T82N
RANGE

Nuclear environments.Analog transducers for AC electrical quantities,class 0.5.

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.**

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.

IAR 1210B
RMS AC current

UAR 1210B
RMS AC voltage

FAR 1210B
Frequency

UCR 1420B
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 Un during 1s repeated 10 times
- I input: 20 In during 1s repeated 10 times

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

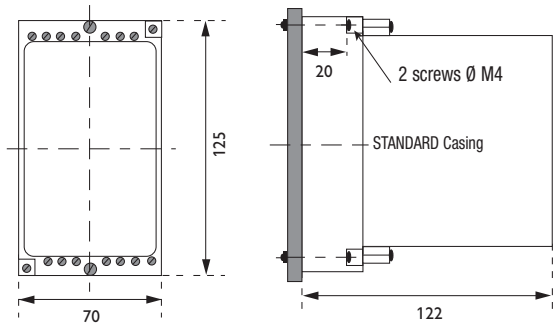
• **Auxiliary power supply**

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

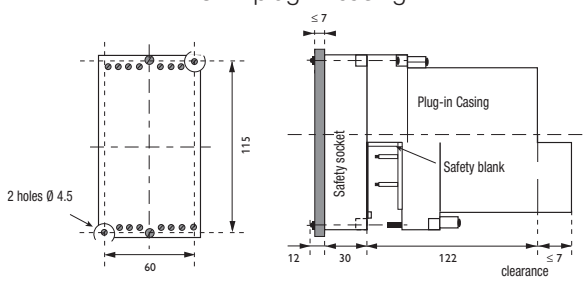
Consumption :
- ≤ 3 VA from 100/√3 to 440 Vac
- ≤ 3 W from 24 to 125 Vdc

DIMENSION (IN MM)

T82N plate-mounting casing



T82N plug-in casing



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.

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Mounting on DIN rail

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RMS AC VOLTAGE

Model		UAR 1210 B
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		
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**	☑

Iac

ASSOCIATED PRODUCTS

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Round / square barrel

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RMS AC VOLTAGE

Model		IAR 1210 B
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/√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 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**	☑

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ASSOCIATED PRODUCTS

Normeurope analog panel meters

Round / square barrel

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REACTIVE 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: "57.73" "63,51" "66,4" "230"
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) Sn = √ x I x cos φ (single-phase network)) Sn = 3 x √ x I x cos φ (Balanced three-phase, Unbalanced three-phase 4 wires)
Sn = √3 x U x I x cos φ (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	☑

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ASSOCIATED PRODUCTS

Normeurope analog panel meters

Round / square barrel

For viewing an instantaneous and variable quantity.

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REACTIVE POWER

Model		QAR 1232 B
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 "57.73" "63.51" "66.4" "230"
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) Sn = √ x I x cos φ (single-phase network) Sn = 3 x √ x I x cos φ (Balanced three-phase, Unbalanced three-phase 4 wires)
Sn = √3 x U x I x cos φ (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	☑

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ASSOCIATED PRODUCTS

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Round / square barrel

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REACTIVE POWER

Model		FAR 1210 B
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" "-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		■
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**	☑

PF

ASSOCIATED PRODUCTS

Normeurope analog panel meters

Round / square barrel

For viewing an instantaneous and variable quantity.

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Mounting on DIN rail

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PHASE ANGLE

Model		JAR 1211 B
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		±1.35 ≥Sn(1) ≥ ±0.50
Consumption		Input I: ≤ 0.3 VA; Input U: ≥ 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		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**	☑

Vdc

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VOLTAGE DC

Model		UCR1420B
Measurement		
DC voltage		■
Transfer curve		
Linear		■
Casing		
Fixed		0.7 kg
Plug-in		0.7 kg
Voltage input		
Voltage Un		5mV ⩽ Un ⩽ 300V
Measurement range 0 … Xmax		5mV ... 300V
Input resistance		Umax ⩽ 0.3V : 1MΩ Umax ⩽ 20V : 30kΩ + (10kΩ / Umax) Umax ⩽ 200V : Umax * 10kΩ Umax > 200V : 2.5MΩ
Analog output		
Current	0…Ymax	"0/1 mA" "0/2.5 mA" "0/5 mA" "0/10 mA" "0/20 mA
	Ymin…Ymax	"0/1 mA" "0/2.5 mA" "0/5 mA" "0/10 mA" "0/20 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

★ Parameters to indicate when ordering

CUSTOMIZED PRODUCT

	Model	Casing	Measurement range	Analog output	Auxiliary power supply	Ingress protection	Tropicalization
★							
Example	UCR1420B	Fixed	0…150Vdc	4…20 mA	48Vdc	IP 20	☑

T°C

TEMPERATURE

ASSOCIATED PRODUCTS

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CHAUVIN ARNOUX PYROCONTROLE

Thermocouple/probe:
Pyrocontrole Catalog

Model		RCL 1220B	
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		0.5%	
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	RCR1220B	Fixed	Plate	Max output	3 wires	2 Ω	4...20 mA	48Vdc	IP 20	☑