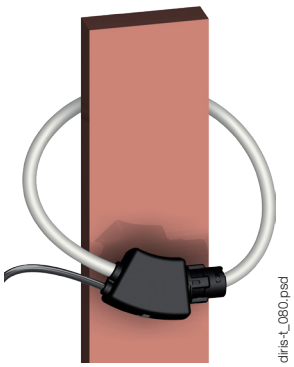
Paired with DIRIS A-30, A-41, A-60, Q800, COUNTIS E4X.

Installation

Cable mounting

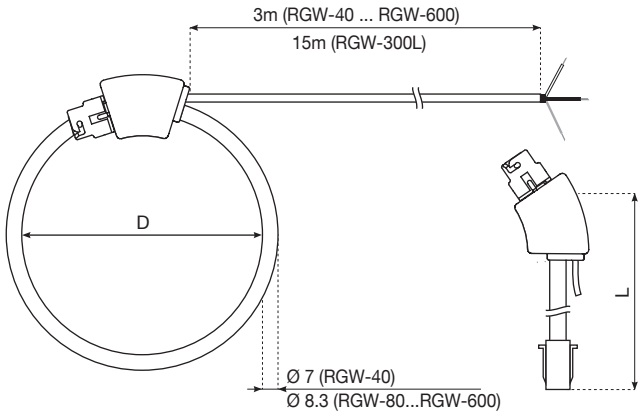


Bar mounting



Dimensions (mm)

RGW-40 and RGW-80 up to RGW-600



Characteristics

Model	RGW-40	RGW-80	RGW-120	RGW-200	RGW-300	RGW-600	RGW-300L
D=Ø loop (mm)	40	80	120	200	300	600	300
L=Loop length (mm)	126	251	377	628	942	1885	942
Weight (g)	114	130	142	162	193	274	350
Output cable length (m)	3						15
Nominal current range (A)	100…5000						
Real range covered (A)	5…6000						
Max voltage	1000V (Ph/Ph) / 600V (Ph/N)						
Rated withstand voltage	3,6 kV						
Accuracy class	Class 1						
Frequency	50/60 Hz						
Measurement category	1000 V CAT III, 600 V CAT IV						
Protection degree	IP68	IP67					
Operating temperature	-40…+75°C	-30…+80°C					
Storage temperature	-40…+90°C	-40…+80°C					
Relative humidity	95 % HR non-condensing						
Altitude	< 2000 m						
Connection	3 wires						

Reference

Model	Nominal current range (A) *	Real range covered (A) *	D=Ø loop (mm)	L=Loop Length (mm)	Reference
RGW-40	100…5000	5…6000	40	126	194S **0004**
RGW-80			80	251	194S **0008**
RGW-120			120	377	194S **0012**
RGW-200			200	628	194S **0020**
RGW-300			300	942	194S **0030**
RGW-600			600	1885	194S **0060**
RGW-300L			300	942	194S **0031**

* *setting the rated current with the associated RAC-1A*

RAC-1A integrator

Integrator for RGW flexible current sensors

1 A output

rac_001.eps

The solution for

- Infrastructure & Transport
- Industry
- Building

Strong points

- Maximum compatibility
- Compact design
- Fast commissioning

Conformity to standards

- IEC 61326-1
- CE
- UKCA

Associated products

RGW sensors

Compatible with

- COUNTIS
- DIRIS

Function

The **RAC-1A** * integrator converts the raw output signal from the Rogowski sensor into an 1A output. When paired with the range of RGW flexible current sensors, it is possible to use these RGW sensors with counters or monitoring devices compatible with one or more 1A input(s).
The intuitive interface can quickly calibrate the RAC-1A, choosing between 4 different ratings from 100 to 5000A to take accurate measurements that meet your exact needs.

** Only compatible with the addition of RGW sensors*

Advantages

Maximum compatibility

Thanks to the 1A output, the RAC-1A can be paired with counters or monitoring devices with 1A input(s).

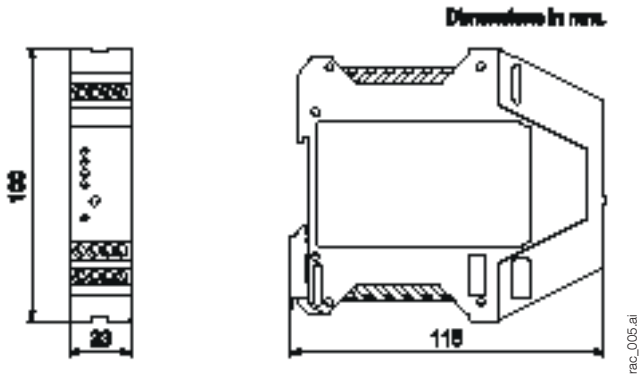
Compact design

The ultra-compact size and DIN rail attachment of the RAC-1A integrator means that it can be installed in restricted environments.

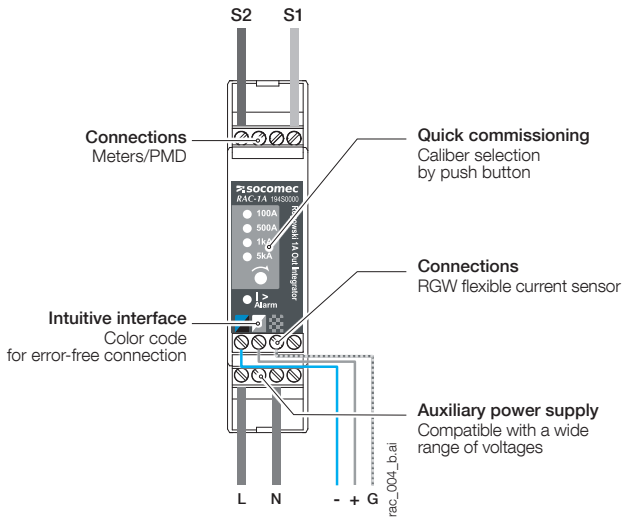
Fast commissioning

The intuitive interface of the RAC-1A makes it possible to quickly choose the rating most suitable for the application. The wide power range of the RAC-1A from 85 to 265 VAC makes commissioning of the RAC-1A easier.

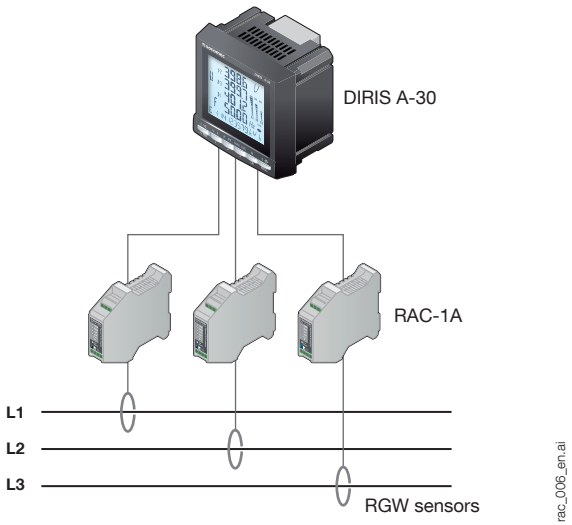
Dimensions (mm)



Interface



Application diagram



Characteristics

Model	RAC-1A
Integrator input signal	100mV with RGW-XXX series
Integrator output signal	1 A
Selectable scales	100 A, 500 A, 1000 A, 5000 A
Bandwidth	40 – 3200 Hz
Accuracy with Rogowski RGW-XXX sensor	1% of full scale
	1.5% at 5% of full scale
Power supply	85 ... 265 VAC, 50/60 Hz
Consumption	6,5 VA
Measurement category	300 V CAT III
Operating temperature	-25 ... +55°C
Storage temperature	-25 ... +70°C
Relative humidity	0 ... 80%
Degree of protection	IP 20
Weight	122 g

Correspondence of ratios between RAC-1A and meter / power measurement device

RAC-1A	Meter / Power measurement device
100 A	100/1
500 A	500/1
1kA	1000/1
5 kA	5000/1

Reference

Input	Output	Power supply	Reference
100 mV	1 A	85...265 VAC	194S **0000**

Selection guide

Current transformers

Type	TRB 60	TRB 70	TRB 135	TCA 14	TCA 21	TCA 22	TCB 17-20	TCB 26-30	TCB 28-30	TCB 26-40	TCB 32-40	TCB 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 26-30			T2CB 32-40	
	p. 487			p. 489			p. 490					

Rating (A)

0.5												
5	5 … 10	5 … 40										
10												
15												
20												
25			25 … 150	* 25 … 150								
30												
40					40 … 150							
50								50 … 750				
60					60 … 300		60 … 400					
75											75 … 1000	
80									80 … 500			
100						100 … 600				100 … 750		
125												
150						* 150 … 600		* 150 … 750				150 … 1250
160												
200											* 200 … 750	
250												
300												
400												
500												
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.

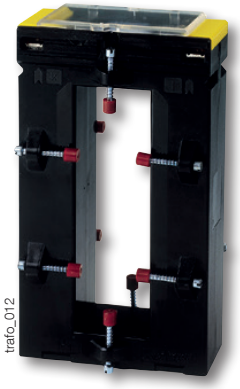
	TCB 44-63	TCB 55-80	TCD 85-100	TCB 100-125	TBA 60	TBA 80	TBA 100	TBA 103	TBA 127	TO 23	TO 58	TO 812	TO 816
	Cable – busbar				Busbar					Split-core			
	0.5	0.5	0.5	0.5	0.5/1	0.5	0.5	0.5	0.5	1/3	0.5/1	0.5/1	0.5
	T2CB 44-63						T2BA 100	T2BA 103	T2BA 127				
	p. 491				p. 494					p. 498			
	200 … 1600	* 300 … 1500	400 … 2000	750 … 3000	1000 … 3000	200 … 1600	300 … 2000	600 … 4000	* 1200 … 3000	400 … 2000	* 1000 … 1500	400 … 4000	1200 … 2000	100 … 400	250 … 1000	250 … 1500	1000 … 5000
	105.5		123.5	184.8	184.8	129	117	167		150		175		106	158	198	243
	96		120	172	172	88	96	129		99		100		93	125	155	195
	58		58	52	52	48	68	78		58		55		58	58	58	79
	44		55	85	100												
	63x10		80x10	100x10	123x30	60x30	84x34	100x55		103x41		128x38		33x23	85x55	125x85	165x85
	50x10 (x2)		60x30	80x10 (x3)	100x10 (x3)												
			60x10 (x2)														

Current transformers

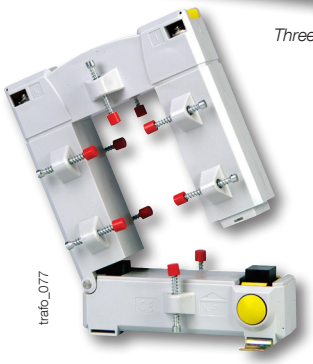
Measurement devices

from 5 to 5000 A

Three-phase CT



Bar-through CT

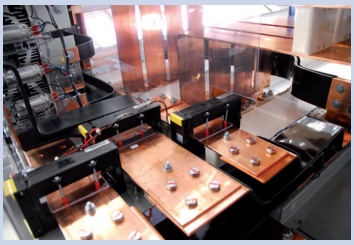


Split-core transformer

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

SOCOMEC also offer customised solutions:

- 1 A secondary
- Double or triple primary ratio
- Voltage transformer
- Summation CTs

Function

SOCOMEC **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.

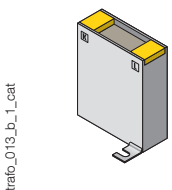
A wide range of ratings and dimensions

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).

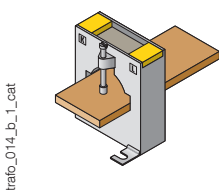
Quick and easy to mount

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.

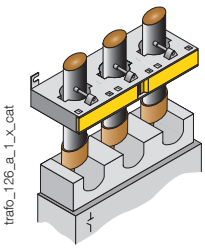
Composition of the range



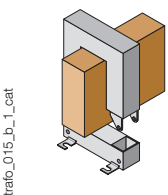
Primary wound moulded case CT



Bar or cable-through CT



Bar or cable-through three-phase CT



Bar-through split-core CT

socomec Innovative Power Solutions

Primary wound moulded case CT

References

Primary	Secondary(1)	TRB 60 Class 0.5	TRB 60 Reference	TRB 70 Class 0.5	TRB 70 Reference	T2RB 115 Class 0.2s	T2RB 115 Reference	TRB 135 Class 0.5	TRB 135 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 Reference	TRB 70 Reference		TRB 135 Reference
DIN-rail mounting	192T **0003**	192T **0005** (1)		
Sealable cover	192T **0105**	192T **0103**		192T **0101** (2)

(1) For 40 and 50 A ratings, use reference 192T 0008.
(2) For 125 and 150 A ratings, use reference 192T 0103.

CT Plug-in transducer (CEA-VA)

Power supply	Output	TRB 60 Reference	TRB 70 Reference
Self-supplied	0-20 mA / 0-10 VDC	192Y **0015**	192Y **0025** (1)
230 VAC	0-20 mA / 0-10 VDC	192Y **0215**	192Y **0225** (1)
24 VDC	0-20 mA / 0-10 VDC	192Y **0115**	192Y **0125** (1)

(1) Not available for 40 and 50 A ratings.

CT Plug-in transducer (CEA-VA4)

Power supply	Output	TRB 60 Reference	TRB 70 Reference
230 VAC	4-20 mA / 0-10 VDC	192T **0255**	192Y **0265** (1)
24 VDC	4-20 mA / 0-10 VDC	192Y **0155**	192Y **0165** (1)

(1) Not available for 40 and 50 A ratings.

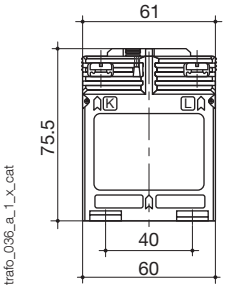
Certificate of performance

Each class 0.2s current transformer is supplied with an individual certificate of performance, attesting to its accuracy.

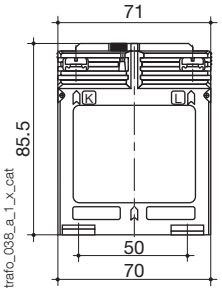
Primary wound moulded case CT (continued)

Dimensions (mm)

TRB 60

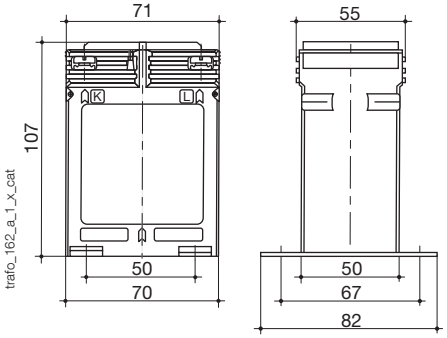


TRB 70(1)

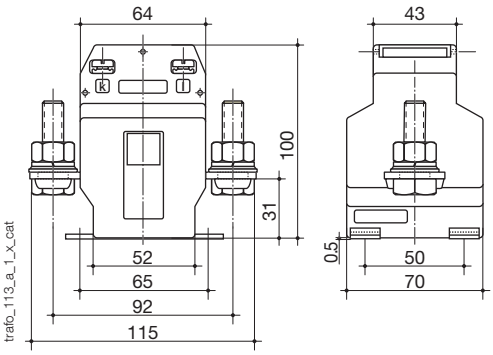


(1) different dimensions for 40 and 50 A ratings

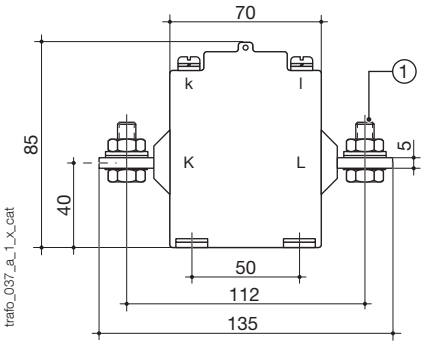
TRB 70 (for 40 and 50 A)



T2RB115

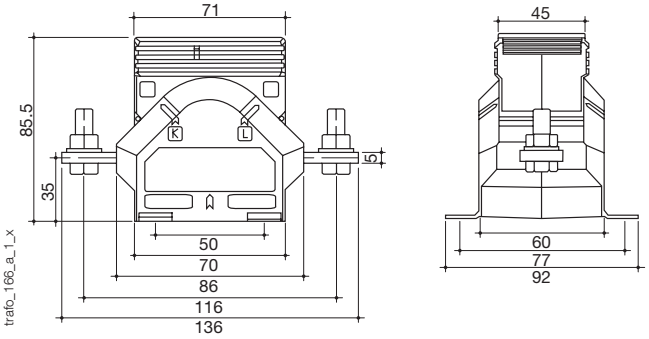


TRB 135



① 25 to 100 A: M8 x 25

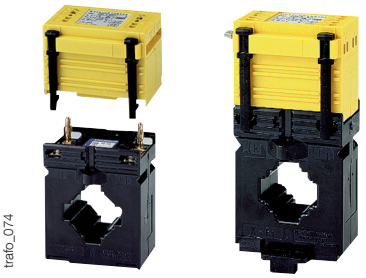
TRB 135 (for 125 and 150 A)



Primary wound CT	TRB 60	TRB 70 (1)	T2RB 115	TRB 135 (2)
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

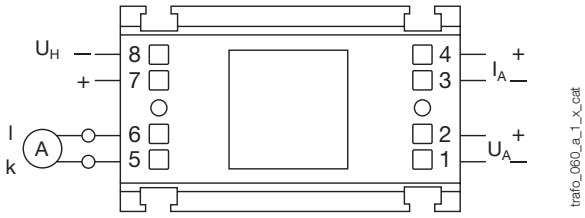
(1) Dimensions are different for TRB 70 with 40 and 50 A ratings.
(2) Dimensions are different for TRB 135 with 125 and 150 A ratings.

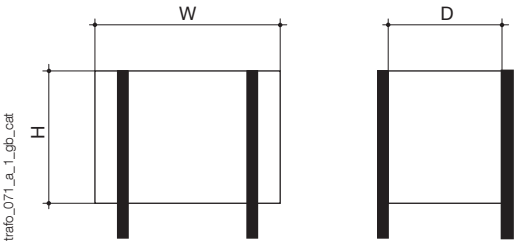
Associated transducers



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

Primary	Secondary[1]	TCA 14 Class 1	TCA 14 Reference	TCA 21 Class 1	TCA 21 Class 0.5	TCA 21 Reference	TCA 22 Class 1	TCA 22 Reference	T2CA 225 Class 0.2s	T2CA 225 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*

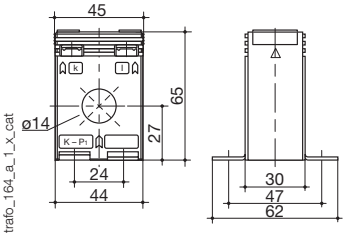
Accessories

Accessories	TCA 14 Reference	TCA 21 Reference	TCA 22 Reference	T2CA 225 Reference
DIN-rail mounting	192T **0006**	192T **0006**	192T **0007**	192T **0003**
Guide tube Ø 8.5 mm[1]		192T **0020**		
Guide tube Ø 12.5 mm[1]		192T **0021**	192T **0023**	
Guide tube Ø 16.5 mm[1]			192T **0024**	
Sealable cover				192T **0105**

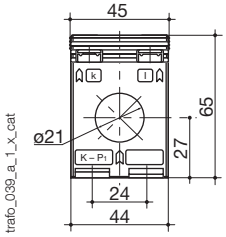
(1) For centralising cables within the CT aperture.

Dimensions (mm)

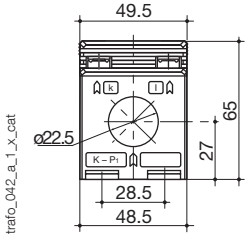
TCA 14



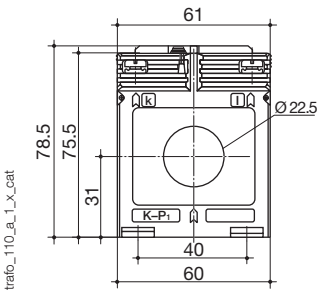
TCA 21



TCA 22



T2CA 225



Cable-through CT	TCA 14	TCA 21	TCA 22[1]	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[1]	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[1]	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 Reference	TCB 26-30 Reference	TCB 26-40 Reference	TCB 32-40 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 Reference	TCB 26-40 Reference	TCB 32-40 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 Reference	TCB 26-40 Reference	TCB 32-40 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(1)	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(1)	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 Reference	TCB 44-63 Reference	TCB 55-80 Reference	TCB 85-100 Reference	TCB 100-125 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 Reference	TCB 44-63 Reference	TCB 55-80 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**

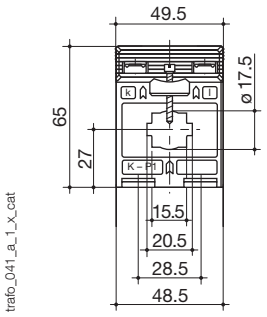
CT Plug-in transducer (CEA-VA4)

Input	Output	TCB 44-50 Reference	TCB 44-63 Reference	TCB 55-80 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**

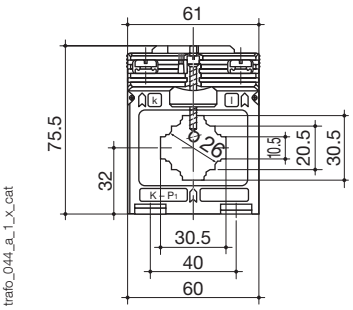
Bar or cable-through CT (continued)

Dimensions (mm)

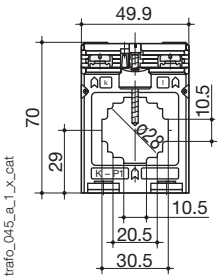
TCB 17-20



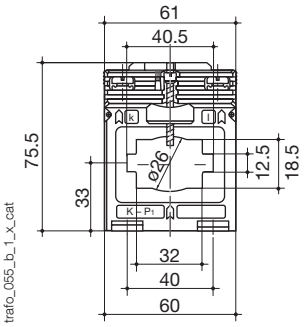
TCB 26-30 and T2CB 26-30



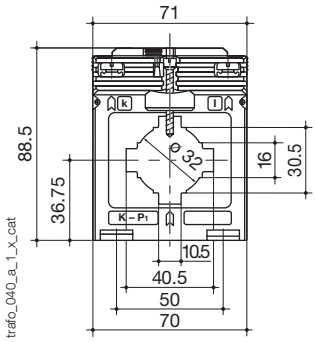
TCB 28-30



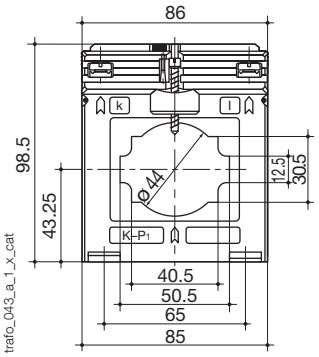
TCB 26-40



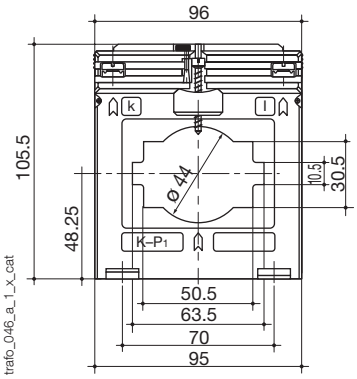
TCB 32-40 and T2CB 32-40



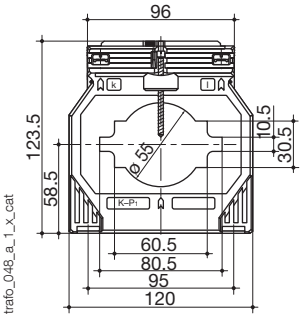
TCB 44-50



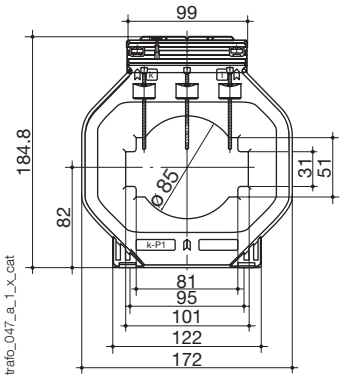
TCB 44-63 and T2CB 44-63



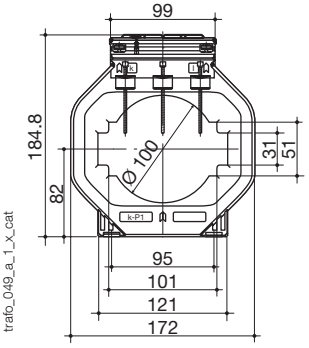
TCB 55-80



TCB 85-100



TCB 100-125

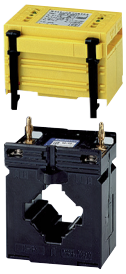


Bar or cable-through CT	TCB 17-20	TCB 26-30	T2CB 26-30	TCB 26-40	TCB 28-30	TCB 32-40	T2CB 32-40
Bar (mm)	20 x 5 (x 1)	30 x 10 (x 1) / 20 x 10 (x 1…2)	30 x 10 (x 1) / 20 x 10 (x 1…2)	40 x 12 (x 1) / 32 x 18 (x 1)	30 x 10 (x 1)	40 x 10 (x 1) / 30 x 5 (x 1…2)	40 x 10 (x 1) / 30 x 5 (x 1…2)
Ø cable (mm)	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

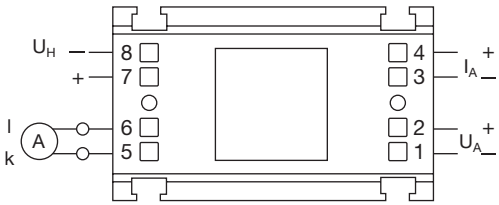
Associated transducers

trafo_074

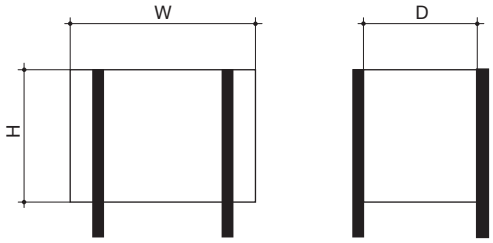


Transducer to be associated with adapted current transformers:

- *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

Bar-through CT

References

Primary	Secondary	TBA 60 Class 0.5	TBA 60 Class 1	TBA 60 Reference	TBA 80 Class 0.5	TBA 80 Reference	TBA 100 Class 0.5	TBA 100 Reference	T2BA 100 Class 0.2s	T2BA 100 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						15 VA	192T **8098** (1)	10 VA	192U **8098**
4000 A	5 A						30 VA	-		

(1) Dimensions are different for TBA 100 with 3000 and 4000 A primary.

Primary	Secondary	TBA 103 Class 0.5	TBA 103 Reference	T2BA 103 Class 0.2s	T2BA 103 Reference	TBA 127 Class 0.5	TBA 127 Reference	T2BA 127 Class 0.2s	T2BA 127 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)

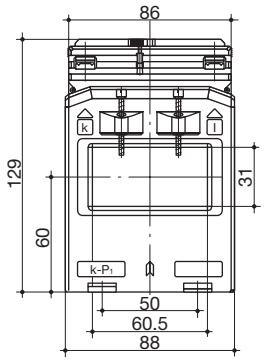
Power supply	Output	TBA 100 Reference
Self-supplied	0-20 mA / 0-10 VDC	192Y **0045**
230 VAC	0-20 mA / 0-10 VDC	192Y **0245**
24 VDC	0-20 mA / 0-10 VDC	192Y **0145**

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**

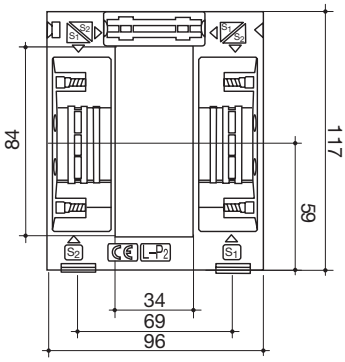
Dimensions (mm)

TBA 60



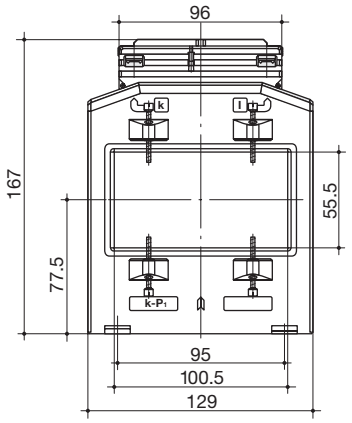
trafo_050_a_1_x_cat

TBA 80
300 to 2000 A



trafo_059_a_1_x_cat

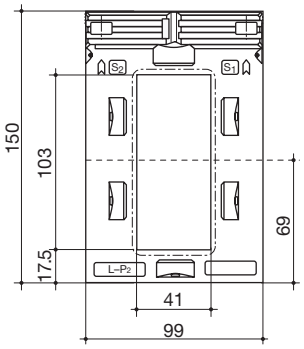
TBA 100 600 to 2500 A(1)
T2BA 100 1200 to 3000 A



trafo_082_a_1_x_cat

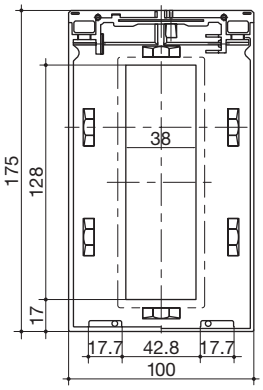
(1) TBA 100, 3000 and 4000 A: 214 x 129 x 78 mm.

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 (1)	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.

Three-phase bar or cable-through CT

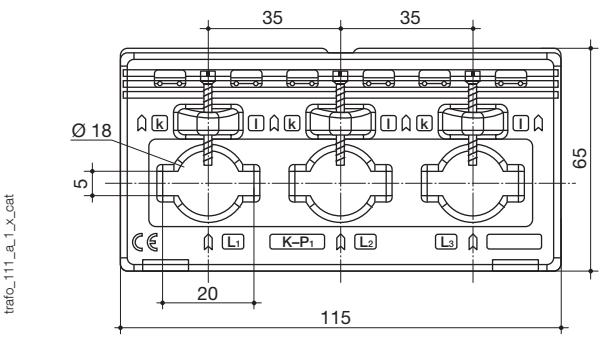
References

Primary	Secondary(1)	TCB3 18-20 Class 1	TCB3 18-20 Reference	TCB3 22-30 Class 1	TCB3 22-30 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.

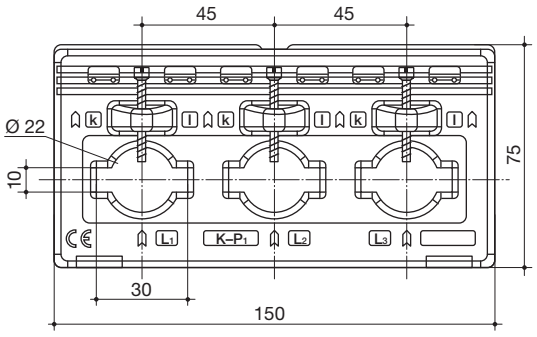
Dimensions (mm)

TCB3 18-20



trafo_111_a_1_x_cat

TCB3 22-30



trafo_112_a_1_x_cat

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

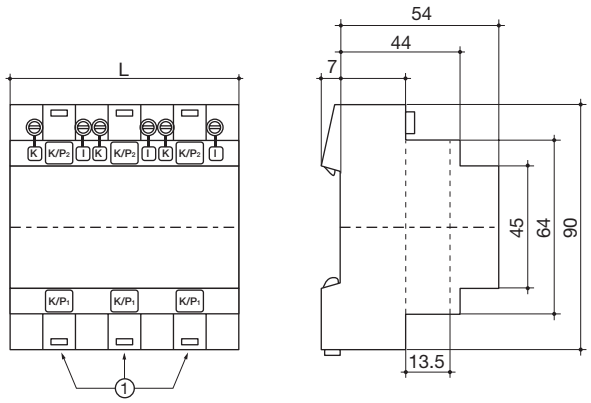
Primary	Secondary(1)	TCA 13 — 3P	
		Class 1	Reference
3 x 50 A	5 A	1 VA	192T **1905**
3 x 60 A	5 A	1.25 VA	192T **1906**
3 x 75 A	5 A	1.5 VA	192T **1907**
3 x 80 A	5 A	1.5 VA	192T **1908**
3 x 100 A	5 A	2.5 VA	192T **1910**
3 x 125 A	5 A	2.5 VA	192T **1912**
3 x 150 A	5 A	2.5 VA	192T **1915**
3 x 160 A	5 A	2.5 VA	192T **1916**

(1) Secondary 1 A: on request.

Dimensions (mm)

TCA 13 — 3P

trafo_009_a_1_X_cat



(1) Cable-through aperture Ø 13.5 mm.

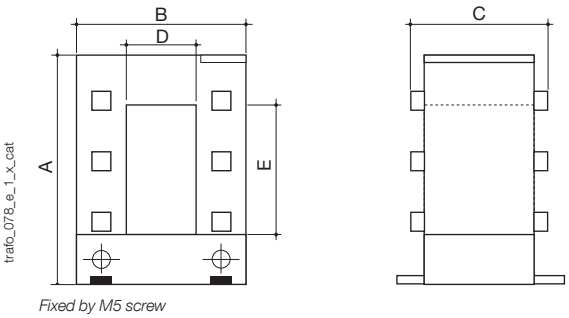
Number of modules	Front degree of protection	Terminal degree of protection	L (mm)	Mounting
6	IP65	IP20	105	35 mm DIN-rail

Split-core CT

References

		TO 23			TO 58			TO 812			TO 816	
Primary	Secondary	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)



Fixed by M5 screw

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

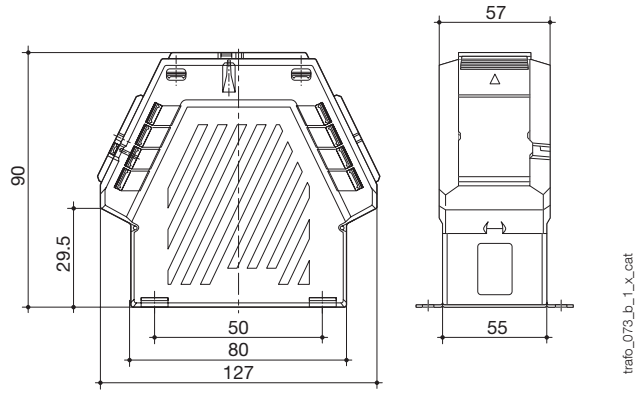
Summation CT

Reference

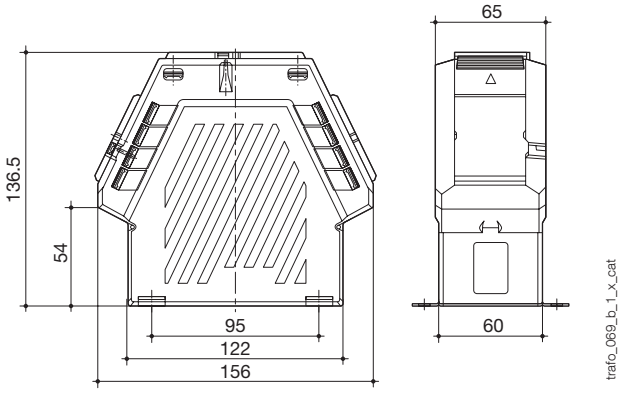
Primary	Secondary	BSA 02 Reference	BSA 03 Reference	BSA 04 Reference
5 + 5/5 A	5 A	192T **0802**		
5A + 5+ 5/5	5 A		192T **0803**	
5 + 5 + 5 + 5/5 A	5 A			192T **0904**

Dimensions (mm)

BSA 02 and BSA 03



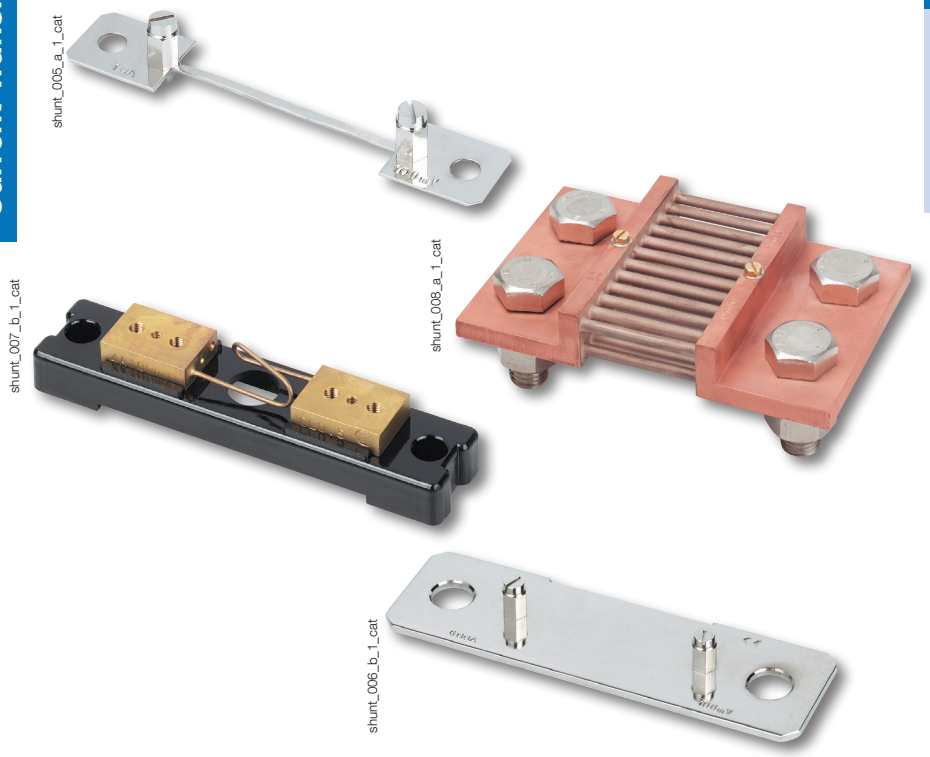
BSA 04



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

Measurement shunts

Measurement devices



Composition of the range

- 20 ratings available from 1 to 4000 A, with 100 mV output
- Other ratings and secondary voltages are available, please contact us

Function

SOCOMEC shunts provide indirect measurement of direct current by creating a standardised voltage drop.

Characteristics

- Voltage drop: 100 mV for nominal rating.
- Accuracy class: 0,5.
- Permanent overload: 1.2 In.
- 10 In / 5s rating ≤ 500 A
  5 In / 5s rating 600 to 1500 A
  2 In / 5s rating ≥ 2500 A.

References

Rating (A)(1)	Secondary voltage drop	DIN series Reference
1 A	100 mV	192S **2101**
6 A	100 mV	192S **2106**
10 A	100 mV	192S **2110**
15 A	100 mV	192S **2112**
25 A	100 mV	192S **2114**
40 A	100 mV	192S **2116**
60 A	100 mV	192S **2118**
100 A	100 mV	192S **2120**
150 A	100 mV	192S **2125**
200 A	100 mV	192S **2220**
250 A	100 mV	192S **2235**
300 A	100 mV	192S **2230**
400 A	100 mV	192S **2240**
600 A	100 mV	192S **2250**
1000 A	100 mV	192S **2255**
1500 A	100 mV	192S **2260**
2500 A	100 mV	192S **2165**
4000 A	100 mV	192S **2170**

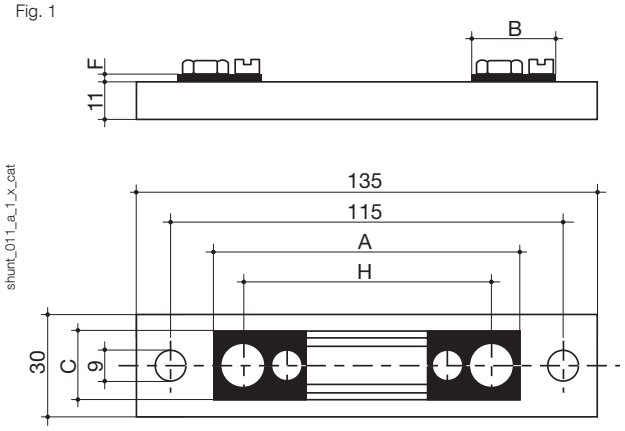
(1) Other rating: please consult us.

socomec Innovative Power Solutions

Dimensions

DIN Series 1 to 25 A

Fig. 1

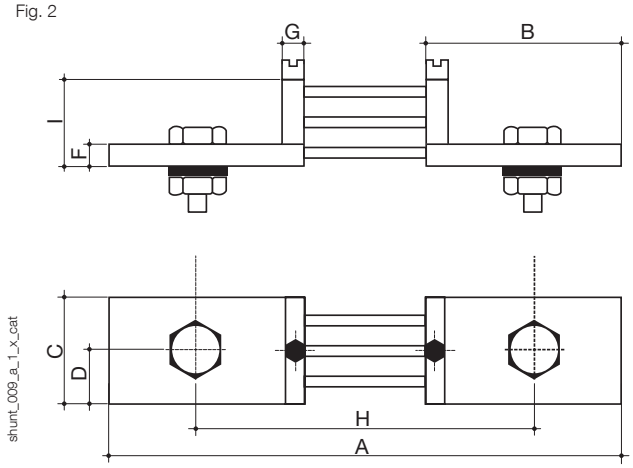


Rating (A)(1)	Figure	A	B	C	D	E	F	G	H	I
1	1	90	28	20			8		78	
4	1	90	28	20			8		78	
6	1	90	28	20			8		78	
10	1	90	28	20			8		78	
15	1	90	28	20			8		78	
25	1	90	28	20			8		78	
40	2	123	33	20			8		103	
60	2	123	33	20			8		103	
100	2	123	33	20			8		103	
150	2	123	33	20			8		103	
200	2	168	55	30	15		10	10	128	30
250	2	168	55	30	15		10	10	128	30
300	2	168	55	40	20		10	10	128	30
400	2	168	55	40	20		10	10	128	30
600	2	168	55	40	20		10	10	128	30
1000	2	188	65	60	30		10	10	138	30
1500	3	188	65	90	21	48	10	10	138	30
2500	3	188	65	120	30	60	10	10	138	30
4000	3	188	65	120	30	60	15	10	138	60

(1) Connection: 2 M5 screws x 8 and 2 washers Ø 5.3 mm.

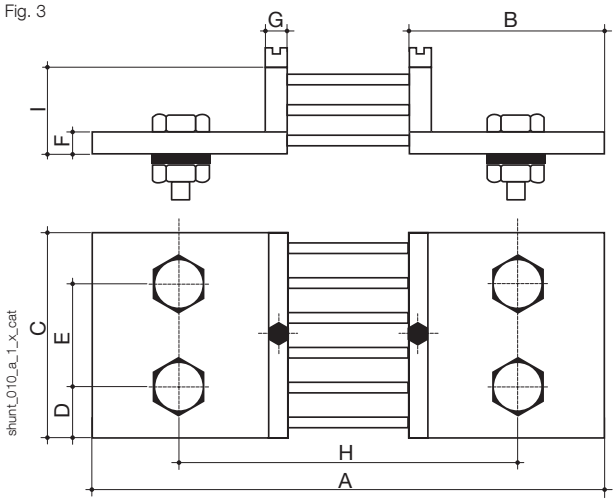
DIN Series 40 to 1000 A

Fig. 2



DIN Series 1500 to 4000 A

Fig. 3



Measuring transducers

Indicators and transducers

Power transducer, current

Current transducer

Function

SOCOMEC **transducers** convert an electrical parameter (A, W) into a DC signal.
They come in a protruding case (CS range).

Characteristics

- Dielectric quality:
  - 2.5 kV (50 Hz - 1 mm) between input and output,
  - 2.5 kV (50 Hz - 1 mm) between power supply and other terminals,
  - 4 kV (50 Hz - 1 mm) between earth and other terminals.
- Accuracy class: 0.5 or 0.2 depending on the model.
- Response time < 200 ms (0 - 90% of the output signal).
- Overloads:
  - Circuit I: 1.2 I_n permanent; 20 I_n/3 s, - 40 I_n/1 s,
  - Circuit U: 1.2 U_n permanent; 2 U_n/10 s.
- Max. load resistance:
  - Current output: R0 (Ω) = 12 V/I0 (mA),
  - Voltage output: R0 (Ω) = V0/10 mA.
- Consumption:
  - Self-powered: 1.5 VA,
  - Current input: 0.2 VA,
  - Voltage input: (U_n x 1 mA) VA.
- Operating temperature: -10 °C to +60°C.
- Residual ripple rate: 0.3%.
- Operating frequency: 50/60 Hz.

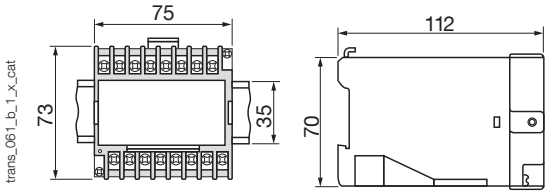
References

Current transducer with auxiliary power supply				
				CSA-A4
Input	**Output**	**Auxiliary power supply**	**Frequency**	**Reference**
5 A	4 - 20 mA	230 VAC	50 Hz	192Y **1104**
1 A	4 - 20 mA	230 VAC	50 Hz	192Y **1106**

Active power transducer with auxiliary power supply						
				CSA-P3FE Three-phase	**CSA-P3FNE Three-phase**	**CSA-P4FNE Three-phase**
Input	**Connection**	**Output**	**Auxiliary power supply**	**Reference**	**Reference**	**Reference**
400 VAC	5 A CT	4 - 20 mA	230 VAC	192Y **3132**	192Y **3332**	192Y **3432**
400 VAC	5 A CT	4 - 20 mA	24 VDC	179Y **3133**	-	-
400 VAC	5 A CT	4 - 20 mA	24 VDC	-	179Y **3333**	-

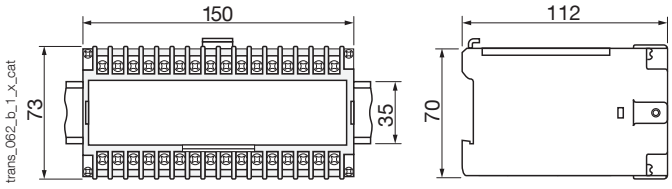
Cases

Case A



IP20 for the case - IP10 for the terminal

Case B



IP20 for the case - IP10 for the terminal

Characteristics

Current transducer

Model	Measurement	Input	Output	Auxiliary power supply U_s	Number of CTs	Connection diagram	Case
CSA-A	RMS(1)	1 - 5 A	1 - 5 - 10 - 20 mA	No	1	SC 1	A

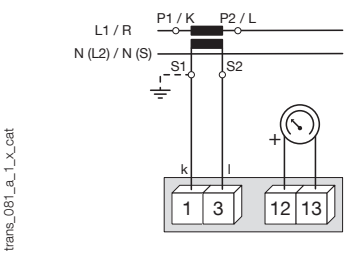
(1) RMS: sine wave.

Active power transducer

Model	Network type	Input	Output	Auxiliary power supply U_s	Number of CTs	Connection diagram	Case
CSA-P3FE	Balanced 3-wire 3-phase	100 - 115 - 230 - 400 V 1 - 5 A	1 - 5 - 10 - 20 mA 4 - 20 mA	Yes	1	SC 16	B
CSA-P3FNE	Non-balanced 3-wire 3-phase	100 - 115 - 230 - 400 V 1 - 5 A	1 - 5 - 10 - 20 mA 4 - 20 mA	Yes	2	SC 18	B
CSA-P4FNE	Non-balanced 4-wire 3-phase	100 - 115 - 230 - 400 V 1 - 5 A	1 - 5 - 10 - 20 mA 4 - 20 mA	Yes	3	SC 20	B

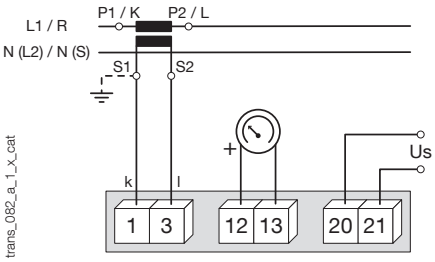
Connections

SC 1: Self-powered current transducer (CSA-A)



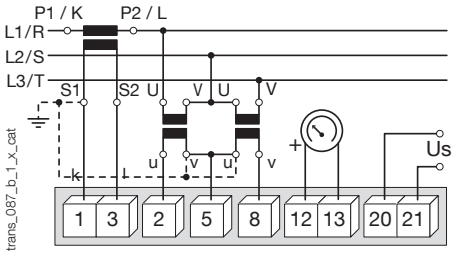
Connections with 1 CT without U_s

SC 2: Current transducer with auxiliary power supply (CSA-A4)



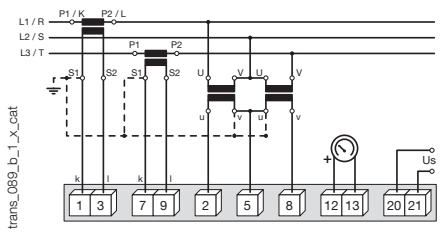
Connections with 1 CT and U_s

SC 16: Power transducer (CSA-P3FE)



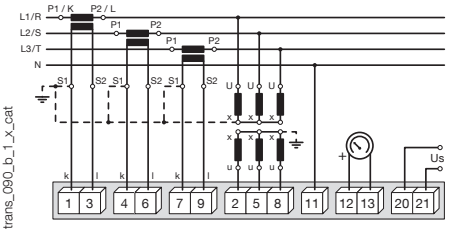
Connections with 1 CT 2 VTs and U_s

SC 18: Power transducer (CSA-P3FNE)



Connections with 2 CT 2 VTs and U_s

SC 20: Power transducer (CSA-P4FNE)



Connections with 3 CT 3 VTs and U_s

Selection guide

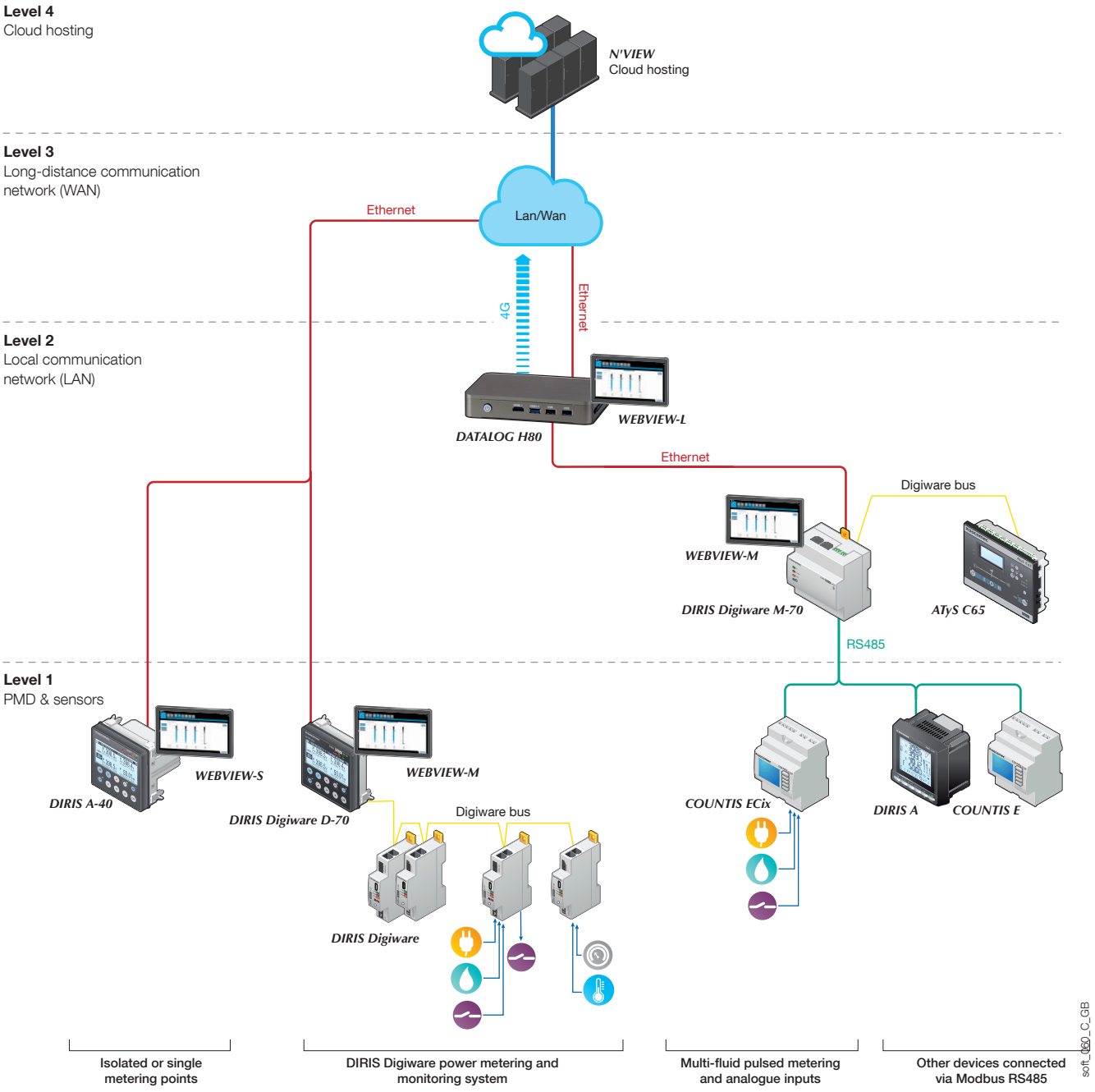
Software solutions for energy monitoring and analysis

What are the features? → For what size of project? → Where is the data stored?

	WEBVIEW-S	WEBVIEW-M	WEBVIEW-L
			
Hosting of the application[1]	**DIRIS A-40 Ethernet** *p. 506*	**DIRIS Digiware M-70 /D-70** *p. 506*	**DATALOG H80/H81** *p. 506*
Data collection			
Maximum number of connected measurement devices	1	32	100 (WEBVIEW-L100) 200 (WEBVIEW-L200)
Interfacing to third-party applications			via connector
Export of data in CSV format	•	•	•
Real time monitoring			
U/V voltages and currents I	•	•	•
Powers P, Q, S, Power factor	•	•	•
Quality monitoring THDi, THDu, THDv, K factor, Harmonic analysis up to 63rd	•	•	•
Energy metering Ea+, Ea-, Er+, Er-, Es	•	•	•
Pulse counting	•	•	•
Input/Output monitoring	•	•	•
Measurement history U, V, I, P, Q, S,	•	•	•
Energy analysis			
Energy consumption analysis	•	•	•
Multi-parameter analysis			•
Alarm management			
Product alarms	•	•	•
Alarms history	•	•	•
Transmission of alarms	e-mail	e-mail	e-mail
Reporting management			
Customisable user interface		Photoview	Photoview
Hierarchy management		•	•
Conformity to standards			
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



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

up to 200 devices

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The solution for

> Healthcare
> Industry

Strong points

> Plug & Play
> Easy to use
> Various functions

Conformity to standards

> IEC 62974-1 (1)

(1) Energy Server standard applicable to WEBVIEW-M and L versions hosted on DIRIS Digiware M-70/D-70 and DATALOG H80/H81.

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.

Users can access WEBVIEW via a web browser on a PC or a tablet.

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.

Advantages

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 realtime monitoring, alarm management and notification by e-mail, multi-utility analysis (electricity, water, gas), power parameter logging and allocation of consumption by enduse and location.

General characteristics

- Web-based software accessible from any browser.
- Max 32 devices with WEBVIEW-M.
- Max 200 devices with WEBVIEW-L.
- Real-time visualisation, trends and consumption analysis, alarming.

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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, Photovieww	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.


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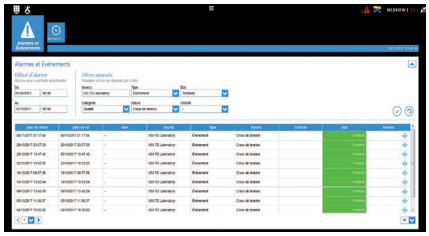
Alarm
- Alarms for overloads, events and input status changes.
- Display of alarms history.
- Sorting by type, nature, criticality or state.
- Alarms displayed on the main page.
- Alarm notification by e-mail (SMTP).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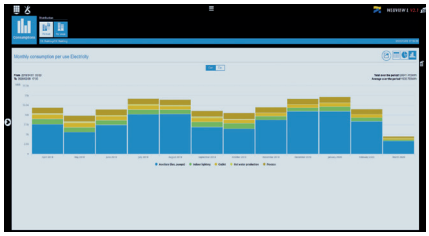
Analyse
- Historical measurements and consumption.
- Historical records of multiple electrical parameters.
- Breakdown of consumption by location, by end-use and by utility type (water, gas, electricity…).
- Export of consumption data in a CSV format.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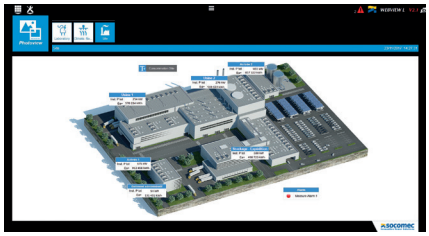
Photoview
- Photoview: customised dashboard of the WEBVIEW environment via the upload of graphical files (building plans, electrical circuit diagrams, production processes…)
- Real time monitoring via drag and drop of parameters on the background pictures (measurement points, alarms, text…).
- Display of the mapping of the measurement plan by cascading of several images.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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 (4G network)	4854 **0021**
WEBVIEW-L 200	DATALOG H80	4854 **0030**
	DATALOG H81 (4G network)	4854 **0031**

Easy Config System

Configuration software

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 wiringand 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

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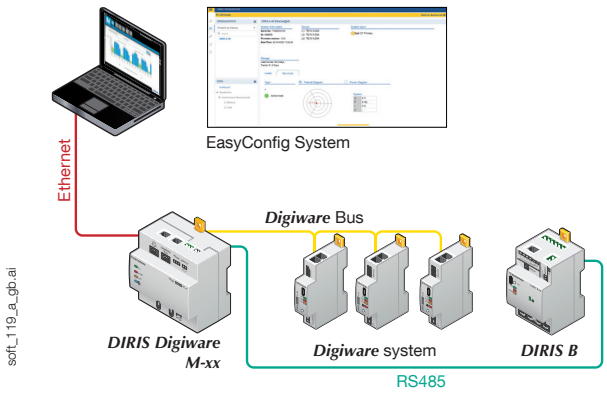
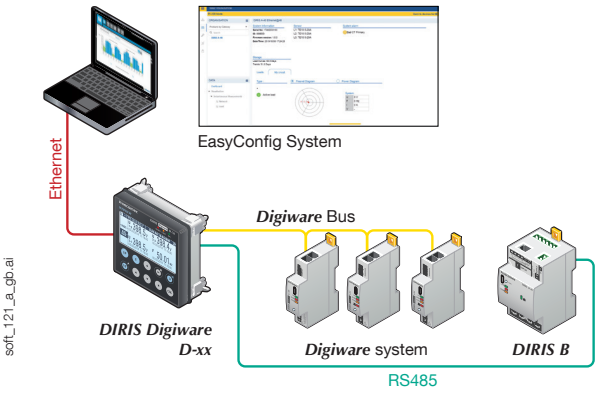
Configuration options

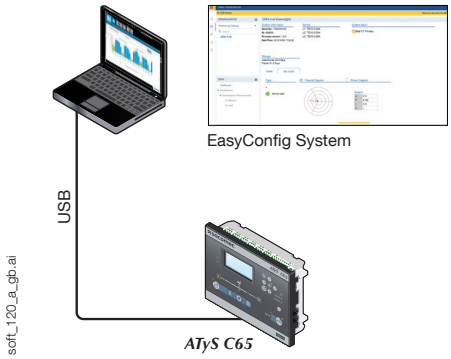
Configure the entire system with an Ethernet connection to a DIRIS Digiware M-xx gateway



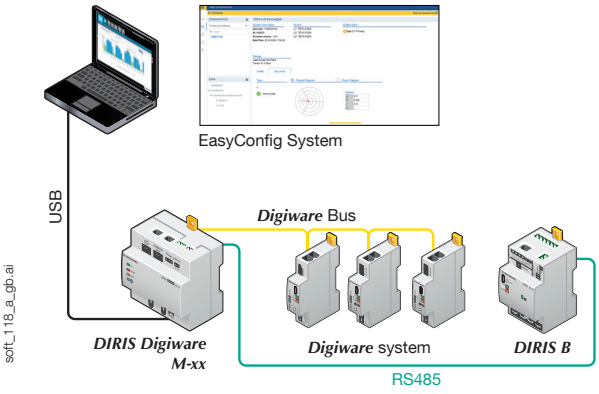
Configure the entire system with an Ethernet connection to a DIRIS Digiware D-xx display



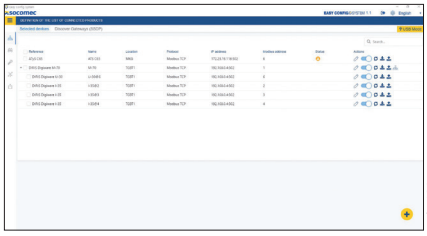
Configure the equipment via USB only



Configure the entire system with a USB connection to a DIRIS Digiware M-xx gateway



A dashboard adapted to each type of device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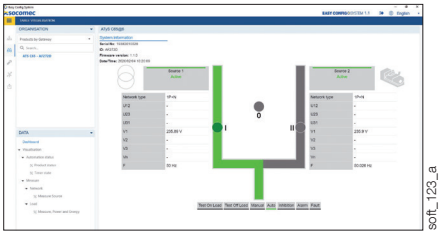
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D-xx displays and M-xx gateways

- 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