BROCHURE

DIRIS A & DIRIS B

Power Metering and Monitoring Devices

When **energy** matters

socomec
Innovative Power Solutions

❶ Energy management codes and best practice

The latest energy codes and standards such as IECC and ASHRAE 90.1 require new building designs to include sub-metering for the main building consumption and the different load categories (HVAC, indoor and outdoor Lighting, plug loads).

A power meter installed on a building's main switchboard feed provides a baseline for daily, weekly, monthly and yearly energy consumption whilst also identifying drifts and inefficiencies. Power meters with full Time of Use (ToU) management can even help verify utility bills and avoid peak demand charges.

With the rise of EV chargers in commercial and industrial building's parking lots, a power meter with measurement history is key to assess if the distribution can accommodate additional electrical load.

The new 2023 IECC revision introduces a new load category for process loads, heightening the significance of sub-metering in buildings with manufacturing equipment.

❷ Beyond energy management thanks to advanced power meters

Beyond energy management codes and best practice, industrial plants and data centers with critical loads must embrace a preventive maintenance approach in order to avoid costly breakdowns and downtime.

Advanced power monitoring in switchgears, switchboards, or MCCs enables facilities managers to monitor their electrical installation and detect anomalies before they lead to premature equipment ageing and failure.

Timestamped waveform captures in case of events help identify the root cause of disturbances and serve as valuable evidence for claiming compensation from the utilities, where appropriate.

It's even possible to create measurement alarms with user-predetermined thresholds:

- Phase unbalance and phase loss to avoid premature ageing of electric motors and loss of efficiency
- Harmonics to prevent increased stress and wear leading to equipment overheating
- Power factor to identify periods and areas of low PF and anticipate penalties from the utility

❸ Immediate awareness of abnormal conditions is crucial for prompt remedial action

Power meters with visual indicators on electrical panel doors will alert nearby personnel to potential issues.

Any unusual situations detected by the power meter through the activation of measurement alarms should serve as a means to notify on-site operators.

With digital NO/NC outputs, power meters can translate any alarm to activate additional signal indicator lights, sound audible alarms or send signals to PLCs for additional actions and visibility.

Advanced power meters with Ethernet connection can send email notifications to remote maintenance teams.

INDUSTRIAL PLANTS

- Low voltage switchgear and switchboards
- Motor Control Centers
- Retrofit for a dedicated load (manufacturing line etc.)

PV / RENEWABLES

- PV string inverters
- PV combiner switchgear

DATA CENTERS

- Low voltage switchgear and switchboards
- Power Distribution Units (PDU)
- Remote Power Panels (RPP)

C&I BUILDINGS

- Low voltage switchgear and switchboards

The new Power Quality Meter,

designed specifically for universal and intuitive integration

DIRIS A-100/A-200

690 VAC

Introducing the DIRIS A-100/A-200, Socomec's latest breakthrough in Power Quality Monitoring. Proudly engineered, developed, and built in the USA, this UL 600V Power Quality Meter has been designed to reconcile performance and simplicity. Compatible with our RJ12 smart current sensors for unmatched accuracy and ease of commissioning, the DIRIS A-100/A-200 also support third-party 333 mV CTs.
With a focus on universality, the DIRIS A-100/A-200 simplifies the entire process from ordering to wiring, setup, and EMS integration.

- **Better than revenue grade**
- **Easy data management**
- **Universal**
- **Plug & Play**
- **Fully customizable**
- **Robust North American design**
- **Advanced features**

Universal

- Native RS485 and dual Ethernet - universal communication protocols.
- Universal Sunspec compliant Modbus registers.
- Native digital inputs/outputs.
- Universal power supply 115 - 600 VAC.
- Wide range voltage service monitoring 90 - 690 VAC direct without using potential transformers.
- Compatible with both Socomec RJ12 sensors and third party 333mv CTs.
- Multi-load management, monitoring up to 4 balanced loads.

Plug & play

- Unique RJ12 technology provides a quick and reliable connection of current sensors to the power meter.
- Fast and simple setup thanks to the screen's Configuration Wizard.
- Easy Config System is a free configuration software that allows you to create and save configuration templates which can later be uploading to multiple power meters.
- Smart monitoring of protective devices with VirtualMonitor technology – without the need for auxiliary contacts or extra wiring.

Advanced features

- Waveform capture automatically triggered by power quality events to rapidly identify disturbances.
- Time of Use calendar configuration (up to 4 seasons and 4 tariffs) to align consumptions with any local utility contract.
- Ground leakage current monitoring, with alarm thresholds for preventative maintenance with quick remedial action.

Fully customizable

- Upload your own brand logo to customize the screen and embedded webserver.
- Creation of favorite screens to display the measurement datasets that matter most to you.

Remote monitoring of your electrical installation

WEBVIEW-S - Web based software embedded in ***DIRIS A-40*** and ***DIRIS A-200***

1 Real time visualization

Monitor status and operating conditions of your installation or equipment in real time.

2 Trends - historical measurements

Graphical display of Power Demand and historical measurements to spot abnormal hourly, daily, weekly or monthly consumption patterns.

3 Time of Use*

Analyze energy consumption according to your local utility contract's daily rates, weekdays, seasons and holiday schedules, through to a full calendar management.

4 Photoview*

Customize your software experience by viewing real-time measurements on the background picture of your choice.

5 Alarms & Events

Overview of active alarms and log of finished alarms with additional details on cause, duration, amplitude of event.

6 Waveform Capture*

Visualize, analyze and download waveform captures following power quality events.

(*) Photoview, Time of Use and Waveform features only available with DIRIS A-200.

Have your own Cloud platform to view and analyze measurement data ?

Our DIRIS A-200 power meter benefits from universal IoT connectivity to automatically export measurement data:

- FTP(S) data export in CSV format, with custom layout for more flexibility and ease of integration without reworking the exported data file.
- MQTT communication natively compatible with Azure and AWS cloud platforms.

Selection guide

A comprehensive range of power meters to match your specifications

							
	DIRIS B-10 RS485	**DIRIS B-30** RS485	**DIRIS A-40** RS485	**DIRIS A-40** RS485 + Profibus	**DIRIS A-40** RS485 + Ethernet	**DIRIS A-100** RS485	**DIRIS A-200** RS485 + Ethernet
	SMART RJ12 SENSORS					**SMART RJ12 SENSORS + 333 mV CURRENT TRANSFORMERS**	
General characteristics							
Mounting	DIN rail	DIN rail	Panel Mount 96 x 96 mm	Panel Mount 96 x 96 mm	Panel Mount 96 x 96 mm	Panel Mount 96 x 96 mm	Panel Mount 96 x 96 mm
Optional remote display	•	•	-	-	-	-	-
Number of current sensor inputs	4	4	3	3	3	4	4
Available Enclosed	-	•	-	-	•	-	•
Optional modules	•	•	-	-	-	-	-
Electrical characteristics							
Power supply	110 - 240 VAC	110 - 240 VAC	110 - 277 VAC	110 - 277 VAC	110 - 277 VAC	115 - 600 VAC	115 - 600 VAC
Voltage measurement	50 - 300 VAC L-N 87 - 520 VAC L-L	50 - 300 VAC L-N 87 - 520 VAC L-L	50 - 300 VAC L-N 87 - 520 VAC L-L	50 - 300 VAC L-N 87 - 520 VAC L-L	50 - 300 VAC L-N 87 - 520 VAC L-L	50 - 600 VAC L-N 90 - 690 VAC L-L	50 - 600 VAC L-N 90 - 690 VAC L-L
Communication							
Ethernet (Modbus TCP/BACnet IP)	o / o	o / o	- / -	- / -	• / •	- / -	Dual Ethernet • / •
RS485 (Modbus RTU)	•	•	•	•	•	•	•
Profibus DPV1	-	-	-	•	-	-	-
Embedded webserver	-	-	-	-	•	-	•
Digital Input/Output	2 / o		3 / 2	3 / 2	3 / 2	3 / 2	3 / 2
Analog Input/Output	o / o		- / -	- / -	- / -	- / -	- / -
Manage energy consumptions							
Energies (+/- kWh, +/- kvarh, +/- kVAh), powers (+/- kW, +/- kvar, kVA)	•	•	•	•	•	•	•
Demand profiles	-	-	-	-	•	-	•
Peak Demand	•	•	•	•	•	• (with automatic scheduled reset)	• (with automatic scheduled reset)
Multi-tariff	8	8	8	8	8	4 (with ToU*)	4 (with ToU*)
Monitor the electrical installation							
Multi-measurement (V, U, I, f, P, Q, S, PF)	•	•	•	•	•	•	•
Instantaneous, average, min and max values	•	•	•	•	•	•	•
Neutral current (measured/calculated)	• / •	• / •	- / •	- / •	- / •	• / •	• / •
Ground leakage monitoring	-	-	-	-	-	-	•
Fast RMS measurement sampling	•	•	•	•	•	•	•
Ensure the power quality							
Harmonic analysis (THD/individual)	• / -	• / •	• / •	• / •	• / •	• / -	• / •
Unbalance	•	•	•	•	•	•	•
Power Quality Event (Sag, Swell, Interruption)	-	•	•	•	•	-	•
Waveform capture	-	-	-	-	-	-	•
Manage the loads							
Operating hours	•	•	•	•	•	•	•
Protective device satus (Position & Trip)	•	•	•	•	•	•	•
Number of operations	•	•	•	•	•	•	•

o = Accessible using additional optional modules.
**ToU = Time of Use*

High-performance RJ12 smart sensors

Smart sensors

- Fast connection with color-coded RJ12 cables for easy phase identification.
- Automatic detection of current sensor type and rating.
- Low-voltage mV current sensors - can be disconnected under load without using shorting blocks.

Compact

- Unmatched compactness.
- Linear assembly.
- Staggered assembly.
- Match the pitch of protective devices.

PreciSense

Unique class 0.5 system accuracy (Power meter + TE/iTR/TF current sensors), from 2% - 120% of rated current.

TE solid-core sensors	Rated currents (A) 5	20	25	40	63	160	250	400	600	630	1000	2000	Real range covered (A)	Pitch (in/mm)	Window (in/mm)
TE-90									◄	►	►	►	12 … 2400	3.54 / 90	2.5 2x 2.52 / 64 x 64
TE-55								◄	►	►	►		8 … 1200	2.16 / 55	1.61 x 1.61 / 41 x 41
TE-45						◄	►	►	►	►			3.2 … 756	1.77 / 45	1.22 x 1.22 / 31 x 31
TE-35					◄	►	►						1.26 … 300	1.37 / 35	0.82 x 0.82 / 21 x 21
TE-25				◄	►	►							0.8 … 192	0.98 / 25	0.53 x 0.53 / 13.5 x 13.5
TE-18			◄	►	►								0.5 … 75	0.7 / 18	Ø 0.33 / 8.6
TE-18	◄	►											0.1 … 24	0.7 / 18	Ø 0.33 / 8.6

TR / iTR split-core sensors	Rated currents (A) 25	40	63	160	250	600	Real range covered (A)	Window (in/mm)
TR/iTR-32				◄	►	►	3.2 … 720	Ø 1.26 / 32
TR/iTR-21			◄	►	►		1.26 … 300	Ø 0.83 / 21
TR/iTR-14		◄	►	►			0.8 ... 192	Ø 0.55 / 14
TR/iTR-10	◄	►	►				0.5 … 75	Ø 0.39 / 10

TF flexible sensors	Rated currents (A) 100	150	400	600	1600	2000	4000	6000	Real range covered (A)	Window (in/mm)
TF-600					◄	►	►	►	32 … 7200	Ø 23.62 / 600
TF-300					◄	►	►	►	32 … 7200	Ø 11.81 / 300
TF-200				◄	►	►	►		12 … 4800	Ø 7.87 / 200
TF-120			◄	►	►	►			8 … 2400	Ø 4.72 / 120
TF-80		◄	►	►					3 … 720	Ø 3.15 / 80
TF-40	◄	►	►						2 … 480	Ø 1.57 / 40

Accu-CT® sensors

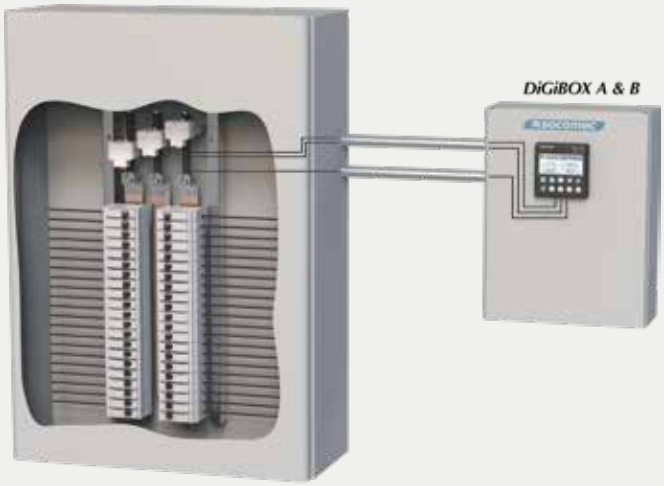
The DIRIS A-100/A-200 power meters are also compatible with 333mV current transformers, such as our Accu-CT® split-core CTs. Available in two window opening sizes, they offer a wide measurement range from 20 to 600 A. The Accu-CT® split core series are cULus 2808 listed, certified by Underwriters Laboratory (UL).

ACTL-0750

ACTL-1250

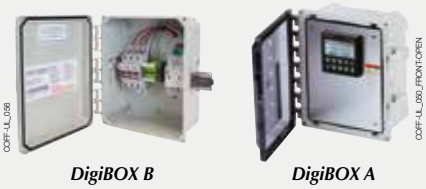
Enclosed power meters for retrofit applications

DIRIS DigiBOX



Single-point solution

Socomec DIRIS DigiBOX is an enclosed, factory pre-wired submetering solution addressing a wide range of metering applications.
The single-point DIRIS DigiBOX A & B allow the monitoring of a main feed or one dedicated circuit.



DigiBOX B *DigiBOX A*

To find out more, go to
www.socomec.us/en-us/c/enclosed-power-metering-monitoring-solutions

Notes

Socomec: our innovations supporting your energy performance

1 independent manufacturer

3,900 employees worldwide

8 % 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
- Optimisation
- Consultancy, commissioning and training

A worldwide presence

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

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

80 **countries**
where our brand is distributed

SOCOMEC, Inc.

YOUR DISTRIBUTOR / PARTNER

100 years OF SHARED ENERGY

socomec Innovative Power Solutions

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