

# DIRIS A-10

Multifunction meters - PMD  
modular multifunction meter



DIRIS A-10

## The solution for

- > Industry
- > Infrastructures
- > Building



## Strong points

- > Easy to use
- > Integrated temperature sensor
- > Detects wiring errors
- > Compliant with ANSI C12.20 and IEC 61557-12

## Conformity to standards

- > UL 61010 guide PICQ file E257746
- > ANSI C12.20
- > IEC 61557-12
- > IEC 62053-22 class 0.5S
- > IEC 62053-23 class 2



## Function

The **DIRIS A-10** is a modular multifunction meter for measuring electrical values in low voltage networks. It allows all electrical parameters to be displayed and utilized for communication and/or output functions.

## Advantages

### Easy to use

Five direct access pushbuttons enable all measurements to be clearly viewed on the backlit LCD display.

### Integrated temperature sensor

It allows variations in temperature to be detected.

### Detects wiring errors

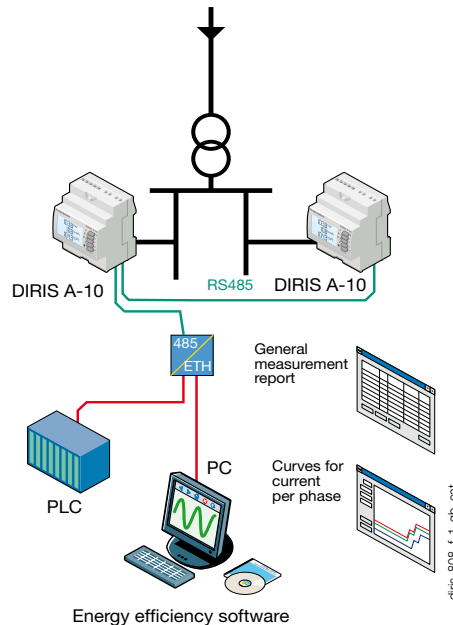
An integrated test function can be utilized to detect incorrect wiring and to automatically correct CT installation errors.

### Compliant with ANSI C12.20 and 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, as well as mechanical and environmental aspects (EMC, temperature, etc.).

## Principle diagram



## 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

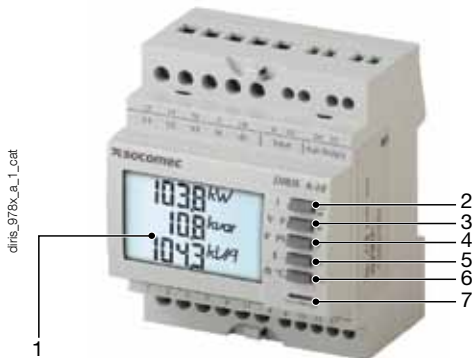
- Tariff selection
- Remote device status

### Output

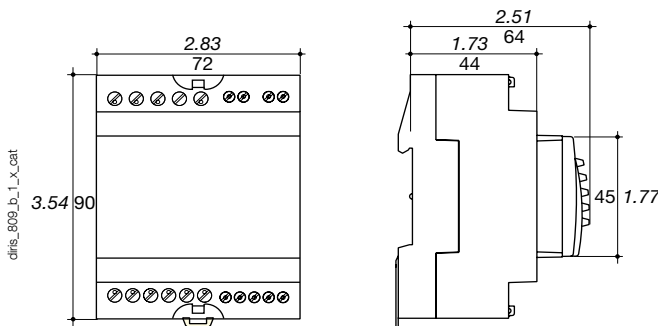
- Remote command of device
- Alarm report
- Pulse report

(1) Available on specific version (see the following pages).

## Front panel



## Dimensions (in/mm)



Type	modular
Number of modules	4
Dimensions W x H x D	2.83 x 3.54 x 2.51 in / 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	AWG 6 / 4 mm <sup>2</sup>
Connection cross-section for AUX supply, input, output and comms.	AWG 10 / 2.5 mm <sup>2</sup>
Weight	7.23 oz / 205 g (4825 0400) 7.58 oz / 215 g (4825 0401)

## Electrical characteristics

<b>Current measurement (TRMS)</b>	
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
<b>Voltage measurements (TRMS)</b>	
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 %
<b>Power measurement</b>	
Measurement updating period	1 s
Accuracy	0.5 %
<b>Power factor measurement</b>	
Measurement updating period	1 s
Accuracy	0.5 %
<b>Frequency measurement</b>	
Measurement range	45 ... 65 Hz
Measurement updating period	1 s
Accuracy	0.1 %

<b>Energy accuracy</b>	
Active (according to IEC 62053-22)	Class 0.5 S
Reactive (according to IEC 62053-23)	Class 2
<b>Auxiliary power supply</b>	
Alternating voltage	110 ... 277 VAC
AC tolerance	± 15 %
Frequency	50 / 60 Hz
Consumption	< 3 VA
<b>Digital output (pulses or on/off)</b>	
Number	1
Type	20 / 30 VDC - 0.5 A - 10 VA
Max. number of operations	≤ 10 <sup>8</sup>
<b>Input (tariff)</b>	
Number	1
Type	0 VAC: T1 / 200-277 VAC: T2
<b>Communication</b>	
Link	RS485
Type	2 ... 3 half duplex wires
Protocol	MODBUS RTU
MODBUS <sup>®</sup> speed	2400 ... 38400 bauds
<b>Operating conditions</b>	
Operating temperature	- 10 ... + 55 °C / +14 °F ... +131 °F
Storage temperature	- 20 ... + 70 °C / -4 °F ... +158 °F
Relative humidity	85 %

<b>Accessories</b>		
<b>Description</b>	<b>To be ordered in multiples of</b>	<b>Reference</b>
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 0003
Class CC 0.5 A fuses	10	6000 5000

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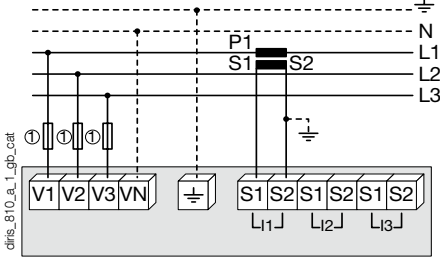
## Connection

### Recommendation:

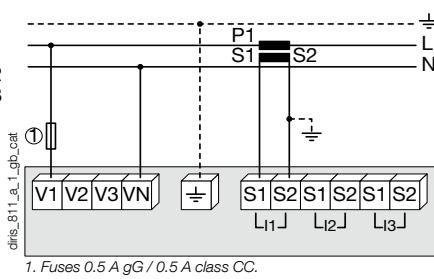
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited. This operation can be carried out automatically by a SOCOMEC PTI: please consult us.
- It is recommended that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

### Low voltage balanced network

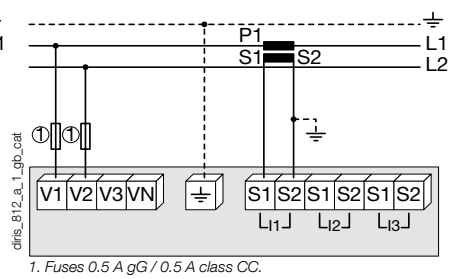
#### 3/4 wires with 1 CT



#### Single-phase

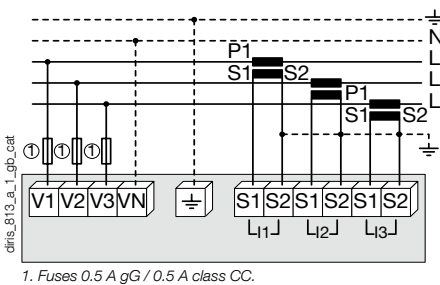


#### Two-phase

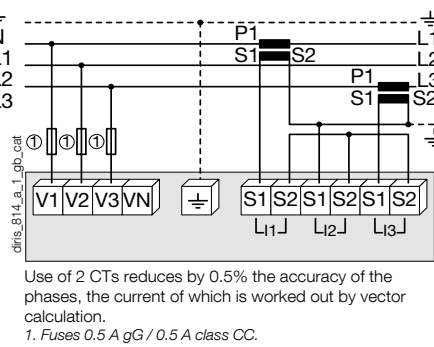


### Low voltage unbalanced network

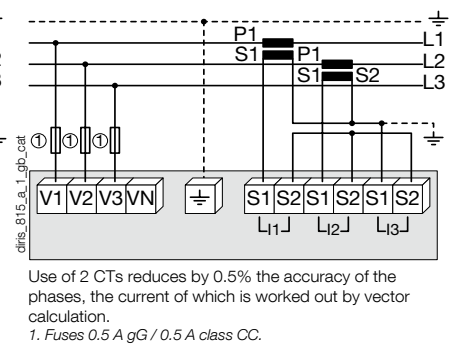
#### 3/4 wires with 3 CTs



#### 3 wires with 2 CTs

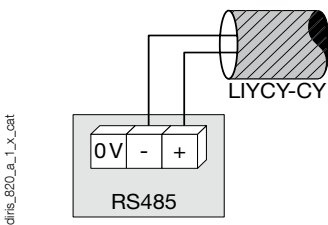


#### 3 wires with 2 CTs

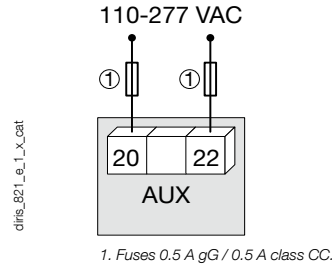


## Additional information

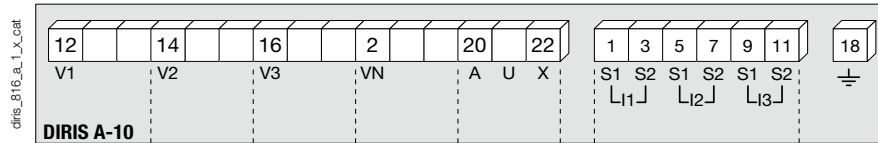
### Communication via RS485 link



### AC auxiliary power supply



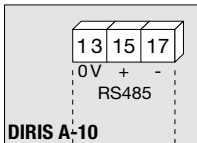
## Terminals



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

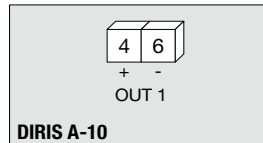
S1 - S2: current inputs.

### Communication terminals



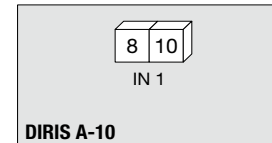
RS485 link.

### Pulse or alarm output terminals



4 - 6: output n°1

### Input terminals



8 - 10: input n°1

## References

<b>Basic device</b>		<b>DIRIS A-10</b>
<b>Description</b>		<b>Reference</b>
DIRIS A-10		4825 <b>0400</b>
DIRIS A-10 with RS485 MODBUS communication		4825 <b>0401</b>
<b>Description of accessories</b>	<b>To be ordered in multiples of</b>	<b>Reference</b>
Fuse disconnect switches for the protection of voltage inputs (type RM) 3 poles	4	5701 <b>0018</b>
Fuse disconnect switches for the protection of the auxiliary supply (type RM) 1 pole + neutral	6	5701 <b>0017</b>
Fuses type gG 10x38 0.5 A	10	6012 <b>0000</b>
Range of UL recognized current transformers	1	See page 270
Management software for DIRIS		See page 280

## Expert Services

- Our local team offers complete support to ensure the success of your project, from consultation to implementation of your metering system.



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