

DIRIS A14

PMD - MID multifunction measuring unit

measuring and monitoring - modular format



DIRIS A14 panel mounted



DIRIS A14 DIN rail mounted

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.

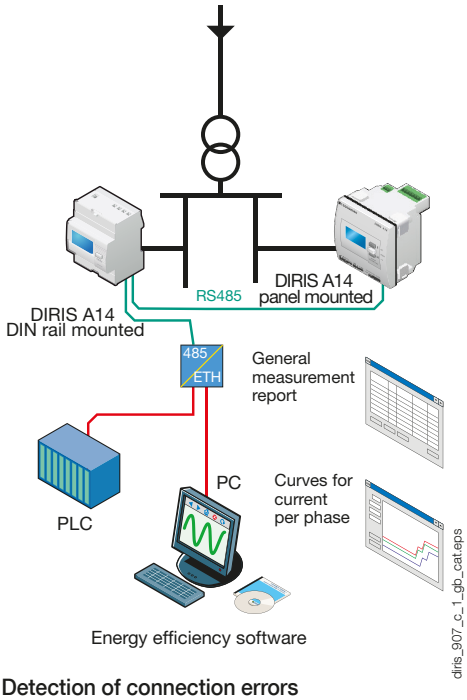
Multi-measurement and load curve

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.

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”.

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)

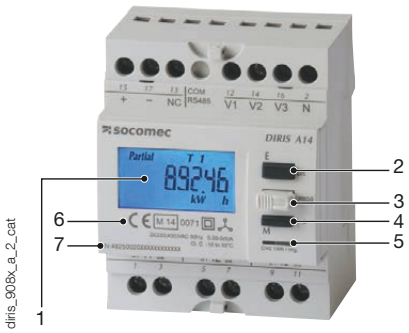
- Active energy consumption: day n-1 / week n-1 / month n-1
- Active power load curves: P 10 minutes over 7 days with time-log

Communications

- RS485 with MODBUS protocol

socomec Innovative Power Solutions

Front panel

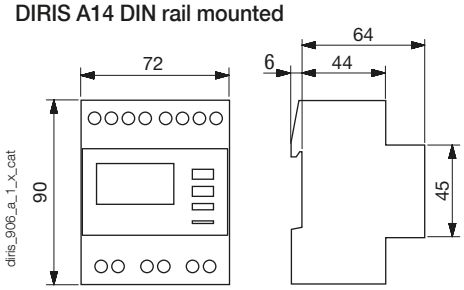


1. Backlit LCD display
2. Direct access for energies and validation key
3. Programming key
4. Navigation key for measurements
5. Metrological LED
6. MID marking
7. Serial Number

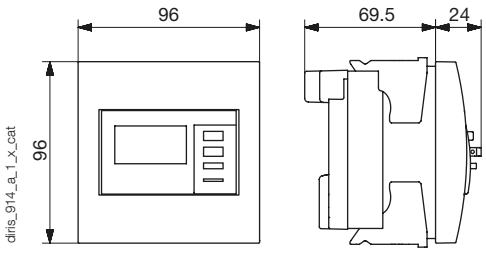


Case

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

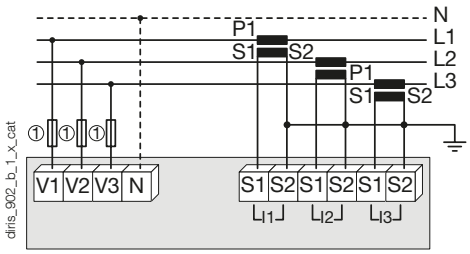
Connection

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.

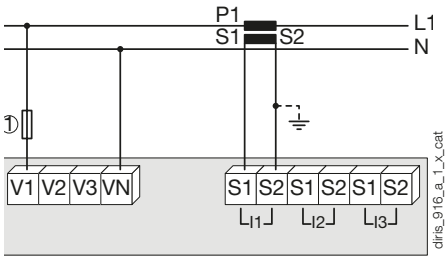
Low voltage unbalanced network

3/4 wires with 3 CTs



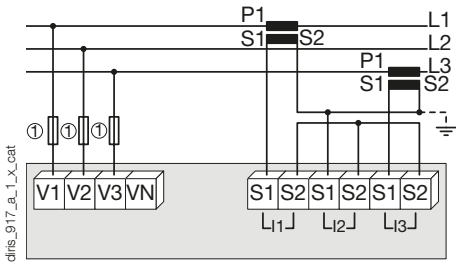
1. 0.5 A gG / 0.5 A class CC fuses.

Single-phase



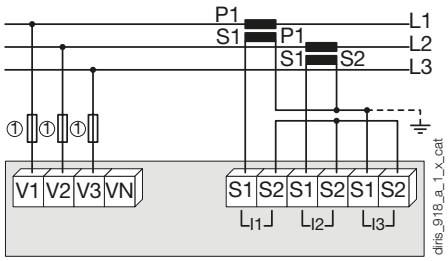
1. 0.5 A gG / 0.5 A class CC fuses.

3 wires with 2 CTs



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

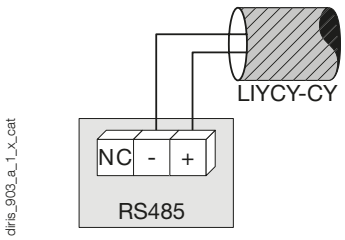
3 wires with 2 CTs



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

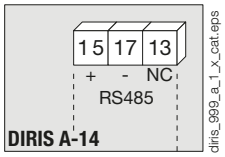
Additional information

Communication via RS485 link

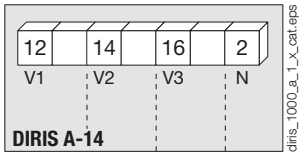


Terminals

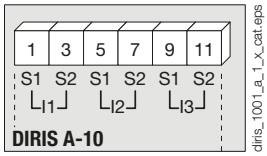
Communication Module



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**
Accessoires	**À commander par multiple de**	**Référence**
Fuse disconnect switches for the protection of voltage inputs (type RM)	4	5601 **0018**
Fuse disconnect switches to protect the 1-pole + neutral auxiliary power supply (RM type)	6	5601 **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.

