

# A new range for power monitoring and energy management

2014  
2015



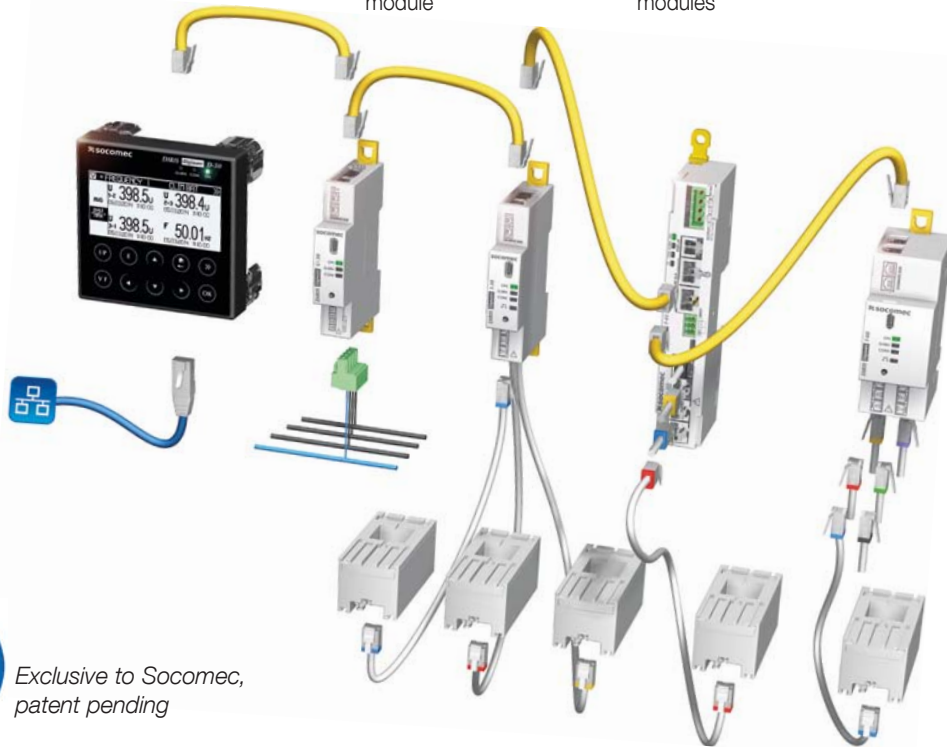


# DIRIS Digiware

Multi-circuit metering & measurement

An energy measurement and monitoring system that revolutionises electrical installations

- 1 display
- 1 voltage measurement module
- current measurement modules
- current sensors



Exclusive to Socomec, patent pending



## Flexible

### Shared functions:

- Common display.
- Single voltage measurement for the entire system.
- Single auxiliary power supply.

### Installation of components close to the load

- Modules and sensors can be installed at the closest point to the values to be measured.
- Elimination of hazardous voltage on panel doors.

### Compact design

- Compact voltage and current modules (1 to 2 modules).
- System suitable for new and existing or installations including panels with space restrictions.

### Large range of current sensors

- Flexible, solid or split-core current sensors.
- Various dimensions and types.
- Numerous accessories allow the system to be installed in all panel configurations.



## Multi-circuit

Ability to monitor several circuits via a single current measurement module due to independent current inputs.



## Accurate

Accuracy of measurements guaranteed according to IEC standard 61557-12:

- Class 0.5 from 2% to 120% of nominal current for the global measurement chain (associated with TE current sensors).
- Class 0.2 for the meter alone.



## Cost-effective

- Implementation in a quarter of the time vs existing technologies.
- Save space in panels.
- Common voltage measurement functions, display and communication.
- Up to 30% saving compared to existing metering technology.



## Plug & Play

### RJ12 current sensor connection

- Rapid: automatic detection of ratings and verification of current direction.
- Reliable: identification of cables by color-coding and wiring control by product.
- Safe: disconnection of the current sensor secondary under load.

### RJ45 interconnection of modules (Digiware bus)

- Rapid: a single connection, no tools required.
- Intelligent: allows communication and interaction between various modules.
- Reliable: ensures auxiliary power supply to modules without the risk of disconnection.

### Auto-configuration of parameters

- Network type.
- Load type.
- Addressing of devices connected to the bus.

# Build your own system

Local or remote data display?

Number of circuits to be measured?

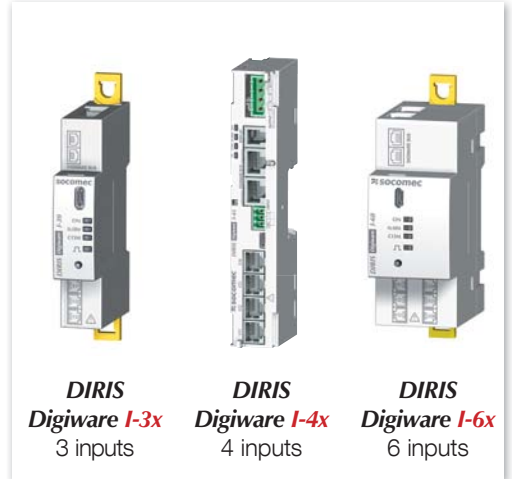
New or existing installation?

Data centralisation?

Control and power supply interface (24 VDC)

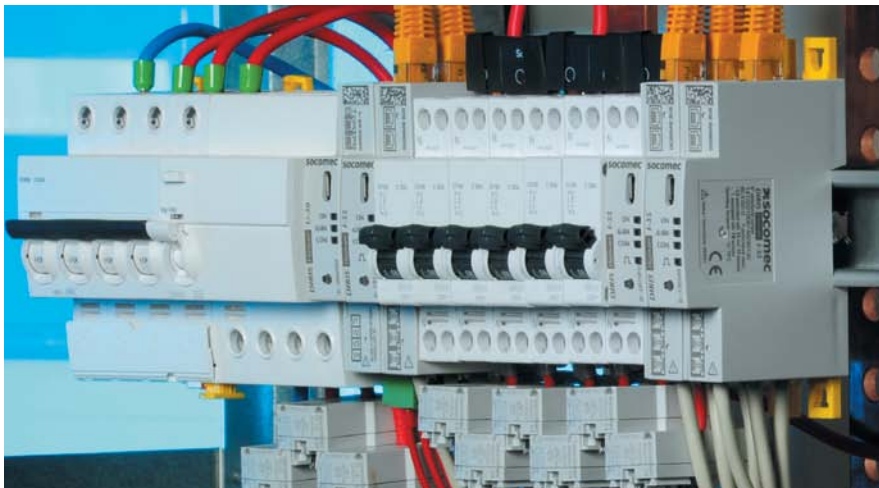
Voltage measurement module

Current measurement modules



Current sensors

Communication gateway







# Selection guide

Measurement and monitoring system for electrical installations



**DIRIS Digiware**

Multi-circuit metering  
& measurement

**new**



appl\_637\_a

Application	Voltage measurement module		
	Metering	Monitoring	Analysis
			
<b>DIRIS Digiware U</b>	<b>U-10</b> <i>p. 6</i>	<b>U-20</b> <i>p. 6</i>	<b>U-30</b> <i>p. 6</i>
<b>Multi-measurement</b>			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance (Vnb, Vnba, Vdir, Vinv, Vhom)			•
Ph/Ph unbalance (Unb, Unba, Udir, Uinv)			•
<b>Power quality</b>			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Individual harmonics U & V (up to rank 63)			•
Voltage dips, interruptions and swells (EN 50160)			•
<b>Alarms</b>			
On threshold			•
History of average values			•
<b>Format</b>			
Width/Number of modules	18 mm / 1	18 mm / 1	18 mm / 1





Control and power supply interface










Voltage measurement module



Current measurement modules

Application	Control and power supply interface	
	Centralisation and display of data	Data centralisation
		
<i>DIRIS Digiware</i>	<b>D-50</b> <i>p. 6</i>	<b>C-31</b> <i>p. 6</i>
Function		
Centralisation of measurement points	•	•
High-resolution LCD display (configuration, selection and visualisation display of circuits)	•	
Power supply		
24 VDC	•	•
Communication		
RS485 Modbus	•	•
Digiware BUS	•	•
Ethernet Modbus TCP	•	

Application	Current measurement modules						
	Metering		Monitoring	Analysis		Metering	
							
<i>DIRIS Digiware I</i>	<b>I-30</b> <i>p. 6</i>	<b>I-31</b> <i>p. 6</i>	<b>I-33</b> <i>p. 6</i>	<b>I-35</b> <i>p. 6</i>	<b>I-45</b> <i>p. 6</i>	<b>I-60</b> <i>p. 6</i>	<b>I-61</b> <i>p. 6</i>
Number of current inputs	3	3	3	3	4	6	6
Metering							
+/- kWh, +/- kvarh, kVAh	•	•	•	•	•	•	•
Load curves		•		•	•		•
Multi-measurement							
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•		
Predictive power				•	•		
Current unbalance (Inba, Idir, Iinv, Ihom, Inb)				•	•		
Phi, cos Phi, tan Phi				•	•		
Quality							
THD1, THD2, THD3, THDn			•	•	•		
Individual harmonics I (up to level 63)				•	•		
Overcurrents				•	•		
Alarms							
On threshold				•	•		
Inputs/Outputs					2/2		
History of average values				•	•		
Format							
Width/Number of modules	18 mm / 1	18 mm / 1	18 mm / 1	18 mm / 1	27 mm / 1.5	36 mm / 2	36 mm / 2



# DIRIS Digiware

Measurement and monitoring system for electrical installations

Multi-circuit metering & measurement

**new**



DIRIS Digiware D-50



DIRIS Digiware U-30



DIRIS Digiware I-35

## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Strong points

- > Multi-circuit
- > Global accuracy class 0.5 in accordance with IEC 61557-12
- > Cost effective and flexible
- > Plug & Play

## Conformity to standards

- > IEC 61557-12



- > ISO 14025



## Function

The **DIRIS Digiware** system is a hub of technological innovations that revolutionises the world of measurements, bringing a high degree of flexibility to installations and making connection and configuration easy.

These innovations, together with unrivaled performance in terms of accuracy and functionality, make DIRIS Digiware the most effective solution for metering consumption, measuring and monitoring the quality of electrical energy in industrial and commercial applications.

- Management and optimisation of the power installed DIRIS Digiware allows you to identify most demanding loads and monitor abnormal electrical values, providing you with a perfectly-managed electrical network.
- Simplified network maintenance: the electrical energy quality monitoring functions offered by DIRIS Digiware make it easier to anticipate electrical malfunctions.

## Advantages

### Multi-circuit

Ability to monitor several circuits via a single current measurement module due to independent current inputs.

### Accuracy as per standard IEC 61557-12

- Class 0.5 from 2% to 120% of nominal current for the global measurement chain (associated with TE current sensors).
- Class 0.2 for the meter alone.

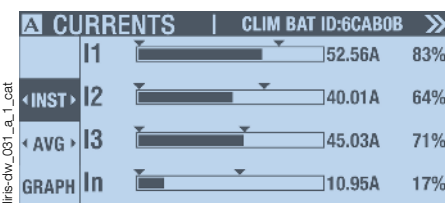
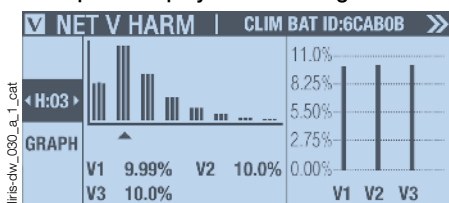
### Cost effective and flexible

- Implementation in a quarter of the time vs existing technologies.
- Installation of modules and sensors at the closest point to the load.
- Shared functions:
  - Common display.
  - Single voltage measurement for the entire system.
  - Single auxiliary power supply.
- Compact design: suitable for new and existing installations including panels with space restrictions.
- Large range of current sensors

### Plug & Play

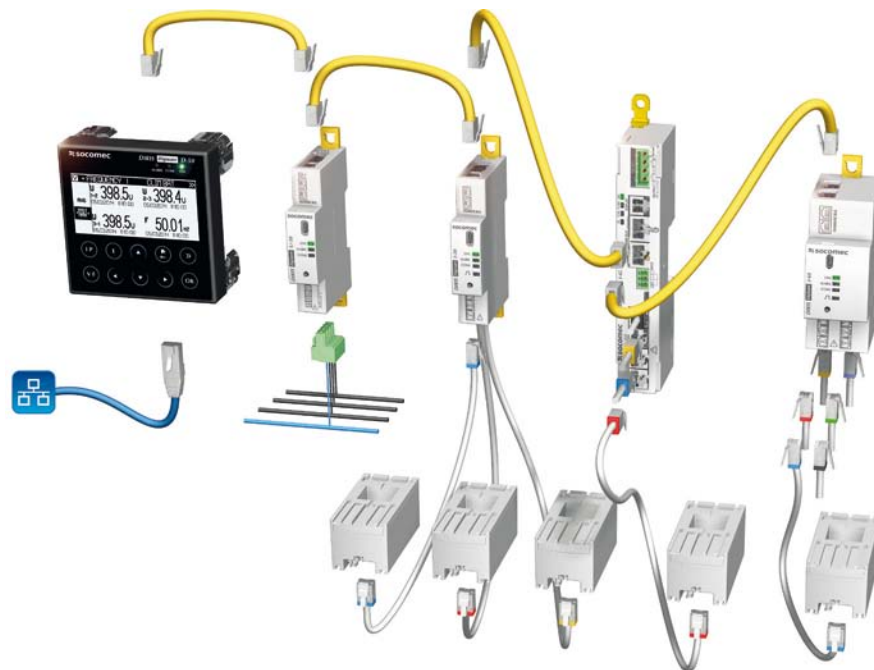
- RJ12 current sensor connection
  - Automatic detection of ratings.
  - Identification of cables by color-coding.
  - Disconnection of the current sensor secondary under load.
- RJ45 interconnection of I and U modules via Digiware bus.
- Auto-configuration of parameters: Network and load type - addressing of devices connected to the bus.

## Example of displays on DIRIS Digiware D-50



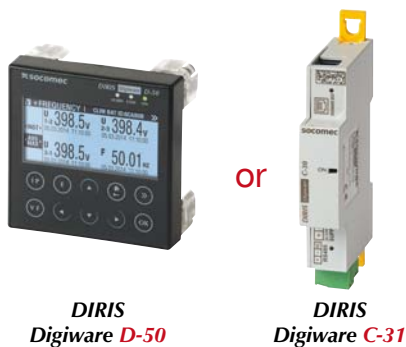
## DIRIS Digiware System

- 1 display
- 1 voltage measurement module
- current measurement modules
- current sensors modules



diris-diw\_011\_la\_cat

### Control and power supply interface (24 VDC)



- High-resolution LCD display
- Centralisation of measurement points:
  - circuit selection,
  - data display.
- Keys on the front face for direct access to:
  - measurement data,
  - circuits selection,
  - device configuration.
- 24 VDC power supply
- Communication
  - Digiware Bus,
  - RS485 Modbus,
  - Ethernet (Modbus TCP).
- No-display mode
- Centralisation of DIRIS Digiware measurement data on RS485 Modbus
- 24 VDC power supply
- Communication
  - Digiware Bus,
  - RS485 Modbus.

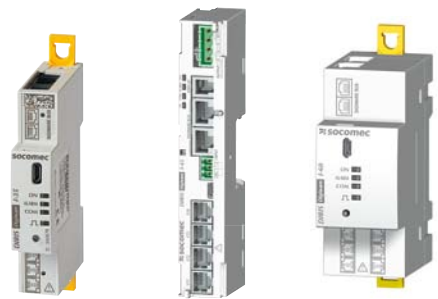
### Voltage measurement module



**DIRIS Digiware U-xx**

- U-10**
  - U12, U23, U31, V1, V2, V3, f
- U-20**
  - U12, U23, U31, V1, V2, V3, f
  - THDv1, THDv2, THDv3,
  - THDu12, THDu23, THDu31
- U-30**
  - U12, U23, U31, V1, V2, V3, f
  - U system, V system
  - Ph/N unbalance (Vnb, Vnba, Vdir, Vinv, Vhom)
  - Ph/Ph unbalance (Unb, Unba, Udir, Uinv)
  - THDv1, THDv2, THDv3, THDu12, THDu23, THDu31
  - Individual harmonics U & V (up to rank 63)
  - Voltage dips, interruptions and swells (EN 50160)
  - Alarms
  - History of average values

### Current measurement modules



**DIRIS Digiware I-3x**  
3 inputs

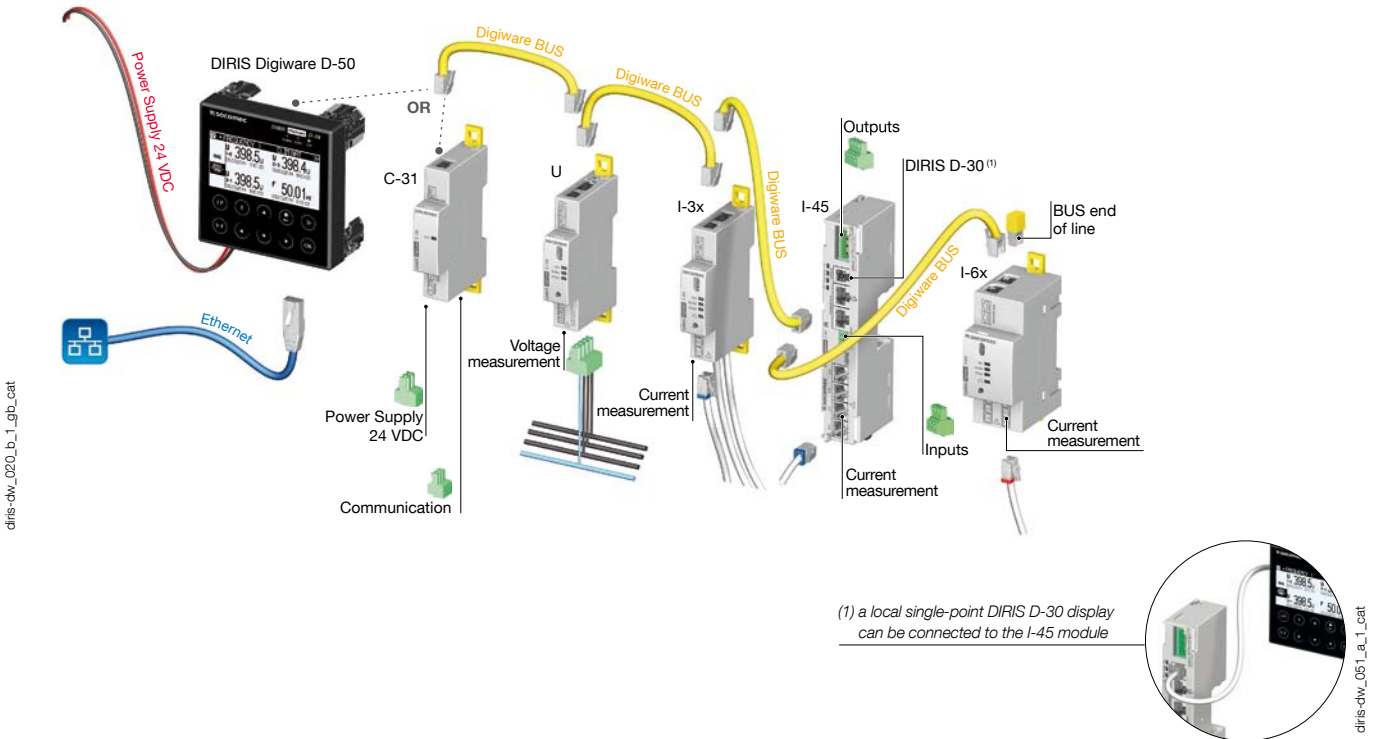
**DIRIS Digiware I-4x**  
4 inputs

**DIRIS Digiware I-6x**  
6 inputs

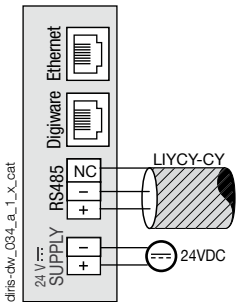
- I-30 / I-60**
  - ± kWh, ± kvarh, kVAh
  - I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF
- I-31 / I-61**
  - ± kWh, ± kvarh, kvah
  - Load curves
  - I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF
- I-33**
  - ± kWh, ± kvarh, kvah
  - I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF
  - P, Q, S, PF per phase
  - THD1, THD2, THD3, THDIn
- I-35 / I-45**
  - ± kWh, ± kvarh, kVAh
  - Load curves
  - I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF
  - P, Q, S, PF per phase
  - Predictive power (ΣP, ΣQ, ΣS)
  - I System
  - Current unbalance (Inba, Idir, Iinv, Ihom, Inb)
  - Phi, cos Phi, tan Phi
  - THD1, THD2, THD3, THDIn
  - Individual harmonics I (up to rank 63)
  - Overcurrents
  - Alarms
  - 2 inputs / 2 outputs (I-45)
  - History of average values



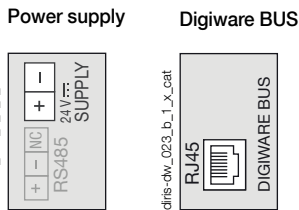
## Terminals



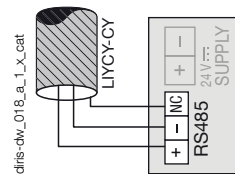
### DIRIS Digiware D-50



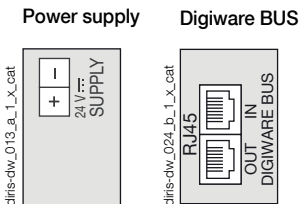
### DIRIS Digiware C-31



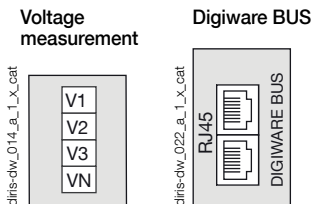
### Communication



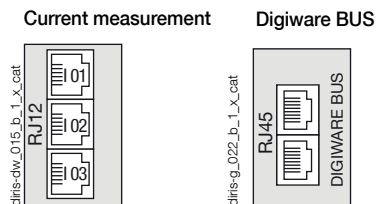
### DIRIS Digiware C-32



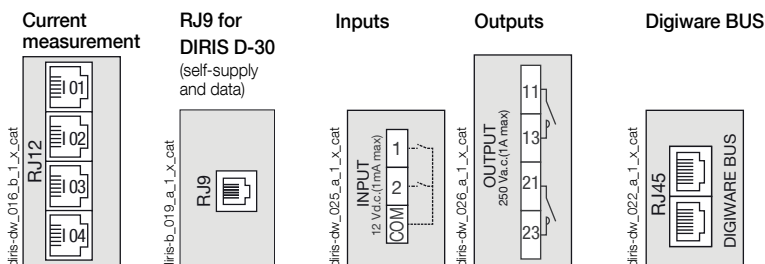
### DIRIS Digiware U



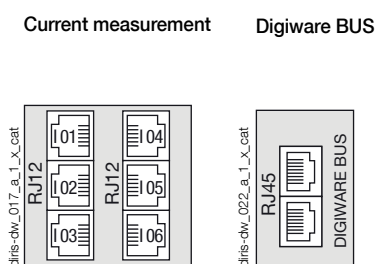
### DIRIS Digiware I-3x



### DIRIS Digiware I-45



### DIRIS Digiware I-6x



## Connections

### Associated current sensors

Various types of current sensors can be connected to the DIRIS Digiware: Solid TE, split-core TR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS Digiware automatically recognises the sensor size and type. This guarantees the overall accuracy of the DIRIS Digiware + current sensor measurement chain.

For more information: see page 18.

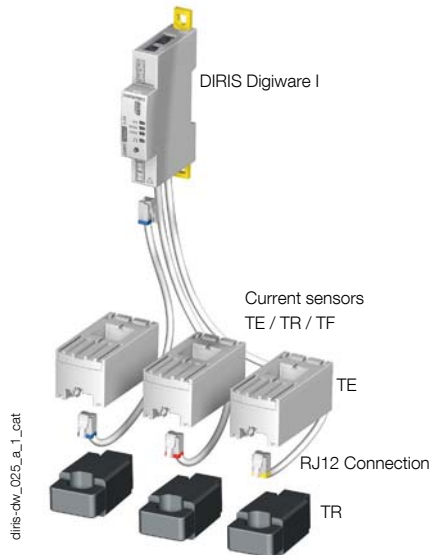
TE solid current sensors



TR Split-core current sensors



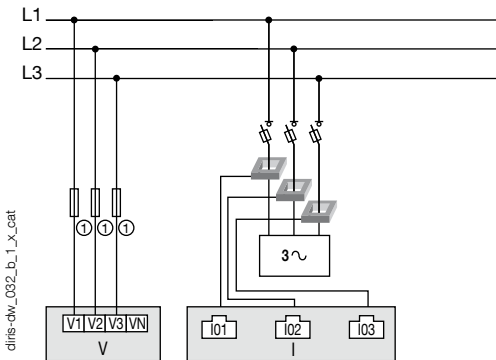
TF Flexible current sensors



### Network and connection examples

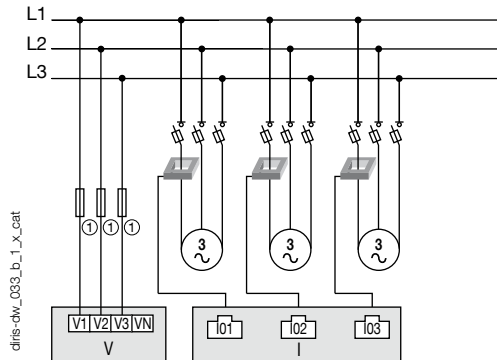
#### Three-phase

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



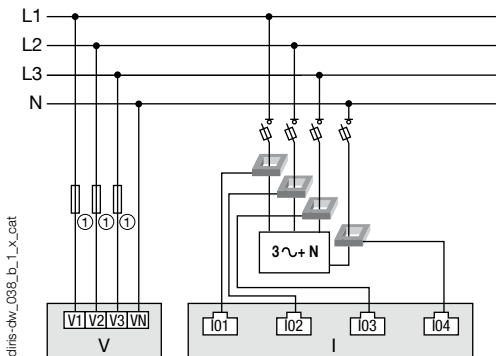
#### Three-phase

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



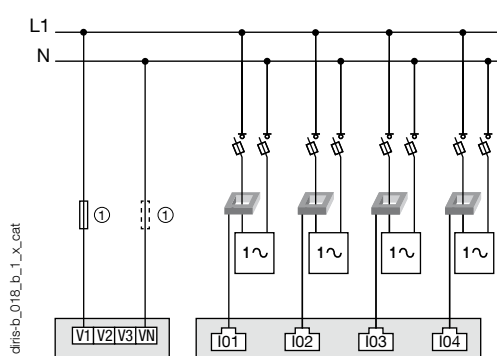
#### Three phase + neutral

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

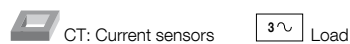


#### Single-phase

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



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

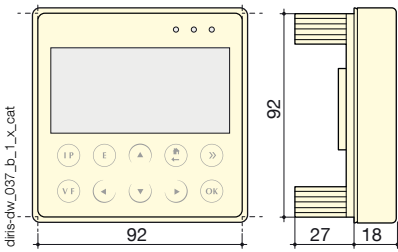


# DIRIS Digiware

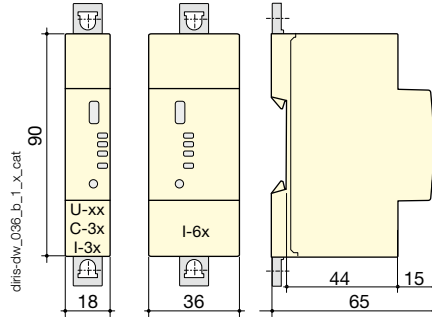
Measurement and monitoring system for electrical installations

## Dimensions

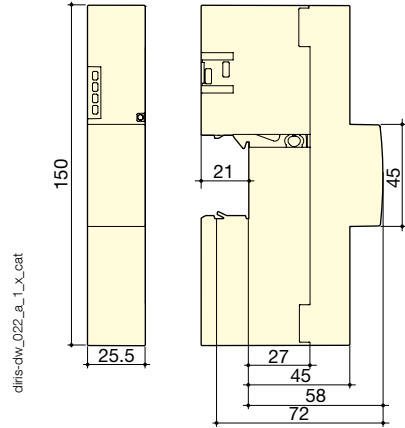
DIRIS Digiware D-50



DIRIS Digiware U / C / I-3x / I-6x



DIRIS Digiware I-45



## Configuration

### Power consumption of devices

Components	Power supplied (W)	Power consumption (W)
<b>Power supply</b>		
P15 230 VAC / 24 VDC	15	
<b>Cables</b>		
50 metre package		1.5
<b>System interfaces</b>		
DIRIS Digiware D-50		2
DIRIS Digiware C-31		0.8
<b>Voltage module</b>		
DIRIS Digiware U-xx		0.72
<b>Current modules</b>		
DIRIS Digiware I-3x		0.52
DIRIS Digiware I-45		1.125
DIRIS Digiware I-6x		0.7
<b>Repeater</b>		
DIRIS Digiware C-32		1.5

### Rules to set the maximum number of products on the Digiware BUS

The total power consumptions by the devices connected to the Digiware BUS must not exceed the power supplied by the 24 VDC supply. The power supply must not exceed 20 W.

#### System configuration with P15 power supply (ref: 4829 0120) providing 15 W

System can include:

- 1 display DIRIS Digiware D-50 (2 W)
- 1 voltage module DIRIS Digiware U-xx (0.72 W)
- 50 meter cable (1.5 W)

and

- 20 current modules DIRIS Digiware I-3x (20 x 0.52 = 10.4 W)
- ⇒ **Total power = 14.62 W**

or

- 9 current modules DIRIS Digiware I-45x (9 x 1.125 = 10.125 W)
- ⇒ **Total power = 14.345 W.**

#### System configuration with a 24 VDC power supply providing a maximum of 20 W

System can include:

- 1 display DIRIS Digiware D-50 (2 W)
- 1 voltage module DIRIS Digiware U-xx (0.72 W)
- 50 meter cable (1.5 W)

and

- 30 current modules DIRIS Digiware I-3x (30 x 0.52 = 15.6 W)
- ⇒ **Total power = 19.82 W**

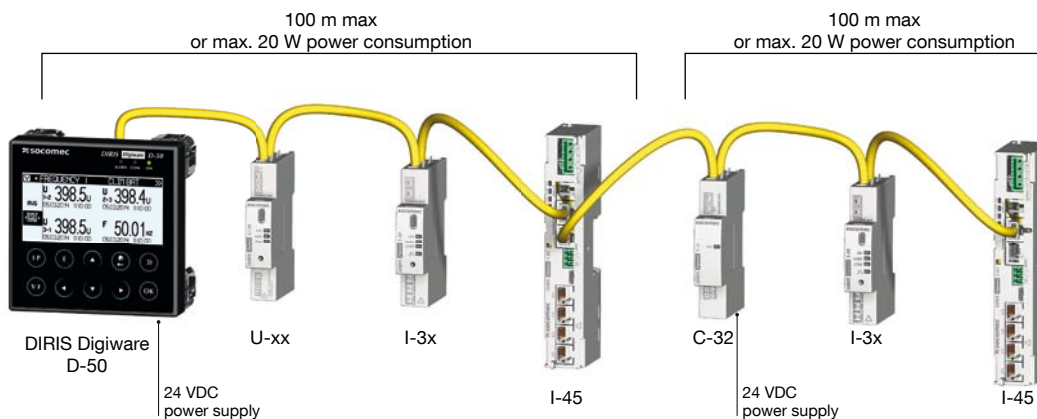
or

- 14 current modules DIRIS Digiware I-45x (14 x 1.125 = 15.72 W)
- ⇒ **Total power = 19.97 W.**

### Repeater

When the power consumption is over 20 W or the distance exceeds 100 m, a DIRIS Digiware C-32 repeater is required.

In a DIRIS Digiware system, maximum 2 repeaters can be used.





### Technical characteristics

#### Electrical characteristics

DIRIS Digiware C-31	
Input voltage	24 VDC $\pm$ 20 % - 20 W max
Connection	Removable screw terminal, 2 positions, 0.2 to 2.5 mm <sup>2</sup> stranded or solid cable
P15 power supply	Characteristics: 230 VAC / 24 VDC - 0.63 A - 15 W Modular format - Dimensions (H x L): 90 x 25 mm

#### Measurement characteristics

Energy and power measurement	
Accuracy	Class 0.2 DIRIS Digiware alone
Active energy and active power	Class 0.5 with TE or TF current sensors Class 1 with TR current sensors
Reactive energy accuracy	Class 2 with TE, TR or TF current sensors
Power factor measurement	
Accuracy	Class 0.5 with TE or TF current sensors Class 1 with TR current sensors

Voltage measurement - DIRIS Digiware U	
Network characteristics measured	50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III
Frequency range	45 ... 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	$\leq$ 0.1 VA
Permanent overload	300 VAC Ph/N
Voltage measurement accuracy	Class 0.2
Connection	Removable screw terminal, 4 positions, 0.2 to 2.5 mm <sup>2</sup> stranded or solid cable

Current measurement - DIRIS Digiware I	
Number of current inputs	I-3x: 3 / I-45: 4 / I-6x: 6
Associated current sensors	Solid TE , split-core TR , flexible TF current sensors
Current measurement accuracy	Class 0.2 DIRIS Digiware alone Class 0.5 with TE or TF current sensors Class 1 with TR current sensors
Connection	Specific SOCOMEC cable with RJ12 connectors

Inputs - DIRIS Digiware I-45	
Number of inputs	2
Type / Power supply	Non insulated input, internal polarisation 12 VDC max, 1mA
Input functions	Logic status or pulse meter
Connection	Removable screw terminal, 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

Outputs - DIRIS Digiware I-45	
Number of outputs	2
Relay type	230 VAC $\pm$ 15 % - 1 A
Function	Configurable alarm (current, power,...) on threshold overruns or remote controlled status
Connection	Removable screw terminal, 0.2 to 2.5 mm <sup>2</sup> stranded or solid cable

#### Communication characteristics

Digiware BUS	
Function	Connection between DIRIS Digiware modules
Type of cable	Specific SOCOMEC cable with RJ45 connectors
RS485	
Connection type	2 ... 3 half duplex wires
Protocol	Modbus RTU
Speed	1200 ... 115200 bauds
Function	Configuration and data transmission
Location	Single-point on DIRIS Digiware C
USB	
Protocol	Modbus RTU over USB
Function	Configuration of DIRIS Digiware U and I modules
Location	On each DIRIS Digiware U and I measuring module
Connection	B-type micro USB connector

#### Mechanical characteristics

Types of casing	Modular for DIN-rail or back plate mounting
Casing degree of protection	IP20 / IK06
Front face degree of protection	IP40 (panel face with modular mounting) / IK06

#### Environment characteristics

Operating temperature	-10 ... +70 °C
Storage temperature	-25 ... +70 °C
Operating humidity	55 °C / 97% relative humidity
Operating altitude	2000 m

#### DIRIS Digiware D-50 characteristics

Mechanical characteristics	
Screen type	Capacitive touch-screen technology, 10 keys
Screen resolution	350 x 160 pixels
Front face degree of protection	IP65

Communication	
Ethernet RJ45 10/100 Mbs	Modbus TCP gateway function
RJ45 Digiware	Control and power supply interface function
RS485 2-3 wires	Modbus RTU communication function
USB	Updating via B-type micro USB connector

Electrical characteristics	
Power supply	24 VDC +10% / -20%
Consumption	2 VA

Environment characteristics	
Storage temperature	-20 ... +70 °C
Operating temperature	-10 ... +55 °C
Humidity	95 % at 40 °C
Installation category - degree of pollution	CAT III, 2

### References

DIRIS Digiware	Reference
D-50 Multi-point display	4829 0201
C-31 System interface	4829 0101
C-32 Repeater	4829 0103
U-10 Metering	4829 0105
U-20 Monitoring	4829 0106
U-30 Analysis	4829 0102
I-30 Metering - 3 current inputs	4829 0110
I-31 Metering + load curve - 3 current inputs	4829 0111
I-33 Monitoring - 3 current inputs	4829 0128
I-35 Analysis - 3 current inputs	4829 0130
I-45 Analysis 2 inputs / 2 outputs - 4 current inputs	4829 0131
I-60 Metering - 6 current inputs	4829 0112
I-61 Metering + load curve - 6 current inputs	4829 0113

Power supply	Reference	
P15 230 VAC/24 VDC 15 W power supply	4829 0120	
Digiware connection cables		
	Reference	
RJ45 cables for BUS Digiware	0.10 m length	4829 0181
	0.50 m length	4829 0182
	1 m length	4829 0183
	2 m length	4829 0184
	5 m length	4829 0186
	10 m length	4829 0187
50 m + 50 connectors	4829 0185	
Termination for Digiware BUS (fitted on C-31 and D-50)	4829 0180	
USB configuration cable	4829 0050	
Single-point display		
	Reference	
DIRIS D-30 <sup>(1)</sup> Single-point display for DIRIS Digiware I-45	4829 0200	

(1) DIRIS D-30 display characteristics

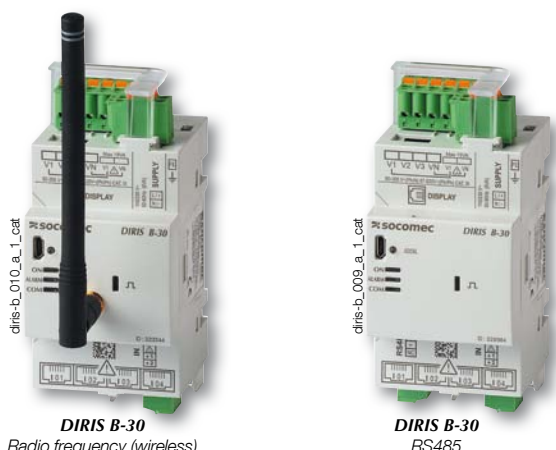


# DIRIS B-30

Wireless power monitoring devices

Measurement and wireless metering

**new**



**DIRIS B-30**  
Radio frequency (wireless)

**DIRIS B-30**  
RS485

## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Function

The **DIRIS B-30** is a power monitoring device in a modular format that communicates wirelessly or via RS485. The 4 RJ12 independent current inputs of the device allow it to manage several types and number of circuits: for example, 4 single-phase loads or 1 three-phase load + 1 single-phase load.

The DIRIS B-30 is connected to current sensors<sup>(1)</sup> (RJ12 connection) that are suitable for all types of installation: solid TE, split-core TR, and flexible TF current sensors.

(1) See page 18.

## Advantages

### Plug & Play

A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. Automatically addressing and configuring the product (communication address, load type, type and ratio of current sensor) allow you to simplify implementation and to save time.

### Class 0.5 in accordance with IEC 61557-12

- Class 0.2 for the meter alone.
- Class 0.5 from 2% to 120% of nominal current for the global measurement chain (associated with TE current sensors).

### Multi-circuit

- 4 current measurement inputs allow you to configure multiple circuits in order to optimise the number of measurement devices per installation.

### Communication

- The DIRIS B-30 can be connected to:
  - a remote DIRIS D-30 screen for displaying measurement and metering data.
  - a DIRIS G<sup>(1)</sup> gateway for centralisation and communication of data wirelessly or via RS485 and Ethernet.
  - optional modules to communicate in BACnet IP, BACnet MSTP and PROFIBUS DP protocol. Digital or analogue input/output modules can also be connected.

(1) See page 22.

## Strong points

- > Plug & Play
- > Class 0.5 in accordance with IEC 61557-12
- > Multi-circuit
- > Communication

## Conformity to standards

- > IEC 61557-12
- > EN 50160
- > ISO 14025



## Selection guide

DIRIS B-30	
DIRIS B-30 RS	RS485 MODBUS communication
DIRIS B-30 RF	Radio frequency Communication (wireless)
Optional modules	
DIRIS O-iod	2 digital inputs / 2 digital outputs
DIRIS O-ioa	2 analogue inputs / 2 analogue outputs
DIRIS O-it	3 temperature inputs
DIRIS O-m	Additional RS485 communication
DIRIS O-p	PROFIBUS communication
DIRIS O-b/ip	BACnet IP communication
DIRIS O-b/mstp	BACnet MSTP communication

## Functions

### Multi-measurement

- Currents
  - I1, I2, I3, In, Isystem
- Voltages & frequency
  - V1, V2, V3, VN, Vsystem, U12, U23, U31, Usystem, f
- Power
  - P1, P2, P3, ΣP, Q1, Q2, Q3, ΣQ, S1, S2, S3, ΣS
  - Predictive power ΣP, ΣQ, ΣS
- Power factor
  - PF1, PF2, PF3, ΣPF
- Cos φ & tanφ
  - Instantaneous values per phase

### Metering

- Active energy: +/- kWh
- Reactive energy: +/- kvarh
- Apparent energy: kVAh

### Quality

- Voltage Unbalance
  - Vdir, Vinv, Vhom, Udir, Uinv, Unba, Vnba, Vnb, Unb
- Current unbalance
  - Idir, linv, Ihom, Inba, Inb
- Total harmonic distortion
  - Currents THDi1, THDi2, THDi3, THDIN
  - Phase-to-neutral voltage THDv1, THDv2, THDv3
  - Phase-to-phase voltage THDu12, THDu23, THDu31
- Individual harmonics up to rank 63
  - Currents: I1h, I2h, I3h, INh
  - Phase-to-neutral voltage: V1h, V2h, V3h
  - Phase-to-phase voltage: U12h, U23h, U31h
- Active (according to EN 50160)
  - Dips, interruptions, swells

### Load curves and history logs

- Active, reactive and apparent power
- Currents, voltages and frequency

### Alarms

- Alarms for all electrical values, events and input status changes, possibility of boolean combination

### Communication

- DIRIS B-30 RF: Radio frequency Communication (wireless)
- DIRIS B-30 RS: RS485 Modbus,
- Optional modules: RS485, BACnet IP, BACnet MSTP, PROFIBUS DPV1

### Inputs

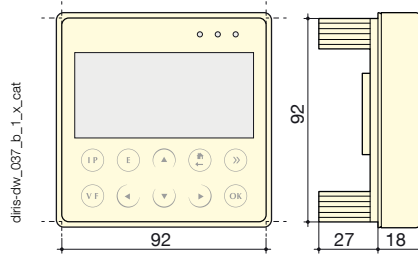
- 2 digital inputs
  - Supply by the DIRIS B-30 or external supply
  - Function: logic status, circuit breaker status, pulse meter or synchronisation pulse

## DIRIS B-30 display

### DIRIS D-30



### Dimensions

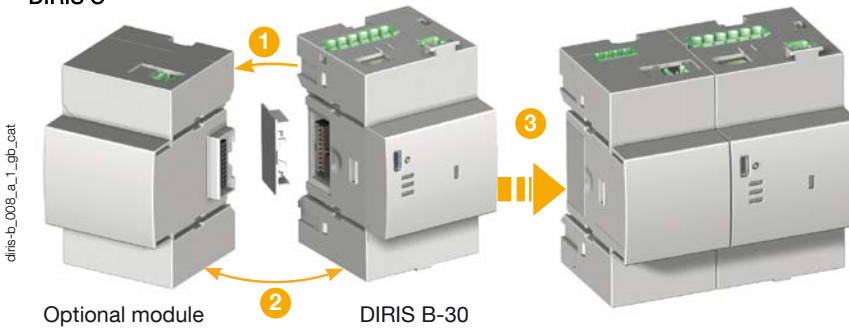


### Connection



## Optional modules

### DIRIS O



### Optional modules (4 max.)\*

- Digital inputs/outputs
- Analogue inputs/outputs
- Temperature inputs
- Communication protocols

\* maximum 4 optional modules with maximum 1 temperature module and 1 communication module (Modbus, PROFIBUS, BACnet IP or BACnet MSTP).

**DIRIS O-iod**

- 2 digital inputs centralises the metering pulses or the input status changes of the auxiliary contacts.
- 2 digital outputs can be connected to configurable alarms warning of exceeded thresholds (power, current, etc.) or can be piloted remotely.

**DIRIS O-m**

- Provides a second RS485 Modbus communication port to the DIRIS B-30 for simultaneous sending of information via RS485 to two supervision stations.

**DIRIS O-ioa**

- 2 inputs (4-20 mA) centralise analogue sensors (pressure, humidity, temperature, etc.)
- 2 outputs (4/-20 mA) report the measurements (power, currents, etc.) to PLCs.

**DIRIS O-p**

- Adds a PROFIBUS DPV1 communication port to the DIRIS B-30.

**DIRIS O-it**

- 3 temperature inputs to be connected to PT100 or PT1000 sensors.
- Ambient air temperature:

**DIRIS O-b/ip**

- Adds a BACnet IP communication port to the DIRIS B-30.

**DIRIS O-b/mstp**

- Adds a BACnet MSTP communication port to the DIRIS B-30.

## Accessories

### Remote radio antenna

- Mounted outside the enclosure of the DIRIS B-30 monitoring device to increase the transmission distance.

### DIRIS B-30 sealing cover

- Prevents access to the cabling of the monitoring device.

### USB configuration cable (2 m)

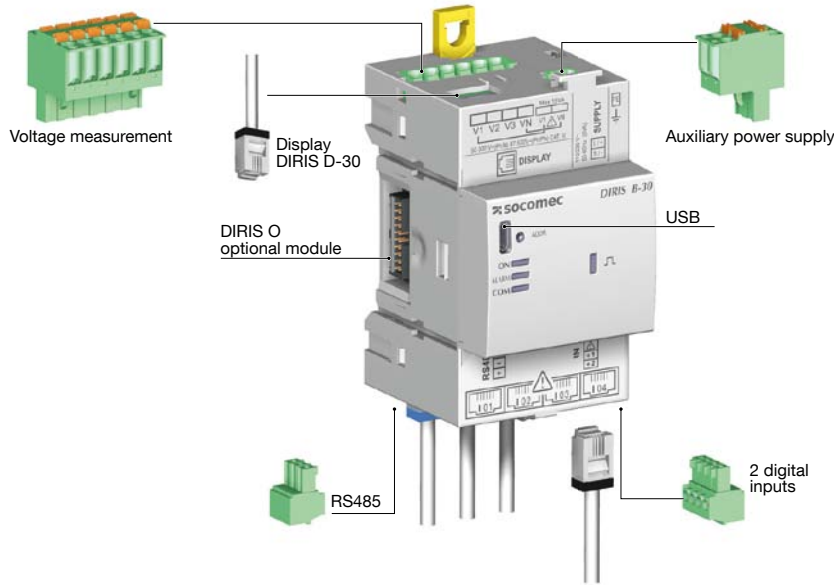
- Advanced configuration of DIRIS B-30 gateways can be achieved using the EASY CONFIG software via Ethernet or direct USB connection.



# DIRIS B-30

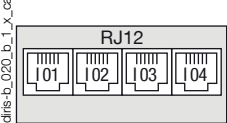
Wireless power monitoring devices

## DIRIS B-30 terminals

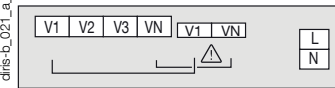


dfris-d\_027\_b\_1\_gb\_cat

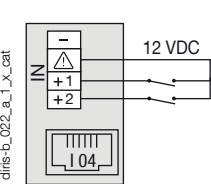
### Current measurement



### Voltage measurement and auxiliary power supply



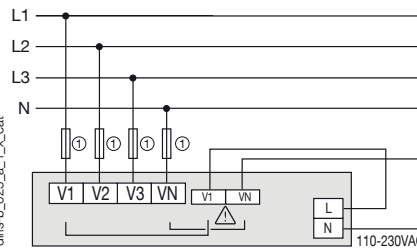
### 2 inputs supplied by the product



dfris-b\_022\_a\_1\_x\_cat

### Self supply

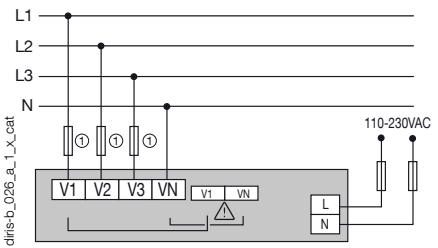
Easy connection of the power supply from the measurement terminal (specific terminals)



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

dfris-b\_025\_a\_1\_x\_cat

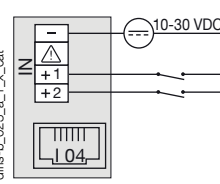
### Separate power supply



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

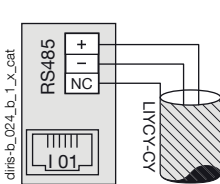
dfris-b\_026\_a\_1\_x\_cat

### 2 inputs with external power supply



dfris-b\_023\_a\_1\_x\_cat

### RS485



dfris-b\_024\_b\_1\_x\_cat

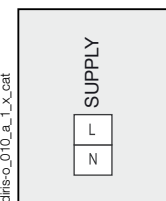
### RJ9 for DIRIS D-30 (self-supply and data)



dfris-b\_019\_a\_1\_x\_cat

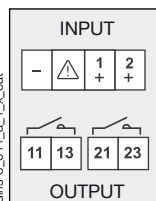
## Terminals of optional DIRIS O modules

### Optional module power supply



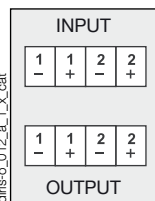
dfris-o\_010\_a\_1\_x\_cat

### DIRIS O-iod



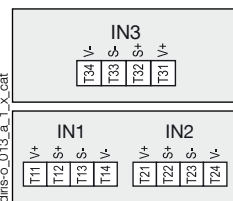
dfris-o\_011\_a\_1\_x\_cat

### DIRIS O-ioa



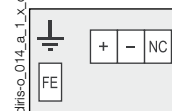
dfris-o\_012\_a\_1\_x\_cat

### DIRIS O-it



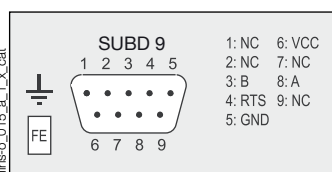
dfris-o\_013\_a\_1\_x\_cat

### DIRIS O-m RS485



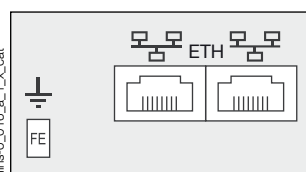
dfris-o\_014\_a\_1\_x\_cat

### DIRIS O-p



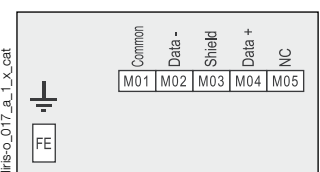
dfris-o\_015\_a\_1\_x\_cat

### DIRIS O-b/ip



dfris-o\_016\_a\_1\_x\_cat

### DIRIS O-b/mstp



dfris-o\_017\_a\_1\_x\_cat

## Connections

### Associated current sensors

Various types of current sensors can be connected to the DIRIS Digiware: Solid TE, split-core TR, flexible TF current sensors. This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS B-30 automatically recognises the sensor size and type. This guarantees the overall accuracy of the DIRIS B-30 + current sensor measurement chain.

For more information: see page 18.

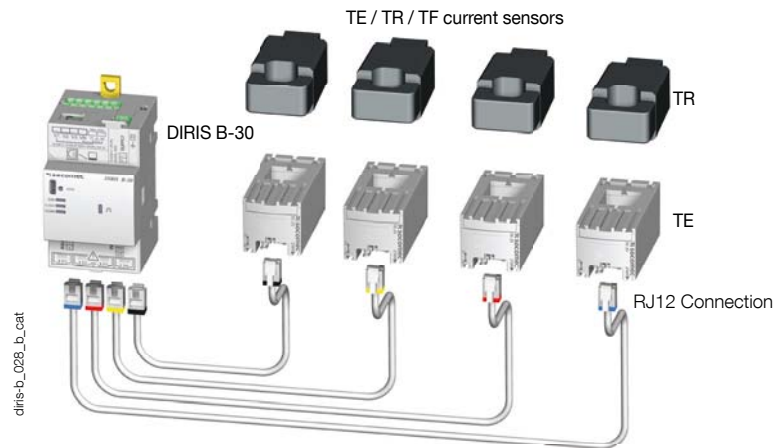
TE solid current sensors



TR Split-core current sensors



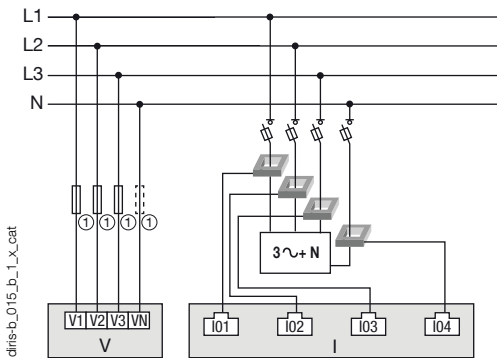
TF Flexible current sensors



### Network and connection examples

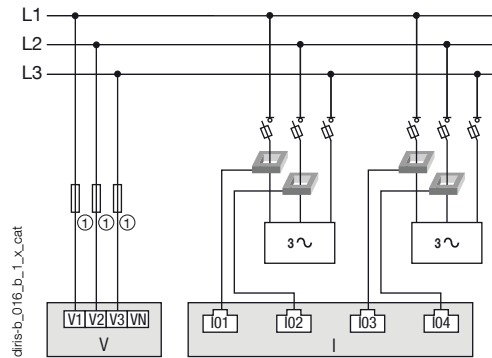
#### Three phase + neutral

3P+N - 4CTs (measurement for 1 three-phase load + Neutral)



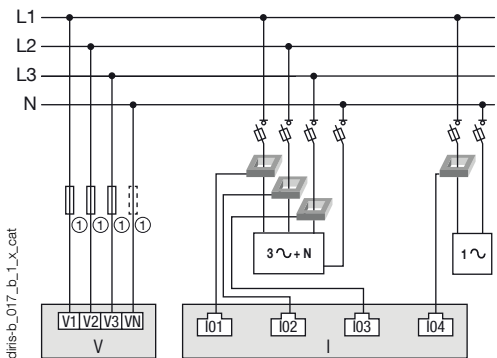
#### Three-phase

3P - 2CTs (2 three-phase loads without neutral)



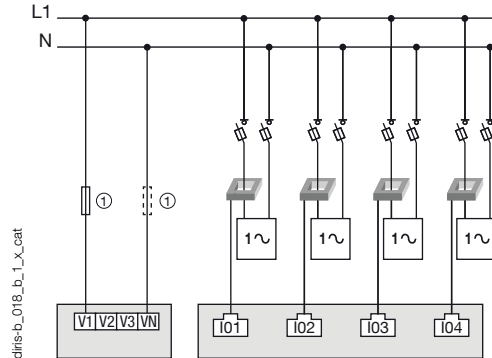
#### Three-phase

3P+N - 3CTs & 1P+N - 1CT (1 three-phase load & 1 single-phase load)



#### Single-phase

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



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

In case of self-supply, a fuse must be added on the neutral.



CT: Current sensors



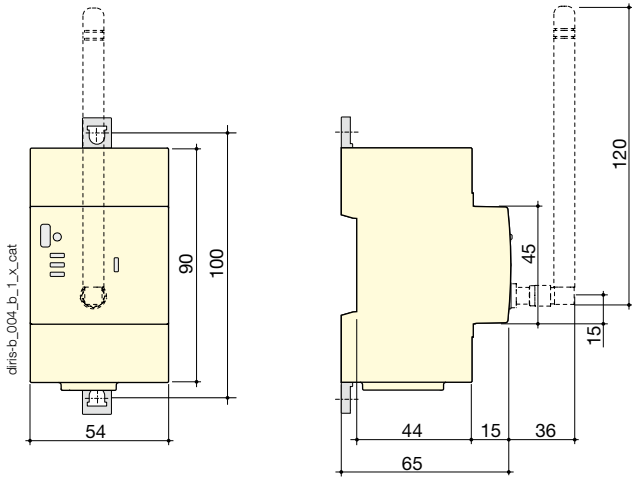
Load

# DIRIS B-30

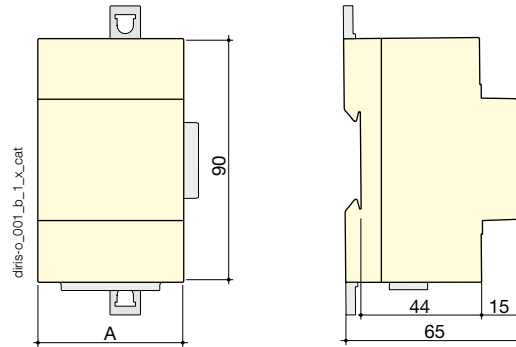
Wireless power monitoring devices

## Dimensions (mm)

### DIRIS B-30



### DIRIS O optional modules

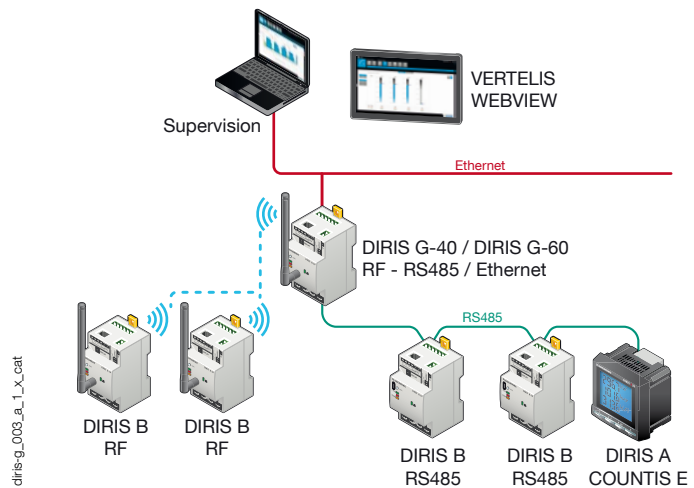


DIRIS O optional modules	A
DIRIS O-iod - DIRIS O-iaa - DIRIS O-it	45 mm
DIRIS O-m - DIRIS O-p - DIRIS O-b/ip - DIRIS O-b/mstp	54 mm

## Communication architecture

Example of communication architecture with DIRIS G gateway and WEBVIEW embedded WEB server

For more information about DIRIS G, see page 22.



## References

DIRIS B-30 monitoring devices		Reference
DIRIS B-30	RS485 - Modbus - 230VAC	4829 0000
DIRIS B-30	RF - Modbus - 230 VAC	4829 0002

DIRIS O optional modules		Reference
DIRIS O-iod	2 digital inputs / 2 digital outputs	4829 0030
DIRIS O-iaa	2 analogue inputs/2 analogue outputs 4-20 mA	4829 0031
DIRIS O-it	3 temperature inputs PT 100 / PT 1000	4829 0032
DIRIS O-m	RS485 Modbus communication	4829 0033
DIRIS O-p	PROFIBUS communication	4829 0034
DIRIS O-b/ip	BACnet IP communication	4829 0035
DIRIS O-b/mstp	BACnet MSTP communication	4829 0036

Accessories		Reference
DIRIS D-30	Single-point display	4829 0200
	RJ9 cable for DIRIS D-30 display - 1.5 m	4829 0280
	RJ9 cable for DIRIS D-30 display - 3 m	4829 0281
	Wireless remote antenna, 868 MHz - 210 mm height	4854 0126
	Cable for remote antenna - SMA connector - 3 meter length	4854 0127
	DIRIS B-30 sealing cover for I/O terminals	4829 0049
	USB configuration cable	4829 0050



## DIRIS B-30 characteristics

### Electrical characteristics

Auxiliary power supply	
AC voltage	110-230VAC ±15 % (Ph/N ou Ph/Ph) Cat III
Frequency	50/60 Hz
Consumption	< 2VA without display < 6VA with display
Connection	Removable spring-cage terminal, 2 x 2 positions, 0.5 ... 2.5 mm <sup>2</sup> solid cable or 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule

### Measurement characteristics

Energy and power measurement	
Accuracy	Class 0.2 DIRIS B-30 alone
Active energy and active power	Class 0.5 with TE or TF current sensors Class 1 with TR current sensors
Reactive energy accuracy	Class 2 with TE, TR or TF current sensors
Power factor measurement	
Accuracy	Class 0.5 with TE or TF current sensors Class 1 with TR current sensors
Voltage measurement	
Network characteristics measured	50-300VAC (Ph/N) - 87-520VAC (Ph/Ph) - CAT III
Frequency range	45 ... 65Hz
Frequency accuracy	Class 0.02
Network type	Single-phase / Two-phase / Two-phase with neutral / Three-phase / Three-phase with neutral
Measurement by voltage transformer	Primary: 400 000 VAC Secondary: 60, 100, 110, 173, 190 VAC
Input consumption	≤ 0.1 VA
Permanent overload	300VAC Ph/N
Voltage measurement accuracy	Class 0.2
Connection	Removable spring-cage terminal, 2 x 6 positions, 0.5 ... 2.5 mm <sup>2</sup> solid cable or 0.25 ... 1.5 mm <sup>2</sup> stranded cable with ferrule

### Current measurement

Number of current inputs	4
Associated current sensors	Solid TE , split-core TR , flexible TF current sensors
Accuracy	Class 0.2 DIRIS B-30 alone Class 0.5 with TE or TF current sensors Class 1 with TR current sensors
Connection	RJ12 connectors with specific SOCOMEC cable

### Input characteristics

Number	2
Type / Power supply	Optocoupler internal polarisation (12 VDC ± 10 %) or external polarisation (10-30 VDC ± 10%)
Input function	Logic status, pulse meter or synchronisation pulse status (input 1)

### Communication characteristics

DIRIS B-30 RS485	
Link	RS485
Connection type	2 ... 3 half duplex wires
Protocol	Modbus RTU
Speed	1200 ... 115200 bauds
USB	DIRIS B-30 RS485 configuration
DIRIS B-30 RF	
Link	Wireless radio frequency
Frequency band	868 MHz (low frequency: 868.1 MHz and high frequency: 869.5875 MHz)
Speed	38400 bauds
USB	DIRIS B-30 RF configuration

### Environment characteristics

Operating temperature	-10 ... +70 °C
Storage temperature	-25 ... +85 °C
Operating humidity	55 °C / 97% relative humidity
Operating altitude	2000 m
Vibration	1G from 10 Hz to 100Hz

## DIRIS D-30 display characteristics

Mechanical characteristics	
Screen type	Capacitive touch-screen technology, 10 keys
Screen resolution	350 x 160 pixels
Single product connection	
RJ9	Self-supply and data
Micro-USB	Updating
Degree of protection	IP65 (front face)
Electrical characteristics	
Power supply	24 VDC +10 % / -20 %
Consumption	2 VA
Environment	
Storage temperature (°C)	-20/+55
Operating temperature (°C)	-20/+55
Humidity	95 % to 40°C
Installation category	CAT III
Degree of pollution	2

## DIRIS O optional modules characteristics

Power supply <sup>(1)</sup>	
AC voltage	110-230 VAC ±15 %
Frequency	50/60 Hz

(1) No power supply on DIRIS O-it.

DIRIS O-iod - 2 digital inputs/2 digital outputs	
Number of inputs	2 per optional modules - max. 4 optional modules
Type	Optocoupler internal polarisation (12 VDC ± 10 %) or external polarisation (10-30 VDC ± 10%)
Function	Logic status or pulse meter
Number of outputs	2 per optional modules - max. 4 optional modules
Type	Relay / 230VAC ±15 % - 1 A
Function	Configurable alarm (current, power,...) on threshold overruns or remote controlled status
Inputs/Outputs connection	Removable screw terminal, 4 positions, 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

DIRIS O-ioa - 2 analogue inputs/2 analogue outputs	
Number of inputs	2 per optional modules - max. 4 optional modules
Type	4-20 mA
Function	Connection of analogue sensors (pressure, humidity, temperature...)
Number of outputs	2 per optional modules - max. 4 optional modules
Type	4-20 mA
Function	Transmission of measurement image (current, power...) to PLCs

DIRIS O-it - 3 temperature inputs	
Number of inputs	3 external inputs + 1 measurement for ambient temperature
Dynamic	-20 °C to 150 °C
Type	PT100 or PT1000
Function inputs 1, 2 and 3	Temperature measurement

DIRIS O-m - RS485 communication	
Link	RS485 2 ... 3 half duplex wires
Protocol	Modbus RTU
Speed	1200 ... 115200 bauds
Connection	Removable screw terminal, 3 positions, 0.14 to 1.5 mm <sup>2</sup> stranded or solid cable

DIRIS O-p - PROFIBUS communication	
Protocol	PROFIBUS DPV1

DIRIS O-b/ip - BACnet IP communication	
Protocol	BACnet IP
Speed	10 ... 100 Mbit/s

DIRIS O-b/mstp - BACnet MSTP communication	
Protocol	BACnet MSTP
Speed	9600 ... 76800 bauds



# TE, TR and TF current sensors

## Current sensors

associated to DIRIS Digiware and DIRIS B-30

Current sensors

**new**



TE Solid current sensors



TR Split-core current sensors



### The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



### Strong points

- > Plug & Play
- > Accuracy as per standard IEC 61557-12
- > Suitable for any installation

### Services & Technical Assistance

- > Technical site audits and solution specification, commissioning, maintenance, training... Our Services & Technical Assistance experts offer you personalised support to ensure success with all your projects.

### Conformity to standards

- > IEC 61557-12



- > ISO 14025



## Function

TE, TR and TF current sensor ranges can be connected to DIRIS Digiware and DIRIS B-30 via a rapid RJ12 connection. Various accessories are available to allow the installation of sensors in all panel configurations.

Thanks to a wide measurement range, the TE current sensors cover the full current range of 5 to 1000 A, with only 6 models.

## Advantages

### Plug & Play

- A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. This also allows automatic detection of the sensor type and size/transformation ratio.
- Mounting orientation of current sensors is indifferent.

### Accuracy as per standard IEC 61557-12

- Class 0.5 from 2% to 120% of nominal current for the global measurement chain (associated with TE or TF current sensors).
- Class 1 from 2% to 120% of nominal current for the global measurement chain (associated with TR current sensors).

### Suitable for any installation

Dimensions of the range allow:

- New installation: a range of solid TE sensors adapted to the pitch of protective devices.
- Existing installations: a range of split-core TR sensors for existing sites.
- Existing space-constrained installations with high-intensity currents: a range of flexible TF current sensors (Rogowski).

## Selection guide

Current sensors	TE Solid current sensors	TR Split-core current sensors	TF Flexible current sensors
Nominal current range (A)	5 ... 1000	25 ... 600	150 ... 6000

## Functions

### TE range

- Solid current sensors.
- Plug & Play RJ12 connection.
- High accuracy over the whole operating range.
- 6 models with ratings from 5 to 1000 A that are adapted to the pitch of protective devices (18/25/35/45/55 mm).
- A 5A/RJ12 adapter for use with TC 5A current transformers in the DIRIS Digiware and DIRIS B-30 ranges.
- Accessories for back-plate, DIN-rail, cable or bar mounting.

### TR range

- Split-core current sensors.
- Plug & Play RJ12 connection.
- High accuracy over the whole operating range.
- 4 models with ratings from 25 to 600 A.
- Apertures from 10 to 36 mm.

### TF range

- Split-core current sensors.
- Plug & Play RJ12 connection.
- High accuracy over the whole operating range.
- 3 models with different ratings (from 150 to 6000 A).
- Apertures from 55 to 300 mm.

# TE, TR and TF current sensors

current sensors  
associated to DIRIS Digiware and DIRIS B-30

## Mounting

### TE range

Linear mounting (circuit breaker pitch)  
TE-25 / TE-35 / TE-45 / TE-55



### DIN-rail mounting

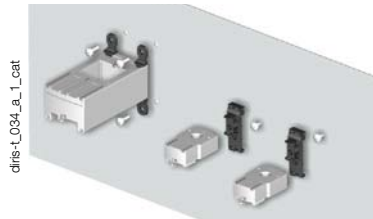


### Staggered mounting

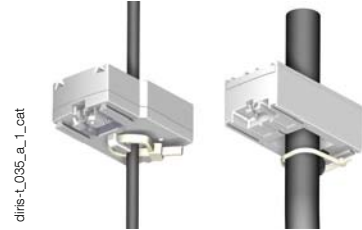
TE-18 / TE-35 / TE-45 / TE-55



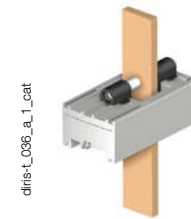
### Back-plate mounting



### Cable mounting

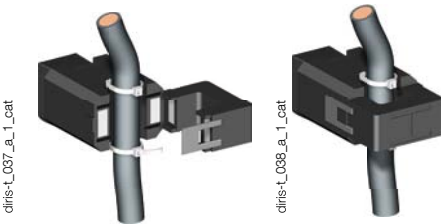


### Bar mounting



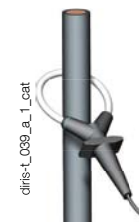
### TR range

Cable mounting

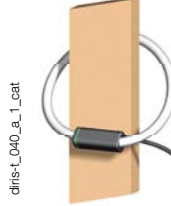


### TF range

Cable mounting



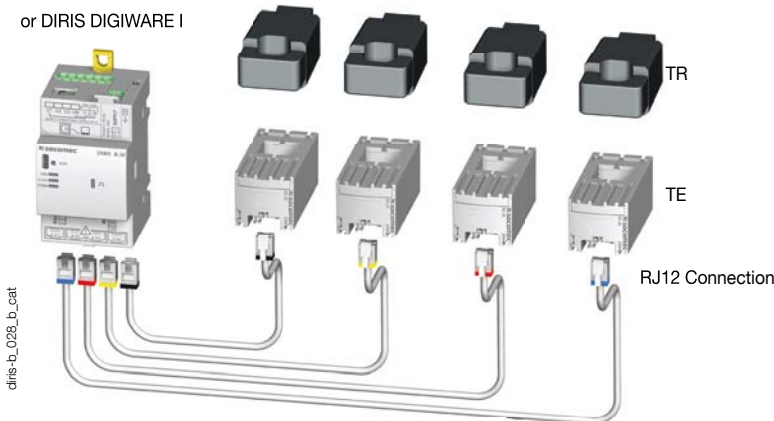
Bar mounting



## Connections

DIRIS B-30  
or DIRIS DIGIWARE I

TE / TR / TF current sensors



## Mounting accessories

Mounting accessories provided  
with TE current sensors

Fixing		TE-18	TE-25	TE-35 TE-45 TE-55
DIN-rail or back plate		1 part		
DIN-rail			2 parts	2 parts
Back plate			4 parts	4 parts
Bar				2 parts

diris-t\_042\_a\_043\_a\_044\_a\_045\_a

## Accessories

### Adapter for 5A CT

• This adapter is for use with a 5 A CT with output terminals on the DIRIS Digiware and DIRIS B-30. For use with standard 5 A current sensors for > 1000 A measurement requirements. Dimensions are identical to TE-18. See page 21.



### Coupling link

• Associated with the TE range, this accessory is for inter-connecting the sensors when linear or staggered mounted.



### Sealable cover

• Using a sealable cover guarantees the immunity of the sensor connection on TE/TR/TF current sensors.



# TE, TR and TF current sensors

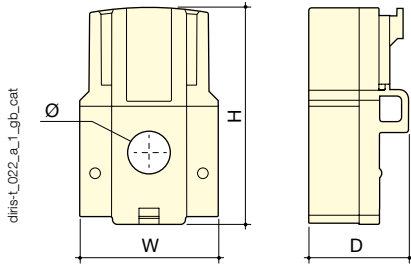
current sensors

associated to DIRIS Digiware and DIRIS B-30

## Dimensions (mm)

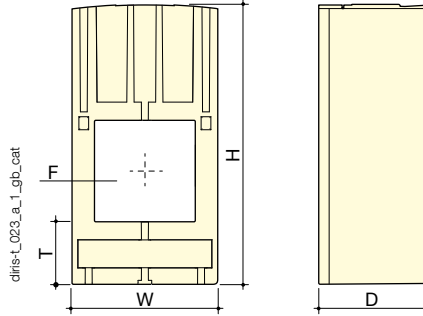
### TE - Solid current sensors

TE-18



Model	Nominal current range (A)	Pitch (mm)	H x W x D (mm)	Ø (mm)
TE-18	5 ... 63	18	45 x 28 x 20	8,6

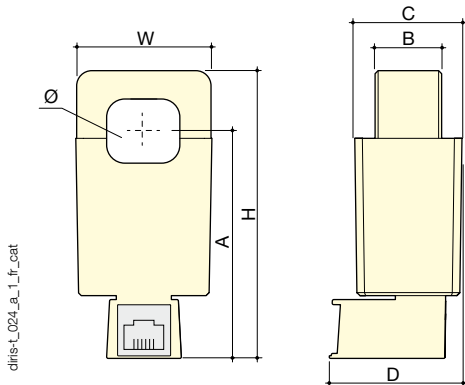
TE-25 / TE-35 / TE-45 / TE-55



Model	Nominal current range (A)	Pitch (mm)	H x W x D (mm)	F (mm)	T
TE-25	40 ... 160	25	65 x 25 x 32.5	13.5 x 13.5	17,5
TE-35	63 ... 250	35	71 x 35 x 32.5	21 x 21	17,5
TE-45	160 ... 630	45	86 x 45 x 32.5	31 x 31	19,5
TE-55	400 ... 1000	55	100 x 55 x 32.5	41 x 41	21,5

### TR - Split-core current sensors

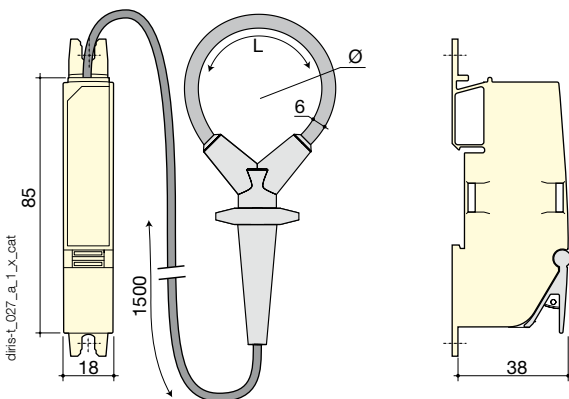
TR-10 / TR-16 / TR-24 / TR-36



Model	Nominal current range (A)	H x W x D (mm)	Ø (mm)	A	W	C
TR-10	25 ... 75	71 x 25 x 39	10	58	14,5	26
TR-16	32 ... 100	74 x 30 x 42	16	61	19	31
TR-24	63 ... 200	95 x 45 x 44	24	72	22	34
TR-36	200 ... 600	111 x 57 x 42	36	82	34	40,5

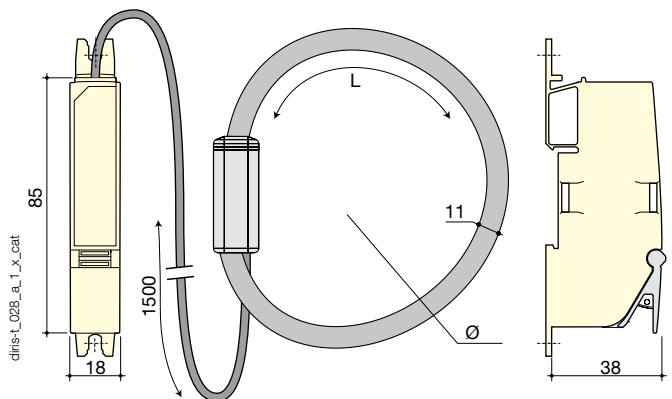
### TF - Flexible current sensors

TF-55



Model	Nominal current range (A)	Ø loop	L = loop length
TF-55	150 ... 600	55	172

TF-120 / TF-300



Model	Nominal current range (A)	Ø loop	L = loop length
TF-120	500 ... 2000	120	376
TF-300	1600 ... 6000	300	942

### Technical characteristics

#### TE - Solid current sensors

Model	TE-18	TE-18	TE-25	TE-35	TE-45	TE-55
Nominal current range (A)	5 ... 20	25 ... 63	40 ... 160	63 ... 250	160 ... 630	400 ... 1000 <sup>(1)</sup>
Max. current (A)	24	75.6	192	300	756	1200
Weight (g)	24	24	69	89	140	187
Max. voltage	300 V					
Rated withstand voltage	3 kV					
Frequency	50/60 Hz					
Intermittent overload	10 x I <sub>n</sub> during 1sec					
Measurement category	CAT III					
Degree of protection	IP30 / IK06					
Operating temperature	-10 ... +70 °C					
Storage temperature	-25 ... +85 °C					
Relative humidity	95 % non-condensing					
Altitude	2000 m					
Connection	SOCOMECC cable or equivalent RJ12 straight, twisted pair, unshielded 300 V cat. III cable. -40 / +85 °C					

(1) > 1000 A with 5A CT adapter.

#### TR - Split-core current sensors

Model	TR-10	TR-16	TR-24	TR-36
Nominal current range (A)	25 ... 75	32 ... 100	63 ... 200	200 ... 600
Max. current (A)	90	120	240	720
Weight (g)	74	117	211	311
Max. voltage	300 V			
Rated withstand voltage	3 kV			
Frequency	50/60 Hz			
Intermittent overload	10 I <sub>n</sub> for 1 s			
Measurement category	CAT III			
Degree of protection	IP20 / IK06			
Operating temperature	-10 ... +70 °C			
Storage temperature	-25 ... +85 °C			
Relative humidity	95 % non-condensing			
Altitude	2000 m			
Connection	SOCOMECC cable or equivalent RJ12 straight, twisted pair, unshielded 300 V cat. III cable. -40 / +85 °C			

#### TF - Flexible current sensors

Model	TF -55	TF -120	TF -300
Nominal current range (A)	150 ... 600	500 ... 2000	1600 ... 6000
Weight (g)	114	142	220
Max. voltage	600 V		
Rated withstand voltage	3,6 kV		
Frequency	50 / 60 Hz		
Intermittent overload	10 I <sub>n</sub> for 1 s		
Measurement category	CAT III		
Degree of protection	IP30 / IK07		
Operating temperature	-10 ... +70 °C		
Storage temperature	-25 ... +75 °C		
Relative humidity	95 % non-condensing		
Altitude	2000 m		
Connection	SOCOMECC cable or equivalent RJ12 straight, twisted pair, unshielded 300 V cat. III cable. -40 / +85 °C		

### References

#### TE - Solid current sensors

Model	Nominal current range (A)	Pitch (mm)	Reference
TE-18	5 ... 20	18	4829 0500
TE-18	25 ... 63	18	4829 0501
TE-25	40 ... 160	25	4829 0502
TE-35	63 ... 250	35	4829 0503
TE-45	160 ... 630	45	4829 0504
TE-55	400 ... 1000	55	4829 0505

#### TF - Flexible current sensors

Model	Nominal current range (A)	Ø (mm)	Reference
TF -55	150 ... 600	55	4829 0570
TF -120	500 ... 2000	120	4829 0571
TF -300	1600 ... 6000	300	4829 0572

Accessories	Reference
Coupling links (20 parts for linear mounting and 10 parts for staggered mounting)	4829 0598
5A/CT adapter (measurement >1000 A)	4829 0599
Sealable covers (20 parts)	4829 0600

#### TR - Split-core current sensors

Model	Nominal current range (A)	Ø (mm)	Reference
TR-10	25 ... 75	10	4829 0551
TR-16	32 ... 100	16	4829 0552
TR-24	63 ... 200	24	4829 0553
TR-36	200 ... 600	36	4829 0554

RJ12 connection cables	Cable length (m)								
	0,1	0,2	0,3	0,5	1	2	5	10	50 m + 50 connectors
N° of cables	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference	Reference
1	-	-	-	-	-	-	4829 0602	4829 0603	4829 0601
3	4829 0580	4829 0581	4829 0582	4829 0595	4829 0583	4829 0584	-	-	-
4	4829 0585	4829 0586	4829 0587	4829 0596	4829 0588	4829 0589	-	-	-
6	4829 0590	4829 0591	4829 0592	4829 0597	4829 0593	4829 0594	-	-	-



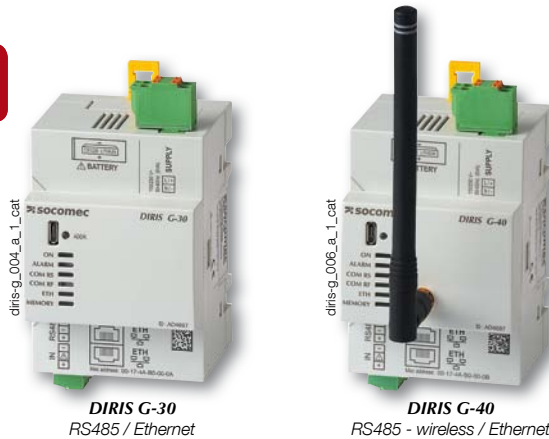


# DIRIS G

Wireless and cabled RS485 to Ethernet communication gateways

Communication gateways

new



## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Strong points

- > WEBVIEW embedded web server
- > Plug & Play
- > Scalable

## Conformity to standards

- > IEC 61010



- > ISO 14025



## Function

With **DIRIS G** communication gateways, all information from metering and measurement devices communicating wirelessly or via the RS485 bus are centralised in a single device and then made available on the Ethernet network via Modbus TCP.

The gateway has an embedded WEBVIEW web server, allowing real time monitoring of electrical values and analysis of consumption data. The user can be alerted of any alarms via email.

## Advantages

### WEBVIEW embedded web server<sup>(1)</sup>

DIRIS G gateways include an embedded web server. Two versions are available:

- Power Monitoring:
  - Real time measurements and alarms
- Power & Energy Monitoring:
  - Real time measurements and alarms,
  - Historical of measurements and analysis of consumptions.
- DIRIS D-90 touch-screen tablet can be fitted on the panel door to display WEBVIEW pages.

(1) See page 26.

### Plug & Play

Connected metering and measurement devices are automatically addressed and detected by the DIRIS G gateway.

DIRIS G gateways provide:

- Automatic clocks synchronisation (SNTP) with battery recording.
- Synchronisation of connected devices.
- Warning messages in the event of an alarm (e-mail SMTP).
- Automatic recording and storage of measurements and consumption data.

### Scalable

Several optional modules are available:

- Digital inputs/outputs.
- Analogue inputs/outputs.
- Temperature inputs.

## Functions

### DIRIS G-30 / DIRIS G-50

- RS485 and Ethernet ports (2 ports with integrated switch)
- Automatic addressing and detection of connected devices.
- Historical of measurements: max 1 year
- Internal clock (SMTP synchronisation)
- Sending of alarm by email (SMTP)
- WEBVIEW embedded web server

### DIRIS G-40 / DIRIS G-60

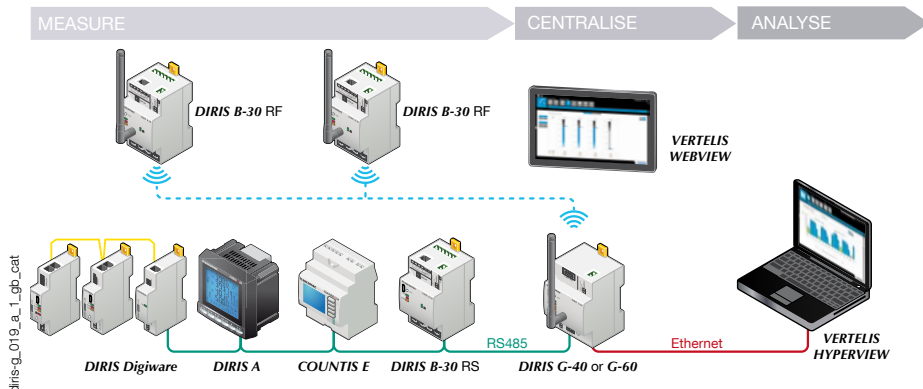
- Same functions as DIRIS G-30/G-50
- wireless connection
- WEBVIEW embedded web server

## Selection guide

	Gateway	DIRIS G-30	DIRIS G-40	DIRIS G-50	DIRIS G-60
Communication	RS485 Modbus	•	•	•	•
	Radio frequency Communication (wireless)		•		•
WEBVIEW embedded web server	Power Monitoring	•	•	•	•
	Power & Energy Monitoring			•	•

### Architecture

Example of communication architecture with DIRIS G gateway and WEBVIEW embedded WEB server



### Tablet

#### D-90 Touch-screen tablet

- Door mounting
- Connected to Ethernet or Wi-Fi (via router)



### Embedded web server

#### WEBVIEW embedded web server<sup>(1)</sup>

- Power Monitoring version: embedded in DIRIS G-30 and G-40
- Power & Energy Monitoring version: embedded in DIRIS G-50 and G-60
- 32 devices max (RS485 and wireless indifferently)



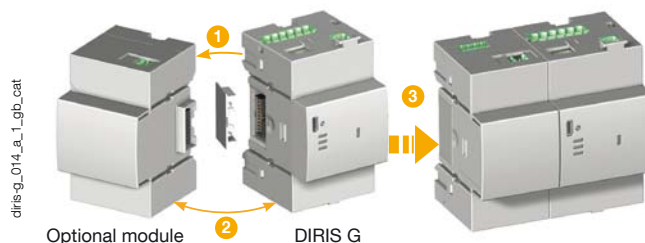
(1) For more details see page 26.

### DIRIS O optional modules

Maximum 4 optional modules can be connected to a DIRIS G gateway to ensure control/command functions.

DIRIS O-iod	2 digital inputs / 2 digital outputs
DIRIS O-ioa	2 analogue inputs / 2 analogue outputs
DIRIS O-it	3 temperature inputs

For more information see DIRIS O optional modules page 13.



### Accessories

#### Remote radio antenna

- Allows the antenna to be mounted outside the enclosure to increase the transmission distance up to 300 m if there are no obstacles.

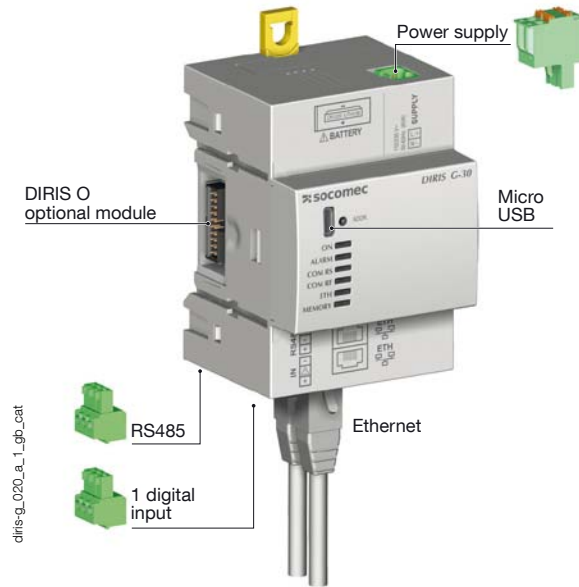
#### USB configuration cable

- Advanced configuration of DIRIS G gateways can be achieved using the EASY CONFIG software via Ethernet or direct USB connection.

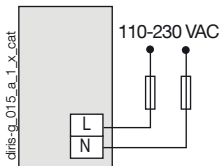
#### Wifi router

- The wifi router is connected to the gateway to allow wifi access to the WEBVIEW web server via the D-90 tablet.

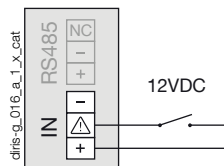
## DIRIS G terminals



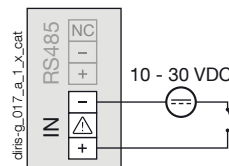
### Power supply



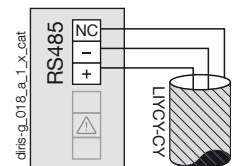
### Input supplied by the product



### Input with external power supply



### RS485

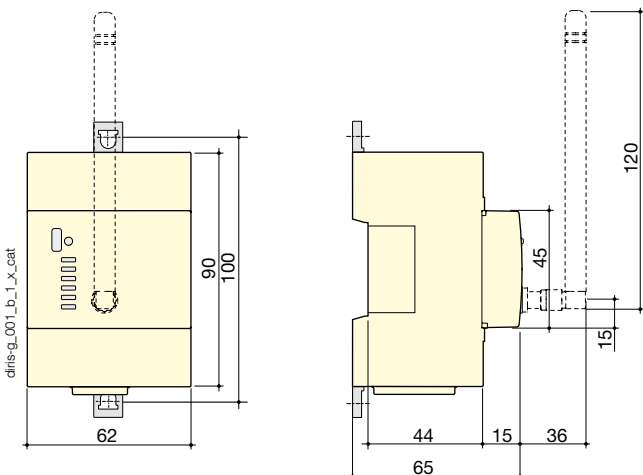


## Terminals of DIRIS O optional modules

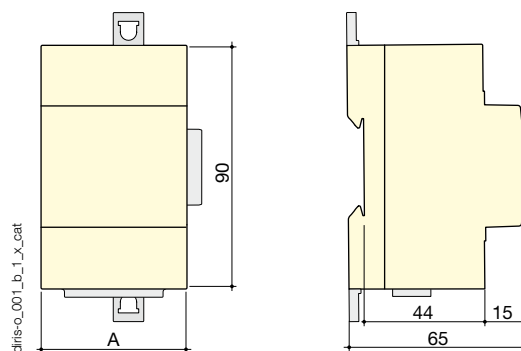
Optional modules are common to the DIRIS B-30 monitoring device.  
For terminal description, see page 14.

## Dimensions (mm)

### DIRIS G-30 / G-40 / G-50 / G-60



### DIRIS O optional modules



#### DIRIS O optional modules

DIRIS O-iod - DIRIS O-ioa - DIRIS O-it

**A**  
45 mm

## Technical characteristics

Mechanical characteristics	
Casing type	Modular for DIN-rail or back plate mounting
Case degree of protection	IP20 / IK06
Front degree of protection	IP40 (panel face with modular mounting) / IK08
Weight	DIRIS G-30, G-50 = 190 g DIRIS G-40, G-60 = 215 g
Electrical characteristics	
Power supply	
AC voltage	110-230 VAC $\pm$ 15% (Ph/N or Ph/Ph) Cat III
Frequency	50/60 Hz
Consumption	6 VA
Battery	CR 1220 3 V lithium button cell battery
Input	
Number	1
Type / Power supply	Optocoupler internal polarisation (12 VDC $\pm$ 10 %) or external polarisation (10-30 VDC $\pm$ 10%)
Input function	Logic status, pulse meter or synchronisation pulse status
Communication characteristics	
DIRIS G	
Link	RS485
Connection type	2 ... 3 half duplex wires
Protocol	Modbus RTU
Speed	2400 ... 115200 bauds
Function	Communication with PMDs and meters
DIRIS G-40 and DIRIS G-60	
Link	Radio frequency (wireless)
Frequency band	868 MHz (low frequency: 868.1 MHz and high frequency: 869.5875 MHz)
Speed	38400 bauds
Function	Communication with DIRIS B-30 RF
Scope	300 m (open field)
Ethernet	
Link	Ethernet 10/100 base-T, 2 RJ45 bases with integrated switch
Protocol	Modbus TCP (port 502), Modbus RTU over TCP (port 503), HTTP, SMTP, SNTP, DHCP
Clock	Internal
SNTP protocol	Gateway time updating from an NTP server. Connected PMDs time updating.
SMTP protocol	Sending of alarm emails from the gateway
Function	Configuration of the gateway, connected PMDs and meters Access to the WEBVIEW web server, data centralisation
USB	
Connection type	USB 2 (Easy Config software required)
Protocol	Modbus RTU over USB
Function	Configuration of the gateway, connected PMDs and meters
Connection	B-type micro USB connector
Memory capacity	
Historical of consumptions (memory capacity extension of meters and monitoring devices)	1 year (1-hour period)
Electrical values	2 months (10-minute period)
Number of events	Alarms: 1000 Network quality as per EN 50160: 1000
Environment characteristics	
Operating temperature	-10 ... +70 °C
Storage temperature	-25 ... +85 °C
Operating humidity	55 °C / 97% relative humidity

## References

DIRIS G gateways		Reference
DIRIS G-30	RS485 / Ethernet - WEBVIEW Power Monitoring	4829 <b>0300</b>
DIRIS G-40	RS485-RF / Ethernet - WEBVIEW Power Monitoring	4829 <b>0301</b>
DIRIS G-50	RS485 / Ethernet - WEBVIEW Power & Energy Monitoring	4829 <b>0302</b>
DIRIS G-60	RS485-RF / Ethernet - WEBVIEW Power & Energy Monitoring	4829 <b>0303</b>
DIRIS O optional modules		Reference
DIRIS O-iod	2 digital inputs / 2 digital outputs	4829 <b>0030</b>
DIRIS O-ioa	2 analogue inputs/2 analogue outputs, 4-20 mA	4829 <b>0031</b>
DIRIS O-it	3 temperature inputs PT 100 / PT 1000	4829 <b>0032</b>
Tablet		Reference
DIRIS D-90		4829 <b>0210</b>
Accessories		Reference
Wireless remote antenna, 868 MHz - 210 mm height		4854 <b>0126</b>
Cable for remote antenna - SMA connector - 3 meter length		4854 <b>0127</b>
USB configuration cable		4829 <b>0050</b>

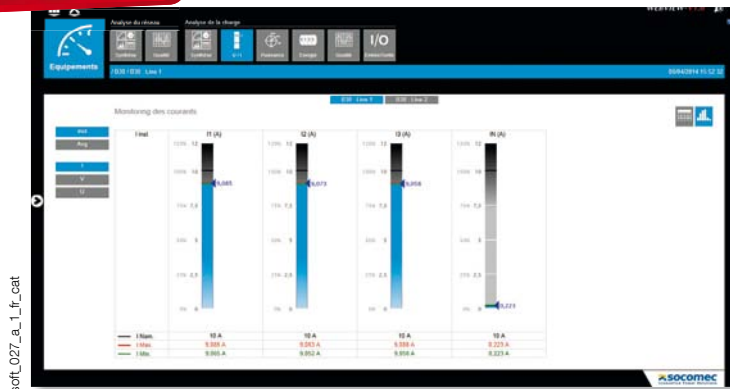


# VERTELIS WEBVIEW

Web server embedded in the DIRIS G communication gateway

Software suite

**new**



## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Strong points

- > Plug & Play
- > Easy to use
- > Various functions

## Function

The **WEBVIEW** web server embedded in DIRIS G gateways enables measurement monitoring up to 32 devices and displays the energy consumptions by usage.

Pre-set alarms defined by the user can sent by e-mail.

User can access WEBVIEW via a web browser on a PC or a tablet.

## Advantages

### Plug & Play

Automatic detection of connected devices facilitates the WEBVIEW configuration. In order to achieve the consumption distribution, the user is assisted in the metering plan definition.

### Easy to use

WEBVIEW centralises all the devices measurements via a unique, clear and easy-to-use interface.

It provides easy and rapid monitoring of the devices by displaying the parameters and events on summary pages.

### Various functions

WEBVIEW ensures real time monitoring of all electrical parameters measured thanks to summary pages showing graphs or charts. Time-logged alarms are recored and displayed by usage, type, nature and criticality. The user receives alarm notification by email.

Energy consumption breakdown is displayed per utility (electricity, water, gas...) and usage (heating, lightning...).

## Selection guide

WEBVIEW	Functions	Hosted on Gateway (32 devices max.)
Power Monitoring	<b>Monitor</b> - Real time measurement - Alarms	DIRIS G-30
		DIRIS G-40
Power & Energy Monitoring	<b>Monitor</b> - Real time measurement - Alarms  <b>Display</b> - Measurement history - Consumptions	DIRIS G-50
		DIRIS G-60



## Functions

2 versions available:

### Power Monitoring

#### Monitor

- Automatic detection of connected devices.
- Summary of the parameters measured on the electrical network and the loads.
- Measurements of voltage, current, power, power factor, harmonic distortion rate (THD) and harmonics per rank.
- Display of average/instantaneous values with min/max limits depending on the devices.
- Total and partial energy consumption per load.
- Input/output status.
- Synchronisation of device clocks.
- Graphical or table representation.

#### Alarm

- Alarms for overloads, events and input status changes.
- Display of alarm history.
- Sorting by type, nature, criticality or state.
- Alarm displayed on the main page.
- Sending of alarm by email (SMTP).

### Power & Energy Monitoring

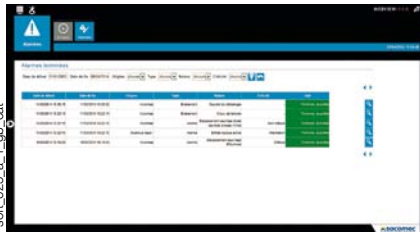
#### Display

- Historical measurements and consumption (one year of data).
- Distribution of consumption by usage and by utility (water, gas, electricity, etc.).
- Export of consumption data in CSV format.

Power & Energy Monitoring also includes the "Monitoring" and "Alarm" functions.



Real-time display.

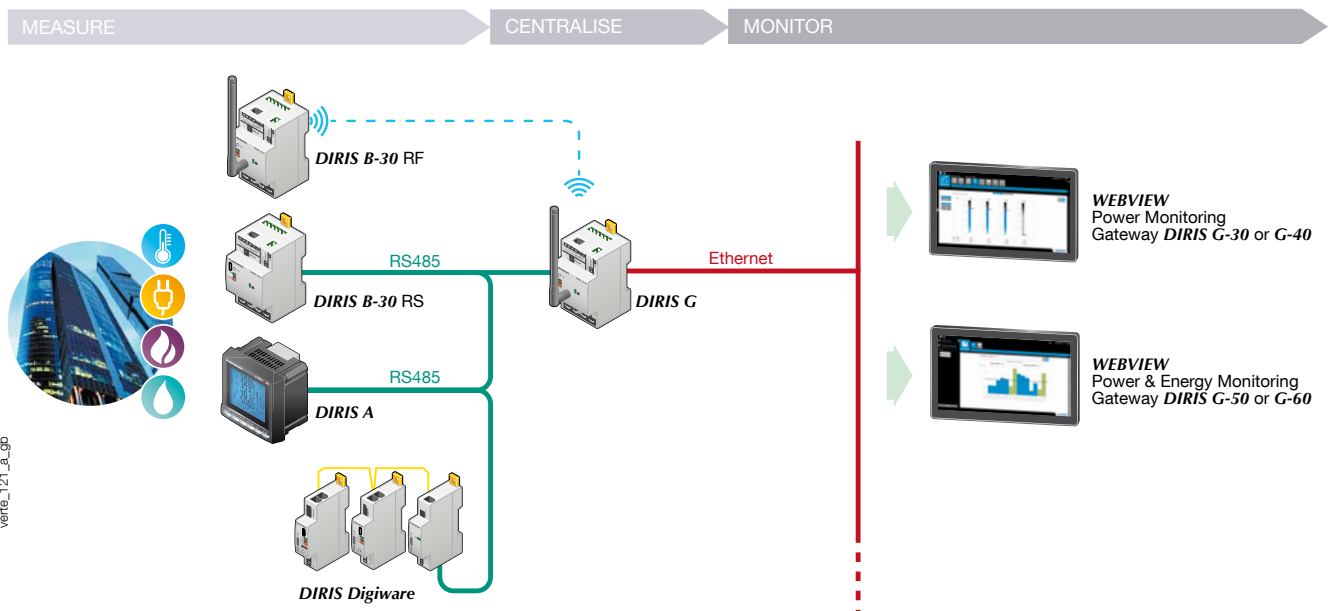


Alarm history.



Consumption history.

## Architecture



## References

Type	Reference
DIRIS G-30	RS485 / Ethernet - WEBVIEW Power Monitoring
DIRIS G-40	RS485-RF / Ethernet - WEBVIEW Power Monitoring
DIRIS G-50	RS485 / Ethernet - WEBVIEW Power & Energy Monitoring
DIRIS G-60	RS485-RF / Ethernet - WEBVIEW Power & Energy Monitoring

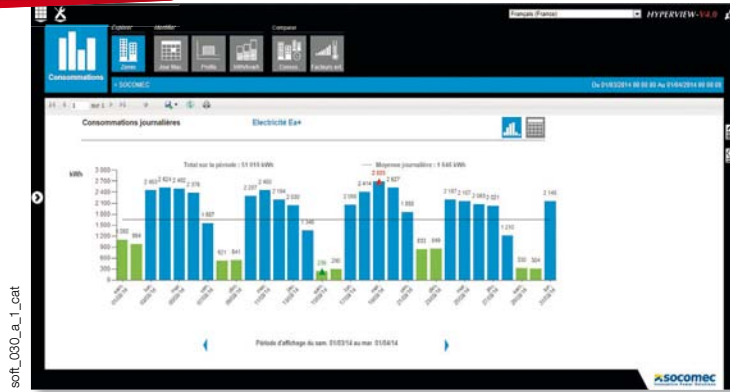


# VERTELIS *HYPERVIEW*

Energy Management Software

Software suite

**new**



## The solution for

- > Industry
- > Building
- > Infrastructure
- > Local authority



## Strong points

- > Energy cost management
- > Advanced analysis functions
- > Rapid results

## Function

**HYPERVIEW** software is for consolidating all the data collected by measuring and metering devices.

Based on open-ended technologies, it can be easily integrated into the IT environment.

A simple and user friendly web interface enables access to various analysis and power consumption optimisation functions.

## Advantages

### Energy cost management

The **HYPERVIEW** software provides summary on energy savings achieved following the implementation of energy efficiency actions. Data about energy contracts and bills are registered into the system in order to reduce the energy costs. Functions for optimising the subscribed power enable the identification of overcosts, and thus the possibility adapt usage and/or the subscription.

### Rapid results

**HYPERVIEW** is an intuitive and user-friendly tool. Data can always be accessed thanks to the web portal displaying analysis reports with dashboards or graphs. The **HYPERVIEW** software allows users to subscribe to reports and receive them by regular email.

### Advanced analysis functions

The management of **SOCOME C** devices load curves provides accurate analysis of consumptions and enables the detection of active and reactive powers maximums and overruns.

Thanks to calculated measurement points, consumptions that cannot be measured can be deducted through calculations.

Customised consumption models based on relevant indicators facilitate the implementation of a performance measurement and verification protocol.

## Selection guide

Hyperview	up to 200 devices	> 200 devices	Functions	Options
Energy Management	Hosted on local server	Hosted on local server <sup>(1)</sup>	<b>Monitor and analyse</b> <ul style="list-style-type: none"> <li>• Consumption analysis</li> <li>• Exceeded threshold alerts</li> <li>• Energy cost management</li> </ul> <b>Follow up your results</b> <ul style="list-style-type: none"> <li>• Integration of external data (temperature, etc.)</li> <li>• Estimation of results achieved</li> <li>• Display of energy savings and losses</li> </ul> <b>Communicate</b> <ul style="list-style-type: none"> <li>• Dashboards</li> <li>• Report subscription</li> <li>• Full screen dashboards</li> </ul>	<b>Monitor</b> <ul style="list-style-type: none"> <li>• Graph creation tool</li> </ul> <b>Analyse</b> <ul style="list-style-type: none"> <li>• Electrical powers</li> <li>• Customised reports</li> </ul> <b>Follow up your results</b> <ul style="list-style-type: none"> <li>• Measurements and verifications</li> </ul>
Energy Management Cloud	Data centers			

<sup>(1)</sup> Architecture: please consult us.

## Functions

### Energy management

#### Monitor and analyse

- Measurement and consumption history.
- Alarms for overloads, events & input status changes.
- Display and export of the data collected.
- Distribution of consumption by area, usage, utility and period.
- Identification of energy saving opportunities.
- Comparison of consumption between different sites and periods.
- Calculation and display of energy costs.

#### Follow up your results

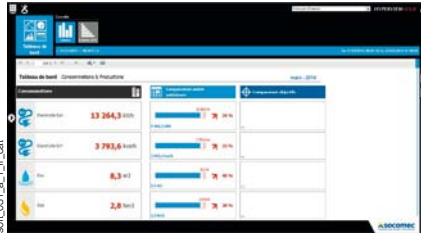
- Integration of external data (temperature, etc.).
- Definition of energy consumption models.
- Estimation of the results of your energy performance actions.
- Identification of savings and losses comparing consumption over a reference period.

#### Communicate

- Display of customised full screen dashboards in key areas.
- Subscribe to reports and receive them by regular email.
- Presentation of the data in a concise manner to communicate and report about environmental performance.



Consumption analysis

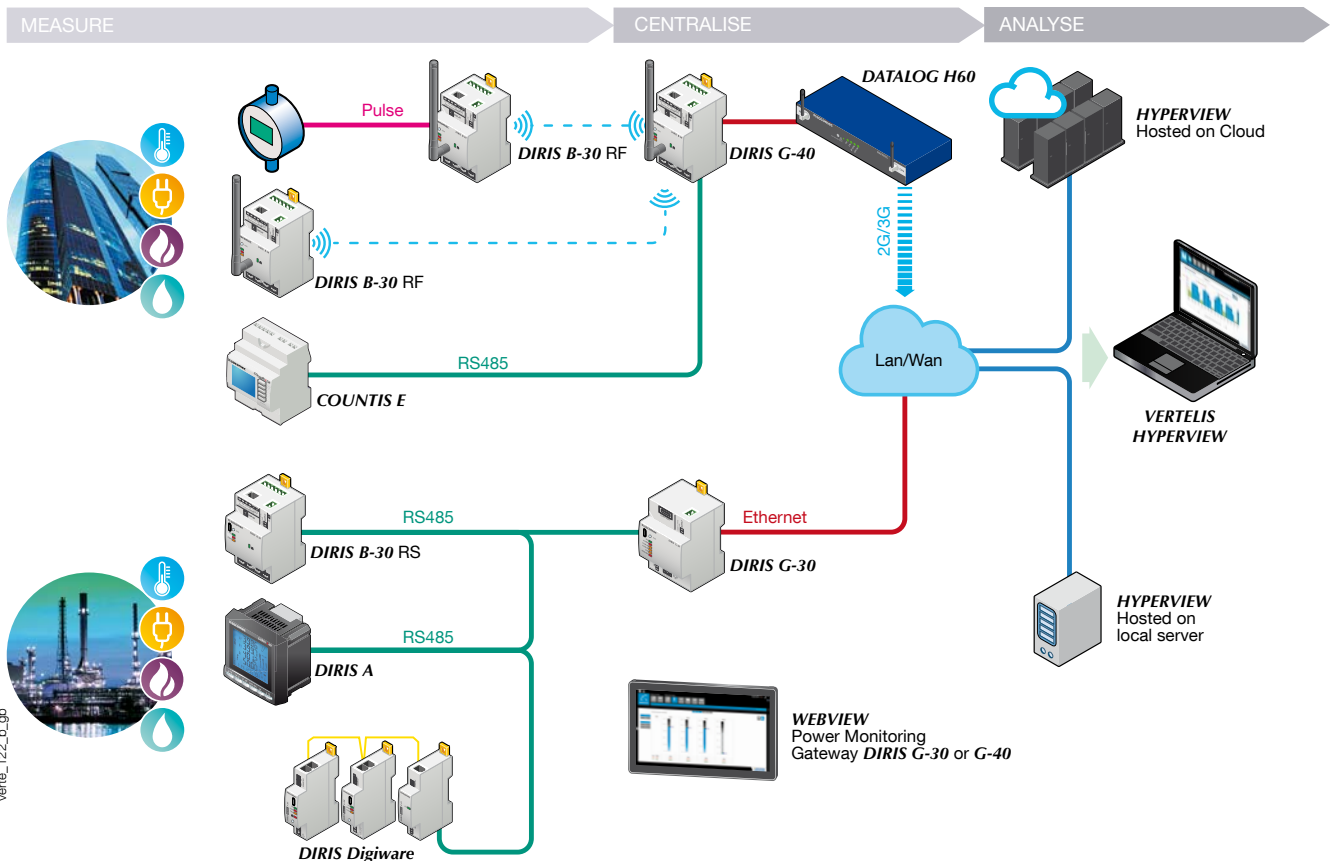


Dashboards



Energy label

## Architecture



## References

HYPERVIEW	Reference
HYPERVIEW on Server + software license	Please consult us
HYPERVIEW on Cloud + software license	Please consult us

Options	Reference
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