



SELECTED PRODUCTS 2026

Chauvin Arnoux Energy

Chauvin Arnoux Energy, a company in the Chauvin Arnoux Group, is specialized in fixed equipment for measuring and supervising electrical networks to meet the needs of cutting-edge industries for intensive use in severe environments.



**ELECTRICAL
POWER
GENERATION**



**ELECTRICAL POWER
TRANSMISSION
AND DISTRIBUTION**



RAIL



NAVAL



**INDUSTRY AND TERTIARY
BUILDINGS**

A FRENCH BRAND WITH INTEGRATED PRODUCTION

Chauvin Arnoux Energy, a French company in the Chauvin Arnoux Group, handles all aspects of product manufacturing; from design through to final testing of the equipment. Our teams guarantee the quality and reliability of all the instruments we supply, as well as support lasting decades.

A LONG-TERM OFFERING

Our thorough mastery of our industrial know-how in our factories in France and our ability to keep abreast of the changes in the markets (materials used in our equipment) enable us to guarantee constant quality and long-term availability for our products.

POWER MONITORS



Industry



Energy
generation



Energy transmission
& distribution

FOR MONITORING LV, MV AND HV ELECTRICAL NETWORKS

MEMO range

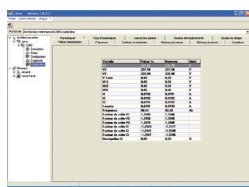
- Easy-to-read, all-in-one screen
- Easy to set up and operate
- Managed inventory covering your main requirements

ENERIUM range

- Accuracy suitable for the most critical MV/LV measurements
- The operating history and diagnostic tools to understand your electrical feeder
- Unique on the market, up to 8 totally-integrated inputs/outputs (on-off or analog)
- Qualimetry at the heart of a power monitor

		MEMO			ENERIUM		
		FLUSH-MOUNTING 96X96			FLUSH-MOUNTING 144X144		
							
		MEMO P200	Enerium 50	Enerium 150	Enerium 100	Enerium 200	Enerium 300
Functional specifications	Accuracy class (as per IEC 61557-12)	0.5	0.5	0.5	0.5	0.5 or 0.2	0.2
	Version without display				Enerium 110	Enerium 210	Enerium 310
Recording functions	8 load curves		■	■		■	■
	4 trend curves			■	■	■	■
Alarms	Number of alarms		16	16	16	16	16
	Time/date-stamped events recorded		64	64	64	64	64
Power quality	THD / PF / Tan φ	■	■	■	■	■	■
	Max. harmonic orders		25	50	25	50	50
	Qualimetry as per EN50160						■
	Capture of V, U, I & In waveforms						16
	Storage of the last 1,024 time/date-stamped events (dips, outages, overvoltages)						■
Inputs / Outputs	Max. number of inputs / outputs	1	2	2	8	8	8
Inputs (option)	On-off (pulse or alarm mode)		0, 1 or 2	0, 1 or 2	0, 2, 4, 6 or 8	0, 2, 4, 6 or 8	0, 2, 4, 6 or 8
	Analog						
Outputs (option)	On-off (pulse or alarm mode)	1 (pulse))	0, 1 or 2	0, 1 or 2	0, 2, 4, 6 or 8	0, 2, 4, 6 or 8	0, 2, 4, 6 or 8
	Analog		0 or 2	0 or 2	0, 2 or 4	0, 2 or 4	0, 2 or 4
Graphics	Fresnel			■	■	■	■
	Gauges			■			
	Harmonic-order histograms			■		■	■
Communication interface	Optical USB		Front	Front	Front or rear	Front or rear	Front or rear
	Ethernet or RS485	RS485 only	■	■	■	■	■
	Metrological LED				■	■	■
Programming	Front panel	■	■	■	■	■	■
	Software		■	■	■	■	■

RELATED SOFTWARE



E.VIEW

Configuration, diagnostic, installation and display software dedicated to the ENERIUM range of power monitors.



For your IEC 61850 networks, don't forget to use ENERIUM with the ELINK communication gateway:

- It modernizes the protocol of your measuring equipment without calling into question your choice of power monitors
- Up to 10 power monitors
- DNV.GL-certified



LV ENERGY METERS



Tertiary



Industry

FOR SIMPLE METERING FUNCTIONS

		MEMO MD32	MEMO MD65	MEMO TD80
		Single-phase		Three-phase
Strengths		1 module	2 modules	4 modules
Rating		32 A	65 A	80 A
Installation mounting	DIN-rail	1 module	2 modules	4 modules
	Connection	direct	direct	direct
Energy metering & management	Energy / Display	kWh	kWh total and partial	kWh total and partial
Output(s)	Pulse(s)	1	1	1
Accuracy class		IEC Class 1	IEC Class 1	IEC Class 1
To order		P01330740	P01330741	P01330745



MEMO MD32

- Direct connection up to 32 A
- Single-phase
- Class 1 as per IEC 62053-21



MEMO MD65

- Direct connection up to 65 A
- Single-phase
- Class 1 as per IEC 62053-21



MEMO TD80

- Direct connection up to 80 A
- Three-phase
- Class 1 as per IEC 62053-21

FOR ADVANCED METERING FUNCTIONS



ULYS MD45-M ULYS MD45-M MODBUS

- Direct connection up to 45 A
- Single-phase
- MID Class B
- Integrated RS485 Modbus communication (ULYS MD45-M Modbus model)



ULYS TDA80-M

- Direct connection up to 80 A
- Three-phase
- MID Class B



ULYS TD80-M

- Direct connection up to 80 A
- Three-phase
- MID Class B
- Integrated communication depending on model: Modbus, Ethernet



ULYS MD100-M ULYS MD100-M MODBUS

- Direct connection up to 100 A
- Single-phase
- MID Class B
- Integrated RS485 Modbus communication (ULYS MD100-M Modbus model)



ULYS TTA-M

- Connection on CT
- Three-phase
- MID Class B



ULYS TT-M

- Connection on CT
- Three-phase
- MID Class B
- Integrated communication depending on model: Modbus, Ethernet

(ULYS MD100-M Modbus model)		ULYS MD45-M		ULYS MD100-M		ULYS TDA80-M	ULYS TTA-M	ULYS TD80-M	ULYS TT-M
		ULYS MD45-M Modbus		ULYS MD100-M Modbus					
		Single-phase				Three-phase			
Strengths		Multiprotocol communication - Multiple measurements - MID version							
Rating		45 A		100 A		80 A		TC 1 / 5 A	
Installation		DIN-rail mounting		1 module		2 modules		4 modules	
		Connection		direct		direct		TC	
Energy metering and management		Total energy		kWh, kVArh		kWh, kVArh, kVAh total			
		Partial energy		kWh		kWh, kVArh, kVAh			
Multiple measurements		Electrical parameters / Display		V, I, P, Q, F, FP		V, U, I, P, Q, F, FP, ΣP, ΣQ, ΣS			
Output(s)/Inputs		Pulse output(s)		1		2		1	
		Tariff change input		1		1		1 (except Ethernet model)	
Accuracy class / MID certification		MID Class B		MID Class B		MID class B			
To order		Without		ULYS MD45-M P01330754		ULYS MD100-M P01330760		ULYS TDA80-M P01331018	
		RS485 Modbus		ULYS MD45-M Modbus P01330756		ULYS MD100-M Modbus P01330761		ULYS TTA-M P01331019	
		Ethernet						ULYS TD80-M Modbus P01331036	
								ULYS TT-M Modbus P01331037	
								ULYS TD80-M Ethernet P01331040	
								ULYS TT-M Ethernet P01331041	

FOR ELECTRIC VEHICLE METERING FUNCTIONS



ULYS MD45-M EV

- Direct connection up to 45 A
- Single-phase
- MID Class B
- Integrated communication



ULYS TD100-M EV

- Direct connection up to 100 A
- Three-phase
- MID Class B
- Integrated communication

	ULYS MD45-M	ULYS TD100-M
Technical specifications	Single-phase grid	Three-phase grid
Maximum rated current (I _{max})	45 A	100 A
Voltage input	230 Vac (-15/+10%)	
Communication	RS485 Modbus	
Accuracy class	MID (Class 1)	

	ULYS MD45-M	ULYS TD100-M
Multi-measurement	Active energy	Total, partial, import, export
	Reactive energy	Total, import, export
	Multi-measurement	P, Q, S, V, I, FP, F
	Bidirectional	Yes
Environnement	Température de fonctionnement	-40°C to +70°C
	Utilisation	Indoors
	Indice IP	IP51

ULYS MCM

MULTI-CHANNEL METER



Industry



Energy
generation



Energy
transmission
& distribution



Energy
efficiency



18 meters in one



Compact size



Compatible with
a large number
of sensors

DESCRIPTION

Ulys MCM is the innovative solution for centralizing the measurement of multiple electrical feeders.

- Compact: 18 meters in one!
- Quick implementation
- Wide range of sensors for all types of conductors and current values
- Comprehensive measurement of all the electrical parameters
- Flexible communication

ACCESSORIES

SENSORS

Model	Rogowski coil		Current transformer					
Type of sensor	Openable, flexible		Openable, rigid					
Models	MF300	MF3000	TCC V 105	TCC V 1050	TCC V 161	TCC V 242	TCC V 364	TCC V 366
Rated current	600 A	3 000 A	5 A	50 A	100 A	250 A	400 A	600 A
Clamping diameter	70 mm	200 mm	10 mm	10 mm	16 mm	24 mm	36 mm	36 mm
Weight of pack of 3	195 g	210 g	190 g	190 g	320 g	625 g	1 150 g	1 260 g
Dimensions of sensor alone (h x w x d)	130 x 80 x 12 mm	270 x 220 x 12 mm	41.4 x 24 x 26.5 mm	41.4 x 24 x 26.5 mm	51.7 x 30 x 31.5 mm	71 x 44 x 39.2 mm	84 x 57 x 41 mm	84 x 57 x 41 mm

Our sensors are delivered in packs of 3 directly connected to the connection adapter

WHAT SENSORS DO YOU WANT?

	Ratio	Diameter	
Rigid sensors			
PACK 3 TCC V 105	5A / 333mV	10mm	P01 379 616
PACK 3 TCC V 1050	50A / 333mV	10mm	P0 1379 626
PACK 3 TCC V 161	100A / 333mV	16mm	P01 379 618
PACK 3 TCC V 242	250A / 333mV	24mm	P01 379 620
PACK 3 TCC V 364	400A / 333mV	36mm	P01 379 622
PACK 3 TCC V 366	600A / 333mV	36mm	P01 379 624
Flexible sensors			
PACK 3 MF300	600A / (39.1μV/A)	70mm	P01 379 631
PACK 3 MF3000	3000A / (39.1μV/A)	200mm	P01 379 633

WHAT IS THE DISTANCE BETWEEN YOUR ULYS MCM AND YOUR SENSORS

RJ12M-RJ12M M	3 meters	P01379641
RJ12M-RJ12M L	9 meters	P01379642

SCREEN

The remote screen allows you to view the data measured by your Ulys MCM.



DO YOU WANT TO EQUIP YOUR ULYS MCM WITH A SCREEN?

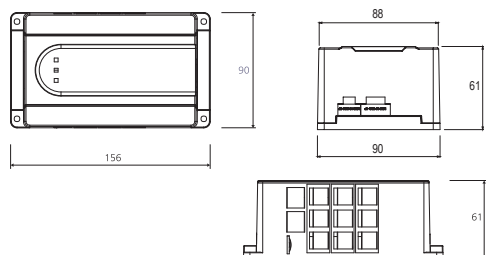
ULYS MCM D	Screen	P01331065
RJ45M-RJ45M M	Connection cable*	P01379640

*Cable essential for screen connection

TECHNICAL SPECIFICATIONS

Feature	Specification
Electrical system	1P2F, 3P3F, 3P4F
Nominal specifications of inputs	Voltage (Umin - Umax) 43-690 V- between phases
	Voltage (Vmin - Vmax) 25-400 V- between phases and neutral
	Measurement category 600 V Cat III
	Frequency 45-65 Hz
	Current 0-333 mV (max. 0.5 V p-p) Impedance: 20 kΩ
	On-off (DI) 1 point, 80-250 V~, external power supply
	Temperature CTN 25°C, 10 kΩ, (β(25/85)=3 970°K)
Auxiliary power supply	Voltage 100-240 V~
	Frequency 50-60 Hz
	Max. voltage (L-N) Short term: 1,440 V~ - Long term: 490 V~
	Consumption 0.05-0.08 A
	Overvoltage category 300 V Cat II
Communication	Modbus RS485
	Modbus TCP
	RS232
On-off output contact (DO)	1 NO (normally open) SPST (single-pole single-throw)

INSTALLATION CONDITIONS



TO ORDER

Model	Reference
ULYS-MCM 6	P013310615
ULYS-MCM 9	P01331062
ULYS-MCM 18	P01331064
DIN rail mounting accessory	P01331068

The Ulys MCM is available in **6, 9 or 18-channel** versions or three-phase measurement.

MEASUREMENT TRANSDUCERS



Energy
generation



Energy
transmission &
distribution



Nuclear

A COMPLETE RANGE COVERING ALL YOUR MEASUREMENT REQUIREMENTS

- Analog and digital
- Communication with all systems (4-20 mA, Modbus, IEC 61850)
- 40 years of experience
- Designed and manufactured in France

TRIAD 2



T82N



	Digital transducers	Analog transducers
	For general applications	For harsh environments
Measurements		
Iac	■	■
Vac	■	■
Uac	■	
Vdc		■
P	■	■
Q	■	■
S	■	
F	■	■
PF	■	■
Cosφ	■	
Tanφ	■	
φ	■	
φ (U' - U'')	■	
Temperature		■
kWh	■	
kVArh	■	
kVAh	■	
Current/voltage unbalance	■	
Options		
Number of analog outputs	4	1
RS485	■	
Ethernet	■	
Pulse output		
Alarm output		
Relay output	■	
Programmable	■	
Plug-in versions		■
Self-powered	(1)	

(1) By looping the input voltage

FOR GENERAL APPLICATIONS

TRIAD 2

- Accuracy class 0.1 as per IEC 60688
- Reinforced range for IEC 61000-4-5 substations
- Compatible with IEC 61850 via ELINK (communication gateway) and digital output available as an option (Ethernet / RS485)
- Configured when ordering or configurable using the Triadjust 2 software



- For single-phase or balanced three-phase networks
- 1 analog output



- For all electrical networks
- 4 analog outputs



For your **IEC 61850 networks**, don't forget to use **TRIAD 2 with the ELINK communication gateway**

- Modernizes the protocol of your measuring equipment without calling into question your choice of a transducer
- Up to 20 transducers
- DNV.GL-certified



FOR HARSH ENVIRONMENTS

T82N

- Linear transfer curve
- Accuracy class 0.5 as per IEC 60688
- Direct input or on CT
- 2 mounting modes: fixed or plug-in
- IP 20
- Tropicalization available as an option
- Operating temperature: -10 to +60°C



IAR 1210B
RMS AC current

UAR 1210B
RMS AC voltage

ICR 1220B/1420B
DC voltage

QAR 1232B
Reactive power

PAR 1232B
Active power

FAR 1210B
Frequency

UCR 1420B
DC voltage

JAR 1211B
Phase angle

RCL 1220B
Temperature

- Socket for plug-in unit



Model	Socket	
	Type	Reference
UAR 1210B	5	EMBB 4005
IAR 1210B	4	EMBB 4004
PAR 1232B	3	EMBB 4003
QAR 1232B	3	EMBB 4003
FAR 1210B	5	EMBB 4005
JAR 1211B	4	EMBB 4004
UCR 1420B	5	EMBB 4005
RCL 1220B	6	EMBB 4006
ICR 1220B/1420B	5	EMBB 4005

- Mounting on DIN rail for fixed or plug-in unit



Model	Reference
Mounting on symmetrical DIN rail	PDIN SYME
Mounting on asymmetrical DIN rail	PDIN ASYM

POWER QUALITY ANALYZERS



Industry



Energy
generation



Energy
transmission &
distribution

FOR 24/7 ANALYSIS OF ALL THE ELECTRICAL CHARACTERISTICS OF LV, MV AND HV NETWORKS

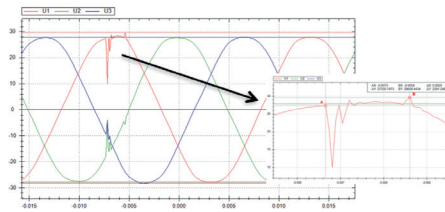
> IEC 61000-4-30 Class A



> Continuous storage 24/7



> Capture of the most complex energy quality parameters



> Generation of turnkey reports plus investigative tools in a broad software offering

Power quality report																	
Failed																	
<table border="1"> <tr> <td>Voltage variations</td><td>Passed</td></tr> <tr> <td>Flashes (P0)</td><td>Passed</td></tr> <tr> <td>Unbalance</td><td>N/A</td></tr> <tr> <td>Frequency</td><td>Passed</td></tr> <tr> <td>Signaling voltage</td><td>Passed</td></tr> <tr> <td>THD</td><td>Passed</td></tr> <tr> <td>Individual harmonics</td><td>Passed</td></tr> <tr> <td>Result</td><td>Failed</td></tr> </table>		Voltage variations	Passed	Flashes (P0)	Passed	Unbalance	N/A	Frequency	Passed	Signaling voltage	Passed	THD	Passed	Individual harmonics	Passed	Result	Failed
Voltage variations	Passed																
Flashes (P0)	Passed																
Unbalance	N/A																
Frequency	Passed																
Signaling voltage	Passed																
THD	Passed																
Individual harmonics	Passed																
Result	Failed																
Short interruptions	0																
Long interruptions	0																
Surge	3753																
Swells	1																
Transients	0																

MAP COMPACT

Electrical network quality analyzers
HV / MV / LV – Class A.



GENERAL SPECIFICATIONS

- Built-in display
- Measurement compliant with IEC 61000- 4-30 Class A
- Integrated EN50160 report generation function
- Recording of voltage dips / swells / outages
- Waveform capture with programmable pre-time and post-time
- Measurement of power and energy values as primary quantities
- Communication interfaces Ethernet and USB
- Compact format for installation in existing cabinets

MAP 607

SINGLE-PHASE ANALYZER – CLASS A

- 2 voltage channels: phase/neutral and phase/neutral-earth
- Plug & play: no driver required
- USB 2.0 communication port
- Configuration for voltage dips, overvoltages and transient disturbances
- Class A according to IEC 61000-4-30
- Measurement of all the power quality parameters according to the predefined standard (EN 50160, etc.)
- Direct indication on the product: Green LED: parameters OK Red LED: parameters outside profile



E.Qual-Premium Server

Analysis and report generation module for MAP network analyzers.

E.Qual-Premium Server is a unique, user-friendly solution for managing from ten to several hundred network analyzers.

E.Qual-Premium Server also includes E.Qual-Premium:

- graphical multi-equipment views
- multi-equipment event logs
- statistical views

Peace of mind: all the data retrievals are performed automatically by a high-performance remote data-retrieval engine

Complete: a history from the moment the equipment fleet was commissioned, allowing benchmarking of all the analyzers

Analysis: special tools for summarizing the measurements on the fleet of analyzers and sharing the information in concise form with the decision-makers and operators.

> Grouping of analyzers according to the feeder, type, etc.

> Representation and geographical location of the analyzers

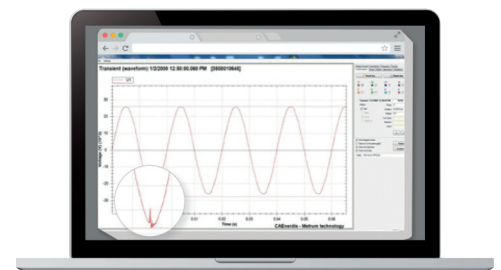
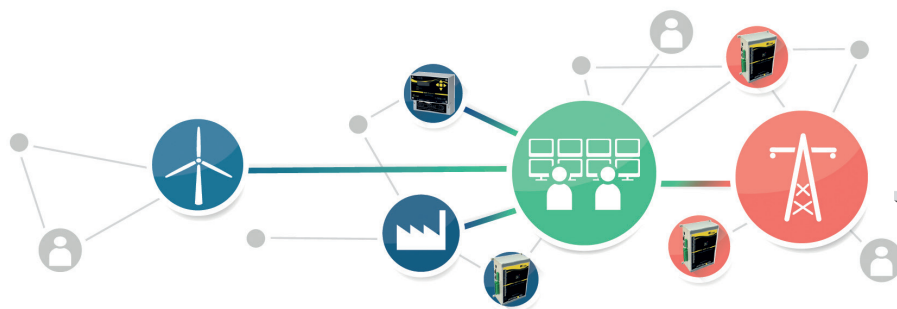
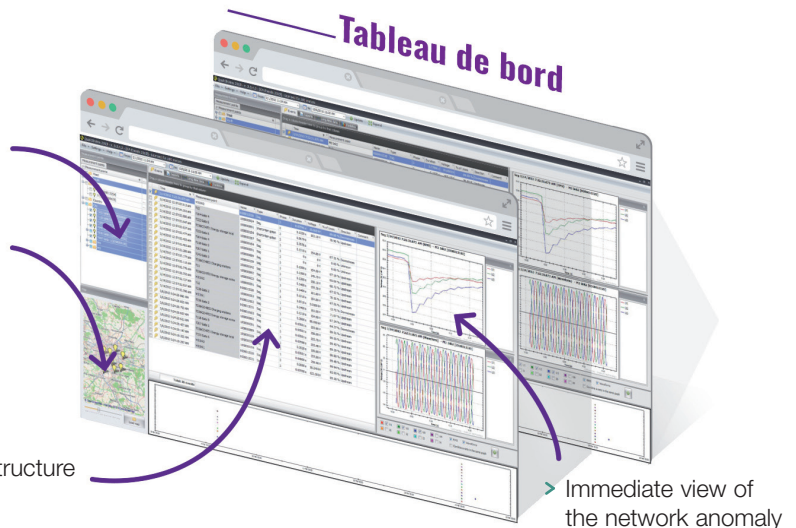
> Build up a view of the network by quantifying the problems on all the stored data by means of an intuitive sorting system

- Identify the weaknesses in the network's structure (phase, type of event, directionality)

- Match up the phenomena according to their critical nature and their duration

> Receive email alerts

> Immediate view of the network anomaly



TO ORDER

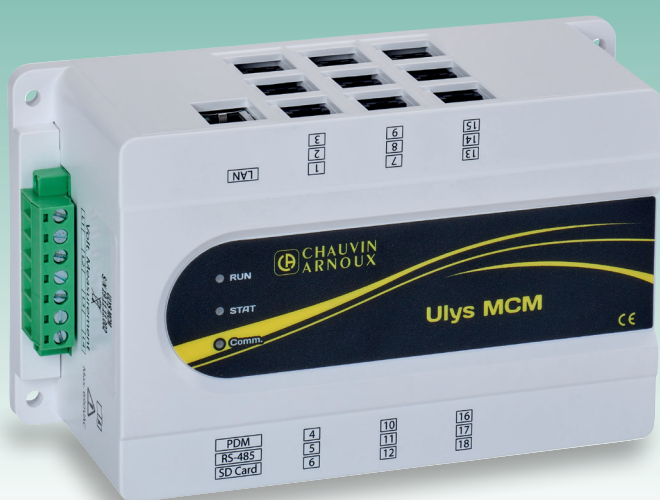
Models	Description	Number of licenses
E.Qual-Premium Server	Configuration, remote data retrieval, display, administration and analysis software	5
E.Qual-Premium Server	Configuration, remote data retrieval, display, administration and analysis software	20

MONITORING NETWORKS

LOW-VOLTAGE

GRIDWATCH SOLUTION FOR SUPERVISION OF LV INSTALLATIONS

A tailored solution based on integration of the Ulys MCM multichannel meter



ANTICIPATE

Aging of the transformer and installations

Optimized scheduling and reduced maintenance costs



TRACK AND SECURE

The energy flows

Reduced technical and non-technical losses



OPTIMIZE

The installations and new connections

Assessment of the available reserve or the effective overload on the feeders or transformers

Workstation ventilation control



Smoke detection, fire outbreak



Calculation of high voltage and current

MV feed

HTA transformer input

HTA cells

DDS

Detection of door opening or movement in the workstation

Monitoring of the underground 'Insulation Fault Detector'

Monitoring of hot spots and humidity in high-voltage cells

Monitoring of hot spots at the connection points of low-voltage transformer and high-voltage transform

USER SECTORS



Industry



Energy
transmission
& distribution



Software
Gridwatch
dashboard



GRIDWATCH MEASUREMENT BOX



Measurement of transformer currents,
voltages and LV power ratings



Calculation of load factor and
transformer imbalance

General departure
LV transformer

High-voltage/
low-voltage power
transformer

Monitoring of
transformer surface
temperature

Monitoring of transformer
surface temperature



Measurement of currents
and power for the 3 phases
and neutral (optional)
of each LV output

Low voltage distribution

Low voltage fuse
detection

Flood detection
- water level at the station

Low voltage distribution

MONITORING NETWORKS

LOW-VOLTAGE

Strengths



Comprehensive and scalable



GridWatch includes all the sensors needed to monitor critical points in the HV/LV substation.

Available in different versions, it adapts to the size and budget available for **optimal deployment**.

GridWatch will gradually be equipped with sensors to instrument the transformer and the substation's LV electrical outputs.



Rapid deployment



To reduce downtime during system commissioning, **GridWatch has been designed for quick installation and deployment:** current sensors that open and connect with a single click, pre-wired environmental measurement sensors, pre-configured wireless hotspot sensors, etc.



Compatible with all systems



With multiple communication protocols (Modbus, MQTT, FTP, etc.) on WAN (3G/4G, Ethernet) and LAN interfaces, GridWatch is compatible with numerous monitoring systems (SCADA, supervisors, web applications, etc.).

Measurements, alarms and sensor statuses on the transformer, LV panel and substation cell are available in real time.

Alarms are sent by email, MQTT, etc. GridWatch Dashboard is the turnkey software solution for monitoring a fleet of Gridwatch cabinets.



Gridwatch Dashboard Software



The Gridwatch Dashboard web application displays, processes, monitors, alerts and formats measurement data collected by C50 and C200 boxes on HV/LV transformers and LV feeders. The data is periodically transmitted (every 10 seconds as standard) to an MQTT broker.

The main features of GRIDWATCH DASHBOARD are:

- **SUPERVISION** : Geolocate HV/LV transformers equipped with a GRIDWATCH box.
- **DASHBOARDS**: Display KPIs (Key Performance Indicators) for transformer monitoring (load rate, temperature, imbalance) and LV outputs.
- **MONITORING** : View real-time measurements taken on HV/LV transformers and LV feeders.
- **ANALYSIS** : Graphs showing the evolution of measurements over time (10-minute, hourly, daily, weekly and monthly averages).
- **ALARMS** : Set alarms for the parameters collected by the application, with targeted emails sent to the electrical network's operations and maintenance operators.



USER SECTORS



Industry



Energy
transmission
& distribution

GridWatch C200 Measurement - Control - Command

GridWatch C50 Measurement - Control

Measurement and analysis of substation structure behaviour

Transformer: Electrical measurement and metering at the secondary level of the main transformer HTA/BT	• 3P+N voltage measurement on input terminal block • Quick-install Rogowski-type current sensor (diameter 200 mm) (phases + neutral) • Measured quantities: V, U, I, F, P, Q, S, PF, Ea, Eq, Es • Calculated high voltage quantities: U, I	
Low voltage electrical outlets: Electrical measurement and metering on each outlet and per phase.	• Compact, quick-installation TC current sensors (up to 8 outputs) • Compact Rogowski-type current sensors (70 mm diameter) quick installation (up to 8 outputs) • Measured quantities: V, U, I, F, P, Q, S, PF, Ea, Eq, Es	
Measurement of temperatures at hot spots at the connection points of the LV transformer (Qty: 4) and HTA (Qty: 3)	Yes (7 wireless sensors)	No
Measurement of the surface temperature of the transformer	Yes (Wired temperature sensor)	
Measurement of the ambient temperature in the HS9 substation	Yes (wired temperature sensor)	No
Measurement of the ambient temperature in the HS9 substation	Digital inputs/outputs	No
Ability to interface with other components of the electrical substation	Analogue inputs and digital inputs and outputs available	-

Communication and data management

Communication mode	WAN interface (3G/4G and RJ-45 port) LAN interface (RJ-45 port)	
Data visualisation	Pages web embarquées (HTTP) et GridWatch Dashboard	GridWatch Dashboard
Alarm management and data logging Data logging	Yes (journal, e-mail, FTP, etc.) and via GridWatch Dashboard solution	via GridWatch Dashboard solution
Protocols in simultaneous use	• Modbus TCP: Access to all electrical and physical parameters in real time (1 sec) • MQTT: Publisher mode for alarms • MQTT: Publisher mode for measurements • Push FTP: File transfer to FTP server (alarms and recordings) • SMTP: Email • NTP: Date/time synchronisation	MQTT: Publisher mode for measurements
Remote administration	Yes	Yes

General characteristics

Remote local data display screen	Yes (option)	Yes (option)
Dimensions	600x400x250 mm	310x260x70 mm
Operating temperature	-10°C to +55°C	
Installation	Wall or floor mounting	Wall mounting
Compliant	IEC 61439-1 / IEC 61439-5	
Battery operation in the event of a power cut	Yes	No
Three-phase surge protection (external installation)	Option	

Supervision application

GRIDWATCH Dashboard (multiproduit, multiutilisateur)	Yes
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Request a quote to equip your electrical substation monitoring projects!

ANALOG PANEL METERS



Industry



Energy generation



Energy transmission & distribution

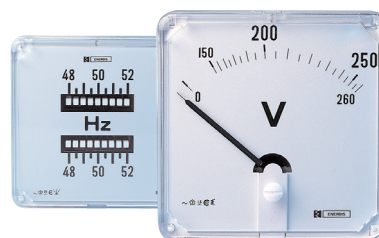


Nuclear

WITH ROUND BARREL FOR SEVERE OPERATING CONSTRAINTS

NORMEUROPE Range

- EDF-certified range, usable onboard sea-going vessels, ideal for power generators and distributors
- Large choice of functions, formats, measurement ratings and options



Front panel (round barrel) Format	48 x 48	72 x 72	96 x 96	COHO 48 x 48
Standard functions				
AC ammeter	90°		250°	
AC voltmeter	90°		250°	
Pointer dial frequency meter		90°	250°	
Vibrating reed frequency meter	1 to 9 reeds			
Wattmeter / Varmeter				
Phasemeter		90°	250°	
DC Ammeter	90°		250°	
DC Voltmeter	90°		250°	
Hour meter				
Synchronization equipment				
Double vibrating reed frequency meter	2 x 9 reeds			
Differential voltmeter		90°	250°	
Strengths	NORMEUROPE, the industry reference for the generation, transmission and distribution of electrical energy for severe operating constraints.			

MECHANICAL PRESENTATION

Deflection			90°			240°		
Format			48 x 48	72 x 72	96 x 96	48 x 48	72 x 72	96 x 96
Mounting and front-panel tightness outside standard ⁽¹⁾								
Panel meter standard: IP 40 front panel Casing: IP 20			2 x M2.5 studs	2 x M4 studs	2 x M4 studs	2 x M2.5 studs	2 x M4 studs	2 x M4 studs
360° panel meters: always 4 studs								
Option	Ring fastening	IP 40 front panel	drilling 48 mm	drilling 58 mm	drilling 88 mm	drilling 48 mm	drilling 58 mm	drilling 88 mm
Option	Reinforced fastening + seal	IP 52 front panel	4 x M2.5 studs	4 x M4 studs	4 x M4 studs	4 x M2.5 studs	4 x M4 studs	4 x M4 studs
Option	Watertight (zero reset, front)	+ IP54 front panel seal		4 x M4 studs	4 x M4 studs	4 x M2.5 studs	4 x M4 studs	4 x M4 studs
Option	Watertight (zero reset, front-rear)	+ IP55 product seal		4 x M4 studs	4 x M4 studs	4 x M2.5 studs	4 x M4 studs	4 x M4 studs
Production of non-standard dials (after feasibility approval)								
Dial markings on request			■	■	■	■	■	■
Color markings			■	■	■	■	■	■
Color areas			■	■	■	■	■	■
Black background with white markings			■	■	■	■	■	■
Double scale				■	■	■	■	■

(1) IPXY where X is the level of protection against penetration by solid bodies and Y is the level of protection against penetration by liquids.

A large number of references are available in our General Catalog and on our website

DIGITAL PANEL METERS



FOR THE INDUSTRIAL SECTOR

- Instant mounting without tools
- Quick, simple programming
- Compact design
- Digital processing of the data makes it possible to connect the panel meters to external measuring or supervision systems
- Totally programmable



		μDIGI1	μDIGI2	CA 2150
		Economical programmable range for industrial use		Programmable range for universal use
Front panel format (mm)		24 x 48	48 x 96	48 x 96
Display range (in counts)		-1999/+9999	-1999/+9999	-19999/+19999
Measurement functions	AC ammeter	μDIGI1 E	μDIGI2 E	CA 2150-E
	AC voltmeter	μDIGI1 E	μDIGI2 E	CA 2150-E
	DC ammeter	μDIGI1 E	μDIGI2 E	CA 2150-E
	DC voltmeter	μDIGI1 E	μDIGI2 E	CA 2150-E
	Process signals	μDIGI P/LP	μDIGI2 P	CA 2150-M
	Thermocouple thermometer		μDIGI2 P	CA 2150-M
	Pt 100 thermometer		μDIGI2 P	CA 2150-M
	Potentiometer		μDIGI2 P	CA 2150-M
	Load cell			CA 2150-M
	Frequency meter			CA 2150-D
	Tachometer			CA 2150-D
	Counter			CA 2150-D
	Chronometer			CA 2150-D
Special functions	MIN/MAX			CA 2150-E/D/M
Output(s)	Analog output			Option
	RS232 output			Option
	RS485 output			Option
	Threshold output(s)		Option	Option
User-programmable				

TO ORDER

μDIGI1

Model	Power supply	Reference
μDIGI1-LP	Self-powered (active loop)	P01 330 000
μDIGI1-P	85 - 265 Vac & 100 - 300 Vdc	P01 330 031
	22 - 53 Vac & 10.5 - 70 Vdc	P01 330 032
μDIGI1-E	85 - 265 Vac & 100 - 300 Vdc	P01 330 011
	22 - 53 Vac & 10.5 - 70 Vdc	P01 330 012

μDIGI2

Model	Power supply	Reference
μDIGI2-E	85 - 265 Vac & 11 - 265 Vdc	P01 330 081
μDIGI2-P	85 - 265 Vac & 11 - 265 Vdc	P01 330 080

CA 2150

Model	Power supply	Reference
CA 2150-E	85 - 265 Vac & 100 - 300 Vdc	P01 308 005
	22 - 53 Vac & 10.5 - 70 Vdc	P01 308 006
CA 2150-M	85 - 265 Vac & 100 - 300 Vdc	P01 308 001
	22 - 53 Vac & 10.5 - 70 Vdc	P01 308 002
CA 2150-D	85 - 265 Vac & 100 - 300 Vdc	P01 308 003
	22 - 53 Vac & 10.5 - 70 Vdc	P01 308 004

Cartes option	μDIGI1	μDIGI2	CA 2150
2-relay alarm		P01 319 301	P01 319 301
4-relay alarm			P01 319 303
Com RS 485			P01 319 307
Com RS 232			P01 319 306
4-20 mA output			P01 319 311
0-10 Vdc output			P01 319 310

CURRENT TRANSFORMERS



FOR TARIFF METERING

		Core - Single-phase					
		JVR 86	JVO 40-100	JVO 40-100 S	J3R 80B	JVO 90-160 S	JVS 38B
Type of connection	Wound primary	Ø M8/M10 > 75 A					
	Cable primary (mm)		Ø 42	Ø 40	Ø 66	Ø 90	Ø 63
Accuracy	Accuracy class	0.5	0.5	0.2s	0.5	0.2s	0.2s
	Accuracy power (VA)	20	7.5 (bi-rating) / 15	7.5	15 (5 for 300 A 10 for 400 A)	7.5	10 (7.5 for 1 000 A)
Rating	Single-rating	■*	■		■*		■
	Bi-rating		200 - 500 A	200-500 A			
	Tri-rating					500 - 1,000 - 2,000 A	
Primary	5 / 5 A	■					
	20 / 5 A	■					
	40 / 5 A	■					
	50 / 5 A	■					
	60 / 5 A	■					
	75 / 5 A	■					
	100 / 5 A	■					
	150 / 5 A	■					
	200 / 5 A	■	■	■			
	250 / 5 A						
	300 / 5 A				■		
	400 / 5 A				■		
	500 / 5 A		■	■	■	■	
	600 / 5 A				■		
	750 / 5 A				■		
	800 / 5 A						
	1,000 / 5 A				■	■	■
	1,200 / 5 A						■
	1,250 / 5 A				■		
	1,500 / 5 A				■		■
	2,000 / 5 A					■	■

Also available with 1A secondary. Please contact us.

		Core - Single-phase				Core - Three-phase		
		JVP 1025	JVP 1045	JVP 1045B	JVP 1145 S	TRI 500	TRI 700	TRI 700 S
Type of connection	Cable primary (mm)							
	Cable clamp (cross-section in mm²)							
Accuracy	Accuracy class	0.5	0.5	0.5	0.2s	0.5	0.5	0.2s
	Accuracy power (VA)	15 (30 for 1,250 A)	15 (30 for 1,000 A)	7.5 (bi-rating) / 15	7.5	15	3.75	7.5
Rating	Single-rating	■	■	■		■		
	Bi-rating			500 - 1,000 A 1,000 - 2,000 A				50-100 A 100-200 A 200-500 A
	Tri-rating				500 - 1,000 - 2,000 A	100 - 200 - 500 A		
Primary	5 / 5 A							
	20 / 5 A							
	40 / 5 A							
	50 / 5 A					■		
	60 / 5 A					■		
	75 / 5 A					■		
	100 / 5 A					■	■	■
	150 / 5 A					■		
	200 / 5 A					■	■	■
	250 / 5 A					■		
	300 / 5 A					■		
	400 / 5 A					■		
	500 / 5 A	■		■	■	■	■	■
	600 / 5 A	■	■			■		
	750 / 5 A							
	800 / 5 A							
	1,000 / 5 A		■	■	■			
	1,200 / 5 A							
	1,250 / 5 A	■						
	1,500 / 5 A							
	2,000 / 5 A			■	■			

CURRENT TRANSFORMERS



Tertiary



Industry



Energy efficiency



TCR
Wound primary



TCR / JVS
Cable/busbar primary

		TCR10	TCR15	TCR20	TCR22-30	TCR28-40 JVS 26B	TCR43-60 JVS 30B	TCR63-80
Type of connection		0.5 / 1 / 3	0.5 / 1 / 3	0.5 / 1 / 3	0.5 / 1 / 3	0.5 / 1 / 3 0.2s	0.5 / 1 / 3 0.2s	0.5 / 1 / 3 0.2s
Wound primary (connection)		Aperture 25 x 25	Wire 16 mm ²					
Cable primary (mm)				Ø 20	Ø 22	Ø 28	Ø 43	Ø 63
Busbar primary (mm)					25 x 10 30 x 10 20 x 12	20 x 25 30 x 15 40 x 10	50 x 30 60 x 12 12 x 45	50 x 50 60 x 30 80 x 30
Primary	5 A	■	■					
	10 A	■	■					
	15 A		■					
	20 A		■					
	25 A		■					
	30 A		■					
	40 A			■				
	50 A	■	■	■				
	60 A	■		■				
	75 A	■		■				
	100 A			■		●		
	125 A	■		■	■	●		
	150 A			■	■	■ / ●		
	200 A			■	■	■ / ●		
	250 A				■	■ / ●		
	300 A				■	■ / ●		
	400 A				■	■ / ●		
	500 A					■ / ●	●	●
	600 A			■		■ / ●	■ / ●	●
	750 A					●	■ / ●	●
	800 A					●	■ / ●	●
	1,000 A						■ / ●	●
	1,200 A						■ / ●	●
	1,500 A						■ / ●	■ / ●
	2,000 A						●	■ / ●
	2,500 A							■ / ●
	3,000 A							■ / ●
	4,000 A							■ / ●
	5,000 A							



TCRO
Split core



TC CLIP
Split core

		TCRO 2030	TCRO6080	TCRO80120	TCRO80160	TCC16	TCC24	TCC24	TCC36	TCC36
Accuracy class		0.5 / 1 / 3	0.5 / 1 / 3	0.5 / 1 / 3	0.5 / 1 / 3	1	1	0.5	0.5	0.5
Cable primary (mm)										
Passage de câble (mm)						Ø 16	Ø 24	Ø 24	Ø 36	Ø 36
Busbar primary (mm)		20 x 30	60 x 80	80 x 120	80 x 160					
Primary	5 A									
	10 A									
	15 A									
	20 A									
	25 A									
	30 A									
	40 A									
	50 A									
	60 A					■**				
	75 A						■**			
	100 A	■								
	125 A							■**		
	150 A	■								
	200 A	■								
	250 A	■						■**		
	300 A									
	400 A	■	■						■**	
	500 A		■	■						
	600 A		■							■**
	750 A									
	800 A		■	■						
	1,000 A		■	■						
	1,200 A			■						
	1,500 A			■	■					
	2,000 A				■					
	2,500 A				■					
	3,000 A				■					
	4,000 A									
	5,000 A									

** Secondary 1A

AUXILIARY RELAYS



Power generation



Nuclear

Depending on products



Power transmission



Rolling stock

Depending on products



Fixed railway installations



Shipbuilding



Oil industry



Heavy industry



Monostable



Monostable with forcibly guided contacts



Bistable



Rapide monostable ou bistable



Temporisé

Model	Monostable instantaneous	Bistable (latching)	Forcibly guided contacts	Fast-acting(*)	Time delay	Contacts	In	Notes	Rolling stock equipment (***)	Nuclear
RCM	■					2 CO	10 A	Compact		
RDM	■					4 CO	10 A	Compact		
RGM	■					4 CO	12 A	High breaking capacity (**)		
RMMX	■					8 CO	10 A	Multi-contact, compact		
RMM	■					8-12-20 CO	12 A	High breaking capacity, multi-contact		
POK-POKS	■					2 CO	5-10 A	Compact		
BIPOK-BIPOKS	■					4 CO	5-10 A	Compact		
TRIPOK-TRIPOKS	■					6 CO	5-10 A	Compact		
QUADRIPOK	■					8 CO	10 A	Compact		
ESAPOK	■					12 CO	10 A	Compact		
OK	■					4-8-12 CO	10 A	High breaking capacity		
OKB184	■					4 CO	10 A	High breaking capacity, K3-qualified		
RE3000	■					4 CO	10 A	K3-qualified		
FOKB	■					4 CO NC-NO	13 A	High breaking capacity, NF F62-002		
RCG	■		■			2 CO	10 A	Forcibly guided contacts, type A, EN61810-3		
RDG	■		■			4 CO	10 A	Forcibly guided contacts, type A, EN61810-3		
RGG Previous name RGMZX	■		■			4 CO	10 A	High breaking capacity, forcibly guided contacts, type A, EN61810-3		
RMGX	■		■			8 CO	10 A	High breaking capacity, forcibly guided contacts, type A, EN61810-3		
RGB		■				3-4 CO	12 A	High breaking capacity		
RMBX		■				7-8 CO	10 A	Multi-contact		
RMB		■				7-11-19 CO	10 A	High breaking capacity, multi-contact, common negative		
OKBA		■				4-8 CO	10 A	High breaking capacity		
RGMVX	■			■		4 CO	10 A	Operating time < 8 ms		
RMMV/X	■			■		8-12 CO	10 A	Operating time < 8 ms for 8 CO < 10 ms for 12 CO		
RGR	■			■		2 CO	2 A	Operating time < 3 ms		



Power
generation



Nuclear

Depending
on products



Power
transmission



Rolling
stock
Depending
on products



Fixed railway
installations



Shipbuilding



Oil
industry



Heavy
industry

Modèle	Monostable instantaneous	Bistable (latching)	Forcibly guided contacts	Fast-acting(*)	Time delay	Contacts	In	Notes	Rolling stock equipment (***)	Nuclear
RGMV	■			■		4 (CO or NC)	10 A	Operating time < 8 ms		
RMMV	■			■		8 (CO or NC)	10 A	Operating time < 6 ms		
RMMZ11/13	■			■		8 CO	10 A	Operating time < 13 ms		
RGBV		■		■		4 CO	10 A	Operating time < 10 ms		
RMBV		■		■		8-12 CO	10 A	Operating time < 10 ms		
RGBZ10/11		■		■		3-4 CO	12 A	Operating time < 12 ms		
RMBZ30		■		■		7 CO	10 A	Operating time < 18 ms		
RV LV16	■			■		6 (NO or NC)	5 A	Operating time < 6 ms		
RDT					■	4 CO	10 A	Time delay on pick-up or drop-out		
RDL - RGL					■	2 CO	10 A	Flasher		
RDTE15/16					■	4 CO	10 A	Delay on drop-out, adjustable duration, no Vaux		
RGTO					■	1 CO	5 A	Delay on drop-out, adjustable duration, no Vaux		
TMM					■	4 CO	10 A	Multifunction relay, 10 functions	🚂	☢️
TM - TMS Previous name OK-TMF/S					■	4 CO	5-10 A	Time delay on pick-up or drop-out	🚂	
TOK					■	4 CO	10 A	High breaking capacity, time delay on pick-up or drop-out	🚂	☢️
OKR					■	4 CO	5 A	Time delay on pick-up or drop-out	🚂	
OKT					■	4 CO	5 A	Time delay on pick-up or drop-out	🚂	
UTM					■	-	-	Static time delay unit	🚂	
TOK-L					■	4 CO	10 A	High breaking capacity, flasher relay	🚂	
TOK-FP					■	4 CO	10 A	High breaking capacity, flasher relay	🚂	
OKRE-L					■	4 CO	5 A	Flasher	🚂	
OKRE-FP					■	4 CO	5 A	Flasher	🚂	
CLE					■	4 CO	5 A	Flasher		
RGK			■		■	4 CO	12 A	Forcibly guided contacts, type A, EN61810-3	🚂	
MOK-V2	■					2 CO	3 A	Measuring relay, voltage	🚂	



Fast-acting
monostable
or bistable



Logic
function



Time-delay
with forcibly
guided
contacts



Measurement

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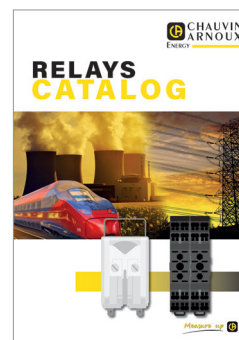
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