



Model Diris A-20

Multifunction Power Monitoring Device



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

Related software

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

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 hot keys, the DIRIS A-20 is easy to use.

Compliant with ANSI C12.20 and IEC 61557-12.

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

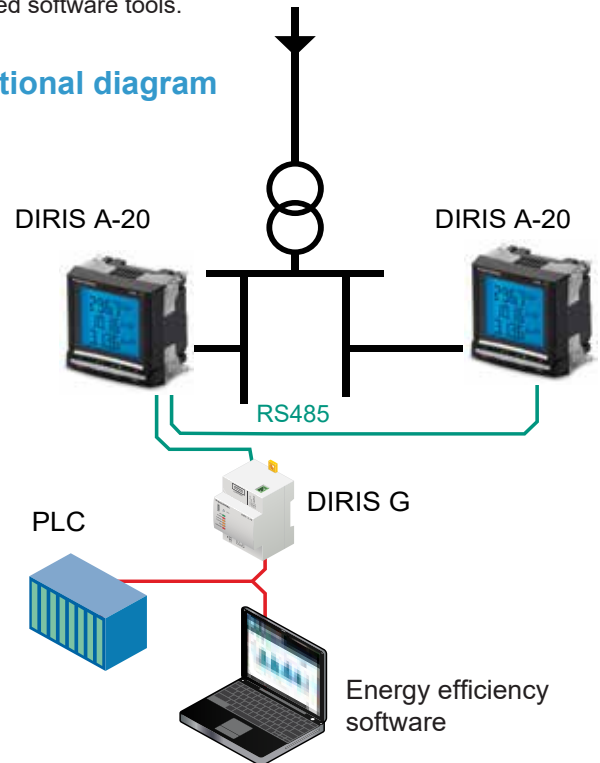
Detects wiring errors

The DIRIS A-20 is equipped with an error correction function for TC 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



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
- R reactive energy: +/- kvarh
- Timetable:

Harmonic analysis

- Total harmonic distortion (rank 51)
- C 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).

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23 Meter Street
Penacook, NH 03303

Phone: (800) 258-3652

Fax: (603) 753-9592

Email: sales@hoytmeter.com

www.hoytmeter.com



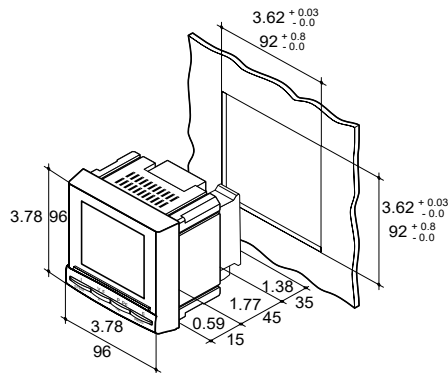
Model Diris A-20

Multifunction Power Monitoring Device



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)

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

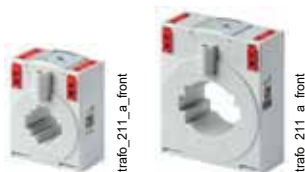
Plug-in optional modules



- diris_445_a_1_cat**: 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
- diris_447_a_1_cat**: Communication
 - RS485 link with MODBUS protocol (speed up to 38 400 baud)
- diris_449_a_1_cat**: 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

UL recognized
Current Transformers



IP65 protection



Description	To be ordered in multiples of	Part number
Fuse holder Class CC to protect voltage inputs 3 pole	4	5705 0003
Class CC 0.5 A fuses	10	6CC0 5000



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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 In over 1 sec

Voltage measurements (TRMS)

Direct measurement between phases	50 ... 500 VAC
Direct measurement between phase and neutral	28 ... 289 VAC
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 (in acc. with CEI 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	≤ 108

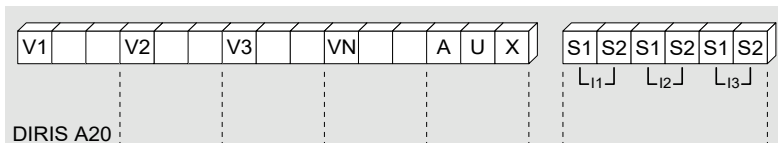
Inputs

Number	3
Power supply	10 ... 30 VDC
Minimum width of signal	10 ms
Minimum length between 2 pulses	18 ms
Type	Optical couplers

Communication

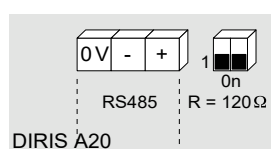
Link	RS485
Type	2 to 3 half duplex wires
Protocol	MODBUS® in RTU mode
MODBUS® speed	1400 ... 38400 baud
Operating conditions	
Operating temperature range	- 10 ... + 55 °C / +14 °F ... +131 °F
Storage temperature	- 20 ... + 70 °C / -4 °F ... +158 °F
Relative humidity	95%

Terminals



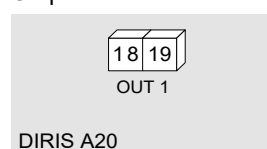
S1 - S2 : current inputs.
AUX : auxiliary power supply
Us. V1, V2, V3 & VN : voltage inputs.

Module communication



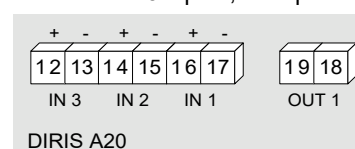
RS485 link.
R = 120 Ω : internal resistance for the RS485 link.

Output or alarm module



18 - 19 : output n°1

Module with 3 inputs, 1 output



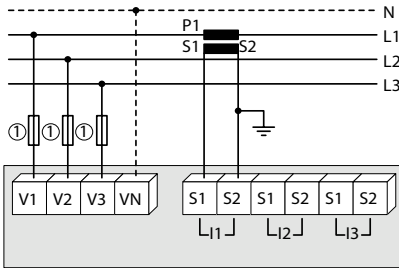
Connection

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.
- This operation can be carried out automatically by a SOCOMEC PTI: please consult us.

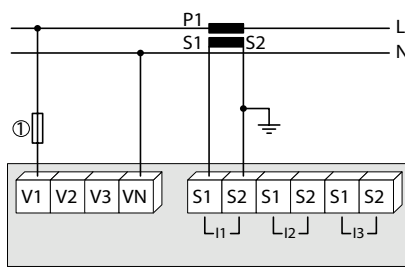
3/4 wires with 1 CT



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

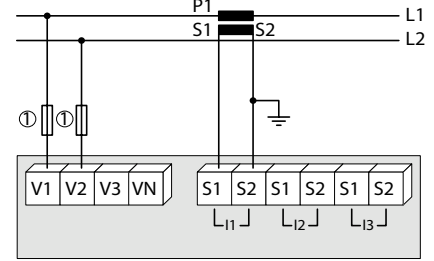
The 1CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

Single-phase



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

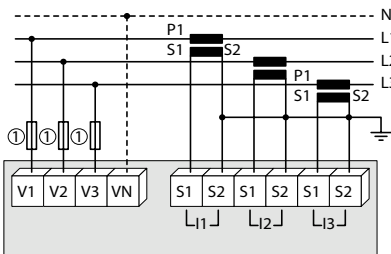
Two-phase



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

Low voltage unbalanced network

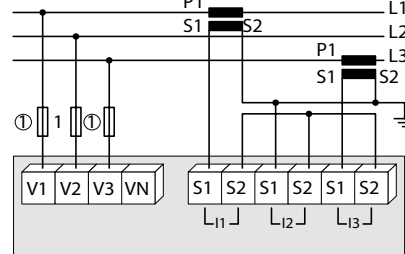
3/4 wires with 3 CTs



1. 0.5 A gG / 0.5 A class CC fuses

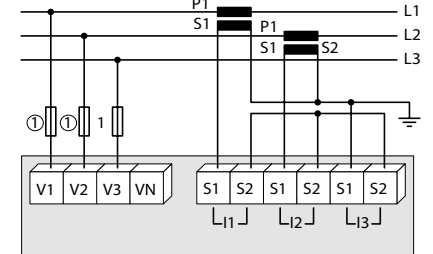
The 2CT solution reduces by 0.5% the accuracy of the phase for which the current is deduced by a vector calculation.

3 wires with 2 CTs



1. 0.5 A gG / 0.5 A class CC fuses

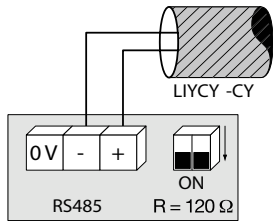
3 wires with 2 CTs



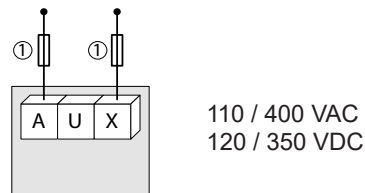
1. 0.5 A gG / 0.5 A class CC fuses.

Additional information

Communication via RS485 link



AC and DC auxiliary power supply



1. 0.5 A gG / 0.5 A class CC fuses

References

Basic device

Auxiliary power supply Us
110 ... 400 VAC / 120 ... 350 VDC

DIRIS A-20
Part number
4825 0402

Options

Plug-in optional modules
On/Off output.
RS485 MODBUS® communication
3 inputs, 1 output

Part number
4825 0080
4825 0082
4825 0083

Accessories

Designation of accessories

Protection IP65
Plug-in kit for cutout 144 x 96 mm
Fuse holder Class CC to protect voltage inputs 3 pole
Class CC 0.5 A fuses
Ferrite for use with communication modules
Range of UL recognized current transformers
Software associated with DIRIS

To be ordered in multiples of	Part number
1	4825 0089
1	4825 0088
4	5705 0088
10	6CC0 5000
1	4899 0011