



DIRIS A-20

Multifunction power metering & monitoring device - PMD

Multi-measurement

Single-circuit metering,
measurement &
analysis



DIRIS A-20

diris_981_La_front.eps

The solution for

- > Industry
- > Infrastructures
- > Building



Strong points

- > User-friendly operation
- > Compliant with ANSI C12.20 and IEC 61557-12
- > Detects wiring errors
- > Customizable

Compliance with standards

- > UL 61010-1
CSA-C22.2 No. 61010-1
Guide PICQ
File E257746



- > ANSI C12.20
- > IEC 61557-12

Related software

- > To use Socomec PMDs effectively, we can offer you several dedicated software tools.

See page xxx.

Function

DIRIS A-20 units are power metering and monitoring devices that provide the user with all of the measurements needed to complete energy efficient projects successfully and to provide assured monitoring of electrical distribution.

All of this information can be used and analyzed remotely with the help of energy efficiency software programs.

Advantages

User-friendly operation

With its large backlit multiple-display screen with 4 pushbuttons, the DIRIS A-20 is easy to use.

Compliant with ANSI C12.20 and IEC 61557-12

References standard for PMDs (Performance metering & monitoring devices), IEC 61557-12 guarantees performance levels and high performance from the PMDs under the environmental conditions typical of industrial and building applications.

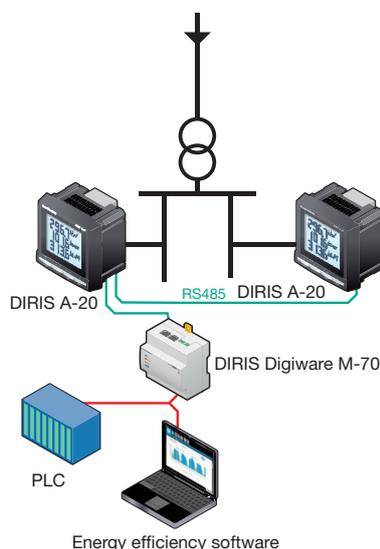
Detects wiring errors

The DIRIS A-20 is equipped with an error correction function for current transformer connection.

Customizable

Additional communication and input/output modules can extend the basic functional scope of this product. Equipped with additional modules, the DIRIS A-20 can provide the user with flexibility and expandability throughout the service life of the product.

Functional diagram



DIRIS_576_L1_en_cat

Bi-directional metering

DIRIS A-20 can measure the flow of electricity in both directions.

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
- Powers
 - instantaneous: 3P, ΣP, 3Q, ΣQ, 3S, ΣS
 - maximum average: ΣP, ΣQ, ΣS
- Power factors
 - instantaneous: 3PF, ΣPF

Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Time table: ☉

Harmonic analysis

- Total harmonic distortion (rank 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

Events

Alarms on all electrical parameters

Communications⁽¹⁾

RS485 with MODBUS protocol

Output

- Equipment control
- Alarm report
- Pulse report

Input

- Information report from a dry external contact

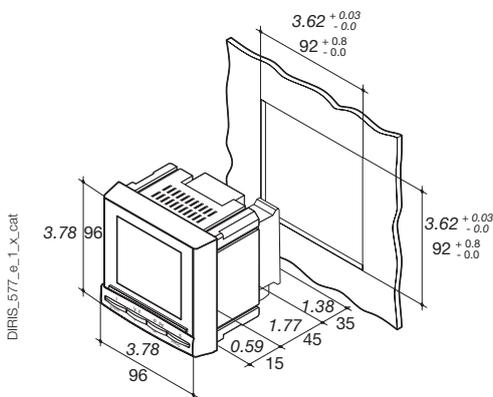
(1) Available as an option (see the following pages).

Front panel



1. Backlit LCD display
2. Pushbutton for currents (instantaneous and maximum), THD currents and the connection correction function.
3. Pushbutton for voltages, frequency and THD voltages.
4. Pushbutton for power (instantaneous and maximum), active, reactive and effective, power factor.
5. Pushbutton for energy sources and timer counter.

Dimensions (in/mm)



Type	Panel Mounting
Dimensions L x H x P	3.78 x 3.78 x 2.36 in / 96 x 96 x 60 mm
Case degree of protection	IP30
Front degree of protection	IP52
Display type	Backlit LCD
Type of terminal strips	Fixed or removable
Section for connection of voltages and other terminals	AWG 34 ... 10 / 0.2 ... 2.5 mm ²
Section for connection of currents	AWG 34 ... 10 / 0.2 ... 2.5 mm ²
Weight	14.11 oz / 400 g

Plug-in optional modules

DIRIS® A-20



1 output

- 1 output that can be configured for:
- pulses: configurable (type, weight, duration) to kWh or kVarh.
 - Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
 - Equipment control



Communication

RS485 link with MODBUS protocol (speed up to 38400 baud).



3 inputs , 1 output

- 3 inputs can be configured into:
- Information report from an external contact.
- 1 output that can be configured for:
- Pulses: configurable (type, weight, duration) to kWh or kVarh.
 - Monitoring: 3I, In, 3V, 3U, F, ΣP, ΣQ, ΣS, ΣPFL/C, THD 3I, THD 3V, THD 3U and timer meter.
 - Equipment control

Accessories

IP65 protection



DIRIS A-20

Multifunction power metering & monitoring device - PMD

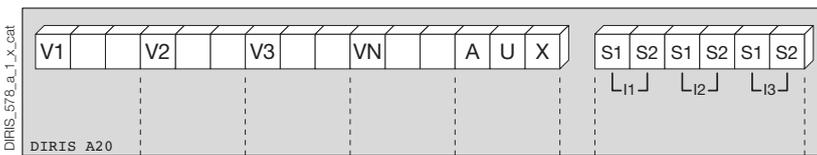
Multi-measurement

Electrical characteristics

Current measurement (TRMS)	
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 _n over 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	
Alternative voltage	110 ... 400 VAC
AC tolerance	± 10%
DC voltage	120 ... 289 VDC
DC tolerance	± 20%
Frequency	50 / 60 Hz
Power consumption	10 VA
Pulse or alarm output	
Number	1
Type	100 VDC - 0.5 A - 10 VA
Max. number of manoeuvres	≤ 10 ⁸
Inputs	
Number	3
Power supply	10 ... 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers
Communication	
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® in RTU mode
MODBUS® speed	1400 ... 38400 baud
Operating conditions	
Operating temperature range	+14 ... +131 °F / - 10 ... + 55 °C
Storage temperature	-4 ... +158 °F / - 20 ... + 70 °C
Relative humidity	95%

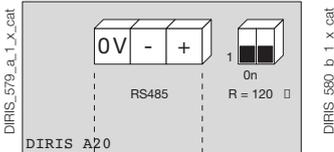
Terminals



S1 - S2: current inputs.

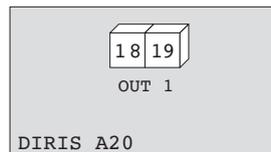
AUX: auxiliary power supply U_s.
V1, V2, V3 & VN: voltage inputs.

Module communication



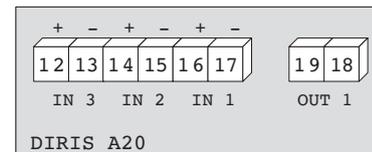
RS485 link.
R = 120 Ω : internal resistance for the RS485 link.

Output or alarm module



18 - 19: output n°1

Module with 3 inputs, 1 output



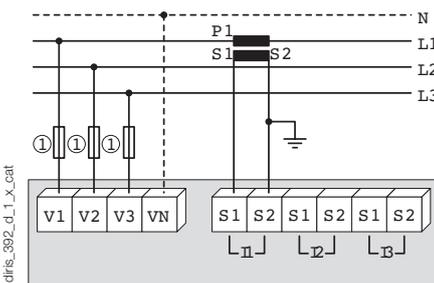
Connection

Low voltage balanced network

Recommendation

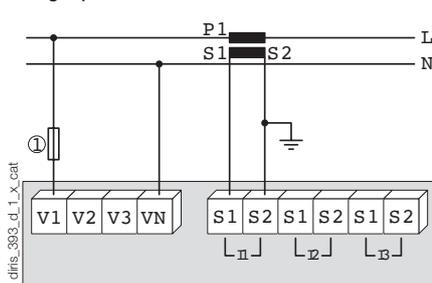
- For IT earthing systems, it is recommended that the CT secondary is not connected to earth.
- When disconnecting the DIRIS, the secondary of each current transformer must be short-circuited.

3/4 wires with 1 CT



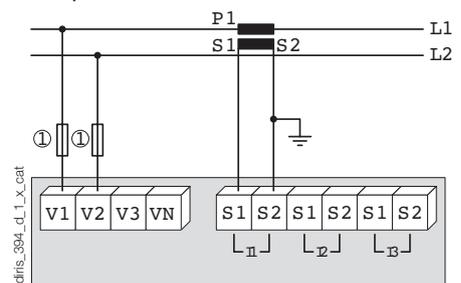
The 1CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.
1. 0.5 A class CC fuses.

Single-phase



1.0.5 A class CC fuses.

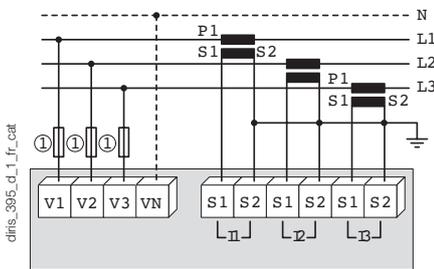
Two-phase



1. 0.5 A class CC fuses.

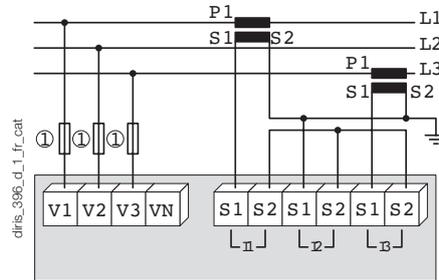
Low voltage unbalanced network

3/4 wires with 3 CTs



1. 0.5 A class CC fuses.

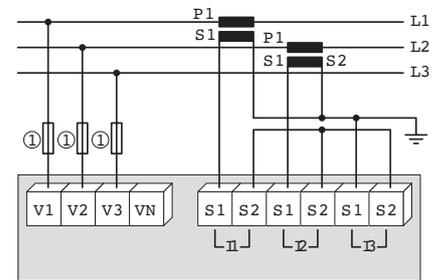
3 wires with 2 CTs



The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

1. 0.5 A class CC fuses.

3 wires with 2 CTs

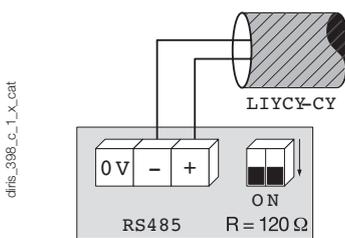


The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

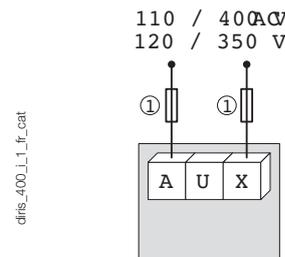
1. 0.5 A class CC fuses.

Additional information

Communication via RS485 link



AC and DC auxiliary power supply



1. 0.5 A class CC fuses.

References

Basic device		DIRIS A-20
Auxiliary power supply U_s		Part number
110 ... 400 VAC / 120 ... 350 VDC		4825 0402
Options		Part number
Plug-in optional modules		
On/Off output.		4825 0080
RS485 MODBUS® communication		4825 0082
3 inputs, 1 output		4825 0083
Accessories		
Designation of accessories	To be ordered in multiples of	Part number
Protection IP65	1	4825 0089
Plug-in kit for cutout 144 x 96 mm	1	4825 0088
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 0003
Class CC 0.5 A fuses	10	6CC0 5000
Ferrite for use with communication modules	1	4899 0011

Expert Services

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

See page xxx.

