

# DIRIS A14

## MID Power Monitoring Device (PMD)

measurement and monitoring - modular format



DIRIS A14 door mounted



DIRIS A14 DIN-rail mounted

### The solution for

- > Data centres
- > Energy
- > Industry



### Strong points

- > Available in MID certified module B+D version
- > Bi-directional metering (four quadrants)
- > Multi-measurement and load curve
- > Conformity to IEC 61557-12
- > • Detection of connection errors

### Conformity to standards

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



### Associated current transformers



See "Current transformers".

### Function

The **DIRIS A14** is an MID-certified multi-measurement meter - for measuring electrical values in low voltage networks. It enables viewing of all electrical parameters and operation of measurement, metering and communication functions.

### Advantages

#### Available in MID certified module B+D version

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. The "module B+D" certification attests that an external laboratory has verified the design and production process of these devices.

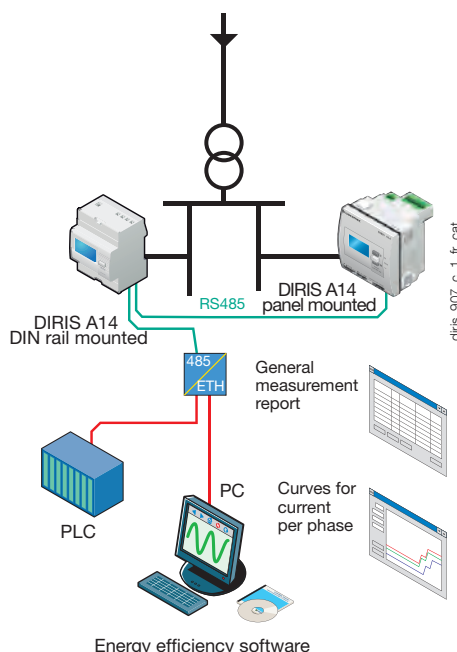
#### Bi-directional metering (four quadrants)

This function is for metering energy production or energy consumption.

#### Multi-measurement and load curve

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

### Functional diagram



### 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.).

### Functions

#### Multi-measurement

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Frequency
- Voltages
  - instantaneous: V1, V2, V3, U12, U23, U31
- Power
  - instantaneous:  $\Sigma P$ ,  $\Sigma Q$ ,  $\Sigma S$
  - maximum average:  $\Sigma P$ ,  $\Sigma Q$ ,  $\Sigma S$
- Power factor (cos  $\phi$ )
  - instantaneous:  $\Sigma \cos \phi$
  - maximum average:  $\Sigma \cos \phi$

#### Total and partial metering

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

#### Harmonic analysis (via communication)

- Total harmonic distortion (up to 63rd)
  - 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

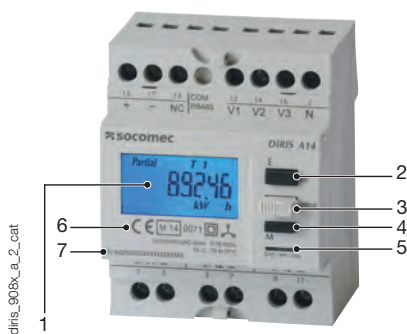
#### Events history (via communication)

- 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 digital (MODBUS)

## Front panel

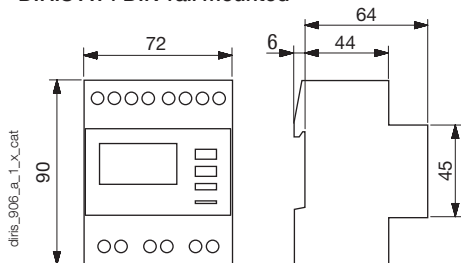


1. Backlit LCD display.
2. Direct access for energies and validation key
3. Programming key
4. Navigation key for measurements
5. Metrological LED
6. MID marking
7. Serial Number

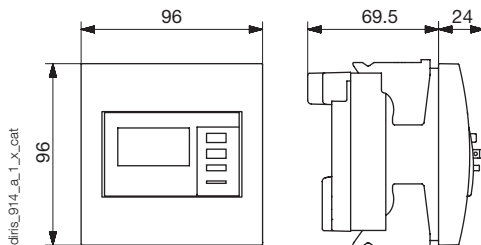


## Case

### DIRIS A14 DIN-rail mounted



### DIRIS A14 door mounted



	DIRIS A14 DIN-rail mounted	DIRIS A14 door mounted
Type	modular	flush-mounting
Number of modules	4	-
Dimensions W x H x D	72 x 90 x 64 mm	96 x 96 x 69.5 mm
Case Ingress Protection rating	IP20	
Front panel Ingress Protection rating	IP51	
Display type	Backlit LCD display	
Rigid cable cross-section	1.5 ... 10 mm <sup>2</sup>	
Flexible cable cross-section	1 ... 6 mm <sup>2</sup>	
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
Start-up current (I <sub>st</sub> )	5 mA
Minimum current (I <sub>min</sub> )	50 mA
Transmission current (I <sub>tr</sub> )	250 mA
Reference current (I <sub>ref</sub> )	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-phase
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 ... 3 fils half duplex
Protocol	MODBUS® RTU
MODBUS® speed	4800 ... 38400 bauds
Operating conditions	
Operating temperature	-10 ... +55 °C
Storage temperature	-20 ... +70 °C
Relative humidity	95% condensation-free

# DIRIS A14

## MID Power Monitoring Device (PMD)

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### Connection

#### Low voltage balanced network

##### Recommendation:

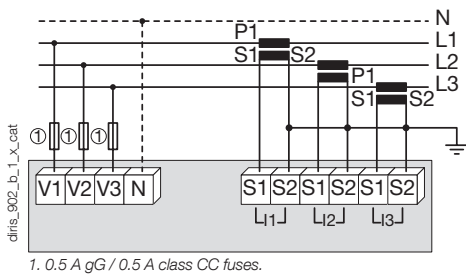
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.

- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited.

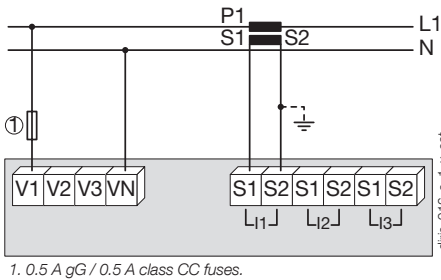
This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us.

#### Low voltage unbalanced network

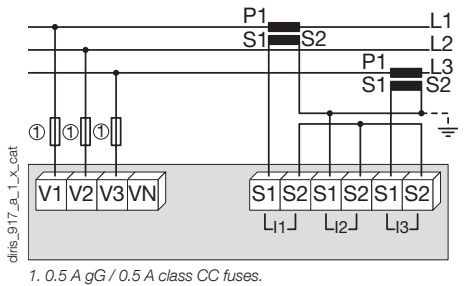
##### 3/4 wires with 3 CTs



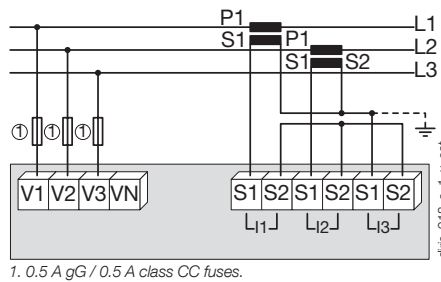
##### Single-phase



##### 3 wires with 2 CTs

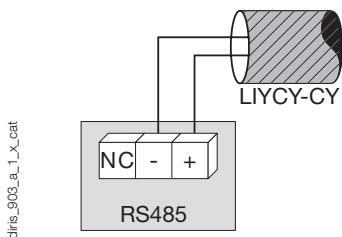


##### 3 wires with 2 CTs



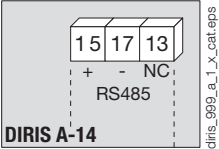
#### Additional information

##### Communication via RS485 link

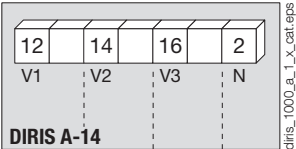


Terminal blocks

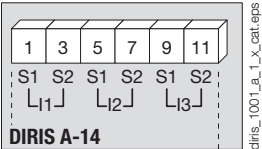
Communication module



RS485 link.



V1, V2, V3 & N: voltage inputs.



S1 - S2: current inputs.

References

<b>Basic device</b>		<b>DIRIS A14</b>
<b>Description</b>		<b>Reference</b>
DIRIS A14 MID DIN-rail mounted		4825 0020
DIRIS A14 MID door mounted		4825 0021
<b>Accessories</b>	<b>Available for order in multiples of</b>	<b>Reference</b>
Fused disconnect switches to protect the voltage inputs (RM type)	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
Automatic CT short-circuiting device	See "Current transformers" pages	

Expert Services



EXPERT SERVICES

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.