



DIRIS Digiware

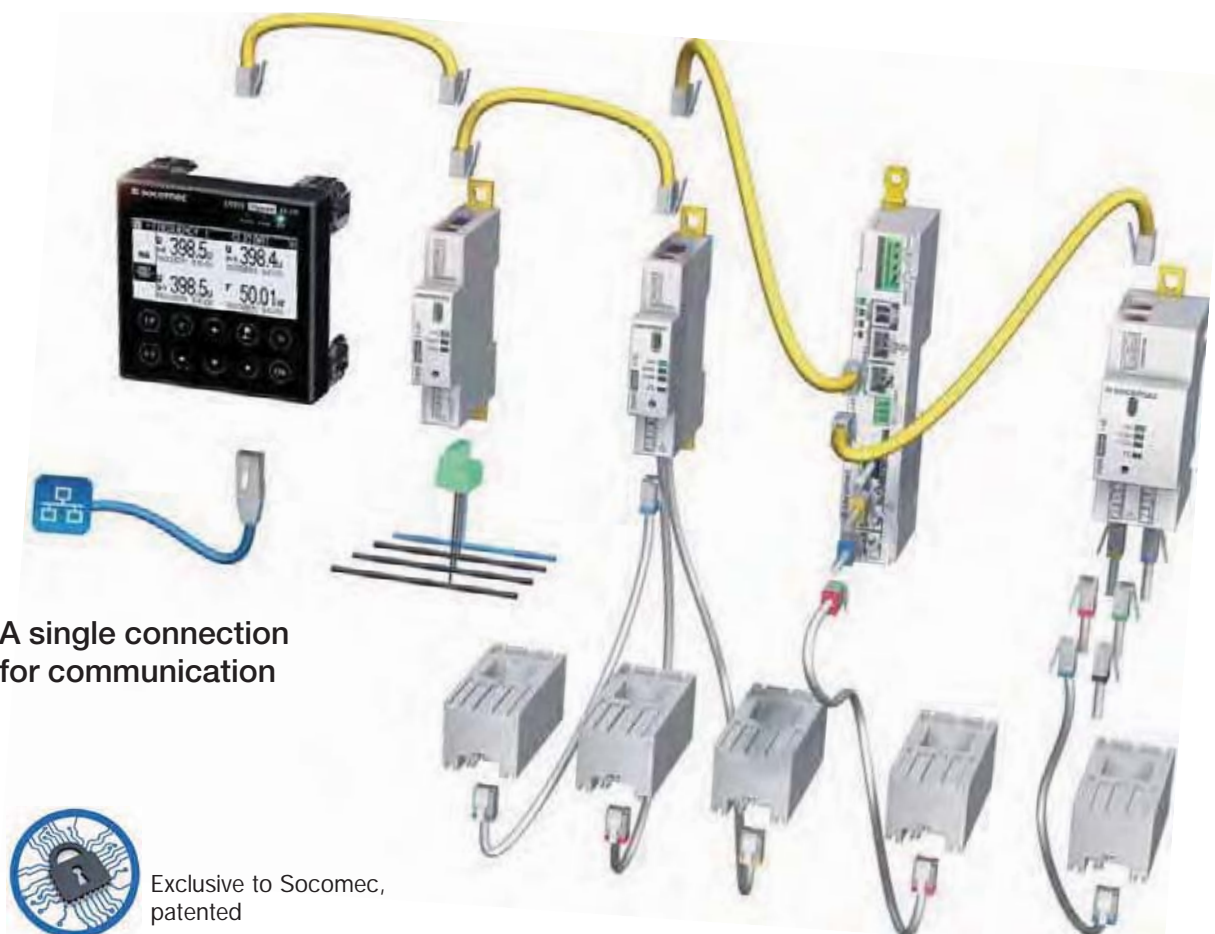
Measurement and monitoring system for electrical installations

Multi-circuit metering & measurement

The DIRIS Digiware system

Multiple current acquisition modules connected to the voltage acquisition module and the display.

- A single centralised control unit
- A single voltage measurement module (U)
- Current measurement modules (I)
- Current sensors



A single connection for communication



Exclusive to Socomec, patented

DIRIS_DWL011_A_LCAT

DIRIS Digiware wins a trophy!



The SOCOMEC DIRIS Digiware energy measuring and monitoring solution came first in the 20th edition of the Mesure magazine's Prize for Technology and was the overall winner in the energy efficiency category.

Advantages of the system



Flexible

Shared functions

- Common display.
- A single voltage reference 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 loads to be measured.
- Elimination of hazardous voltage on panel doors.

Compact design

- U and I modules of variable size (1 to 2 modules).
- System suited to integration in existing or space-constrained installations.

Wide choice of current sensors

- Solid, split-core or rogowski coil.
- Various sizes and formats.
- Numerous accessories allow the system to be installed in all panels configurations.



Multi-circuit

Ability to monitor several loads via a single current measurement module thanks to independent current inputs.



Accurate

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

- Class 0.5 from 2 % to 120 % of rated current for the global measurement chain (associated with TE / TF 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% return on investment.



Plug & Play

RJ12 current sensor connection

- Fast: automatic detection of ratings and verification of current flow direction.
- Reliable: identification of cables by colour-coding and wiring control by the system.
- Safe: disconnection of the current sensor secondary under load.

RJ45 interconnection of modules (Digiware Bus)

- Fast: a single connection, no tool 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 modules connected to the Bus.



APPL_686_A



Multi-circuit metering & measurement

DIRIS Digiware D and C

Control and power supply interfaces



DIRIS Digiware D-40/D-50
Centralisation and display of data



DIRIS Digiware C-31
Centralisation

The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



Strong points

- > Centralising and displaying measurement data
- > A single power supply for the entire system
- > A single RS485 or Ethernet output for the entire system

Conformity to standards

- > IEC 61557-12



- > ISO 14025



- > UL



Configuration with EasyConfig, see page 618.

Function

DIRIS Digiware D-40 and D-50

DIRIS Digiware D remote screens give you:

- a local view of the data issued by the DIRIS Digiware U and I modules,
- a power supply to the DIRIS Digiware modules,
- access to this data over Ethernet (D-50) or RS485 (D-40)

Via an RS485 connection, the DIRIS Digiware D-50 screen also acts as a gateway, centralizing all information issued by DIRIS A, DIRIS B and COUNTIS E and making this information available on Ethernet.

DIRIS Digiware screens are 24 VDC powered.

Advantages

DIRIS Digiware D-40 and D-50

- High-resolution graphic screen.
- Made safe by a 24 VDC supply: elimination of hazardous voltage on cabinet doors.
- IP65 front panel.
- Ergonomic and easy to use with 10 direct access buttons for:
 - Measurement information
 - Selecting outputs
 - Configuration equipment.
- Centralising measurement points:
 - Selecting the circuit
 - Displaying data.

DIRIS Digiware C-31

For applications without a local display

DIRIS Digiware C-31 interfaces centralise all the system data.

Through their RS485 Modbus output, they make all this information available to energy efficiency software (DIRIS G communication gateways are available to communicate via Ethernet - Modbus TCP).

DIRIS Digiware C-31 interfaces and C-32 repeaters are 24 VDC powered.

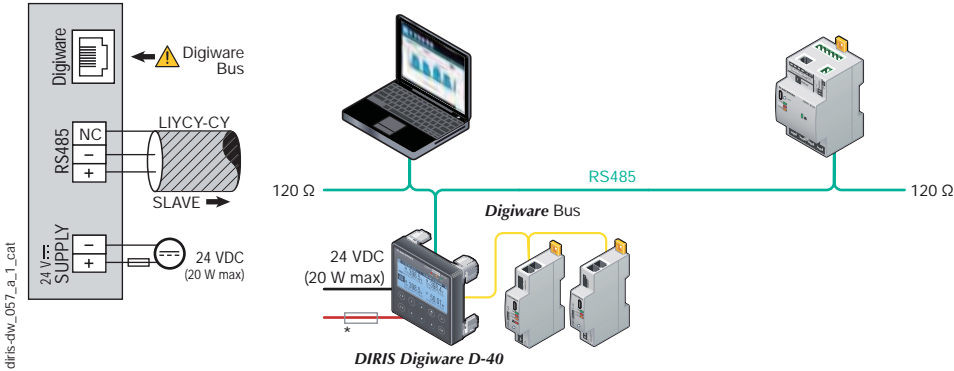
DIRIS Digiware C-31

Compact: Centralise your measurement data on 1 module without a local screen, for a complete system

- Single 24V power supply (no dangerous voltage on Digiware modules for an uninterruptible connection),
- A single RS485 communication.

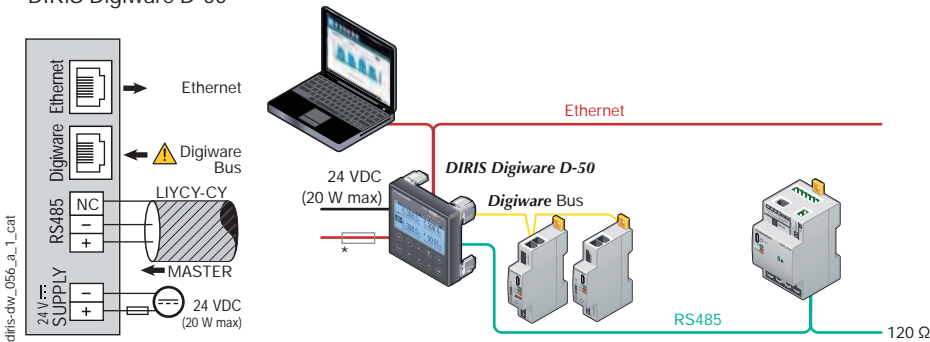
Connections

DIRIS Digiware D-40



(*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

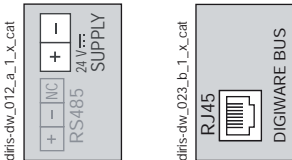
DIRIS Digiware D-50



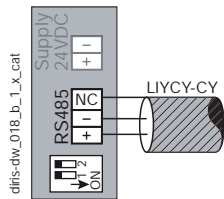
(*) 1A / 24 VDC fuse protection is recommended if the 24 VDC power supply is not provided by Socomec.

DIRIS Digiware C-31

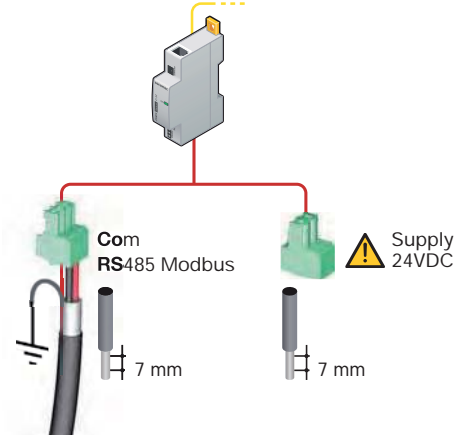
Power supply Digiware Bus



Communication

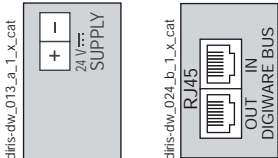


DIRIS Digiware C



DIRIS Digiware C-32

Power supply Digiware Bus



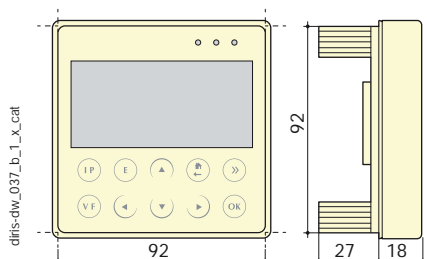
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DIRIS Digiware D and C

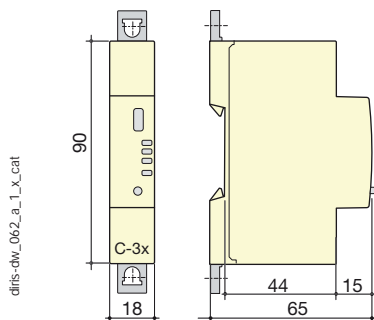
Control and power supply interfaces

Dimensions

DIRIS Digiware D-40/D-50



DIRIS Digiware C-31



Configuration

Equipment consumption

Product	Power delivered (W)	Power consumed (W)
Power supply		
P15 100-240 VAC / 24 VDC	15	
Cables		
50 metre package		1.5
System interfaces		
DIRIS Digiware D-x0		2
DIRIS Digiware C-31		0.8
Module voltage		
DIRIS Digiware U-xx		0.72
Current modules		
DIRIS Digiware I-3x		0.52
DIRIS Digiware I-4x		1.125
DIRIS Digiware I-6x		0.7
Repeater		
DIRIS Digiware C-32		1.5

Calculation rules for the max. number of products on the Digiware Bus

The total power consumed by the equipment connected to the Digiware Bus must not exceed the power from the 24 VDC supply.

The power supply must not exceed 20 W/70°C or 27 W/40°C.

Size with P15 power supply (ref: 4829 0120) delivering 15 W

For example, it is possible to use

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

and

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

or

- 9 DIRIS Digiware current modules I-4x (9 x 1.125 = 10.125 W)
- ⇒ Total power = 14.345 W.

Size with a 24 VDC power supply delivering a maximum of 20 W

For example, it is possible to use

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

and

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

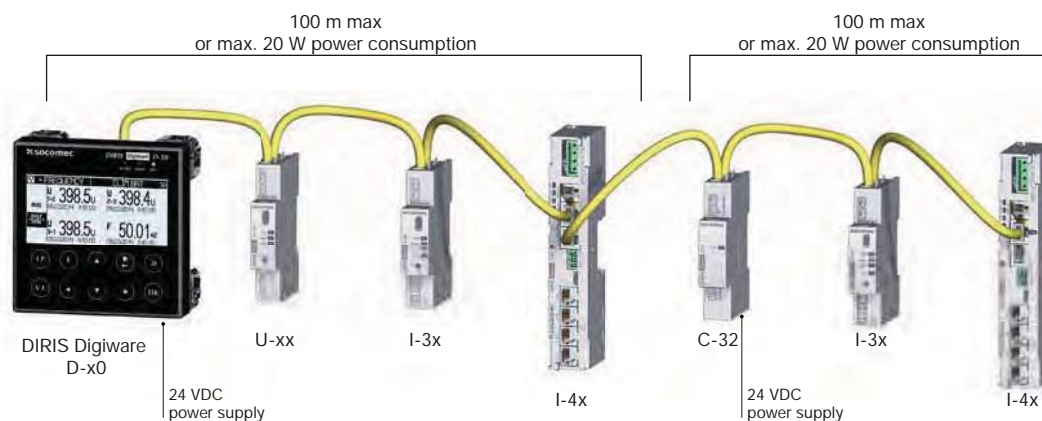
or

- 14 DIRIS Digiware current modules I-4x (14 x 1.125 = 15.72)
- ⇒ Total power = 19.97 W.

Repeater

Whenever the power consumption is higher than 20 W or the distance is greater than 100 m, a DIRIS Digiware C-32 repeater is required.

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



Specifications

Electrical characteristics

DIRIS Digiware C-31	
Input voltage	24 VDC \pm 20 % - 20 W max
Connection	Removable screw terminal block, 2 positions, stranded or solid 0.2-2.5 mm ² cable
P15 power supply	Specifications 100-240 VAC/ 24 VDC - 0,63 A - 15 W Modular format - Dimensions (H x L): 90 x 25 mm

Communication specifications

Digiware Bus	
Function	Connection between DIRIS Digiware modules
Cable type	Specific Socomec cable with RJ45 connections
RS485	
Connection type	2 to 3 half duplex wires
Protocol	Modbus RTU
Baudrate	1200 ... 115200 bauds
Function	Data configuration and reading
Location	Single-point on DIRIS Digiware C

Mechanical specifications

Casing type	DIN-rail mounting module and base
Casing protection index	IP20 / IK06
Front panel protection index	IP40 on the nose in modular assembly / IK06

Environmental specifications

Ambient operating temperature	-10 ... +70°C
Storage temperature	-25 ... +70°C
Operating humidity	55 °C / 97% HR
Operating altitude	< 2000 m

DIRIS Digiware D-40/D-50 features

Mechanical specifications		
Type of screen	Capacitive touch-screen technology, 10 keys	
Screen resolution	350 x 160 pixels	
Front panel protection index	IP65	
Communication		
Ethernet RJ45 10/100 Mbs	Modbus TCP gateway function (D50)	
RJ45 Digiware	Control and power supply interface function	
RS485 2-3 wires	Modbus RTU communication function (D50 input / D40 output)	
USB	Upgrade and configuration via type B micro USB connector	
Electrical characteristics		
Power supply	24 VDC +10% / -20%	
Power consumption	2 VA	
Environmental specifications		
Storage temperature	-20 ... +70°C	
Operating temperature	-10 ... +55°C	
Humidity	95% at 40°C	
Installation category, degree of pollution	CAT III, 2	
Ports	D-40	D-50
Inputs	Digiware	Digiware RS485
Outputs	RS485	Ethernet

References

DIRIS Digiware		Reference
D-40	Multipoint display, RS485 output	4829 0199
D-50	Multipoint display, Ethernet output	4829 0201
C-31	System interface	4829 0101
C-32	Repeater	4829 0103
Power supply		Reference
P15	Power supply 100-240 VAC/ 24 VDC 15 W	4829 0120

Accessories		
Description of accessories	To be ordered in multiples of	Reference
Fuse circuit breakers to protect voltage inputs (type RM) 1 pole + neutral	4	5601 0017
gG 10x38 0.5 A fuses	10	6012 0000

Digiware connection cables		Reference
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 5 m	4829 0186
	Length 10 m	4829 0187
	Reel 50 m + 100 connectors	4829 0185
Digiware bus terminating resistor (supplied with C and D devices)		4829 0180
USB configuration cable		4829 0050
Single-point display		Reference
DIRIS D-30 ⁽¹⁾	Single-point display for DIRIS Digiware I-4x	4829 0200

(1) DIRIS D-30 display characteristics see page 521.

Expert Services

Require integration onto your network?

No problem for our Expert Services team. They will fully integrate all your SOCOMEC devices, audit your system, commission selected equipment and train your staff on its use.

For further information, please contact your nearest SOCOMEC branch.



DIRIS Digiware U

Voltage measurement module

Multi-circuit metering & measurement



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DIRIS Digiware U-10/U-20/ U-30

The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



Strong points

- > 1 single voltage measurement point for the entire system
- > Plug & Play
- > Compact



RJ45 (Digiware Bus) cables are available.

Conformity to standards

- > IEC 61557-12



- > ISO 14025



- > UL



Configuration with EasyConfig, see page 618.




Function

The DIRIS Digiware U module measures voltage for the entire system. This pools together all voltage measurements.

The Digiware RJ45 Bus allows you to pass voltage measurements as well as power supply and communication to all connected products.

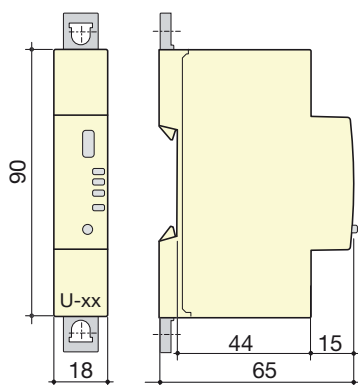
Advantages

- 1 single voltage measurement point for the entire system.
- Single point of protection for voltage measuring.
- A complete, dedicated solution:
 - metering,
 - monitoring voltage,
 - quality analysis of the supplied voltage.
- No hazardous voltage on cabinet doors.
- Adapted to all types of network: single-phase, three-phase.

Application	Voltage measurement module		
	Metering	Monitoring	Analysis
			
	U-10	U-20	U-30
DIRIS Digiware U			
Multi-measurement			
U12, U23, U31, V1, V2, V3, f	•	•	•
U system, V system			•
Ph/N unbalance			•
Ph/Ph unbalance			•
Quality analysis			
THDv1, THDv2, THDv3, THDu12, THDu23, THDu31		•	•
Individual harmonics U & V (up to rank 63)			•
Voltage dips, cutoffs and surges (EN 50160)			•
Alarms			
On threshold			•
History of average values			
45 days (max)			•
Format			
Width/number of modules	18 mm / 1	18 mm / 1	18 mm / 1

Dimensions

DIRIS Digiware U



diris-dw_059_a_1_x_cat

Specifications

Measuring characteristics

Voltage measurement - DIRIS Digiware U	
Characteristics of the network measured	50-300 VAC (Ph/N) - 87-520 VAC (Ph/Ph) - CAT III
Frequency range	45 ... 65 Hz
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	300 VAC Ph/N
Accuracy of voltage measurement	Class 0.2
Connection	Removable screw terminal block, 4 positions, stranded or solid 0.2 ... 2.5 mm ² cable

Communication specifications

USB	
Protocol	Modbus RTU on 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

Digiware connection cables	Reference	
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 5 m	4829 0186
	Length 10 m	4829 0187
	Reel 50 m + 100 connectors	4829 0185
Digiware bus terminating resistor (supplied with C and D devices)	4829 0180	
USB configuration cable	4829 0050	

DIRIS Digiware	Reference
U-10 Metering	4829 0105
U-20 Monitoring	4829 0106
U-30 Analysis	4829 0102

Accessories		
Description of accessories	To be ordered in multiples of	Reference
Fuse holder to protect voltage inputs (type RM) 3 pole	4	5601 0018
gG 10x38 0.5 A fuses	10	6012 0000



DIRIS Digiware I

Current measurement modules

Multi-circuit metering & measurement



DIRIS Digiware I-3x



DIRIS Digiware I-4x



DIRIS Digiware I-6x

The solution for

- > Industry
- > Building
- > Infrastructure
- > Data center



Strong points

- > Multi-circuit
- > Plug and Play
- > Compact
- > High-precision measurement chain

Conformity to standards

- > IEC 61557-12



- > ISO 14025



- > UL



Configuration with EasyConfig, see page 618.

Function

DIRIS Digiware I modules measure consumption and monitor the system at the closest point to the loads. The flexibility of these modules allows you to allocate the loads to be measured or monitored through independent current inputs.

For example:

- 1 three-phase load,
- 3 single-phase loads.









The RJ45 and RJ12 connections allow you to connect modules very quickly and to automatically configure connected current sensors:

- communication address,
- load type,
- sensor type and ratio,
- automatic rating and verification of current travel direction.

Wiring errors are also prevented and installation is simplified.

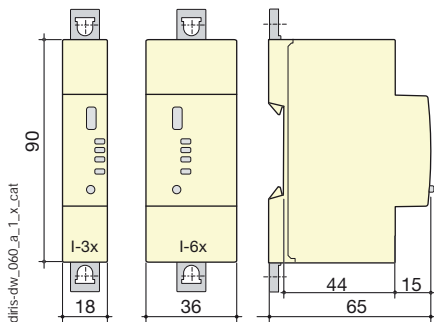
Advantages

- RJ45 and RJ12 rapid connection.
- Available with 3, 4 or 6 inputs.
- Single-output or multi-output for maximum optimisation of the number of products.
- Compact format: 1 or 2 modules sized for integration at the closest point to the loads.
- A complete, dedicated solution:
 - metering,
 - monitoring,
 - quality analysis.
- Compliant with standard IEC 61557-12, guaranteeing the quality and accuracy of the system:
 - class 0.5 for the 2 - 120% rated current global measurement chain In (with TE/TF current sensors).

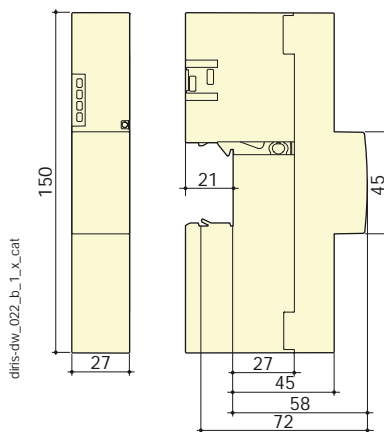
Application	Current measurement modules							
	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering	
								
DIRIS Digiware I	I-30	I-31	I-33	I-35	I-43	I-45	I-60	I-61
Number of current inputs	3	3	3	3	4	4	6	6
Metering								
± kWh, ± kvarh, kVAh	•	•	•	•	•	•	•	•
Load curves		•		•		•		•
Multi-tariff		•		•		•		•
Multi-measurement								
I1, I2, I3, In, ΣP, ΣQ, ΣS, ΣPF	•	•	•	•	•	•	•	•
P, Q, S, PF per phase			•	•	•	•		
Predictive power				•		•		
Current unbalance (Inba, Idir, linv, Ihom, Inb)				•		•		
Phi, cos Phi, tan Phi				•		•		
Quality								
THDi1, THDi2, THDi3, THDin			•	•	•	•		
Individual harmonics I (up to level 63)				•		•		
Overcurrents				•		•		
Alarms								
On threshold				•		•		
Inputs/outputs					2/2	2/2		
History of average values								
45 days (max)				•		•		
Format								
Width/number of modules	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

Dimensions

DIRIS Digiware I-3x / I-6x



DIRIS Digiware I-4x



Connections

Associated current sensors

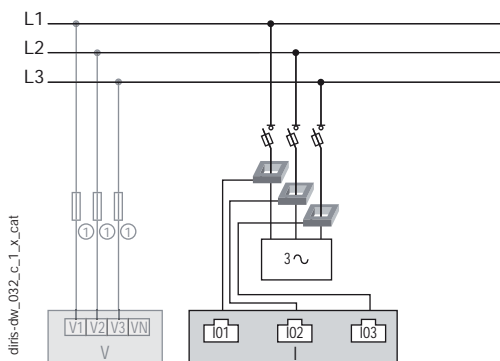
Various types of current sensors are connected to the DIRIS Digiware: closed (TE), split core (TR) or flexible (TF). This range of sensors can be adapted to all types of new or existing installations. A rapid RJ12 connection makes wiring easy and reliable and prevents wiring errors. The DIRIS Digiware system 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 522.

Network and connection examples

I3x

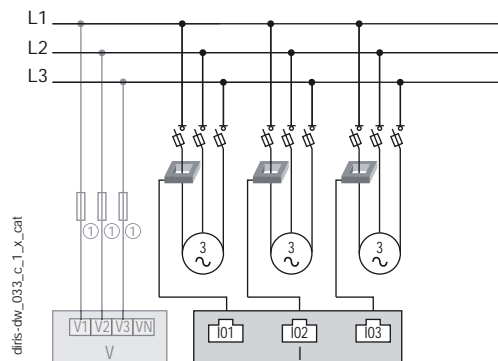
Three-phase

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



Three-phase

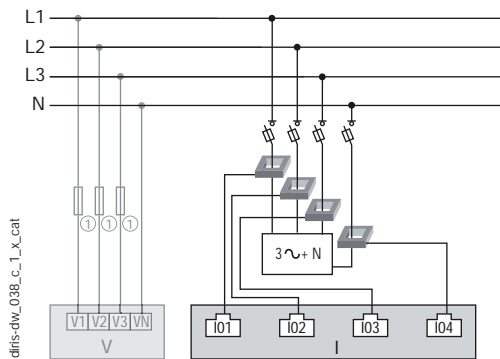
3P - 1CT (3 balanced, three-phase loads)



I4x

Three phase + neutral

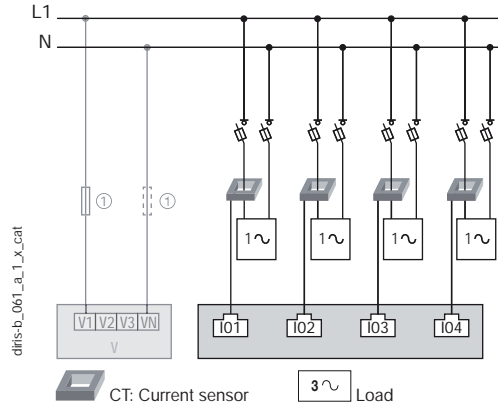
3P+N - 4CT (1 three-phase load + Neutral measured)



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

Single-phase

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



Accessories

Digiware plug-in connector

With the Digiware plug-in connector you can disconnect a Digiware module from the Bus while ensuring the DIRIS Digiware system continues to run downstream. This accessory is particularly useful in applications with retractable drawers or critical applications such as in data centres.

Specifications

Measuring characteristics

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
Accuracy of current measurement	0.2 DIRIS Digiware class only Class 0.5 with TE or TF sensors Class 1 with TR 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, pulse meter, multi-tariff
Connection	Removable screw terminal block, stranded or solid 0.14-1.5 mm ² cable

Outputs - DIRIS Digiware I-45	
Number of outputs	2
Relay type	230 VAC ±15 % - 1 A
Function	Configurable alarm (current, power, etc.) when threshold is exceeded or remote controlled status
Connection	Removable screw terminal block, stranded or solid 0.2-2.5 mm ² cable

Communication specifications

USB	
Protocol	Modbus RTU on 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-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-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-61 Metering + load curve - 6 current inputs	4829 0113

Accessories	Reference
Digiware x 5 plug-in connector	4829 0605

Digiware connection cables	Reference	
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 5 m	4829 0186
	Length 10 m	4829 0187
	Reel 50 m + 100 connectors	4829 0185
Digiware bus terminating resistor (supplied with C and D devices)	4829 0180	
USB configuration cable	4829 0050	

(1) DIRIS D-30 display characteristics see page 521.

Expert Services

Require integration onto your network?

No problem for our Expert Services team. They will fully integrate all your SOCOMEC devices, audit your system, commission selected equipment and train your staff on its use.

For further information, please contact your nearest SOCOMEC branch.