

T82N CATALOG

A RANGE OF TRANSDUCERS DEDICATED TO NUCLEAR ENVIRONMENTS

- More than **40 years'** experience in the nuclear sector
- Products **without programmable digital components**
- Configuration **on request**
- **K3-qualified** products



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

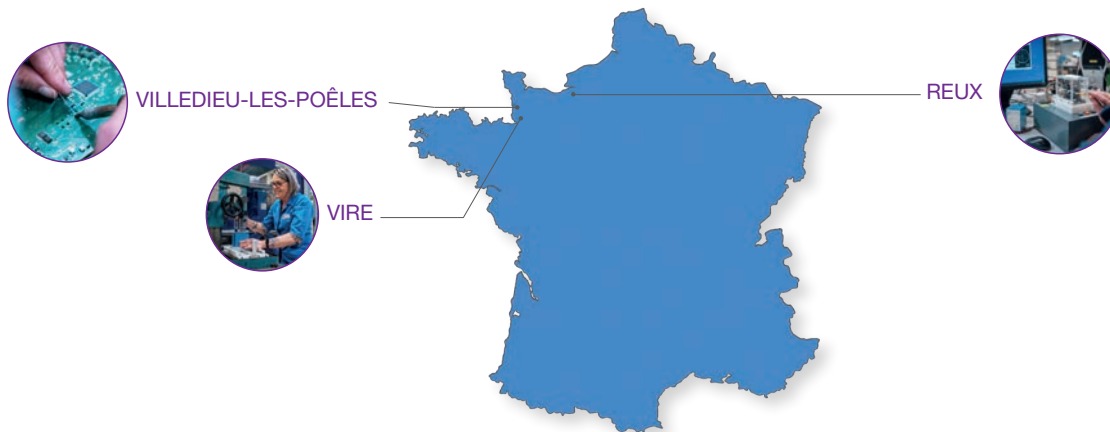
Chauvin Arnoux Energy, a French company in the Chauvin Arnoux Group, handles all aspects of product manufacturing; from design through to final testing of the equipment. Our teams guarantee the quality and reliability of all the instruments we supply, as well as support lasting decades.

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.

Our production sites and innovation center

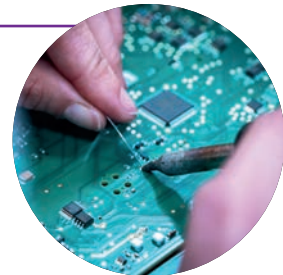
For Chauvin Arnoux, manufacturing in France is a matter of course. Our manufacturing “made in France” guarantees quality and traceability. Our mastery of the production chain enables us to monitor products and solutions bearing the Chauvin Arnoux brand.



VILLEDIEU-LES-POÊLES

More than a hundred people spread over an area of 4000 square meters dedicated mainly to manufacturing electronic items.

Here we make flexible or rigid single-sided and double-sided printed circuit boards up to Class V. 800,000 components can thus be assembled every week for CA Energy and the Group's other brands.



VIRE

Vire is the site where our current sensors are assembled. In two main buildings covering 4,300 and 1,400 square meters, respectively, 140 people produce our spare parts.

The first building produces the bar-turned, machined and milled mechanical parts for our measuring instruments and the screening or casings made of sheet metal. The second is dedicated to plastic injection for molding our products' casings.



REUX

10,000 square meters of buildings housing the Group's logistics, the spare parts warehouses, the assembly workshops, the finished products and the shipment department.

More than 60,000 references are managed in these warehouses, which group the parts needed to manufacture the measuring instruments assembled on the site and the finished products ready for shipment all over the world. The site is equipped with a single platform from which all the instruments from the Group's brands are shipped to France, our subsidiaries and the international markets.



T82N RANGE

Nuclear environments analog transducers for AC / DC / Temperature electrical quantities, class 0.5



Description

The **T82N** models measure an AC electrical quantity and convert it into a standardized, low-level DC current or voltage signal (e.g. 4...20 mA).

They are normally used in conjunction with analog or digital measuring instruments (panel meters, recorders, etc.), centralized supervision systems (PLCs, SCADA, building management automation systems, etc.) and are also incorporated in measurement and control loops.



USER SECTORS



Nuclear



Plug-in version with special socket for plate mounting or DIN rail mounting



- Ideal for the requirements of the nuclear market
- Plate-mounted and plug-in versions
- Configurable on request: Input quantities, transfer curve, output signal, etc.

IAR 1210B
RMS AC current

UAR 1210B
RMS AC voltage

FAR 1210B
Frequency

UCR 1420 / 1220B
DC voltage

QAR 1232B
Reactive power

PAR 1232B
Active power

JAR 1211B
Phase angle

RCL 1220B
Temperature

ELECTRICAL SPECIFICATIONS

Inputs

Short-term overload:

- U input: 2 U_n during 1s repeated 10 times
- I input: 20 I_n during 1s repeated 10 times

DC overload :

- U input: 1.2 U_n
- I input: 1.2 U_n

Frequency:

- 50 Hz (45....55 Hz)
- 60 Hz (55....65 Hz)

Analog output

- Accuracy: class 0.5 according to IEC 60688 April 2013
- Response time: 120 ms to 260 ms at 95 % of output current
- Current output operating resistance: 20 Ω / Is
- Influence of operating resistance: ± 0.1 % from 0 Ω to max. operating resistance
- Peak-to-peak ripple: 0.2 à 0.4 %

Auxiliary power supply

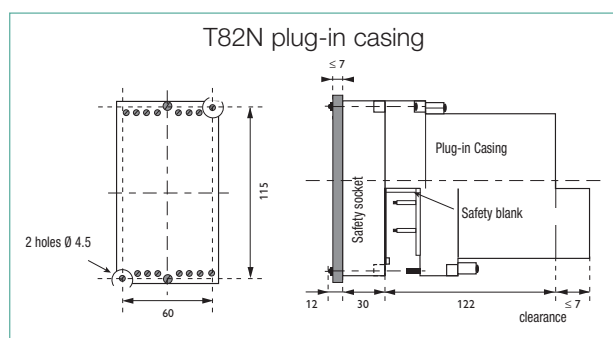
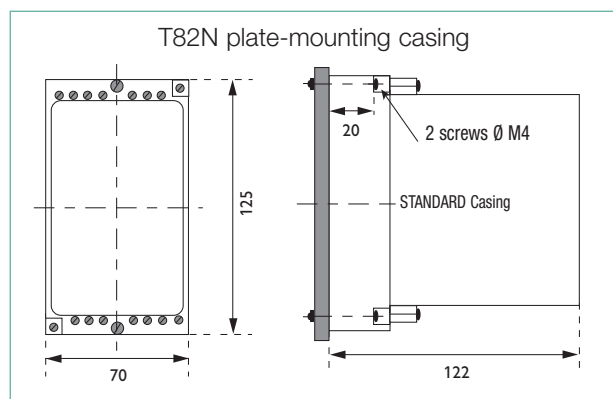
Operating range:

- ± 10 % from 100/ $\sqrt{3}$ Vac to 440 Vac
- ± 20 % from 24 to 125 Vdc

Consumption :

- ≤ 3 VA from 100/ $\sqrt{3}$ to 440 Vac
- ≤ 3 W from 24 to 125 Vdc

DIMENSION (IN MM)



REFERENCE STANDARDS

- **Electromagnetic compatibility:** 2014/30/CE(CEM) IEC 61326-1 (07/2013)
- **Safety:** 2006/95/CE IEC 61010-1 (01/2011)
- **Metrological:** IEC 60688 (04/2013)
- **Climatic:** IEC 60688 (04/2013)
- **Mechanical:** IEC 60068-2-6 (04/2008) IEC 60068-2-27 (07/2009)

OPERATING ENVIRONMENT

- **Operating temperature:** -10 to +60 °C
- **Operating humidity:** Up to 95 % to 45 °C
- **Storage temperature:** -25 to +70 °C

CASINGS

- **Screw connection** terminals, 2 x 2.5 mm² or 1 x 6 mm²
- **IP20 protection** rating as per IEC 60529
- **Weight :** 0.60 to 0.85 kg (Socket: 0.25 kg)

MOUNTING ACCESSORIES

- **Connection socket for plug-in Casing**

Socket		
Model	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

- **Mounting on DIN rail for plate-mounting or plug-in Casing**

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

ELECTRICAL CONNECTIONS

MS01-7562 or the User's Manuals.



Vac

ASSOCIATED PRODUCTS



Normeurope analog panel meters

Round / square barrel

For viewing an instantaneous and variable quantity.



Sockets

For plug-in casings



Mounting on DIN rail

Plate-mounting or plug-in

RMS AC VOLTAGE

Model	UAR 1210B
Transfer curve	
Linear	■
Casing	
Fixed / plate-mounting	0.7 kg
Measurement input	
Voltage Un	Direct or on VT: "100/√3" "110/√3" "115/√3" "120/√3" "132/√3" "90" "100" "110" "115" "120" "127" "132" "138" "180" "220" "250" "300" "360" "380 Vac
Frequency Fn	50 Hz ±5 Hz and 60 Hz ±5 Hz
Measurement range 0...Xmax	0...1.25 Un
Consumption	1kΩ/ V or 0.4 VA at 400 Vac
Analog output	
Current	0...Ymax "0/1 mA" "0/2.5 mA" "0/5 mA" "0/10 mA" "0/20 mA"
	Ymin...Ymax "1/5 mA" "2/10 mA" "4/20 mA"
Voltage	0...Ymax "0/1 V" "0/5 V" "0/10 V"
	Ymin...Ymax "1/5 V" "2/10 V"
Accuracy	0.5 %
Auxiliary supply	
Alternating current	"100/√3 Vac" "110/√3 Vac" "115/√3 Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac" "220 Vac" "230 Vac" "240 Vac"
Direct current	"24 Vdc" "48 Vdc" "110 Vdc" "125 Vdc"
Casing protection rating	
Fixed / plate-mounting	IP20

CUSTOMIZED PRODUCT

	Model	Casing	Direct Un or on VT	Measurement range	Fn	Analog output	Auxiliary supply	Protection	Tropicalization
Example	UAR 1210 B	Fixed	Direct 100 Vac	0...120 Vac	50 Hz	4-20 mA	220 Vac	IP 20	<input checked="" type="checkbox"/>



IAC

ASSOCIATED PRODUCTS



Normeurope analog panel meters

Round / square barrel
For viewing an instantaneous and variable quantity.



Sockets

For plug-in casings



Mounting on DIN rail

Plate-mounting or plug-in

RMS AC CURRENT

Model	IAR 1210B
Transfer curve	
Linear	■
Casing	
Fixed / plate-mounting	0.7 kg
Measurement input	
Current In	Direct 0.5 to 10 A or on CT 1/5 A
Frequency Fn	50 Hz ± 5 Hz and 60 Hz ± 5 Hz
Measurement range 0...Xmax	0 to In and 0 to 1.3 In if CT present
Consumption	≤ 0.2 VA
Analog output	
Current	0...Ymax "0/1 mA" "0/2.5 mA" "0/5 mA" "0/10 mA" "0/20 mA"
	Ymin...Ymax "1/5 mA" "2/10 mA" "4/20 mA"
Voltage	0...Ymax "0/1 V" "0/5 V" "0/10 V"
	Ymin...Ymax "1/5 V" "2/10 V"
Accuracy	0.5 %
Auxiliary supply	
Alternating current	"100/ $\sqrt{3}$ Vac" "110/ $\sqrt{3}$ Vac" "115/ $\sqrt{3}$ Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac" "220 Vac" "230 Vac" "240 Vac"
Direct current	"24 Vdc" "48 Vdc" "110 Vdc" "125 Vdc"
Casing protection rating	
Fixed / plate-mounting	IP20

CUSTOMIZED PRODUCT

	Model	Casing	Direct In or on CT	Measurement range	Fn	Analog output	Auxiliary supply	Protection	Tropicalization
Example	IAR 1210 B	Fixed	1000/5 A	0...1300 A	50 Hz	4-20 mA	48 Vdc	IP 20	<input checked="" type="checkbox"/>



P

ASSOCIATED PRODUCTS



Normeurope analog panel meters

Round / square barrel

For viewing an instantaneous and variable quantity.



Sockets

For plug-in casings



Mounting on DIN rail

Plate-mounting or plug-in

ACTIVE POWER

Model

PAR 1232 B

Network + connections

Balanced three-phase - 3 wires



Unbalanced three-phase - 3 / 4 wires



Transfer curve

Linear



Casing

Fixed / plate-mounting

0.85 kg

Measurement input

Current In

Direct or on CT: "1" "5"

Ph-N voltage Un

Direct or on VT "100/√3" "110/√3" "115/√3" "400/√3"

Ph-Ph voltage Un

Direct or on VT: "100" "110" "115" "120" "127" "230" "240" "380" "400"

Frequency Fn

50 Hz ±5 Hz and 60 Hz ±5 Hz

Measurement range 0...Xmax

±1.35 ≥Sn⁽¹⁾ ≥ ±0.50

Consumption

I input: ≤ 0.2 VA ; U input: ≥ 500 Ω/ V

Analog output

Current	0...Ymax	"0/1 mA" "0/2.5 mA" "0/5 mA" "0/10 mA" "0/20 mA"
	Ymin...Ymax	"1/5 mA" "2/10 mA" "4/20 mA" "1/3/5 mA" "2/6/10 mA" "4/12/20 mA" "-1/0/1 mA" "-2.5/0/2.5 mA" "-5/0/5 mA" "-10/0/10 mA" "-20/0/20 mA"
Voltage	0...Ymax	"0/1 V" "0/5 V" "0/10 V"
	Ymin...Ymax	"1/5V" "2/10V" "-1/0/1V" "-5/0/5V" "-10/0/10 V"

Accuracy

0.5 %

Auxiliary supply

Alternating current	"100/√3 Vac" "110/√3 Vac" "115/√3 Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac" "220 Vac" "230 Vac" "240 Vac"
Direct current	"24 Vdc" "48 Vdc" "110 Vdc" "125 Vdc"
Self-powered	For voltages "100 Vac" "110 Vac" "115 Vac" "120 Vac" "127 Vac" "230 Vac" "240 Vac"

Casing protection rating

Fixed / plate-mounting

IP20

(1) $S_n = \sqrt{x \cdot I \cdot \cos \varphi}$ (single-phase network) $S_n = 3 \times \sqrt{x \cdot I \cdot \cos \varphi}$ (Balanced three-phase, Unbalanced three-phase 4 wires)
 $S_n = \sqrt{3 \times U \cdot I \cdot \cos \varphi}$ (Network TE, TNE 3 fils)

★ Parameters to be specified when ordering

CUSTOMIZED PRODUCT

	Model	Network	Casing	Direct In or on CT	Direct Un or on VT	Measurement range	Fn	Analog output	Auxiliary supply	Protection	Tropicalization
★											
Example	PAR 1232 B	Unbal. 3ph 4 wires	Fixed	CT 1000/ 5 A	VT 20 kV/ 100 V	0... 120 Vac	50 Hz	4-20 mA	220 Vac	IP 20	✓



Q

ASSOCIATED PRODUCTS



Normeurope analog panel meters

Round / square barrel
For viewing an instantaneous and variable quantity.



Sockets

For plug-in casings



Mounting on DIN rail

Plate-mounting or plug-in

REACTIVE POWER

Model

QAR 1232B

Network + connections

Unbalanced three-phase - 3 / 4 wires

Transfer curve

Linear

Casing

Fixed / plate-mounting

0.85 kg

Measurement input

Current In

Direct or on CT: "1" "5"

Ph-N voltage Un

Direct or on VT "100/√3" "110/√3" "115/√3" "400/√3"

Ph-Ph voltage Un

Direct or on VT "100" "110" "115" "120" "127" "230" "240" "380" "400"

Frequency Fn

50 Hz ±5 Hz and 60 Hz ±5 Hz

Measurement range 0...Xmax

±1.35 ≥Sn⁽¹⁾ ≥ ±0.50

Consumption

I input: ≤ 0.2 VA ; U input: ≥ 500 Ω/ V

Analog output

Current	0...Ymax	"0/1 mA" "0/2.5 mA" "0/5 mA" "0/10 mA" "0/20 mA"
	Ymin...Ymax	"1/5 mA" "2/10 mA" "4/20 mA" "1/3/5 mA" "2/6/10 mA" "4/12/20 mA" "-1/0/1 mA" "-2.5/0/2.5 mA" "-5/0/5 mA" "-10/0/10 mA" "-20/0/20 mA"
Voltage	0...Ymax	"0/1 V" "0/5 V" "0/10 V"
	Ymin...Ymax	"1/5V" "2/10V" "-1/0/1V" "-5/0/5V" "-10/0/10 V"

Accuracy

0.5 %

Auxiliary supply

Alternating current "100/√3 Vac" "110/√3 Vac" "115/√3 Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac"
"220 Vac" "230 Vac" "240 Vac"

Direct current

"24 Vdc" "48 Vdc" "110 Vdc" "125 Vdc"

Self-powered

For voltages "100 Vac" "110 Vac" "115 Vac" "120 Vac" "127 Vac" "230 Vac" "240 Vac"

Casing protection rating

Fixed / plate-mounting

IP20

(1) $S_n = \sqrt{3} \times I \times \cos \varphi$ (single-phase network) $S_n = 3 \times \sqrt{3} \times I \times \cos \varphi$ (Balanced three-phase, Unbalanced three-phase 4 wires)

$S_n = \sqrt{3} \times U \times I \times \cos \varphi$ (Balanced three-phase, Unbalanced three-phase 3 wires)

★ Parameters to be specified when ordering

CUSTOMIZED PRODUCT

	Model	Network	Casing	Direct In or on CT	Direct Un or on VT	Measurement range	Fn	Analog output	Auxiliary supply	Protection	Tropicalization
★											
Example	QAR 1232 B	Unbal. 3ph 4 wires	Fixed	CT 1000/ 5 A	VT 20 kV/ 100 V	0... 2.77 MW	50 Hz	4...20 mA	220 Vac	IP 20	<input checked="" type="checkbox"/>



F

ASSOCIATED PRODUCTS



Normeurope analog panel meters

Round / square barrel

For viewing an instantaneous and variable quantity.



Sockets

For plug-in casings



Mounting on DIN rail

Plate-mounting or plug-in

FREQUENCY

Model	FAR 1210B	
Measurement		
Measurement type	Effective value	
Input type	■	
Casing		
Fixed / plate-mounting	0.7 kg	
Measurement input		
Voltage Un	Direct or on VT : "100/√3" "110/√3" "115/√3" "100" "110" "115" "120" "127" "230" "240" "380"	
Measurement range Xmin...Xmax	"45/55 Hz" "48/52 Hz" "49/51 Hz" "55/65 Hz" "58/62 Hz" "59/61 Hz"	
Consumption	1 k Ω / V	
Analog output		
Transfer curve	Linear	
Current	0...Ymax	"0/1 mA" "0/2.5 mA" "0/5 mA" "0/10 mA" "0/20 mA"
	Ymin...Ymax	"1/5 mA" "2/10 mA" "4/20 mA"
Voltage	0...Ymax	"0/1 V" "0/5 V" "0/10 V"
	Ymin...Ymax	"1/5V" "2/10V"
Accuracy	0.5 %	
Auxiliary supply		
Alternating current	"100/√3 Vac" "110/√3 Vac" "115/√3 Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac" "220 Vac" "230 Vac" "240 Vac"	
Direct current	"24 Vdc" "48 Vdc" "110 Vdc" "125 Vdc"	
Self-powered	■	
Casing protection rating		
Fixed / plate-mounting	IP20	

★ Parameters to be specified when ordering

CUSTOMIZED PRODUCT

	Model	Casing	Direct Un or on VT	Measurement range	Analog output	Auxiliary supply	Protection	Tropicalization
★								
Example	FAR 1210 B	Fixed	Direct 100 Vac	45...55 Hz	4...20 mA	220 Vac	IP 20	☑



FP

ASSOCIATED PRODUCTS



Normeurope analog panel meters

Round / square barrel
For viewing an instantaneous and variable quantity.



Sockets

For plug-in casings



Mounting on DIN rail

Plate-mounting or plug-in

PHASE ANGLE

Model		JAR 1211B
Network		
Single-phase		■
Casing		
Fixed/plug-in		0.7 kg
Measurement input		
In Current		Direct or on CT: "1" "5" "10 A"
Un Voltage		Direct or on VT : "100/√3" "110/√3" "115/√3" "100" "110" "115" "127" "230" "240" "380" "400"
Fn Frequency		50 Hz, 60 Hz
Measurement range 0...Xmax		0,5AV-1-0,2AR / 0,5AV-1-0,5AR / 0,8AV-1-0,2AR
Consumption		Input I: ≤ 0.3 VA; Input U: ≥ 1 kV / V
Analog output		
		Linear
Current	0...Ymax	"0/1 mA" "0/2 mA" "0/2.5 mA" "0/5 mA" "0/10 mA" "0/20mA"
	Ymin...Ymax	"4/20 mA"
Voltage	0...Ymax	"0/1 V" "0/5 V" "0/10 V"
	Ymin...Ymax	"1/5V" "2/10V"
Accuracy		0.5 %
Auxiliary power supply		
Alternating current		"100/√3 Vac" "110/√3 Vac" "115/√3 Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac" "220 Vac" "230 Vac" "240 Vac"
Direct current		"24 Vdc" "48 Vdc" "110 Vdc" "125 Vdc"
Self-powered		■
Protection for casing		
Fixed/plug-in		IP20

★ Parameters to be specified when ordering

CUSTOMIZED PRODUCT

★	Model	Casing	In Direct or on CT	Un Direct or on VT	Measurement range	Analog output	Auxiliary power supply	Protection	Tropicalization
Example	JAR 1211 B	Fixed	CT 1000/5 A	Direct : 100 Vac	0.5 LEAD/1/ 0.5 LAG	4/20 mA	220 Vac	IP 20	✓



T°C

TEMPERATURE

ASSOCIATED PRODUCTS



Normeurope analog panel meters

Round / square barrel
For viewing an instantaneous and variable quantity.



Sockets

For plug-in casings





Mounting on DIN rail

Plate-mounting or plug-in



**CHAUVIN
ARNOUX**
PYROCONTROLE

Thermocouple/probe:
Pyrocontrol Catalog

Model	RCL1220B		
Measurement			
Temperature			
Transfer curve			
Linear			
Casing			
Fixed	0.7 kg		
Plug-in	0.7 kg		
Measurement input			
Type	Platinum		Copper
Thermocouple break safety	Max output or Min output		
Mounting	2, 3 or 4 wires		
Measurement range Xmin ... Xmax	0 ... 500°C		0 ... 200°C
Current in probe	2 mA		3 mA
Line resistance	0–2 Ω, on request, up to 10 Ω for pt100 ≥ 100°C		
Analog output			
Current	0...Ymax	"0/1 mA" "0/2.5 mA" "0/5 mA" "0/10 mA" "0/20 mA"	
	Ymin...Ymax	"1/5 mA" "2/10 mA" "4/20 mA"	
Voltage	0...Ymax	"0/1 V" "0/5 V" "0/10 V"	
	Ymin...Ymax	"1/5 V" "2/10 V"	
Accuracy	0.5 %		
Auxiliary power supply			
Alternating current	"100/√3 VAC" "110/√3 VAC" "115/√3 VAC" "100 VAC" "110 VAC" "115 VAC" "127 VAC" "220 VAC" "230 VAC" "240 VAC"		
Direct current	"24 VDC" "48 VDC" "110 VDC" "125 VDC"		
Casing protection			
Fixed	IP20		
Plug-in	IP20		

CUSTOMIZED PRODUCT

	Model	Casing	Sensor type	Safety	Mounting	Line resistance	Analog output	Auxiliary power supply	Ingress protection	Tropicalization
Example	RCL1220B	Fixed	Plate	Max output	3 wires	2 Ω	4...20 mA	48Vdc	IP 20	✓

FRANCE

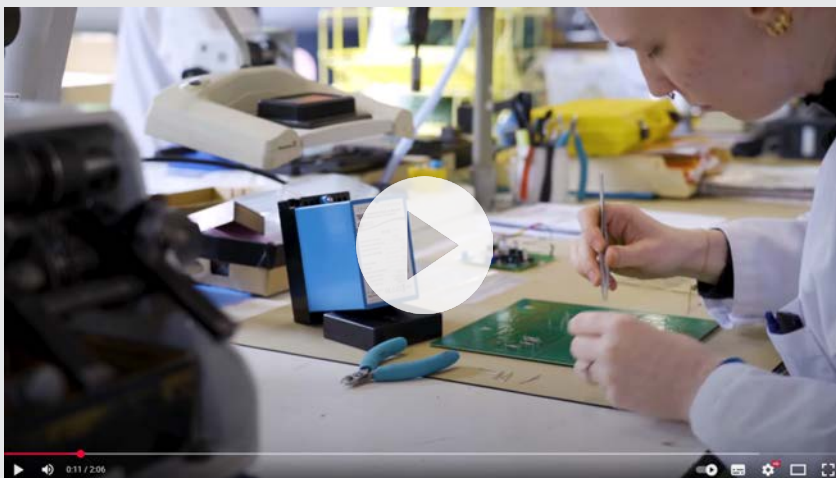
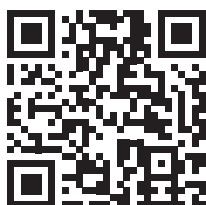
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Discover
our range of T82N analogue
converters in this video



Measure up

1982

Birth of the first T82, developed for the needs of nuclear power stations and transport networks.

2004

First phase of K3 qualification by EDF.

2007

Full qualification of the T82 range. National and international recognition.

2021

Following regulatory changes, our T82 models are now T82N.
First K3 qualification for the models:
IAR1210B
(Effective AC current)
UAR 1210B
(Effective AC voltage)
PAR1232B
(Active power)
QAR1232B
(Reactive power)

2022

K3 qualification of models:
FAR1210B
(Frequency)
JAR1211B
(Phase angle)

2025

New features:
RCL
(Temperature)
UCR
(DC voltage)
UCR
(DC current)

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