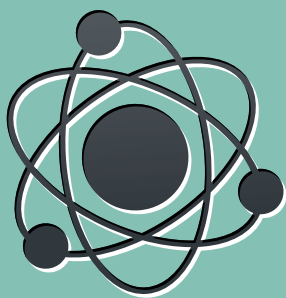


2022 T82N CATALOG



A RANGE OF TRANSDUCERS DEDICATED TO NUCLEAR ENVIRONNEMENTS

More than **40 years'** experience
in the nuclear sector

Products **without programmable
digital components**

Configuration **on request**

K3-qualified products



ABOUT

THE CHAUVIN ARNOUX GROUP AND CHAUVIN ARNOUX ENERGY

Founded in 1893 by Raphaël Chauvin and René Arnoux, CHAUVIN ARNOUX is an expert in the measurement of electrical and physical quantities in the industrial and tertiary sectors. Total mastery of product design and manufacturing in-house enables the Group to constantly innovate and to propose a very broad product and service offering meeting all its customers' needs.

The Group's quality policy ensures that we provide products meeting our undertakings and compliant with the international and national standards, in the metrological, environmental and user-safety sectors.

Chauvin Arnoux Energy, part of the Chauvin Arnoux Group, specializes in fixed equipment for measuring and supervising electrical networks in order to meet the needs of cutting-edge industries involving harsh environments and intensive use.



ELECTRICITY GENERATION

Chauvin Arnoux Energy meets the specific requirements of the nuclear industry by providing expertise developed and acknowledged for more than 40 years.



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 checking of the equipment. Our teams guarantee the quality and reliability of all the instruments supplied while ensuring they remain available for several decades.

A long-term offering

Total mastery of our industrial know-how in our French factories and our ability to follow the changes on our markets help us to guarantee that our products benefit from constant quality and long-term availability.

MANUFACTURED IN OUR FRENCH FACTORIES

We draw on all our factories' know-how to manufacture our T82N transducers



Production of fully-equipped PCBs



Assembly, adjustment and inspection
Drafting of End-Of-Production Report (EOPR) for K3 products



Casing production: plastic injection



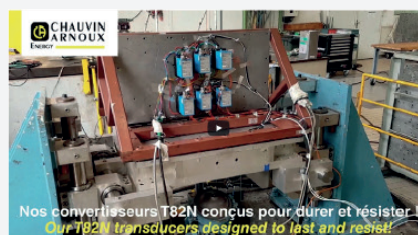
Dedicated T82N line

ZOOM

Discover one of the K3 qualification steps

WaCTh one of the major steps: seismic resistance testing.

Scan to waCTh the video



Nos convertisseurs T82N conçus pour durer et résister !
Our T82N transducers designed to last and resist!

T82N RANGE



Analog transducers for AC electrical quantities, Class 0.5.

Description

T82N transducers measure an AC electrical quantity and convert it into a normalized low-level DC current or voltage signal (e.g. 4...20 mA).

Traditionally, they are then hooked up to analog or digital measuring instruments (panel meters, loggers, eCT).



- Configurable on request: input quantities, transfer curve, output signal, eCT.
- Fixed or plug-in mounting modes
- Socket equipped with a current short-circuiting swiCh as standard.

ZOOM



Plug-in version on special socket which can itself be surface-panel mounted or fixed to a DIN rail

IAR 1210B

RMS AC current

UAR 1210B

RMS AC voltage

QAR 1232B

Reactive power

PAR 1232B

Active power

FAR 1210B

Frequency

JAR 1211B

Phase angle



Electrical specifications

• Inputs

- Short-term overload:
U input: 2 Un 1s repeated 10 times
I input: 20 In 1s repeated 10 times
- Continuous overload :
U input: 1.2 Un
I input: 1.2 Un
- Frequency:
50 Hz (45...55 Hz)
60 Hz (55...65 Hz)

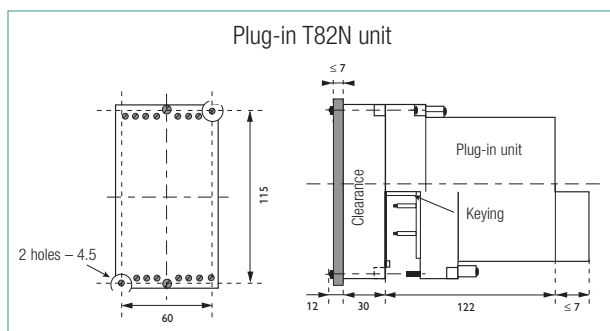
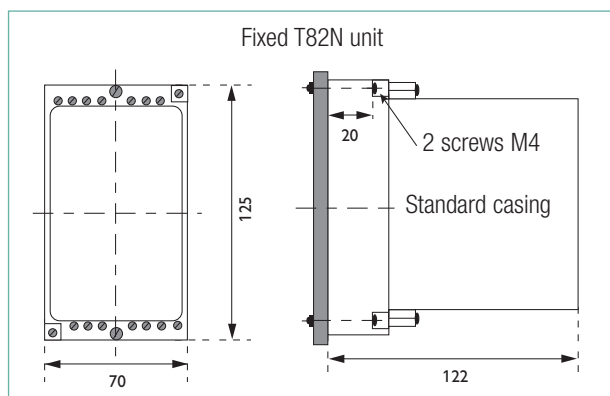
• Analog output

- Accuracy: Class 0.5 as per IEC 60688 dated April 2013
- Response time: 120 ms to 260 ms at 95 %
- Current output operating resistance: 20 V / Is
- Influence of operating resistance:
0.1 % from 0 Ω to max. Rut
- Peak-to-peak ripple: 0.2 to 0.4 %

• Auxiliary power supply

- Operating range:
± 10 % from 100/√3 Vac to 440 Vac
± 20 % from 24 to 125 Vdc
- Consumption:
≤ 3 VA from 100/√3 to 440 Vac
≤ 3 W from 24 to 125 Vdc

DIMENSIONS (MM)



Reference standards

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

Operating range

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

Casings

- **Connection** via screw terminals 2 x 25 mm² or 1 x 6 mm²
- **IP20 ingress protection** as per IEC 60529
- **Weight:** 0.70 to 0.85 kg (socket: 0.25 kg)

Mounting accessories

- 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

- 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

Electrical connections

See document MS 0/1-7562



RMS AC voltage

Model		UAR 1210 B
Transfer curve		
	Lineare	■
Casing		
	Fixed/plug-in	0.7 kg
Measurement input		
	Un Voltage	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
	Fn Frequency	50 Hz ±5 Hz and 60 Hz ±5 Hz
	Measurement range 0...Xmax	0...1.25 Un
	Consumption	1kΩ/V , i.e. 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 power supply		
	AC	"100/√3 Vac" "110/√3 Vac" "115/√3 Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac" "220 Vac" "230 Vac" "240 Vac" "380 Vac" "400 Vac" "440 Vac"
	DC	"24 Vdc" "48 Vdc" "110 Vdc" "125 Vdc"
Protection for casing		
	Fixed/plug-in	IP20

Tailored product

	Model	Casing	Un Direct or on CT	Measurement range	Fn	Analog output	Auxiliary power 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"/>

RELATED PRODUCTS



Normeurope analog panel meters

Round / square barrel
For viewing an instantaneous variable quantity.
See the 2022 General Catalog



Sockets

For plug-in units



DIN-rail mounting

Fixed or plug-in



RMS AC current

Model		IAR 1210 B
Transfer curve		
	Linear	■
Casing		
	Fixed/plug-in	0.7 kg
Measurement input		
	In Current	Direct 0.5 to 10 A or on 1/5 A CT
	Fn Frequency	50 Hz \pm 5 Hz and 60 Hz \pm 5 Hz
	Measurement range 0...Xmax	0 to In and 0 to 1.3 In of CT present
	Consumption	\leq 0.2VA
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		
	AC	<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> <380 Vac> <400 Vac> <440 Vac>
	DC	"24 Vdc" "48 Vdc" "110 Vdc" "125 Vdc"
Protection for casing		
	Fixed/plug-in	IP20

Tailored product

	Model	Casing	In Direct or on CT	Measurement range	Fn	Analog output	Auxiliary power supply	Protection	Tropicalization
Example	IAR 1210 B	Fixed	1 000/5 A	0...1 300 A	50 Hz	4...20 mA	48 Vdc	IP 20	<input checked="" type="checkbox"/>

RELATED PRODUCTS



Normeurope analog panel meters

Round / square barrel
For viewing an instantaneous variable quantity.
See the 2022 General Catalog



Sockets For plug-in units



DIN-rail mounting Fixed or plug-in



Active power

Model		PAR 1232 B
Networks		
	TE 3 wires	<input type="checkbox"/>
	TNE 3/4 wires	<input type="checkbox"/>
Transfer curve		
	Linear	<input type="checkbox"/>
Casing		
	Fixed/plug-in	0.85 kg
Measurement input		
	In Current	Direct or on CT : "1" "5"
	Un Voltage	Direct or on VT "57.73" "63.51" "66.4" "230"
	Un Voltage	Direct or on VT "100" "110" "115" "120" "127" "230" "240" "380" "400"
	Fn Frequency	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 power supply		
	AC	"100/√3 Vac" "110/√3 Vac" "115/√3 Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac" "220 Vac" "230 Vac" "240 Vac" "380 Vac" "400 Vac" "440 Vac"
	DC	"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" "380 Vac" "400 Vac"
Protection for casing		
	Fixed/plug-in	IP20

(1) $S_n = V \times I \times \cos \varphi$ (single-phase network) $S_n = 3 \times V \times I \times \cos \varphi$ (TE, TNE 4-wire networks)
 $S_n = \sqrt{3} \times U \times I \times \cos \varphi$ (TE, TNE 3-wire networks)

Parameters to indicate when ordering

Tailored product

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

RELATED PRODUCTS



Normeurope analog panel meters

Round / square barrel
 For viewing an instantaneous variable quantity.

See the 2022 General Catalog



Sockets

For plug-in modules



DIN-rail mounting

Fixed or plug-in



Reactive power

Model		QAR 1232 B
Networks		
	TNE 3 / 4 wires	■
Transfer curve		
	Linear	■
Casing		
	Fixed/plug-in	0.85 kg
Measurement input		
	In Current	Direct or on CT : "1" "5"
	Un Voltage	Direct or on VT "57.73" "63.51" "66,4" "230"
	Un Voltage	Direct or on VT "100" "110" "115" "120" "127" "230" "240" "380" "400"
	Fn Frequency	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 power supply		
	AC	"100/√3 Vac" "110/√3 Vac" "115/√3 Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac" "220 Vac" "230 Vac" "240 Vac" "380 Vac" "400 Vac" "440 Vac"
	DC	"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" "380 Vac" "400 Vac"
Protection for casing		
	Fixed/plug-in	IP20

(1) $S_n = V \times I \times \cos \varphi$ (single-phase network) $S_n = 3 \times V \times I \times \cos \varphi$ (TE, TNE 4-wire networks)
 $S_n = \sqrt{3} \times U \times I \times \cos \varphi$ (TE, TNE 3-wire networks)

■ Parameters to indicate when ordering

Tailored product

	Model	Network	Casing	In Direct or on CT	Un Direct or on VT	Measurement range	Fn	Analog output	Auxiliary power supply	Protection	Tropicalization
Example	QAR 1232 B	TNE 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	✓

RELATED PRODUCTS



Normeurope analog panel meters

Round / square barrel
 For viewing an instantaneous variable quantity.
 See the 2022 General Catalog



Sockets

For plug-in units



DIN-rail mounting

Fixed or plug-in



Frequency

Model		FAR 1210 B
Measurement		
Type of measurement		RMS value
Type of input		<input type="checkbox"/>
Casing		
Fixed/plug-in		0.7 kg
Measurement input		
Un Voltage		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" "-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 power supply		
AC		"100/√3 Vac" "110/√3 Vac" "115/√3 Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac" "220 Vac" "230 Vac" "240 Vac" "380 Vac" "400 Vac" "440 Vac"
DC		"24 Vdc" "48 Vdc" "110 Vdc" "125 Vdc"
Self-powered		<input type="checkbox"/>
Protection for casing		
Fixed/plug-in		IP20

Parameters to indicate when ordering

Tailored product

	Model	Casing	Un Direct or on VT	Measurement range	Analog output	Auxiliary power supply	Protection	Tropicalization
Example	FAR 1210 B	Fixed	Direct 100 Vac	45...55 Hz	4...20 mA	220 Vac	IP 20	<input checked="" type="checkbox"/>

RELATED PRODUCTS



Normeurope analog panel meters

Round / square barrel
For viewing an instantaneous variable quantity.

See the 2022 General Catalog



Sockets

For plug-in units



DIN-rail mounting

Fixed or plug-in



Angle de phase

Model		JAR 1211 B
Networks		
	Single-phase	<input checked="" type="checkbox"/>
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	±1.35 ≥Sn ⁽¹⁾ ≥ ±0.50
	Consumption	I input: ≤ 0.3 VA; U input: ≥ 1 kΩ/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	1 %
Auxiliary power supply		
	AC	"100/√3 Vac" "110/√3 Vac" "115/√3 Vac" "100 Vac" "110 Vac" "115 Vac" "127 Vac" "220 Vac" "230 Vac" "240 Vac" "380 Vac" "400 Vac" "440 Vac"
	DC	"24 Vdc" "48 Vdc" "110 Vdc" "125 Vdc"
	Self-powered	<input checked="" type="checkbox"/>
Protection for casing		
	Fixed/plug-in	IP20

Parameters to indicate when ordering

Tailored 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 AV/1/0.5 AR	4/20 mA	220 Vac	IP 20	<input checked="" type="checkbox"/>

RELATED PRODUCTS



Normeurope analog panel meters

Round / square barrel
For viewing an instantaneous variable quantity.
See the 2022 General Catalog



Sockets For plug-in units



DIN-rail mounting Fixed or plug-in

THE STORY OF OUR TRANSDUCERS

ANALOG ELECTRONICS KNOW-HOW FOR HARSH ENVIRONMENTS



LAUNCH OF THE T82

K3 QUALIFICATION OF THE T82

K3 QUALIFICATION OF THE T82N



1982

2004

2007

2021

2022

Launch of the first T82 model developed to meet the needs of nuclear power plants and transmission networks.

First phase of K3 qualification by EDF.

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

After changes to the standards, our T82 models became T82N models. Initial K3 qualification of the following models:
 IAR1210B (RMS AC current)
 UAR 1210B (RMS AC voltage)
 PAR1232B (Active power)
 QAR1232B (Reactive power)

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

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