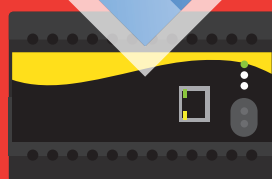
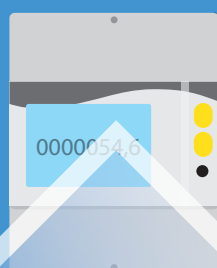


# SELECTED PRODUCTS

**CHAUVIN  
ARNOUX**  
ENERGY

2019



*Measure up*





## ABOUT

# Chauvin Arnoux Energy

Chauvin Arnoux Energy, a Chauvin Arnoux Group company, is specialized in fixed measurement, testing, metering and network supervision equipment, as well as energy efficiency solutions for all utilities.

## Our key sectors



### ENERGY

- Checking installations and the quality of the energy supplied.
- Managing energy flows: energy monitoring systems, meters, power monitors, logger current transformers.



### INDUSTRY & TERTIARY

- From energy supply through to its transmission on site.
- Ensuring safety on installations, optimizing consumption and allocating consumption per cost centre.



### TRANSPORT

- A major partner on the rail market, Chauvin Arnoux Energy designs relays under the Chauvin Arnoux® brand for the rolling stock and substations.

## Complementary offerings within the Chauvin Arnoux Group

- **Safety inspections** on electrical installations with power quality analyzers
- **Infrared thermography** with the latest-generation Chauvin Arnoux® cameras
- **Temperature measurement and control** with the sensors and recorders from Pyrocontrôle®

## Our business sectors

The extensive Chauvin Arnoux Energy offering in instrumentation, panel meters and processing software enables our teams to provide you with a global solution. This couples measuring instruments and data processing software while interfacing with most of the existing systems. This offering is based around three major working areas:

### Energy Efficiency

#### Considerable potential savings

- **Optimize** energy consumption by eliminating waste: measure to identify sources of potential savings.
- Monitor all the energy parameters in real time to react immediately to malfunctions or abnormal drift.
- **Rebill** energy consumption precisely and fairly.

### Critical auxiliary relays

#### Reliability and safety are not optional

- Technology developed for **severe environments** and **intensive use**: nuclear, rail, power transmission & distribution grids
- **A wide range** of instantaneous relays (multi-contact, bistable, fast-acting), time delay relays and function relays. A large choice of sockets with multiple connection technologies
- **Certifications**: SNCF, RATP, EDF, ENEL, TERNA, K3

### Network supervision & physical measurement

#### Keeping your installations healthy

- Monitor the operation of your electrical network
- Indicate the status of your system in real time
- Alert in the event of abnormal operation or drift
- Record all the activity on your network
- Analyze the events on the basis of reference frameworks
- Provide the analyses as standardized reports



## For monitoring LV, MV and HV electrical networks

### MEMO

- All-in-one screen, easy to read
- Simple to implement and operate
- Controlled inventory covering your essential needs

### ENERIUM

- Accuracy adapted to your most critical MV/LV measurements
- History and troubleshooting tools to help you understand your electrical feeder
- Unique on the market, up to 8 totally-integrated inputs/outputs (on/off or analog)
- Power quality measurement at the heart of a power monitor

DIN-rail mounting possible with mounting kit

		ENERIUM					
		MEMO			ENERIUM		
		Flush-mounting 96 x 96 mm			Flush-mounting 144 x 144 mm		
							
		Memo P200	Enerium 50	Enerium 150	Enerium 100	Enerium 200	Enerium 300
		ELECTRICAL ENERGY			MULTI-ENERGY		QUALIMETRY
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
Energy quality	THD / PF / Tan φ						
	Harmonic orders		25	50	25	50	50
	Qualimetry as per EN50160						
	V, U, I and In waveform capture						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			
Graphs	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

- Software for configuration, diagnostics, installation and display dedicated to the ENERIUM range of power monitors.

Functions	E.View	E.View+
Description		
Status		
Configuration		
Diagnostics		
Display		
Graphs		



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

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





## For simple metering functions

### 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



			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	DIN-rail mounting		1 module	2 modules	4 modules
	Input	Display	direct	direct	direct
Energy metering and management			kWh	kWh total & partial	kWh total & partial
Output(s)			1	1	1
Accuracy class			IEC Class 1	IEC Class 1	IEC Class 1
To order			P01330740	P01330741	P01330745

## For advanced metering functions

### ULYS MD45-M ULYS MD45-M MODBUS

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



### ULYS TDA80-M

- Direct connection up to 80 A
- Three-phase
- MID Class B
- Communication via ULYSCOM modules



### ULYS TD80 / TD80-M

- Direct connection up to 80 A
- Three-phase
- IEC Class 1 / MID Class B
- Built-in communication depending on model: Modbus, M-bus, Ethernet



### ULYS MD100-M ULYS MD100-M MODBUS

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



### ULYS TTA / TTA-M

- Connection to CT
- Three-phase
- IEC Class 1 / MID Class B
- Communication via ULYSCOM modules



### ULYS TT / TT-M

- Connection to CT
- Three-phase
- IEC Class 1 / MID Class B
- Built-in communication depending on model: Modbus, M-bus, Ethernet



			ULYS MD45-M ULYS MD45-M Modbus	ULYS MD100-M ULYS MD100-M Modbus	ULYS TDA80-M	ULYS TTA / TTA-M	ULYS TD80 / TD80-M	ULYS TT / TT-M	
			Single-phase		Three-phase				
Strengths			Multimeasurement Built-in communication MID version		Multiprotocol communication Multimeasurement MID version		Multiprotocol communication Multimeasurement MID version		
Rating			45 A	100 A	80 A	On 1 / 5 A CT	80 A	On 1 / 5 A CT	
Installation	Mounting on DIN rail		1 module	2 modules	4 modules				
	Connection		direct		direct	On CT	direct	On CT	
Metering and energy management	Total energy	Display	kWh, kVArh		kWh, kVArh, kVArh total				
	Partial energy		kWh		kWh, kVArh, kVAh				
Multimeasurement	Electrical parameters	Display	V, I, P, Q, F, PF		V, U, I, P, Q, F, PF, ΣP, ΣQ, ΣS				
Output(s) /Inputs	Pulse output(s)		1	2	2	2	1	1	
	Tariff change input		1	1	1	1	1 (except Ethernet model)	1 (except Ethernet model)	
Accuracy class / MID certification			MID Class B		MID Class B	IEC 62053-21 Class 1/ MID Class B			
To order	Communication		None	ULYS MD45-M P01330754	ULYS MD100-M P01330760	ULYS TDA80-M P01331018	ULYS TTA P01331015 ULYS TTA-M P01331019		
			RS485 Modbus	ULYS MD45-M Modbus P01330756	ULYS MD100-M Modbus P01330761	+ ULYSCOM Modbus P01331030	+ ULYSCOM Modbus P01331030	ULYS TD80 Modbus P01331034 ULYS TD80-M Modbus P01331036	ULYS TT Modbus P01331035 ULYS TT-M Modbus P01331037
			M-Bus			+ ULYSCOM M-bus P01331031	+ ULYSCOM M-bus P01331031	ULYS TD80 M-Bus P01331042 ULYS TD80-M M-Bus P01331044	ULYS TT M-Bus P01331043 ULYS TT-M M-Bus P01331045
			Ethernet			+ ULYSCOM Ethernet P01331032	+ ULYSCOM Ethernet P01331032	ULYS TD80 Ethernet P01331038 ULYS TD80-M Ethernet P01331040	ULYS TT Ethernet P01331039 ULYS TT-M Ethernet P01331041

# DATA LOGGERS AND SOFTWARE .....

## ENERGY EFFICIENCY



Tertiary



Industry



Energy Efficiency

Collect, record and export  
all your energy data

## ELOG DATA LOGGER

Collects, records and exports all the energy, climatic and process data from meters, sensors, power monitors, PLCs, etc., connected to an RS485 ModBus or Ethernet ModBus TCP communication network or equipped with pulse outputs.

- 1 Ethernet ModBus TCP port
- 2 x RS485 ModBus master ports
- 5 pulse inputs
- 100 recorded variables
- Mounting on DIN rail
- Web pages - built-in web server
- Data file export (csv, xml)
- http, smtp, ftp and JSON/REST protocols
- Access to the database via Web Services
- Log of recordings in the last 3 months
- Automatic export of csv or xml to FTP servers



Power supply	AC network	80 to 265 Vac - 10 V~ - 42.5 to 69 Hz
	DC network	80 to 265 V <sub>DC</sub> - 7 W
Pulse inputs for metering (water, gas, etc.)		5
Communication		RS485 master mode - Ethernet
Recording capacity		100 variables - periodicity from 5 s to 60 min.
Max. number of measurement points		100
Storage mode		FIFO
Data export		csv or xml files
Clock accuracy		± 20 ppm (± 20 s every 11.5 days)
ntp synchronization		Yes
Backup		30 days max. if no auxiliary source
Dimensions (W x L x H)		120.5 x 120 x 81 mm - 6 DIN modules
Standard		IEC 61010-1
To order		P01331233

Energy performance supervision,  
analysis and monitoring software

eonline3

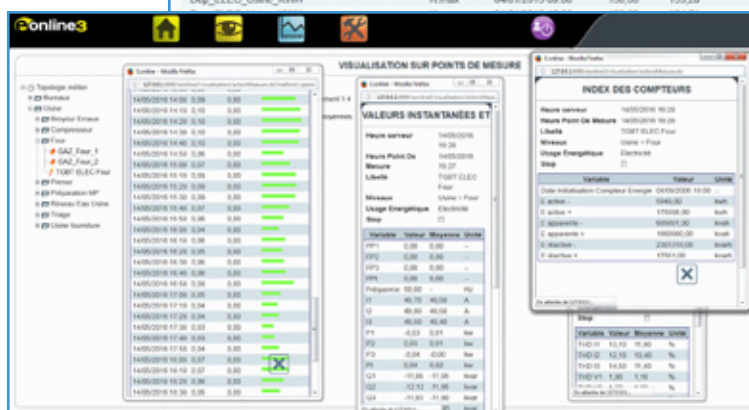
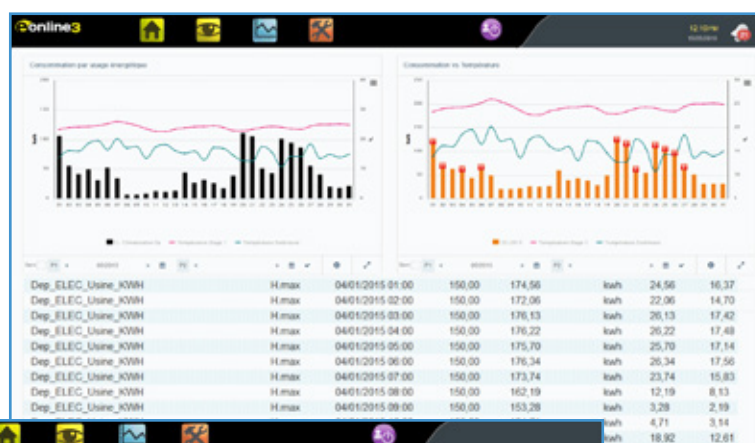


## E.ONLINE

- Real-time supervision of consumption
- Customizable energy dashboards for each user
- Analytical tools (tables, graphs, etc.)
- Automatic generation and distribution of the analyses by email
- Configuration of alarms and energy templates

When used via a web browser, the E.online® 3 software offers:

- immediate, global monitoring of the main data
- energy information adapted to each user profile
- automatic distribution of the energy reports and alarms by email
- periodic analysis of the energy information and early identification of any abnormal drift in terms of consumption and energy performance



# POWER QUALITY ANALYZERS



TRANSMISSION & DISTRIBUTION



Industry



Energy - Production, Transmission & distribution



For 24/7 analysis of all the electrical parameters of LV, MV and HV networks

## MAP RANGE

- Compliant with the IEC 61000-4-30 Class A standard
- Data processing according to the EN 50160 standard
- Detection of the direction (upstream/downstream) of events
- Analysis of brief transients



### Permanent analyzers

### Non-intrusive analyzers

		MAP COMPACT	MAP 610	MAP 620	MAP 640	MAP 620-NI	MAP 607
<b>Strengths</b>		Predefined report as per the EN50160 standard. Compliance with the template calculated in the product. Immediate indication of compliance with the template by LED on front panel. Possibility of managing the whole MAP600 range with the same set of software.					Recovery of the measurements via USB 2.0 port. Plug & play system.
<b>Installation</b>	<b>Network</b>	3-phase 400 V / 230 V	3-phase 690 V / 400 V				single-phase 230 V
	<b>Number of voltage channels</b>	3	3	3	3	3	1
	<b>Number of current channels</b>	3		4	4	4	
	<b>Number of 0-20 mA inputs</b>			4	4		
<b>Sampling</b>	<b>Sampling frequency</b>	12.8 kHz	12.8 kHz	12.8 kHz	12.8 kHz	12.8 kHz	12.8 kHz
	<b>Frequency for fast transients</b>				2 MHz		
<b>Communication</b>	<b>mini USB</b>						
	<b>Built-in Ethernet port (Modbus TCP/IP available)</b>	option	option	option	option	option	
	<b>RS232 port</b>						
<b>Data storage</b>	<b>Capacity</b>	64 MB	128 MB	128 MB	128 MB	128 MB	64 MB
<b>Power supply and connection</b>	<b>Internal operating reserve</b>	1 s	10 s	10 s	10 s	10 s	1 s
	<b>Power-supply voltage</b>	175 Vac to 255 Vac	85 - 264 Vac / 110 - 375 Vdc or 36 - 72 Vdc				230 Vac
	<b>Voltage connections</b>	Screw-on	Screw-on	Screw-on	Screw-on	4 mm banana	standardized connector
	<b>Current connections</b>	Screw-on		Screw-on	Screw-on	¼ turn	
<b>Calculated parameters</b>	<b>Voltage, frequency, unbalance, THD</b>						
	<b>Harmonics (up to 50th order)</b>						
	<b>Flicker Pst (10 min), Plt (2 hrs) and Lft (inst.)</b>						
	<b>Remote-control signals</b>						
	<b>Power harmonics</b>						
	<b>P, Q and S power values</b>						
	<b>Power factors, tangents</b>						
<b>Voltage events</b>	<b>Dips</b>						
	<b>Interruption / outage</b>						
	<b>Transients</b>						
	<b>Fast variations</b>						
	<b>Events log</b>						
	<b>HF transients</b>						
<b>Capture and recording of events</b>	<b>Signature</b>						
	<b>Waveforms</b>						
	<b>Customizable qualimetry template</b>						
<b>Connection</b>	<b>Quick / non-intrusive connection</b>						
<b>Software</b>	<b>Qual SRT</b>	Qual SRT					Qual SRTc
	<b>E.Qual-Premium</b>						
	<b>E.Qual-Premium-Server</b>						(import)



**E.Qual-Premium Server** is the single, **user-friendly solution** for managing a fleet of power quality analyzers comprising 10 to several hundred products.

- All the data retrievals are performed automatically by a high-performance remote data-retrieval engine
- A history since commissioning of the equipment fleet for benchmarking of all the power quality analyzers
- Tools for summarizing all the measurements and sharing the information concisely with decision-makers and operators





### A complete range covering all your measurement needs

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



#### Analog transducers

#### Digital transducers

TSP 2

T82N

TRIAD 2

C.A 3420

TSPU

TSPI

For basic electrical quantities

For severe environments

For evolving electrical parameters

For physical quantities

#### Measurements

I <sub>ac</sub>				
V <sub>ac</sub>				
U <sub>ac</sub>				
I <sub>dc</sub>				
V <sub>dc</sub>				
P				
Q				
S				
F				
PF				
cosφ				
Tanφ				
φ				
φ (U' – U'')				
T°				
Ω				

#### Options

Number of analog outputs	1	1	4	1
RS485				
Ethernet				
Relay output				2
Programmable				
Plug-in version				
Self-powered			(1)	

(1) By looping the input voltage





## For advanced electrical quantities

### 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 physical quantities

### C.A 3420



### Input quantities

- Supervision of the on-load tap changers in HV substations
- Measurement of the temperatures of the windings on the transformers,
- Alternators, motors, coils and bearings of rotating machines
- Resistance temperature device (RTD)
- Thermocouple (TC)
- Linear resistance (ohm)
- Potentiometer
- mA and V
- Output quantities
- Current or voltage
- 2 relay outputs



Smart, alphanumeric, multilingual programming panel

- Advanced error detection or sensor-breakage detection with alarm
- Acknowledged reliability in SIL 2 installations

## For severe 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
- Extended temperature withstand: -25 °C ... +70 °C



### UAR 1210B

RMS AC voltage



### IAR 1210B

RMS AC current



### PAR 1232B

Active power



### QAR 1232B

Reactive power



## For basic electrical quantities

### TSP I/U



### TSPI

I (RMS)

### TSPU

U or V (RMS)

- Self-powered
- Large choice of input and output ratings
- Class 0.5






### For tariff metering

							
		JVR 86	JVO 40-100	JVO 40-100 S	J3R 80B	JVO 90-160 S	JVS 38B
		Core - Single-phase					
Type of connection	Wound primary	Ø M8/M10 > 75 A					
	Cable primary (mm)		Ø 42	Ø 40	Ø 66	Ø 90	Ø 63
	Busbar primary (mm)						50 x 50 60 x 30 80 x 30
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				■		
	1,000 / 5 A				■		
	1,200 / 5 A						
	1,250 / 5 A						
	1,500 / 5 A						
	2,000 / 5 A						
	2,500 / 5 A						
	3,000 / 5 A						

■ Also available with 1 A secondary. Please contact us.

Tailored products available on request for the JVR 86, J3R 80B, JVP 1025 and JVP 1045 models

								
		JVP 1025	JVP 1045	JVP 1045B	JVP 1145 S	TRI 500	TRI 700	TRI 700 S
		Core - Single-phase				Core - Three-phase		
Type of connection	Busbar primary (mm)	100 x 20	100 x 40	100 x 40	100 x 12			
	Cable clamp (cross-section in mm²)					50 to 240	50 to 240	50 to 240
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	50 / 5 A							
	75 / 5 A							
	100 / 5 A							
	150 / 5 A							
	200 / 5 A							
	300 / 5 A							
	400 / 5 A							
	500 / 5 A							
	600 / 5 A							
	1,000 / 5 A							
	1,250 / 5 A							
	2,000 / 5 A							

# CURRENT TRANSFORMERS



TRANSMISSION  
& DISTRIBUTION



Tertiary



Industry



Energy Efficiency

## Tertiary & Industrial

- Primary from 5 to 5,000 A
- Large choice of feedthroughs: cable, busbar

### TCR



### TCR / JVS



	TCR 10	TCR 15	TCR 21	TCR 31	TCR 41 JVS 25B	TCR 51 JVS 26B	TCR 61 JVS 30B	TCR 71 JVS 38B	TCR 75 JVS 39B	TCR 80 JVS 40	TCR 90 JVS 50	TCR 100 JVS 60
	Wound primary		Cable/busbar primary								Busbar primary	
Accuracy class	0.5	0.5	0.5	0.5	0.5 0.2s	0.5 0.2s	0.5 0.2s	0.5 0.2s	0.5 0.2s	0.5 0.2s	0.5 0.2s	0.5 0.2s
Wound primary (connection)	Aperture 25 x 25	Wire 16 mm <sup>2</sup>										
Cable primary (mm)			Ø 20	Ø 22	Ø 26	Ø 28	Ø 44	Ø 63				
Busbar primary (mm)			15 x 10 20 x 10 25 x 5	20 x 12 25 x 11 30 x 10	20 x 20 25 x 12 30 x 10	20 x 25 30 x 15 40 x 10	50 x 30 60 x 12	50 x 50 60 x 37 80 x 30	3 x 100 x 10	100 x 20	100 x 30	125 x 60
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 and TC CLIP ranges for insertion on electrical installations without opening the conductor

### TCRO



### TC CLIP



	TCRO 2030	TCRO 5080	TCRO 8080	TCRO 80120	TCRO 80160	TCC 176	TCC 241	TCC 242	TCC 3644	TCC 366
	Split core					Split core				
Accuracy class	0.5-1-3	0.5-1-3	0.5-1-3	0.5-1-3	0.5-1-3	1	1	1	1	1
Cable primary (mm)						Ø 17	Ø 24	Ø 24	Ø 36	Ø 36
Busbar primary (mm)	20 x 30	50 x 80	80 x 80	80 x 120	80 x 160					
Primary										
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					■					

■ 1 A and 5 A secondary as standard

■ 1 A secondary on request

■ 5 A secondary only

○ JVS 5 A secondary

■ 1 A secondary only

# DIGITAL PANEL METERS .....



## PHYSICAL MEASUREMENT



Industry



Energy - Production, Transmission & Distribution



Nuclear

## 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	C.A 2150	C.A 2200
		Economical programmable range for industrial use		Programmable range for universal use	
Front-panel format (mm)		24 x 48	48 x 96	48 x 96	48 x 96
Display range (counts)		-1,999/+9,999	-1,999/+9,999	-19,999/+19,999	-32,000/+32,000
Measurement functions	AC ammeter	μDIGI1 E	μDIGI2 E	C.A 2150-E	
	AC voltmeter	μDIGI1 E	μDIGI2 E	C.A 2150-E	
	Frequency meter	μDIGI1 F		C.A 2150-D	C.A 2200-D
	DC ammeter	μDIGI1 E	μDIGI2 E	C.A 2150-E	
	DC voltmeter	μDIGI1 E	μDIGI2 E	C.A 2150-E	
	Process signals	μDIGI1 P/LP	μDIGI2 P	C.A 2150-M	C.A 2200-P
	Thermocouple thermometer	μDIGI1 T	μDIGI2 P	C.A 2150-M	C.A 2200-T
	Pt 100 thermometer	μDIGI1 T	μDIGI2 P	C.A 2150-M	C.A 2200-T
	Ohmmeter		μDIGI2 P		
	Tachometer	μDIGI1 F	μDIGI2 TAC	C.A 2150-D	C.A 2200-D
	Counter			C.A 2150-D	C.A 2200-D
	Chronometer			C.A 2150-D	C.A 2200-D
	Load cell			C.A 2150-M	C.A 2200-C
	Potentiometer		μDIGI2 P	C.A 2150-M	C.A 2200-P
Special functions	MIN/MAX	μDIGI1 ALP		C.A 2150-E/D/M	C.A 2200-D/P/T/C
Output(s)	Analog output			Option	Option
	RS232 output			Option	Option
	RS485 output	μDIGI1 ALP		Option	Option
	Threshold output(s)		Option	Option	Option
	BCD output				Option
User-programmable					

## TO ORDER ▼

### μDIGI1

Model	Power supply / Communication	References
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
μDIGI1-T	85 - 265 Vac & 100 - 300 Vdc	P01 330 041
	22 - 53 Vac & 10.5 - 70 Vdc	P01 330 042
μDIGI1-F	85 - 265 Vac & 100 - 300 Vdc	P01 330 021
	22 - 53 Vac & 10.5 - 70 Vdc	P01 330 022
μDIGI1-ALP	85 - 265 Vac & 100 - 300 Vdc	P01 330 051
	22 - 53 Vac & 10.5 - 70 Vdc	P01 330 052
	85 - 265 Vac & 100 - 300 Vdc / RS485	P01 330 061
	22 - 53 Vac & 10.5 - 70 Vdc / RS485	P01 330 062

### μDIGI2

Model	Power supply / Communication	References
μDIGI2-E	85 - 265 Vac & 11 - 265 Vdc	P01 330 081
μDIGI2-P	85 - 265 Vac & 11 - 265 Vdc	P01 330 080
μDIGI2-TAC		Contact us

### C.A 2150

Model	Power supply / Communication	References
C.A 2150-E	85 - 265 Vac & 100 - 300 Vdc	P01 308 005
	22 - 53 Vac & 10.5 - 70 Vdc	P01 308 006
C.A 2150-M	85 - 265 Vac & 100 - 300 Vdc	P01 308 001
	22 - 53 Vac & 10.5 - 70 Vdc	P01 308 002
C.A 2150-D	85 - 265 Vac & 100 - 300 Vdc	P01 308 003
	22 - 53 Vac & 10.5 - 70 Vdc	P01 308 004

### C.A 2200

Model		Auxiliary power supply			Alarm		Analog output		Digital communication	
C.A 2200-P	C.A 2200-C	1:	3:	5:	X: None	1: 2 relays	X: None		X: Without	4: BCD
C.A 2200-T	C.A 2200-D	115/230 Vac	24/48 Vac	10/30 Vac	2: 4 relays	3: 4 transistors	1: 0-10 V/4-20 mA		3: RS485	2: RS232
Example C.A 2200-P		1			X		X		3	

\* \* If you choose the BCD output, the alarm and analog outputs are cancelled

# ANALOG PANEL METERS .....



## PHYSICAL MEASUREMENT



Industry



Energy - Production, Transmission & Distribution



Nuclear

## With round barrel for day-to-day industrial requirements

### CLASSIC RANGE

- Numerous customization possibilities for switchboard and machine manufacturers
- ATEX model available



Front-panel format	48 x 48	72 x 72	96 x 96
<b>Standard functions</b>			
<b>AC ammeter</b>	90°	90° 240°	90° 240°
	Direct connection ..... 5, 10, 20, 30 A ratings Connection to 5 A CT ..... 5 A ... 5,000 A ratings		
<b>AC voltmeter</b>	90°	90° 240°	90° 240°
	Direct connection ..... 15 V ... 500 V ratings Connection to VT ..... 100 V ... 100/√3 V ratings		
<b>Dial frequency meter</b>		90° 100 - 230 - 400 V ratings	
<b>Wattmeter / varmeter</b>		90° 240° 0 - 20 mA / 4 - 20 mA ratings	
<b>Phasemeter</b>		90° 240° 0 - 20 mA / 4 - 20 mA ratings	
<b>DC ammeter</b>	90°	90° 240°	90° 240°
	Direct connection ..... 5, 10, 15, 25 A, 0 - 20 mA / 4 - 20 mA ratings Connection to 100 mV shunt ..... 5 A ... 75 A, 50 mV ... 100 mV ratings		
<b>DC voltmeter</b>	90°	90° 240°	90° 240°
	Direct connection ..... 15 V ... 300 V ratings Reading of process signal ..... 0-1 V, 0-10 V ratings		

For the AC ammeter, ATEX model, direct connection / 1 and 5 A ratings

## 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 format	48 x 48	72 x 72	96 x 96	144 x 144
<b>Standard functions</b>				
<b>AC ammeter</b>	90° 250°	Direct connection ..... 5 A ... 50 A ratings Connection to 5 A CT ..... 5 A ... 5,000 A ratings		
<b>AC voltmeter</b>	90° 250°	Direct connection ..... 15 V ... 500 V ratings Connection to VT ..... 100 V ... 100/√3 V ratings		
<b>Dial frequency meter</b>		90° 250° 100 V - 230 V - 400 V ratings		
<b>Maximum ammeter</b>		90° Connection to TC		
<b>Wattmeter / varmeter</b>		90° 250° Single-phase networks - TE3F - TE4F - TNE3F - TNE4F		
<b>Phasemeter</b>		90° 250° Single-phase networks - TE 3/4 wires		
			360° TNE 3/4 wires	
<b>DC ammeter</b>	90° 250°	Direct connection ..... 5, 10, 15, 25 A ratings Connection to 100 mV shunt ..... 5 A ... 1,000 A ratings		
	90° 250°	Direct connection ..... 15 A ... 300 A ratings		
<b>DC voltmeter</b>				
<b>Synchronization instruments</b>			360° 50 Hz - 60 Hz	
<b>Double blade frequency meter</b>		2 x 9 blades 48-52 Hz / 58-62 Hz		
<b>Differential voltmeter</b>		90° 250° 100/√3 V - 100 V - 230 V - 400 V		
<b>Command function</b>				
<b>AC current / AC voltage</b>			90°	
<b>DC current / DC voltage</b>			90°	
<b>Temperature</b>			90°	

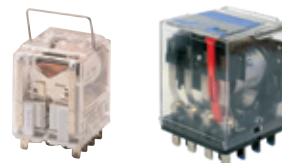


### Instantaneous relays

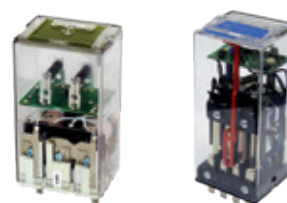
- Monostable
- Bistable
- Fast-acting

In	Number of contacts	Model	Monostable	Bistable	Fast	
					Monostable	Bistable
5-10 A	2, 4, 6, 8	POK, BiPOK, TriPOK, QuadriPOK				
10 A	4, 8, 12	OKN, OKFc, OKB184, OKSCd, OKSGcCd, OKSFcUIC	K3 (OKB184)			
13 A	4	F-OK B				
10 A	4 / 8	OK BA				
10 A	8	BAS8				
10 A	4	RE3000, RE3000S, RE3000N	K3 (RE 3000N)			
5 A	2 / 3 / 4 / 6	RV			≤ 6 ms	
10 A	2, 4	RCME, RDME				
12 A	4	RGME				
12 A	4	RGMZX				
12 A	3 / 4	RGBE				
10 A	4 / 8	RGMV1			≤ 8 ms	
12 A	3 / 4	RGBZ				≤ 12 ms
10 A	8 / 12 / 20	RMME				
10 A	4 / 8 / 16	RMNE				
10 A	7 / 11 / 19	RMBE				
10 A	8 / 12 / 20	RMBZ				
10 A	4 / 8 / 16	RMDE				
10 A	4 / 8	RMMV1			≤ 6 ms	
10 A	8	RMMZ11			≤ 13 ms	
10 A	7	RMBZ30				≤ 18 ms
10 A	2 / 4	RCG, RDG	à contacts guidés liés			

### Monostable



### Bistable



### Fast-acting



### Time-delay

- Time delay adjustable by switch, potentiometer or screw

In	Number of contacts	Model	Time-delay	Static
5 A	4	OK TmF, OK TmS	0.1 s to 9 h	
5 A	4, 3	OK TaB, OK TrB, OK TtB	1 s to 1 h	
10 A	4	TOK	1 s to 1 h	
-	1 (state)	F-OK TBAO/TBOR		0.5 s to 40 s
-	1 (state)	UTM		0.1 s to 9 h
10 A	4	RDTE	0.1 s to 16 h 30	

### Time-delay



### Solid-state timers



### Function relays

- Flasher relay
- Impulse relay
- Step relay
- Control relay

In	Number of contacts	Model	Function			
			Flasher	Impulse	Step	Control
5-10 A	1, 4, 4	OKCL, OKRe-L, TOK-L				
5-10 A	2, 4, 4	OKFP, OKRe-FP, TOK-FP				
10 A	4	BiPOKS-PP				
10 A	1	OKPh				
12 A	2	RGLE13				

### Flasher relay, impulse relay, step relay, control relay



**A wide range of sockets** are available: front connection, rear connection, Faston, blade or spring. The range of accessories proposed is also very broad: latching spring, clamp for mounting on bar, bar for mounting on panel, fastener for DIN rail, safety blank, etc.





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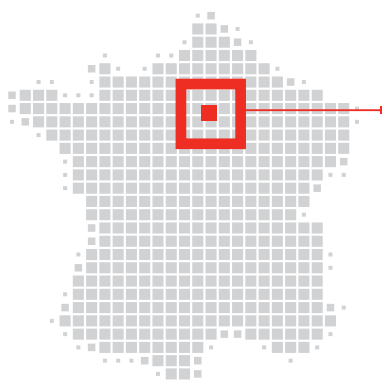
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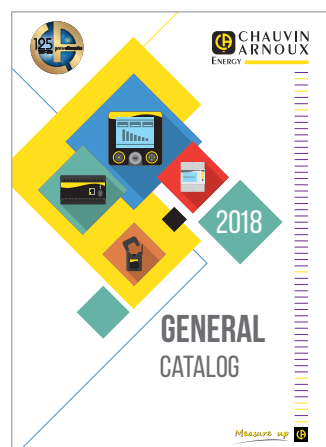
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