

# DIRIS A14

## Multifunction meters - PMD

## Modular multifunction meter - MID

Single-circuit metering, measurement & analysis

new




*DIRIS A14*

### The solution for

- Industry
- Infrastructures
- Data centre



### Strong points

- MID certified B+D module
- Bi-directional metering
- Multi-measurement and load curves
- Compliant with IEC 61557-12
- Detection of connection errors

### Conformity to standards

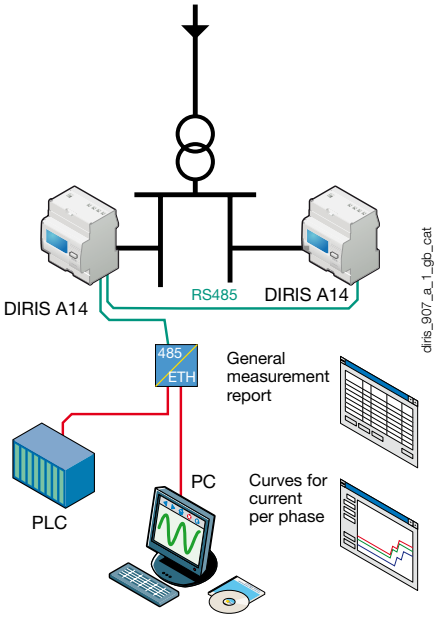
- IEC 61557-12
- IEC 62053-23 class 2
- EN50470-1
- EN50470-3 class C

## Function

The **DIRIS A14** is a modular 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.

## Functional diagram




VERTELIS software solution

## Advantages

**MID certified B+D module**

DIRIS A14 products with MID certification provide the guaranteed accuracy required for applications in which sub-billing of the electrical energy consumed is necessary. “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.

**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.).

**Detection of connection errors**

The product is protected against phase/neutral inversion and detects wiring errors

## Functions

**Multi-measurement**

- Currents
  - instantaneous: I1, I2, I3, In
  - maximum average: I1, I2, I3, In
- Voltages
  - instantaneous: V1, V2, V3, U12, U23, U31
- Power
  - 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 (level 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 curve: P 10 minutes over 7 days with time-log

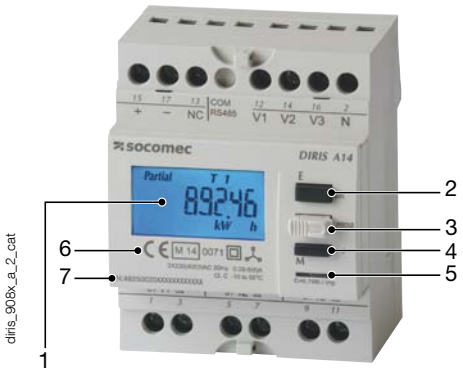
**Communications**

RS485 with MODBUS protocol



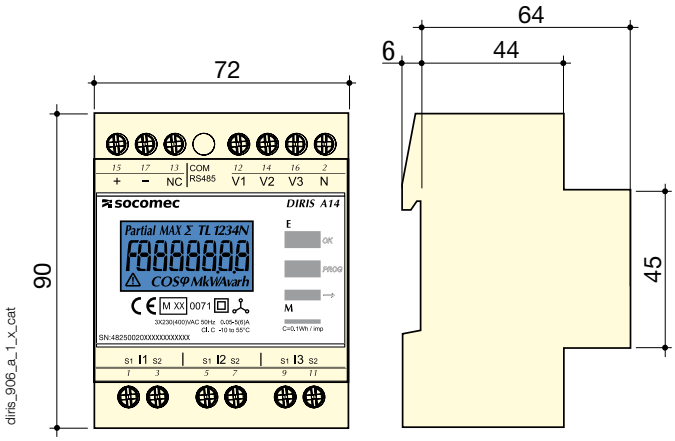
socomec Innovative Power Solutions

## 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




| | |
|---|---|
| Type | modular |
| Number of modules | 4 |
| Dimensions W x H x D | 72 x 90 x 64 mm |
| Case degree of protection | IP20 |
| Front degree of protection | IP51 |
| Display type | Backlit LCD |
| Rigid cable cross-section | 1.5 to 10 mm$^2$ |
| Flexible cable cross-section | 1 to 6 mm$^2$ |
| Weight | 240 gr |

## Electrical characteristics

| | |
|---|---|
| **Current measurement (TRMS)** | |
| Via CT primary | 10 to 2500 A |
| Via CT secondary | 5 A |
| Input consumption | 0.6 VA |
| Startup current ($I_{st}$) | 5 mA |
| Minimum current ($I_{min}$) | 50 mA |
| Transmission current ($I_{tr}$) | 250 mA |
| Reference current ($I_{ref}$) | 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 to 460 VAC +/- 15% |
| 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 |

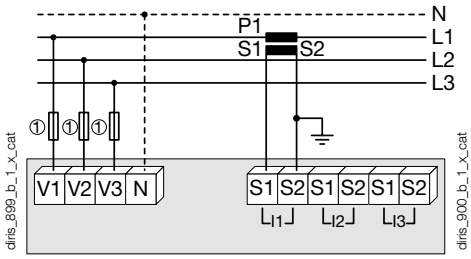
| | |
|---|---|
| **Energy accuracy** | |
| Active (according to IEC 62053-22) | Class 0.5 S |
| Reactive (according to IEC 62053-23) | Class 2 |
| Active (according to EN 50470) | Class C |
| **Metrological LED ($EA^+$,$EA^-$)** | |
| Pulse weight | 10000 pulses/kWh |
| Colour | Red |
| **Auxiliary power supply** | |
| Self-supply | Yes |
| Frequency | 50 / 60 Hz |
| **Communication** | |
| Link | RS485 |
| Type | 2 … 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% without condensation |

## Connection

### Low voltage balanced network

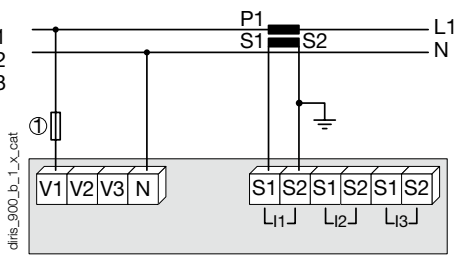
**Recommendation:**
**- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.**
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited.
This operation can be carried out automatically by a SOCOMEC PTI, which can be found in the SOCOMEC catalogue: please consult us.

**3/4 wires with 1 CT**



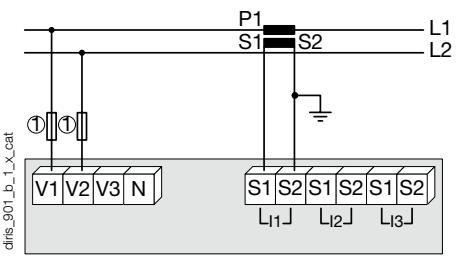

*1. Fuses 0.5 A gG / 0.5 A class CC.*

**Single-phase**




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

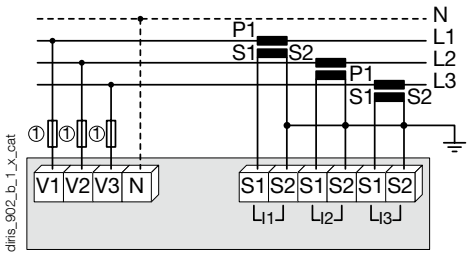
**Two-phase**




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

### Low voltage unbalanced network

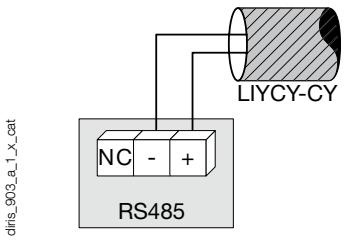
**3/4 wires with 3 CTs**



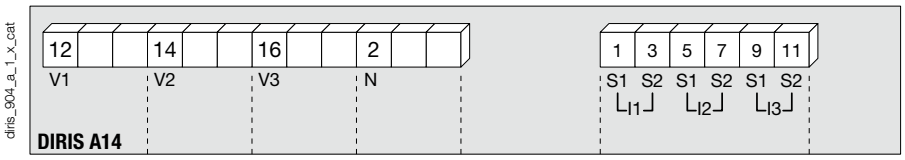

*1. Fuses 0.5 A gG / 0.5 A class CC.*

### Additional information

**Communication via RS485 link**



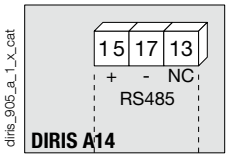
## Terminals




**V1, V2, V3 & N:** voltage inputs.

**S1 - S2:** current inputs.

**Communication module**




**RS485 link.**

## References

| **Basic device**<br>**Description** | **DIRIS A14**<br>**Reference** |
|---|---|
| DIRIS A14 MID + RS485 MODBUS communication | 4825 **0020** |
| **Accessories** | **Reference** |
| Panel mounting kit | 4825 **0070** |

## Services & Technical Assistance

> Our expertise extends to a complete offer of customised services, such as technical site audit and solution specification, commissioning, training, maintenance, and project engineering.

