

# DIRIS Digiware *lac*

## AC current measurement modules

for the DIRIS Digiware system



Configuration  
with Easy Config System.

**new**



### Function

DIRIS Digiware *lac* modules measure consumption and monitor the system at the closest point to the loads. The flexibility of these modules enables you to allocate the loads to be measured or to monitor independent current inputs (for example: 1 three-phase load or 3 single-phase loads).

### Advantages

#### Multi-circuit

- One module can monitor up to 2 three-phase circuits or 6 single-phase circuits.
- Up to 31 current measurement modules can be added, making it possible to monitor a large number of circuits within the same DIRIS Digiware system.

#### Accurate

DIRIS Digiware *lac* modules ensure the quality and accuracy of measurements:

- Class 0.5 from 2 to 120% In for the overall measurement chain, with TE/ITR/TF current sensors and class 1 from 2 to 120% In for the overall measurement chain with TR current sensors (IEC 61557-12).
- Class C (EN 50470).

#### Compact

Two-module width for monitoring 2 three-phase loads or 6 single-phase loads, making integration close to the load easier.

#### Plug & Play

- RJ45 cables for quick and simple module connection.
- Colour coded RJ12 cables for connecting current sensors quickly, safely and without errors.
- Automatic detection of the type of user load, type of current sensor and rating.

If connected to ITR current sensors, AutoCorrect technology detects and corrects wiring errors to make the system more reliable.

#### Cutting-edge technology

- PreciSense: highest accuracy of the overall measurement chain.
- VirtualMonitor: circuit breaker status without using auxiliary contacts.
- AutoCorrect: detection and software correction of wiring errors.

#### MID certified and much more

Digiware DIRIS I-30MID, I-35MID, I-60MID and I-61MID current modules comply with the MID directive, ensuring accurate and reliable metering. The "B+D module" certification means that an external laboratory has certified the design of the meter and its production process.

They are also equipped with innovative features that go beyond the usual practices found in the market:

- Innovative tamper-resistance systems: the MID modules have a smart alarm system that is more effective than the standard mechanical seals offered by MID meters.
- Built-in PreciSense Technology: MID modules have a Class C energy measurement accuracy, the most accurate class according to the MID directive. In addition, as with any DIRIS Digiware system, the PreciSense technology offers the best accuracy on the market across the entire overall chain (modules and sensors).

### General characteristics

- Versions with 3, 4 or 6 RJ12 current inputs.
- Compatible with TE, TR/ITR and TF current sensors.
- DIN-rail mounted.

### The solution for

- > Data centres
- > Healthcare
- > Industry

### Strong points

- > Multi-circuit
- > Accurate
- > Compact
- > Plug & Play
- > Cutting-edge technology
- > MID certified and much more

### Integrated technologies



PreciSense



AutoCorrect



VirtualMonitor

For further information, visit [www.socomec.com](http://www.socomec.com)

### Conformity to standards

- > IEC 61557-12



- > UL 61010  
Guide PICQ  
File E257746



- > ANSI C12.20

- > EN 50470-1

- > EN 50470-3



- > Directive  
2014/32/EU



### Create your project

- > Find the best DIRIS Digiware configuration:  
[www.meter-selector.com](http://www.meter-selector.com)

**METER SELECTOR**  
DIGITAL TOOL AVAILABLE

| Application                                      | Current measurement modules                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|--------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                  | Metering                                                                          |                                                                                   |                                                                                   | Analysis                                                                          |                                                                                   | Monitoring                                                                        | Analysis                                                                            | Metering                                                                            |                                                                                     |                                                                                     |                                                                                     |
|                                                  |  |  |  |  |  |  |  |  |  |  |  |
| DIRIS Digiware Iac                               | I-30                                                                              | I-30MID                                                                           | I-31                                                                              | I-35                                                                              | I-35MID                                                                           | I-43                                                                              | I-45                                                                                | I-60                                                                                | I-60MID                                                                             | I-61                                                                                | I-61MID                                                                             |
| Number of current inputs                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                                                  | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 3                                                                                 | 4                                                                                 | 4                                                                                   | 6                                                                                   | 6                                                                                   | 6                                                                                   | 6                                                                                   |
| Metering                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| ±kWh, ±kVArh, kVAh                               | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                   | •                                                                                   | •                                                                                   | •                                                                                   | •                                                                                   |
| Load curves                                      |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                   |                                                                                     |                                                                                     | •                                                                                   | •                                                                                   |
| Multi-tariff                                     |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                   |                                                                                     |                                                                                     | •                                                                                   | •                                                                                   |
| MID                                              |                                                                                   | •                                                                                 |                                                                                   |                                                                                   | •                                                                                 |                                                                                   |                                                                                     |                                                                                     | •                                                                                   |                                                                                     | •                                                                                   |
| Multi-measurement                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF                  | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                   | •                                                                                   | •                                                                                   | •                                                                                   | •                                                                                   |
| P, Q, S, PF per phase                            |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                   |                                                                                     |                                                                                     | •                                                                                   | •                                                                                   |
| Predictive power                                 |                                                                                   |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Current unbalance (Inba, Idir, linv, lhom, lnab) |                                                                                   |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phi, cos Phi, tan Phi                            |                                                                                   |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Quality                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| THDi1, THDi2, THDi3, THDIn                       |                                                                                   |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 | •                                                                                 | •                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Individual harmonics I (up to 63rd)              |                                                                                   |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Overcurrents                                     |                                                                                   |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Alarms                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Thresholds and combinations                      |                                                                                   |                                                                                   | ○                                                                                 | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                   |                                                                                     |                                                                                     | ○                                                                                   | ○                                                                                   |
| Inputs/outputs                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 2/2                                                                               | 2/2                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Trends                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Average values                                   |                                                                                   |                                                                                   |                                                                                   | •                                                                                 | •                                                                                 |                                                                                   | •                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Format                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Width/number of modules                          | 18 mm / 1                                                                         | 18 mm / 1                                                                         | 18 mm / 1                                                                         | 18 mm / 1                                                                         | 18 mm / 1                                                                         | 27 mm/1.5                                                                         | 27 mm/1.5                                                                           | 36 mm/2                                                                             | 36 mm/2                                                                             | 36 mm/2                                                                             | 36 mm/2                                                                             |

○: only for total power (P,Q,S).

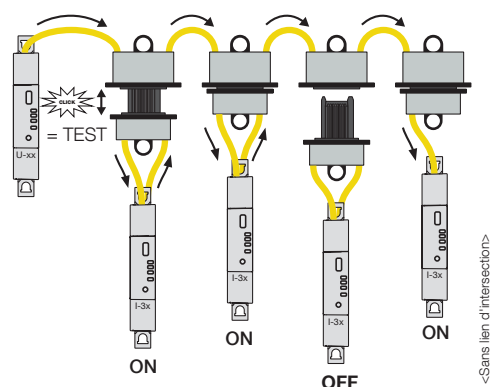
To comply with the MID directive, the DIRIS Digiware system must have a D-50/D-70 display.

## Accessories

### Digiware plug-in connector

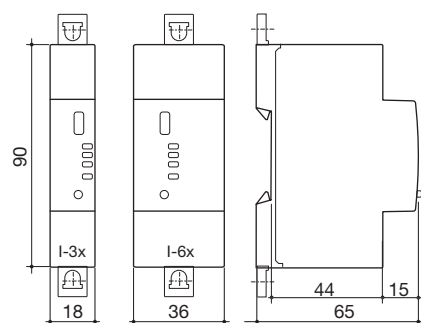
The plug-in Digiware connector makes it possible to disconnect a DIRIS Digiware module from the Bus while still ensuring continuity of operation on the rest of the downstream DIRIS Digiware system. This accessory is particularly useful in applications with retractable drawers or critical applications such as in data centres.

### Operation

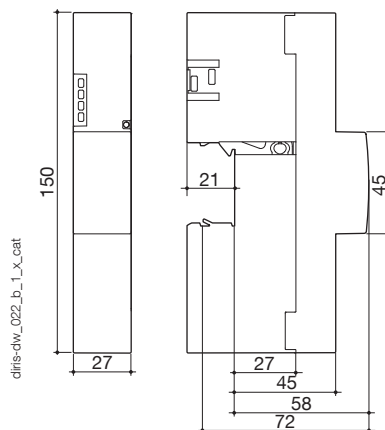


## Dimensions

DIRIS Digiware I-3xac / I-6xac



DIRIS Digiware I-4xac



## Connections

### Associated current sensors

Various types of current sensor are associated with DIRIS Digiware: solid-core (TE), split-core (TR/ITR) or flexible (TF). This range of sensors can be adapted to all types of new or existing installations. A quick RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS Digiware system automatically recognises the sensor rating and type. This guarantees the overall accuracy of the DIRIS Digiware + current sensor measurement chain.

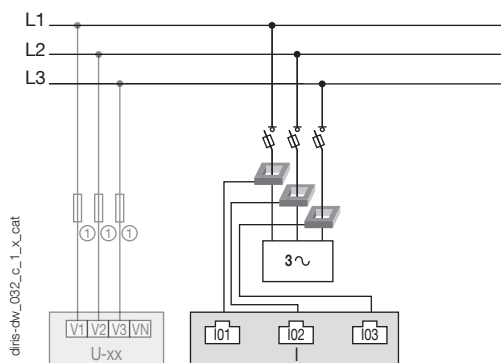
For further information, see the page on "TE, TR, ITR and TF sensors".

## Networks and connection examples

### I-3x/I-3xMID

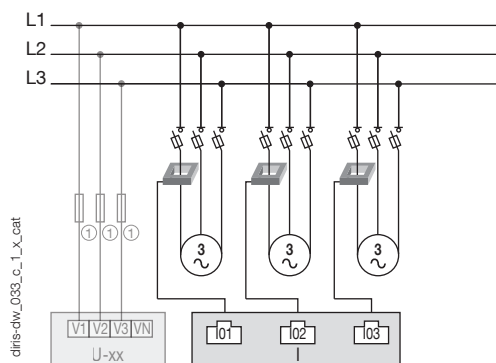
#### Three-phase

3P - 3CT (1 three-phase load)



#### Three-phase

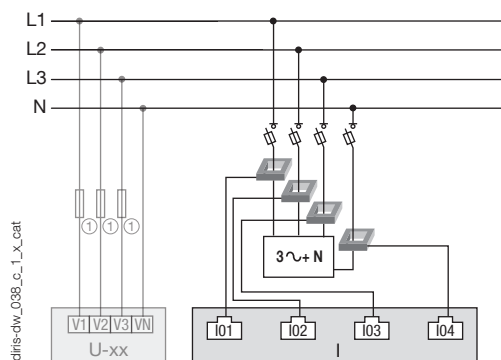
3P - 1CT (3 balanced three-phase loads)



### I-4x

#### Three phase + neutral

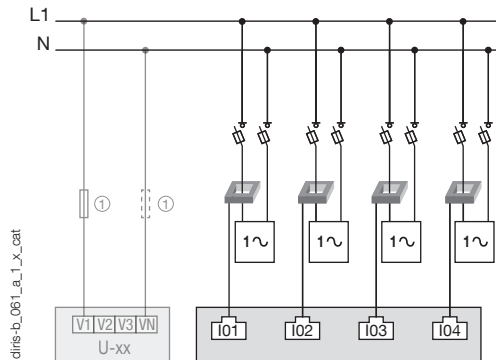
3P+N - 4CT (1 three-phase load + Neutral measured)



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

#### Single-phase

1P+N-1CT (4 single-phase loads)



CT: Current transformer 3~ Load

## Technical characteristics

### Measurement characteristics

| Current measurement - DIRIS Digiware Iac |                                                                                                   |
|------------------------------------------|---------------------------------------------------------------------------------------------------|
| Number of current inputs                 | I-3x / I-3xMID: 3 inputs<br>I-4x: 4 inputs<br>I-6x / -6xMID: 6 inputs                             |
| Associated current sensors               | Solid-core TE, split-core TR/ITR, flexible TF current sensors                                     |
| Current measurement accuracy             | Class 0.2 DIRIS Digiware alone<br>Class 0.5 with TE, ITR or TF sensors<br>Class 1 with TR sensors |
| Connection                               | Specific Socomec cable with RJ12 connectors                                                       |
| Energy measurement                       |                                                                                                   |
| Active energy accuracy                   | Class 0.5 (IEC 61557-12) / Class C (EN 50470)                                                     |
| Inputs - DIRIS Digiware I-45ac           |                                                                                                   |
| Number of inputs                         | 2                                                                                                 |
| Type / Power supply                      | Non-insulated input, internal bias 12 VDC max, 1mA                                                |
| Input functions                          | Logic status, pulse meter, multi-tariff                                                           |
| Connection                               | Removable screw terminal block, stranded or solid 0.14-1.5 mm <sup>2</sup> cable                  |

| Outputs - DIRIS Digiware I-45ac |                                                                                              |
|---------------------------------|----------------------------------------------------------------------------------------------|
| Number of outputs               | 2                                                                                            |
| Relay type                      | 230 VAC ±15% - 1 A<br>30 VDC - 3 A                                                           |
| Function                        | Configurable alarm (current, power, etc.) on exceeded thresholds or remote controlled status |
| Connection                      | Removable screw terminal block, stranded or solid 0.2-2.5 mm <sup>2</sup> cable              |

### Communication characteristics

| USB        |                                                   |
|------------|---------------------------------------------------|
| Protocol   | Modbus RTU over USB                               |
| Function   | Configuration of DIRIS Digiware U and I modules   |
| Location   | On each DIRIS Digiware U and I measurement module |
| Connection | Type B micro USB connector                        |

## References

| DIRIS Digiware                 |                                                     | Reference |
|--------------------------------|-----------------------------------------------------|-----------|
| I-30                           | Metering - 3 current inputs                         | 4829 0110 |
| I-30MID                        | Metering - 3 current inputs + MID                   | 4829 0133 |
| I-31                           | Metering + load curve - 3 current inputs            | 4829 0111 |
| I-35                           | Analysis - 3 current inputs                         | 4829 0130 |
| I-35MID                        | Analysis - 3 current inputs + MID                   | 4829 0135 |
| I-43                           | Monitoring - 2 inputs/ 2 outputs - 4 current inputs | 4829 0129 |
| I-45                           | Analysis - 2 inputs/ 2 outputs - 4 current inputs   | 4829 0131 |
| I-60                           | Metering - 6 current inputs                         | 4829 0112 |
| I-60MID                        | Metering - 6 current inputs + MID                   | 4829 0134 |
| I-61                           | Metering + load curve - 6 current inputs            | 4829 0113 |
| I-61MID                        | Metering + load curve - 6 current inputs + MID      | 4829 0136 |
| Digiware connection cables     |                                                     | Reference |
|                                |                                                     |           |
| Accessories                    |                                                     | Reference |
| Digiware x 5 plug-in connector |                                                     | 4829 0605 |

To comply with the MID directive, the DIRIS Digiware system must have a D-50/D-70 display.

|                                                                 |                            |           |
|-----------------------------------------------------------------|----------------------------|-----------|
| RJ45 cables for Digiware Bus                                    | Length 0.10 m              | 4829 0181 |
|                                                                 | Length 0.20 m              | 4829 0188 |
|                                                                 | Length 0.50 m              | 4829 0182 |
|                                                                 | Length 1 m                 | 4829 0183 |
|                                                                 | Length 2 m                 | 4829 0184 |
|                                                                 | Length 3 m                 | 4829 0190 |
|                                                                 | Length 5 m                 | 4829 0186 |
|                                                                 | Length 10 m                | 4829 0187 |
|                                                                 | 50 m reel + 100 connectors | 4829 0185 |
| Termination for Digiware Bus (supplied with interfaces C and D) |                            | 4829 0180 |
| USB configuration cable                                         |                            | 4829 0050 |

## Expert Services



Socomec offers a wide range of services to continuously ensure a functional and accurate energy monitoring system:

- Device integration
- System audit
- Commissioning
- Training for your teams

Ideal for ISO 50001 sites (periodic verification):

- Measurement consistency check to 3%
- Measurement accuracy check to 0.2%

For further information, please talk to your Socomec contact.