

# DIRIS A-10

## Multifunction meters - PMD

measuring and monitoring - modular format



DIRIS A-10

diris\_978\_front.psd

### 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

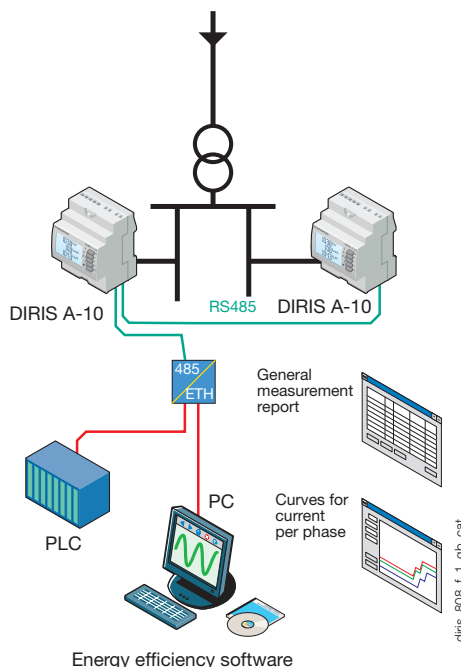
An integrated test function can be utilised to detect incorrect wiring and to automatically correct CT installation errors.

#### 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\_809\_L1\_glb\_cat

### 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".

### Functions

#### Multi-measurement

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

#### Metering

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

#### Harmonic analysis

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

#### Dual tariff function

Selection of one out of 2 billing tariffs

#### Events

Alarms on all electrical values

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

RS485 with MODBUS protocol

#### Input

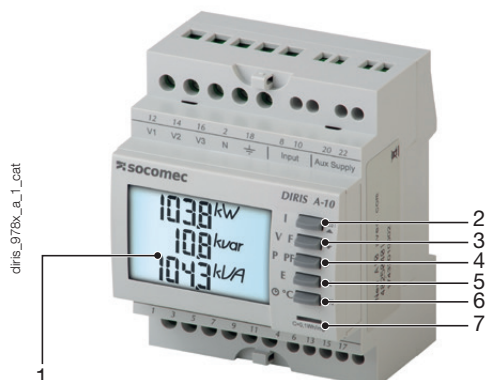
- Tariff selection
- Remote device status

#### Output

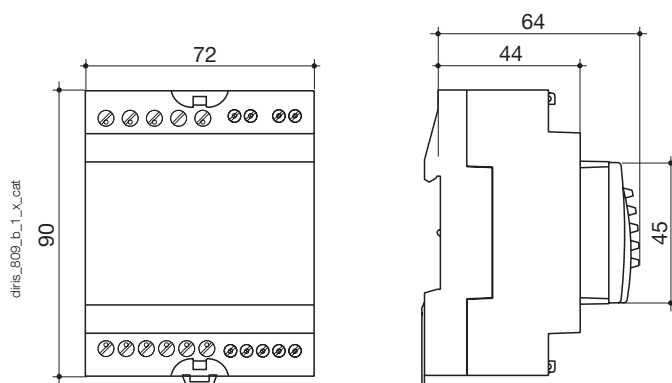
- Remote command of device
- Alarm report
- Pulse report

<sup>(1)</sup> Available on specific version (see the following pages).

## Front panel



## Case



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

## Electrical characteristics

Current measurement (TRMS)	
Via CT primary	9 999 A
Via CT secondary	5 A
Measurement range	0 ... 11 kA
Input consumption	0.6 VA
Measurement updating period	1 s
Accuracy	0.2 %
Permanent overload	6 A
Intermittent overload	10 I <sub>n</sub> 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	
Alternating voltage	110 ... 277 VAC
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 %

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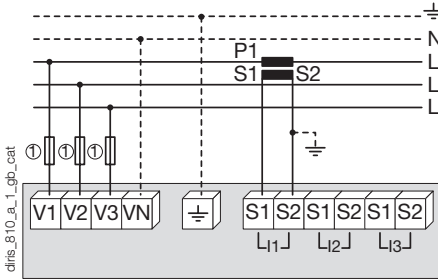
## Connection

### 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.

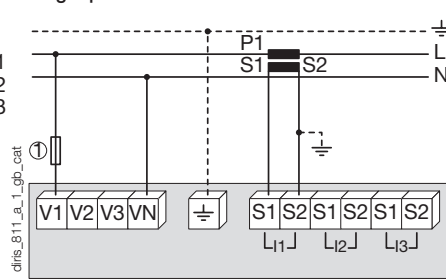
### Low voltage balanced network

3/4 wires with 1 CT



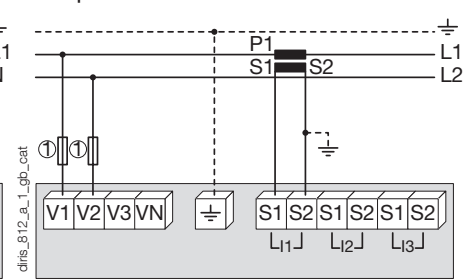
1. Fuses 0.5 A gG / 0.5 A class CC.

Single-phase



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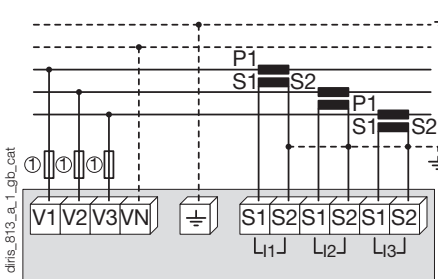
Two-phase



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

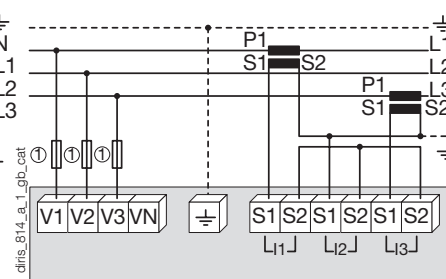
### Low voltage unbalanced network

3/4 wires with 3 CTs



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

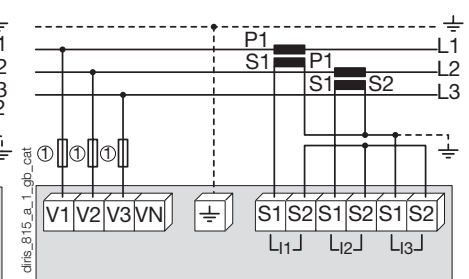
3 wires with 2 CTs



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

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3 wires with 2 CTs

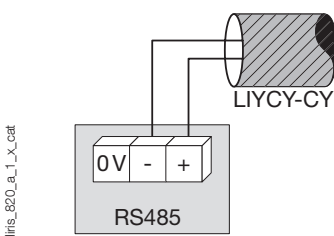


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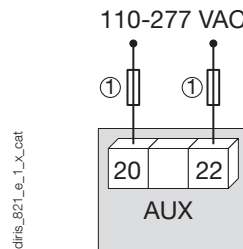
## Additional information

### Communication via RS485 link



diris\_b20\_a\_1\_x\_cat

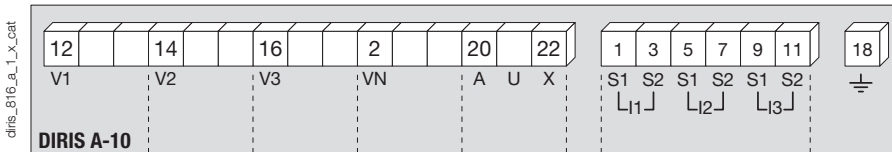
### AC auxiliary power supply



diris\_b21\_e\_1\_x\_cat

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

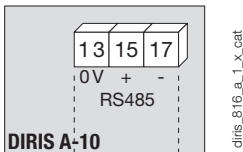
## Terminals



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

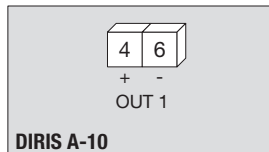
S1 - S2: current inputs.

### Communication terminals



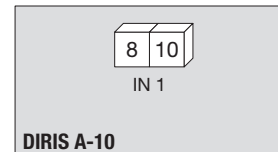
RS485 link.

### Pulse or alarm output terminals



4 - 6: output n°1

### Input terminals



8 - 10: input n°1

## References

Basic device	DIRIS A-10	
Description	Reference	
DIRIS A-10	4825 0400	
DIRIS A-10 with RS485 MODBUS communication	4825 0401	
Accessories	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.

