DIRIS Digiware

Power metering and monitoring system
for AC and DC electrical installations

When **energy** matters

socomec
Innovative Power Solutions

DIRIS Digiware

Power monitoring, accessible everywhere, for everyone

The DIRIS Digiware system is a hub of technological innovations that revolutionizes the world of electrical measurement, 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, and for measuring and monitoring the quality of electrical energy in industrial and commercial applications.

Flexible

- First measurement system that is 100% customizable and scalable.
- Complete Socomec solution: from the power monitoring devices to the current sensors, including the visualization and analysis software
- Compatible and interoperable ecosystem.

Accessible to all

- For the measurement of AC and DC loads.
- Use one measurement system from the main incomer to branch circuit monitoring and DC loads.
- Implementation in a quarter of the time for multi-point measurement.

Powerful & innovative

- RJ45 interconnection of modules (Digiware bus).
- Fast RJ12 current sensor connection.
- The best compactness/performance ratio of the market: Digiware S embeds the power monitoring function and 3 current sensors all in one.
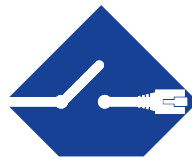
Groundbreaking technologies for greater simplicity and performance[*]

PreciSense

Be guaranteed of the accuracy of your measurements

- For the global measurement chain.
- For reliable measurements.
- For relevant corrective actions.

VirtualMonitor

Access the monitoring of your protective devices

- On your entire electrical installation.
- Remotely and in real-time.
- Without additional hardware or wiring.

AutoCorrect

Be guaranteed your measurement system is working correctly

- Automatic wiring control.
- Correction of errors.
- Feature available off-load.

* Only available with DIRIS Digiware AC.

VirtualMonitor and AutoCorrect are available with:

DIRIS A-40 and **DIRIS Digiware I**
Associated with iTR **sensors**

DIRIS Digiware S

Put together your own AC or DC metering and monitoring system

A single point of access to AC and DC measurement data for local or remote analysis

1

DIRIS Digiware D   *DIRIS Digiware M*   **WEBVIEW-M**   **N'VIEW**

Voltage acquisition modules for AC or DC measurement

2

DIRIS Digiware U   *DIRIS Digiware Udc*

Current acquisition modules for AC or DC measurement

3

DIRIS Digiware S
All-in-one with 3 integrated current sensors

DIRIS Digiware I   *DIRIS Digiware Idc*
To be associated with external AC or DC sensors

Solid-core and split-core current sensors for AC or DC measurement

4

AC sensors *TE, TR, iTR, TF*   DC sensors

Digital and analog input/output modules

5

DIRIS Digiware IO-10
4 digital inputs/2 digital outputs

DIRIS Digiware IO-20
2 analog inputs

Create your project
www.meter-selector.com

METER ▶ SELECTOR
DIGITAL TOOL AVAILABLE

DIRIS Digiware DC system
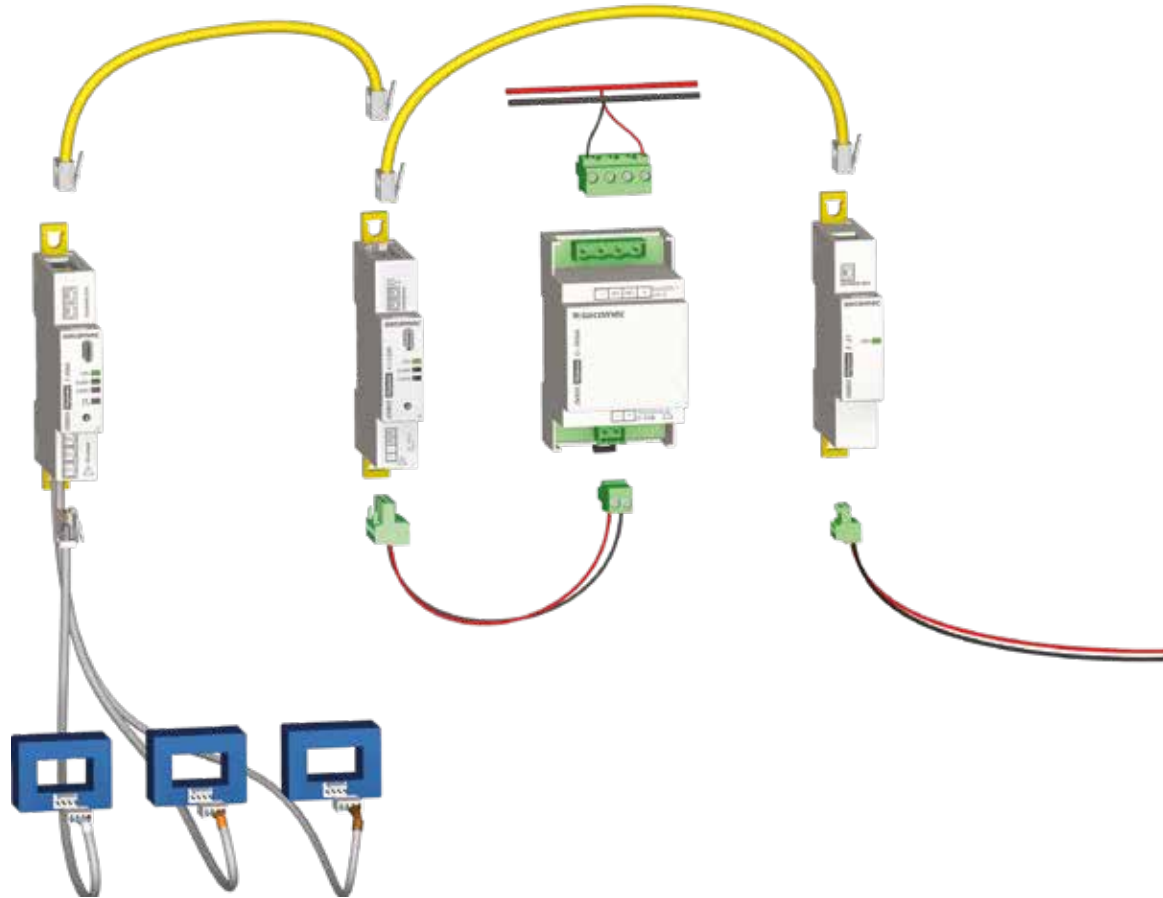
The solution for

Telecom
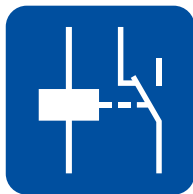
Control circuits

Renewable power

Micro grid

DIRIS Digiware AC system
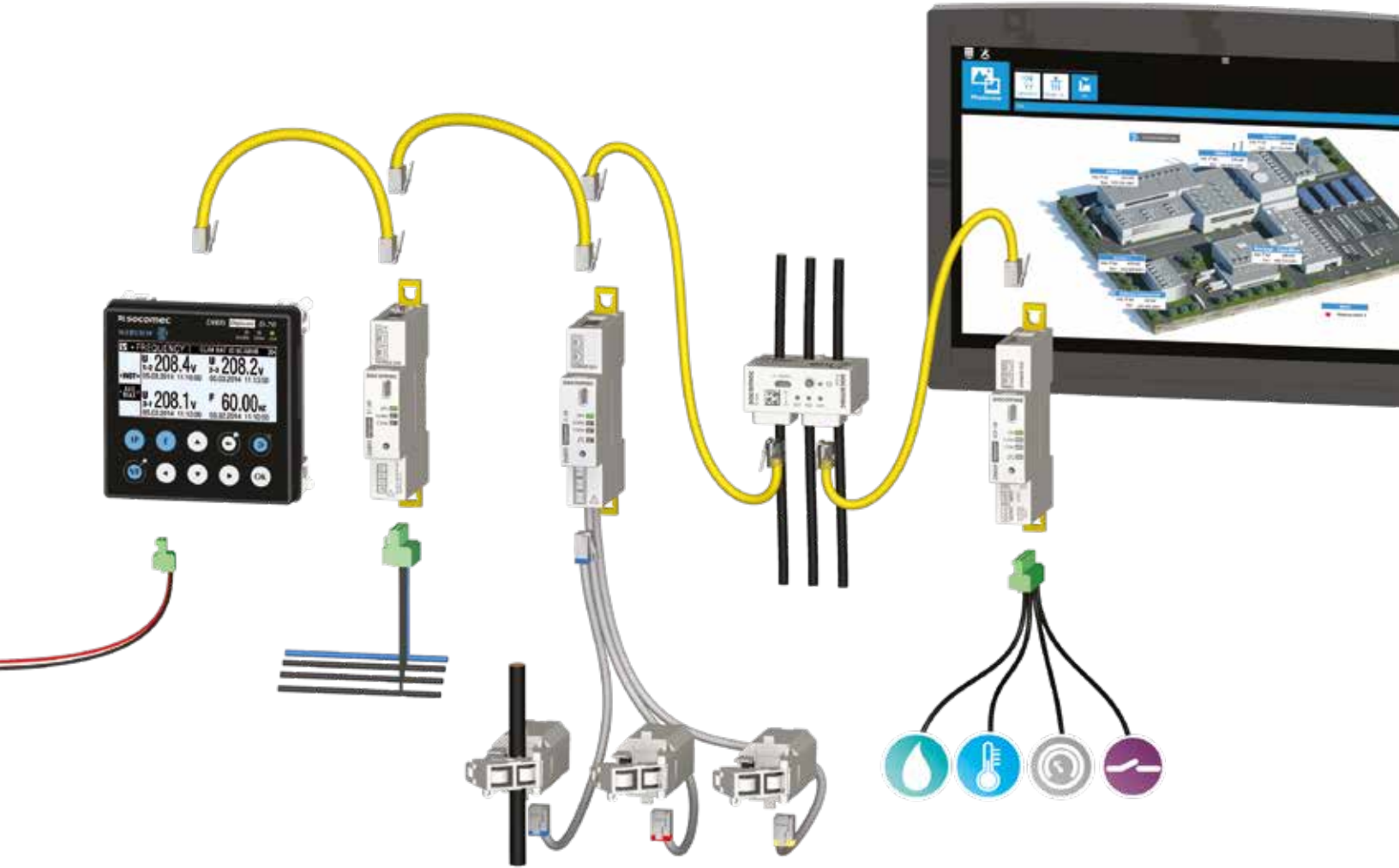
The solution for
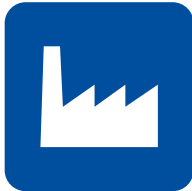
| Industry | Building | Data center | Infrastructure |

A single point of access to AC and DC measurement data

DIRIS Digiware D and M act as the point of access to measurements over RS485 or Ethernet, and using multiple communication protocols. They centralize a low voltage 24VDC power supply to the entire Digiware system.

The DIRIS Digiware M-xx acts as an Ethernet gateway for all downstream devices while the DIRIS Digiware D-xx, in addition to the gateway function acts as a system display which enables to locally visualize measurements from multiple circuits.

Connected

Compatible with most external Energy Management Software due to multiple protocols: Modbus TCP, BACnet IP, SNMP v1, v2, v3 & Traps.

Embedded software

Visualization software embedded in DIRIS Digiware M-70/D-70.

IOT ready

Automatic and secured export of data via FTPS.

Secure

Cybersecurity features to secure the web navigation and the transmission of data.

APPLI_637

|	Panel mounted display		DIN rail mounted interface and gateway		
	D-50	**D-70**	**C-31**	**M-50**	**M-70**
Inputs	Digiware / RS485	Digiware / RS485	Digiware	Digiware / RS485	Digiware / RS485
Outputs	Ethernet / RS485	Ethernet / RS485	RS485	Ethernet / RS485	Ethernet / RS485
Protocols	Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU
	Modbus TCP	Modbus TCP		Modbus TCP	Modbus TCP
	BACnet IP	BACnet IP		BACnet IP	BACnet IP
	SNMP v1, v2, v3	SNMP v1, v2, v3		SNMP v1, v2, v3	SNMP v1, v2, v3
Data export	•	•		•	•
Webserver	WEB-CONFIG	WEBVIEW-M		WEB-CONFIG	WEBVIEW-M

AC or DC voltage acquisition modules

DIRIS Digiware U

The DIRIS Digiware U and Udc modules measure the voltage reference for the entire DIRIS Digiware AC and DC system. The RJ45 Digiware bus transmits the voltage measurement as well as power supply to all products connected to the Digiware bus.

Flexible

A complete, dedicated offer for metering, monitoring and quality analysis of the voltage supplied to AC or DC electrical installations.

Safe

No hazardous voltage on panel doors.

Applications	AC voltage measurement			DC voltage measurement	
	Metering	Monitoring	Analysis	Analysis	Analysis
DIRIS Digiware U	U-10	U-20	U-30	U-31dc	U-32dc
Measuring range (min-max)	50-300 VAC Ph/N			19.2 VDC - 60 VDC	48 VDC - 180 VDC
Multi-measurement AC					
U12, U23, U31, V1, V2, V3, f	•	•	•		
U system, V system			•		
Ph/N & Ph/Ph unbalance			•		
AC quality					
THD U, THD V		•	•		
Individual harmonics U/V			•		
Voltage dips, cut-offs and swells (EN50160)			•		
Multi-measurement and DC quality					
DC voltage (VDC)				•	•
Ripple voltage (V ripple)				•	•
Vrms				•	•
Alarms (threshold)			•	•	•
History of average values			•	•	•
Format/Number of modules	0.70 in/1	0.70 in/1	0.70 in/1	0.70 in/1	0.70 in/1

U500dc, U1000dc and U1500dc adaptors
To be combined with a DIRIS Digiware Udc module

The DC voltage adaptors are optionally used in addition to Udc voltage acquisition modules enabling the measurement of higher voltages up to 1500 VDC.
These adaptors make the DIRIS Digiware DC system suitable anywhere along the low voltage DC electrical distribution, regardless of the voltage level.

All-in-one current acquisition modules

DIRIS Digiware S

DIRIS Digiware S is a Power Metering and Monitoring Device with 3 integrated current sensors enabling the measurement of one three-phase or three single-phase circuits up to 63 A.
Opt for the DIRIS Digiware system, combining Digiware I modules with external sensors for the monitoring of heavy loads including the incomers, and Digiware S modules for outgoing final circuits powering smaller loads. Due to Digiware, you have access in record time to high-end monitoring of your entire new or existing electrical panel.

AutoCorrect

VirtualMonitor

DIRIS-DW_127.PSD

APPL_811.EPS

Compact

DIRIS Digiware S is the combination of a DIRIS Digiware I module and 3 current sensors associated with 3 RJ12 cables. Matching the pitch of protective devices, Digiware S modules solve issues of space constraints inside electrical panels.

Intelligent

DIRIS Digiware S can be mounted upstream or downstream of the protective device. The VirtualMonitor technology allows an advanced monitoring of the protective device (position, trip etc.) without using auxiliary contacts. The phase sequencing detection and configuration are automatic Due to the AutoCorrect technology.

DIRIS Digiware S	S-130	S-135	S-Datacenter
Number of current inputs	3	3	3
Application	Metering	Analysis	Single-phase monitoring
Metering			
+/-kWh, +/-kvarh, kvah	•	•	•
Multi-tariff (max. 8)		•	
Load curves		•	•
Maximum demand		•	•
Multi-measurement			
I1, I2, I3, In, ∑P, ∑Q, ∑S, ∑PF	•	•	•
P, Q, S by phase		•	•
Predictive power		•	
Current unbalance		•	
Phi, cosPhi, tanPhi		•	•
Quality			
THD I		•	•
Individual harmonics I		•	•
Overcurrents		•	
Alarms (threshold)		•	•
History of average values		•	•

AC or DC current acquisition modules

DIRIS Digiware I

The DIRIS Digiware I and Idc modules are associated with external current sensors for metering, monitoring and analyzing the quality of AC and DC loads.
The RJ45 connection allow you to quickly add up to 32 DIRIS Digiware I or Idc modules, therefore enabling the monitoring of a large number of loads.
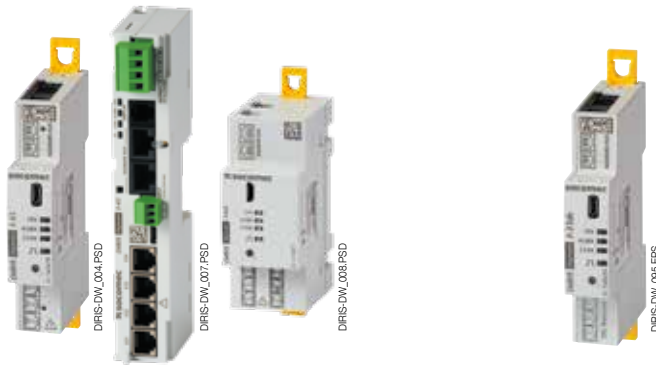
DIRIS Digiware I

DIRIS Digiware Idc

Plug & Play

- RJ45 interconnection of modules (Digiware bus).
- Fast RJ12 connection of current sensors.
- Automatic configuration of connected current sensors load type, sensor type and rating, verification of current flow direction.

Efficient

- A complete range dedicated to the metering, monitoring and analysis of the quality of AC or DC loads.
- Available in versions with 3, 4 or 6 outgoing circuits.

Removable connector

The removable Digiware connector allows you to disconnect a Digiware module from the bus, while ensuring the continued operation of the rest of the DIRIS Digiware system.
The accessory is very useful in applications using pullout drawers or critical applications such as data centers.

	I-30	I-31	I-33	I-35	I-43	I-45	I-60	I-61	I-30dc	I-35dc
	Current measurement (AC)								Current measurement (DC)	
Application	Metering		Monitoring	Analysis	Monitoring	Analysis	Metering		Metering	Analysis
Number of current inputs	3	3	3	3	4	4	6	6	3	3
Metering										
+/- kWh, +/- kVarh, kVAh	•	•	•	•	•	•	•	•	• (+/-) kWh	• (+/-) kWh
Multi-tariff (max. 8)		•		•		•		•		•
Load curves		•		•		•		•		•
Maximum demand				•		•				•
Multi-measurement AC										
I1, I2, I3, In, ∑P, ∑Q, ∑S, ∑FP	•	•	•	•	•	•	•	•		
P, Q, S, FP per phase			•	•	•	•				
Predictive power				•		•				
Current unbalance				•		•				
Phi, cos Phi, tan Phi				•						
AC quality										
THDI			•	•	•	•				
Individual harmonics I				•		•				
Overcurrents				•		•				
Multi-measurement DC										
DC current and power (I DC, P DC)									•	•
DC predictive power										•
DC quality										
Ripple current (I ripple)										•
I RMS										•
Alarms on thresholds				•		•				•
Inputs/outputs					2/2	2/2				
History of average values				•		•				•
Format/ number of modules	0.70 in/1	0.70 in/1	0.70 in/1	0.70 in/1	1.06 in/1	1.06 in/1	1.42 in/1	1.42 in/1	0.70 in/1	0.70 in/1
Accessories										
Digiware removable connector (x5)	Allows you to disconnect a Digiware module form the bus while ensuring the system continues to run downstream									

AC or DC current sensors

Smart sensors

- Sensors with an extended operational range.
- Automatic rating configuration.
- Safe disconnection of the current sensor under load.
- Fast connection via RJ12 and identification of cables by color-coding.

Compact

- The most compact in the market.
- Linear assembly.
- Staggered assembly.
- Match the pitch of protective devices.

PreciSense

Guaranteed accuracy in accordance with the IEC 61557-12 standard: class 0.5 for the global measurement chain, from 2 to 120% of In.

TE solid-core sensors	Rated currents (A)												Real range covered (A)	Pitch (in)	Ø (in)	Dimensions (in)
	5	20	25	40	63	160	250	400	600	630	1000	2000				
TE-90													12 … 2400	3.54	2.52	4.96 x 3.54 x 0.97
TE-55													8 … 1200	2.16	1.61	3.93 x 2.16 x 1.28
TE-45													3.2 … 756	1.77	1.22	3.38 x 1.77 x 1.28
TE-35													1.26 … 300	1.37	0.82	2.79 x 1.37 x 1.28
TE-25													0.8 … 192	0.98	0.53	2.56 x 0.98 x 1.28
TE-18													0.5 … 75	0.7	0.33	1.77 x 1.10 x 0.79
TE-18													0.1 … 24	0.7	0.33	1.77 x 1.10 x 0.79

TR / iTR split-core sensors	Rated currents (A)						Real range covered (A)	Ø (in)	Dimensions (in)
	25	40	63	160	250	600			
TR/iTR-32							3.2 … 720	1.26	2.08 x 3.38 x 1.85
TR/iTR-21							1.26 … 300	0.83	1.46 x 2.60 x 1.69
TR/iTR-14							0.8 ... 192	0.55	1.14 x 2.63 x 1.10
TR/iTR-10							0.5 … 75	0.39	1.02 x 1.73 x 1.10

TF flexible sensors	Rated currents (A)							Real range covered (A)	Ø (in)
	150	400	600	1600	2000	4000	6000		
TF-600								32 … 7200	23,62
TF-300								32 … 7200	11.81
TF-200								12 … 4800	7,87
TF-120								8 … 2400	4.72
TF-80								3 … 720	3,15
TF-55								3 … 720	2.17

DC current sensors

DC current sensors measure the load currents of a DC electrical installation and transmit the information to DIRIS Digiware Idc modules via a quick RJ12 connection with color-coded cables for an easy identification of circuits.
The range comprises solid-core and split-core sensors, from 50 to 5000 A in various sizes, suitable for new or retrofit applications.

- Easy connection to prevent wiring errors.
- Up to 3 sensors on each DIRIS Digiware Idc measurement module.

Input/output modules

DIRIS Digiware IO

The DIRIS Digiware IO input/output modules enrich the measurement system with multiple features.

The IO-10 modules have 4 digital inputs and 2 digital outputs, which can be used:
• to monitor the position of protective devices (ON/OFF/TRIP),
• to collect pulses from multi-fluid meters (water, gas, etc.),
• to automatically trigger the status change of an output when the measurements of another Digiware module exceed alarm thresholds.

The IO-20 modules have 2 analog inputs allowing:
• to collect data from analog sensors, e.g. pressure, humidity, temperature, levels (fuel, etc.),
• to collect measurements from devices with analog outputs,
• to monitor levels by setting up alarms on chosen thresholds.

DIRIS Digiware IO-10

DIRIS Digiware IO-20
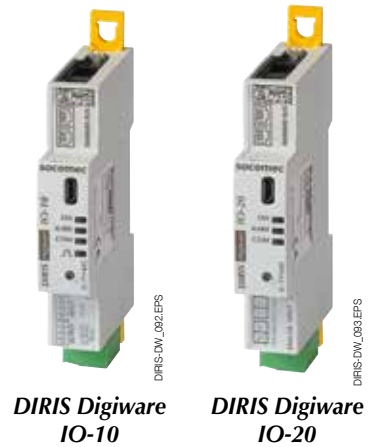
Applications	Monitoring	Metering
DIRIS Digiware IO	**IO-10**	**IO-20**
Number of digital inputs/outputs	4/2	-
Number of analog inputs	-	2
Multi-tariff (max. 8)	•	
Alarms (threshold)	•	•
Alarms (change of status)	•	
History of average values		•
Format/number of modules	0.70 in/1	0.70 in/1

Load shedding

IO-10 modules can automatically send a command to relays when an alarm is activated on any module on the Digiware bus. For example, this enables an automatic load shedding if an alarm is configured on a Digiware I module for an excessive power consumption.

Multi-fluid

Collect pulses from multi-utility meters on IO-10 modules and visualize consumption on the local D-xx display or remotely on WEBVIEW.

Connected

All data collected by IO-10 and IO-20 modules can be visualized on D-xx displays or WEBVIEW.

WEBVIEW energy server solution embedded in the communication gateways

SOCOMEC's displays and communication gateways centralize the measurement data from both DIRIS Digiware AC and DC systems. They embed the WEBVIEW software solution for visualization and analysis of real time and historical measurements from a large number of connected devices.

Embedded EMS

No installation required: WEBVIEW-M is embedded in DIRIS Digiware M-70 and D-70. WEBVIEW-L is integrated to DATALOG H80 dataloggers.

Photoview functionality

Display of electrical parameters from multiple devices on a customized background picture such as an electrical diagram or a site drawing.

Secure

Cybersecurity features implemented to secure the exchange of data and navigation on the webserver.

Monitoring and alarms

- Measurement in real-time of electrical values.
- Power quality analysis of the grid and loads.
- Alarms whenever thresholds are exceeded.
- Overview of active and finished alarms and events.
- Email notifications in case of alarms.

Viewing

- Graphical visualization of real-time and historical values.
- User-customizable overview of the electrical installation.
- Cartography of the metering system.

Storage

- High storage capacity of consumption and measurement logs.

Analysis

- Analysis of energy consumption.
- Breakdown by location, usage and by utility type.
- Secured automatic export of data in CSV format.
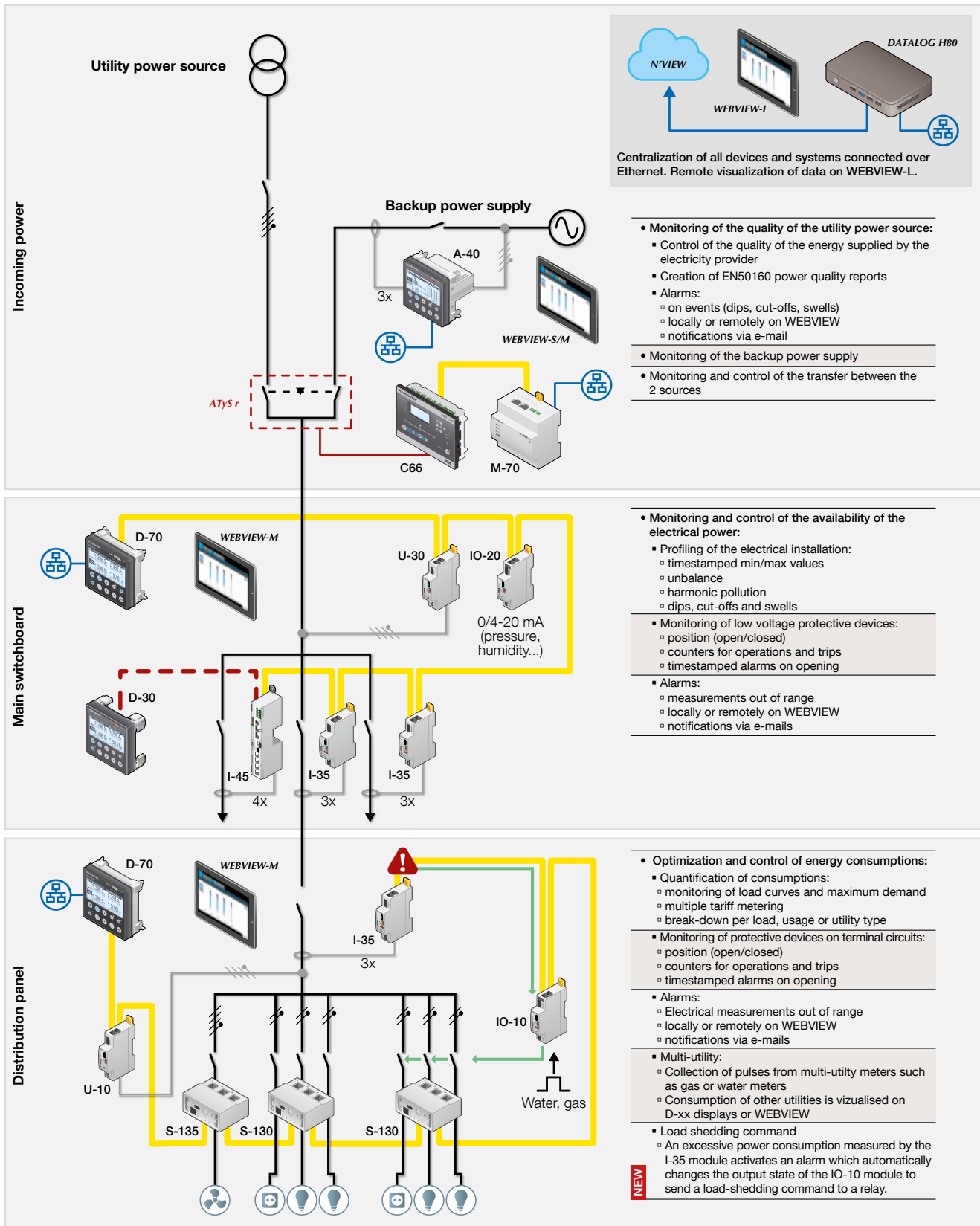
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WEBVIEW-L solution

WEBVIEW-L is available as an integrated software solution with the DATALOG H:
- Connection of up to 200 devices.
- Retrieval of data from third-party applications and equipment.
- Display of measurements from multiple devices on a single graph.
- Data export through 3G connection.

datal_018_a

Example of *DIRIS Digiware* system architecture

DATALOG H80

N'VIEW

WEBVIEW-L

Centralization of all devices and systems connected over Ethernet. Remote visualization of data on WEBVIEW-L.

Incoming power

Utility power source

Backup power supply

A-40

3x

WEBVIEW-S/M

ATyS r

C66

M-70

- Monitoring of the quality of the utilty power source:
  - Control of the quality of the energy supplied by the electricity provider
  - Creation of EN50160 power quality reports
  - Alarms:
    - on events (dips, cut-offs, swells)
    - locally or remotely on WEBVIEW
    - notifications via e-mail
- Monitoring of the backup power supply
- Monitoring and control of the transfer between the 2 sources

Main switchboard

D-70

WEBVIEW-M

U-30   IO-20

D-30

0/4-20 mA (pressure, humidity...)

I-45   I-35   I-35
4x   3x   3x

- Monitoring and control of the availability of the electrical power:
  - Profiling of the electrical installation:
    - timestamped min/max values
    - unbalance
    - harmonic pollution
    - dips, cut-offs and swells
  - Monitoring of low voltage protective devices:
    - position (open/closed)
    - counters for operations and trips
    - timestamped alarms on opening
  - Alarms:
    - measurements out of range
    - locally or remotely on WEBVIEW
    - notifications via e-mails

Distribution panel

D-70

WEBVIEW-M

I-35
3x

IO-10

U-10

S-135   S-130   S-130

Water, gas

- Optimization and control of energy consumptions:
  - Quantification of consumptions:
    - monitoring of load curves and maximum demand
    - multiple tariff metering
    - break-down per load, usage or utility type
  - Monitoring of protective devices on terminal circuits:
    - position (open/closed)
    - counters for operations and trips
    - timestamped alarms on opening
  - Alarms:
    - Electrical measurements out of range
    - locally or remotely on WEBVIEW
    - notifications via e-mails
  - Multi-utility:
    - Collection of pulses from multi-utilty meters such as gas or water meters
    - Consumption of other utilities is vizualised on D-xx displays or WEBVIEW
  - Load shedding command
    - An excessive power consumption measured by the I-35 module activates an alarm which automatically changes the output state of the IO-10 module to send a load-shedding command to a relay.

NEW

Legend:

Heat pump   Receptacles   Lighting

Socomec: our innovations supporting your energy performance

1 independent manufacturer

3,600 employees worldwide

10 % of sales revenue dedicated to R&D

400 experts dedicated to service provision

Your power management expert

POWER SWITCHING

POWER MONITORING

POWER CONVERSION

ENERGY STORAGE

EXPERT SERVICES

The specialist for critical applications

- Control, command of LV facilities
- Safety of persons and assets

- Measurement of electrical parameters
- Energy management

- Energy quality
- Energy availability
- Energy storage

- Prevention and repairs
- Measurement and analysis
- Optimization
- Consultancy, commissioning and training

A worldwide presence

12 production sites
- France (x3)
- Italy (x2)
- Tunisia
- India
- China (x2)
- USA (x3)

28 subsidiaries and commercial locations
- Algeria • Australia • Belgium • China • Canada
- Dubai (United Arab Emirates) • France • Germany
- India • Indonesia • Italy • Ivory Coast • Netherlands
- Poland • Portugal • Romania • Serbia • Singapore
- Slovenia • South Africa • Spain • Switzerland
- Thailand • Tunisia • Turkey • UK • USA

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SOCOMEC, Inc.
9 Galen Street, Suite 120
Watertown, MA 02472
Tel. 617 245 0447
Fax 617 245 0437
info.us@socomec.com

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