

DIRIS Am

Network analysis

DIRIS Am

DIRIS A20

DIRIS A40 / DIRIS A41

Communication interfaces

DIRIS VISION software

CONTROL VISION software

BILLING APPLICATION software



DIRIS Am

1. Backlit LCD display.
2. Direct access key for currents.
3. Direct access key for voltages and frequency.
4. Direct access key for active, reactive and apparent power.
5. Direct access key for power factor.
6. Direct access key for max. current and power values.
7. Direct access key for hours run meter and energies (option).

Functions

The **DIRIS Am** is a multi-function meter for measuring electrical values for single, two and three phase low and high voltage networks. All the parameters can be configured and displayed on its front panel display and the following functions used:

- measurement,
- hours run meter,
- energy meter,
- communication.

Conformity to standards

- IEC 61036 class 1
- IEC 61268 class 2
- IEC 61010-1
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- IEC 61000-4-11
- IEC 60068-2-6
- IEC 60068-2-11
- IEC 60068-2-30

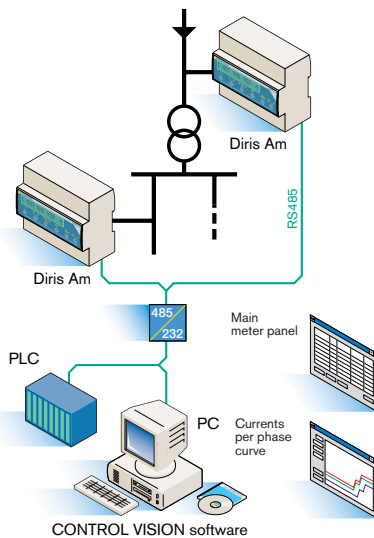


Direct access



Easy to read

Applications



Using electrical parameters means using several analogue or digital single-function products such as ammeters, voltmeters and wattmeters.

DIRIS Am has six direct access keys and LCD display. LV and HV installation parameters can be centralised on a PC or a PLC through an RS485 link using JBUS/MODBUS[®] protocol. The DIRIS Am is easy to install and can be DIN rail mounted.

Measurement in real effective values (TRMS):

- of instant current per phase and neutral, average and maximum over a programmable period,
- phase-to-neutral and phase-to-phase voltages,
- frequency,
- active power in 4 quadrants (\pm) per phase and total in instantaneous, average and maximum values over a programmable period,
- reactive power in 4 quadrants (\pm) per phase and total in instantaneous, average and maximum values over a programmable period,
- apparent power per phase and total in instantaneous, average and maximum values over a programmable period,
- power Factor (PF) per phase and total with inductive or capacitive indication.

Hours run meter

Hours run meter to 1/100th of an hour for the duration of operation.



Services +
 > Audit
 > Setting up
 > Training
 See page IV



References

Base unit with backlit display

Auxiliary power supply U_s

110 ... 400 VAC / 120 ... 350 VDC

Base unit with backlit display and metering option

Auxiliary power supply U_s

110 ... 400 VAC / 120 ... 350 VDC

Base unit with backlit display, metering and communication options

Auxiliary power supply U_s

110 ... 400 VAC / 120 ... 350 VDC



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DIRIS Am

References
 4810 0100

4810 0101

4810 0103

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Compact dimension

Energy metering

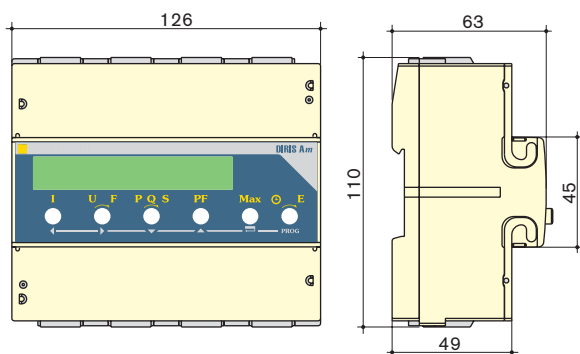
± kWh, ± kvarh and kVah with 2 configurable pulse outputs (weight and run).

Communication

RS485 2 or 3 wires with JBUS / MODBUS[®] protocol and transmission speed up to 38400 bauds.

Overall dimensions

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| | |
|-----------------------------------|----------------------------|
| Type | modular |
| Number of modules | 7 |
| Dimensions W x H x D | 126 x 110 x 63 mm |
| Case protection rating | IP20 |
| Front protection rating | IP40 |
| Display type | LCD |
| Terminal block type | fixed |
| Rigid cable connection section | 1.5 ... 10 mm ² |
| Flexible cable connection section | 1 ... 6 mm ² |
| Weight | 640 g |

Electrical characteristics

Current measurement on insulated inputs (TRMS)

| | |
|-----------------------------|---------------------------|
| CT primary | 10 000 A |
| CT secondary | 1 or 5 A |
| Measurement range | 0 ... 11 kA |
| Input consumption | ≤ 0,1 VA |
| Measurement updating period | 1 s |
| Accuracy | 0.5% |
| Sustained overload | 6 A |
| Intermittent overload | 10 I _n for 1 s |
| Insulation voltage | 1.5 kV |

Voltage measurement (TRMS)

| | |
|--|----------------------------|
| Direct measurement between phases | 50 ... 700 VAC |
| Direct measurement between phase and neutral | 28 ... 404 VAC |
| VT primary | 400 kV |
| VT secondary | 60, 100, 110, 173, 190 VAC |
| Input consumption | ≤ 0.1 VA |
| Measurement updating period | 1 s |
| Accuracy | 0.5% |
| Sustained overload | 760 VAC |
| Insulation voltage | 1.5 kV |
| Frequency | 50 / 60 Hz |

Current-voltage product

| | |
|----------------------|-----------|
| Limitation for 1A CT | 2 000 000 |
| Limitation for 5A CT | 2 000 000 |

Power measurement

| | |
|-----------------------------|---------------------------------|
| Measurement range | 0 ... 1 660 000 kW / kvar / kVA |
| Measurement updating period | 1 s |
| Accuracy | 1% |

Power factor measurement

| | |
|-----------------------------|-----|
| Measurement updating period | 1 s |
| Accuracy | 1% |

Frequency measurement

| | |
|-----------------------------|--------------|
| Measurement range | 45 ... 65 Hz |
| Measurement updating period | 1 s |
| Accuracy | 0.1 Hz |

Energy accuracy

| | |
|-----------------------------------|---------|
| Active (according to IEC 61036) | Class 1 |
| Reactive (according to IEC 61268) | Class 2 |

Auxiliary power supply

| | |
|--------------------|-----------------|
| AC voltage | 110 ... 400 VAC |
| AC tolerance | ± 10% |
| DC voltage | 120 ... 350 VDC |
| DC tolerance | ± 20% |
| Frequency | 50 / 60 Hz |
| Consumption | ≤ 10 VA |
| Insulation voltage | 4 kV |

Outputs (pulsed)

| | |
|---------------------------|-------------------------|
| Number of relays | 2 |
| Type | 100 VDC - 0.5 A - 10 VA |
| Max. number of operations | ≤ 10 ⁹ |

Communication

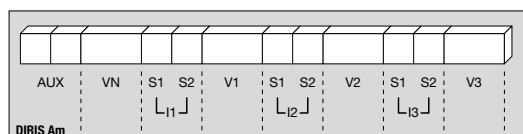
| | |
|--------------------|---------------------------|
| Link | RS485 |
| Type | 2 ... 3 wires half duplex |
| Protocol | JBUS/MODBUS® in RTU mode |
| JBUS/MODBUS® speed | 2400 ... 38400 bauds |

Operating conditions

| | |
|-----------------------|------------------|
| Operating temperature | - 10 ... + 55 °C |
| Storage temperature | - 20 ... + 85 °C |
| Relative humidity | 95% |

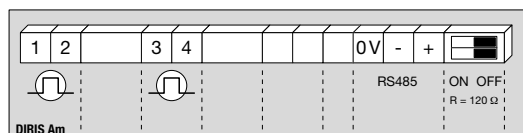
Terminals

• Bottom terminals



S1 - S2: current inputs
AUX: auxiliary power supply U_s
V1 - V2 - V3 - VN: voltage inputs

• Top terminals



Option: metering output
1 - 2: pulse output no. 1
3 - 4: pulse output no. 2

Option: communication
RS485: RS485 link using JBUS/MODBUS® protocol
R = 120 Ω: internal resistance for the RS485 link

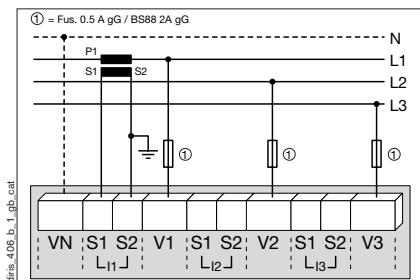


Connections

Recommendation: when disconnecting the DIRIS, the secondaries of each current transformer must be short-circuited. This operation can be carried out automatically with a product in the SOCOMEC catalogue, PTI (only available for 5 A secondary): please consult us.

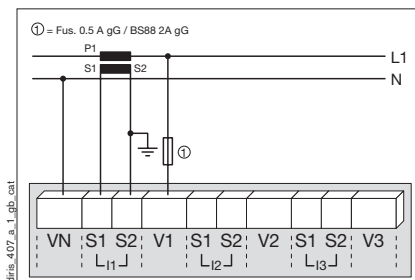
► Low voltage balanced network

• 3/4 wires with 1 CT

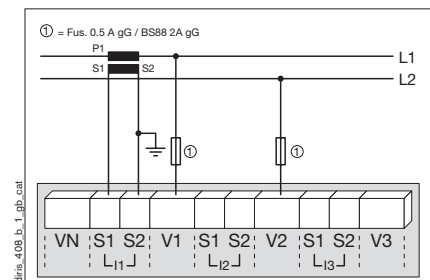


The use of 1 CT reduces by 0.5 % the accuracy of the phases whose current is determined by vector calculation

• Single-phase

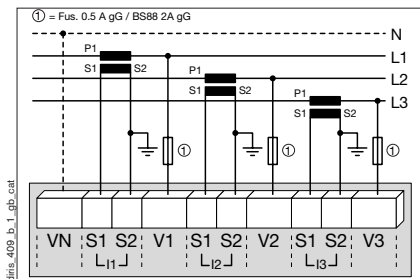


• Two phases

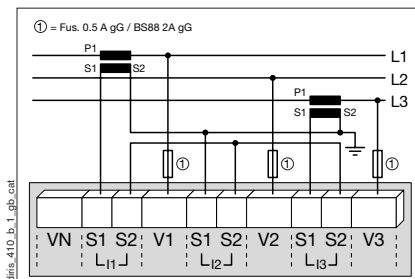


► Low voltage balanced network

• 3/4 wires with 3 CTs

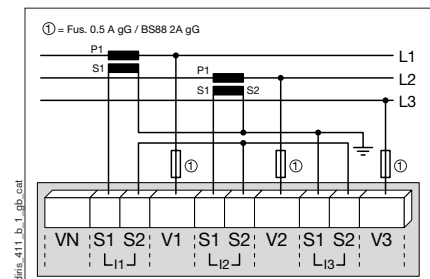


• 3 wires with 2 CTs



The use of 2 CTs reduces by 0.5 % the accuracy of the phase whose current is determined by vector calculation

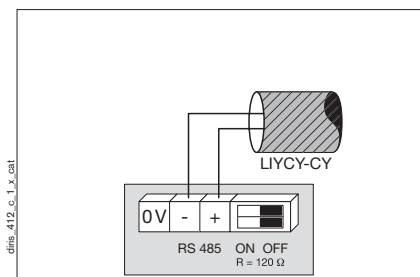
• 3 wires with 2 CTs



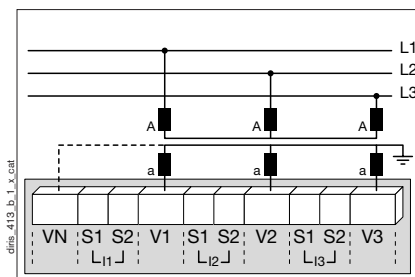
The use of 2 CTs reduces by 0.5 % the accuracy of the phase whose current is determined by vector calculation

► Other informations

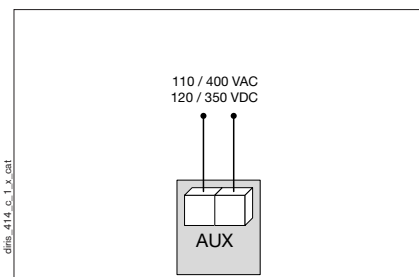
• Communication via RS485 link



• Connection of voltage transformer for HV networks



• AC & DC auxiliary power supply



It is recommended that the auxiliary power supply be protected by the use of 500 mA gG or BS88 2 A gG fuses