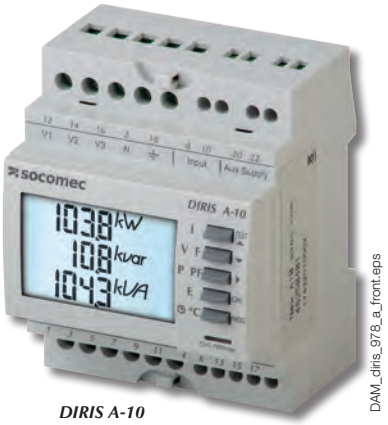
DIRIS A-10

Power Monitoring Device - PMD

measurement and monitoring - modular format



DIRIS A-10

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Function

The **DIRIS A-10** is a multi-measurement device for measuring electrical values in LV networks in modular format with connection to current transformers.

It enables viewing of all electrical parameters and operation of measurement, metering and communication functions.

Advantages

Easy to use

Large backlit display with 5 hotkeys.

Built-in temperature probe

Enables detection of temperature variation.

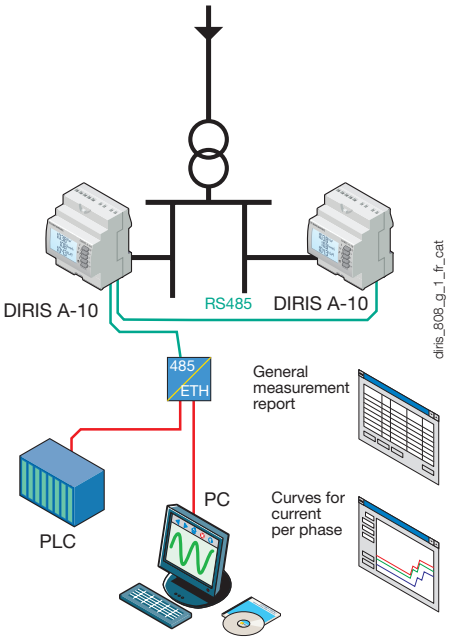
Detects wiring errors

Automatic correction of CT connection errors.

Conformity to IEC 61557-12

IEC 61557-12 is a high-level standard covering all power metering and monitoring devices (PMD). Conformity to this standard ensures a high level of equipment performance, in terms of metrology, and the mechanical and environmental aspects (EMC, temperature, etc.).

Functional diagram



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Energy efficiency software

The solution for

- Healthcare
- Energy
- Industry

Strong points

- Easy to use
- Built-in temperature probe
- Detects wiring errors
- Conformity to IEC 61557-12

Conformity to standards

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

Associated 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 (up 51st)
  - 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

Select from 2 billing tariffs

Events

Alarms on all electrical values

Communications (1)

RS485 digital (MODBUS)

Input

- Tariff selection
- Remote report

Output

- Equipment control
- Alarm report
- Pulse report

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

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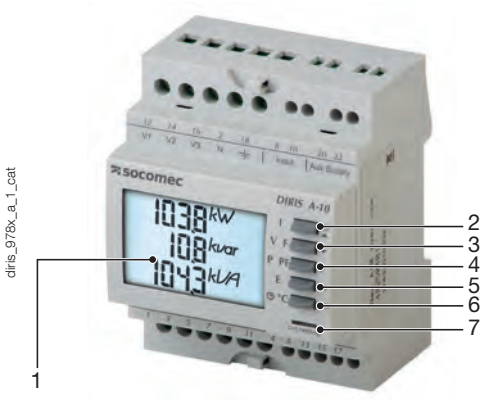
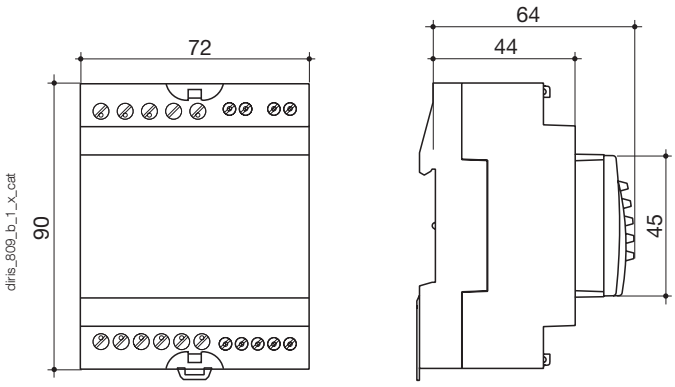
Front panel



1. Backlit LCD display.
2. Pushbutton for currents (instantaneous and maximum), and currents THD.
3. Pushbutton for voltages, frequency and voltages THD.
4. Pushbutton for (instantaneous and maximum), active, reactive and effective power and power factor.
5. Pushbutton for energy sources and hour counter.
6. Pushbutton for temperature and CT connection correction function.
7. Metrological LED.

Case



Type	Modular
Number of modules	4
Dimensions W x H x D	72 x 90 x 64 mm
Case Ingress Protection rating	IP30
Front panel Ingress Protection rating	IP52
Display type	Backlit LCD display
Voltage and current connection cross-section	4 mm^2
Other terminals connection cross-section	2.5 mm^2
Weight	205 g (4825 0010) - 215 g (4825 0011)

Electrical characteristics

Current measurement (TRMS)	
Via CT primary	9999 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 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 (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 (pulse)	
Number	1
Optocoupler type (IEC 62053-31)	Class A and B (10...30 VDC, 27 mA)

Input	
Number	1
Type	0 VAC: T1 / 200-277 VAC: T2

Communication	
Link	RS485
Type	2 … 3 fils half duplex
Protocol	MODBUS® RTU
MODBUS® speed	2400 … 38400 bauds

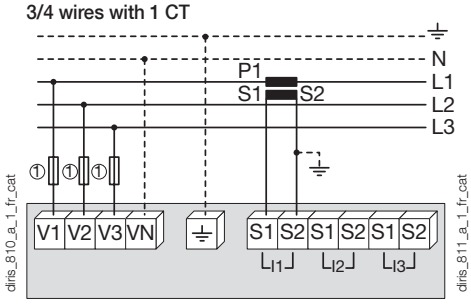
Operating conditions	
Operating temperature	-10 … +55 °C
Storage temperature	-20 … +70 °C
Relative humidity	85%

Connection

Low voltage balanced network

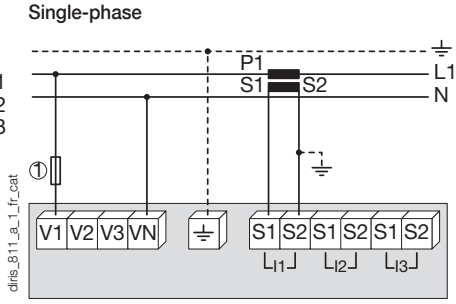
Recommendation:
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited.
This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the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

3/4 wires with 1 CT



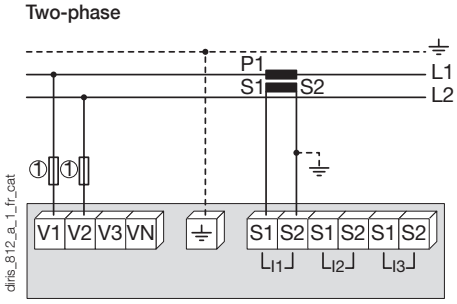
1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase



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

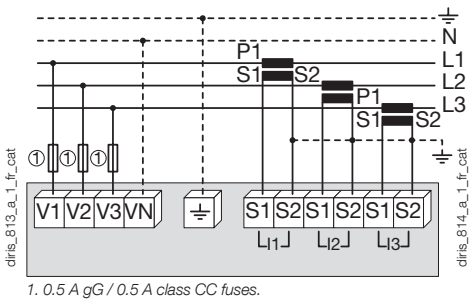
Two-phase



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

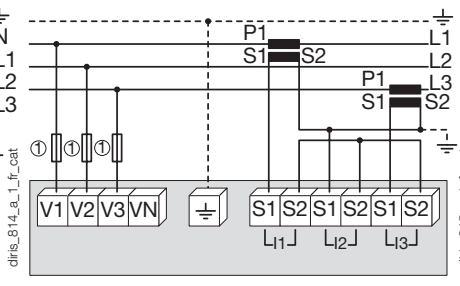
Low voltage unbalanced network

3/4 wires with 3 CTs



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

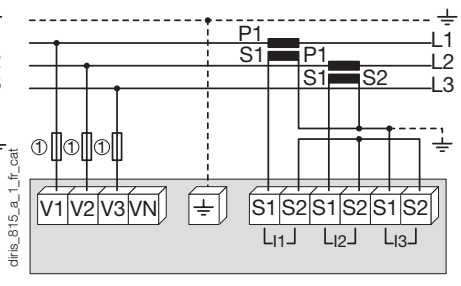
3 wires with 2 CTs



Use of 2 CTs 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



Use of 2 CTs reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

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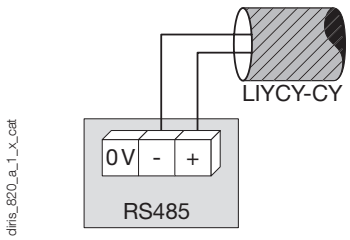
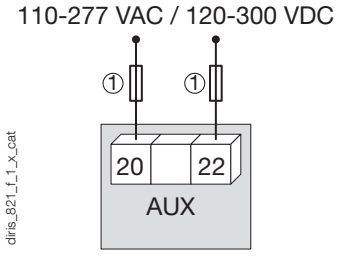
Additional information

Communication via RS485 link

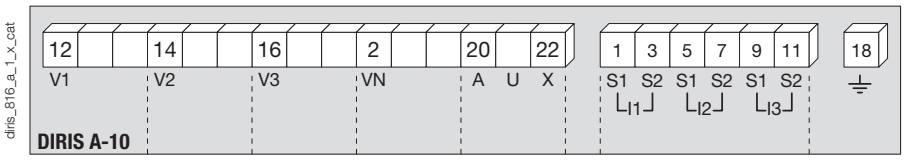


AC & DC auxiliary power supply



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

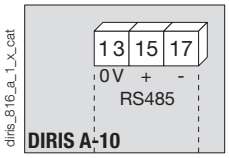
Terminal blocks



S1 - S2: current inputs.

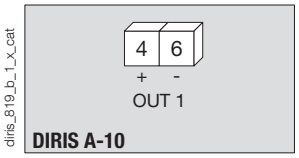
AUX: auxiliary power supply Us.
V1, V2, V3 & VN: voltage inputs.

Communication module



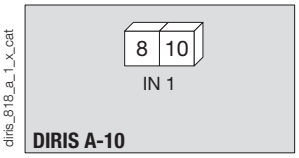
RS485 link.

Output or alarm module



4 - 6: output n°1

Input module



8 - 10: input n°1

References

Basic device **Description**		**DIRIS A-10** **Reference**
DIRIS A-10		4825 **0400**
DIRIS A-10 with MODBUS communication via RS485		4825 **0401**
Accessories	**Available for order in multiples of**	**Reference**
Fused disconnect switches to protect voltage inputs (type RM) 3 pole	4	5701 **0018**
Fused disconnect switches to protect the 1 pole + neutral auxiliary power supply (RM type)	6	5701 **0017**
0.5 A 10x38 gG fuses	10	6012 **0000**
Current transformer range	1	See “Current transformers” pages
Software associated with DIRIS	See “Easy Config System” pages	
Door mounting kit		4825 **0088**
Automatic CT short-circuiting device	See “Current transformers” pages	

Expert Services

SERVICES EXPERTS

Socomec offers a wide range of services to continuously ensure a functional and accurate energy monitoring system:
- Device integration
- System audit
- Commissioning
- Training for your teams

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

For further information, please talk to your Socomec contact.