

ELECTRICAL NETWORK TRANSDUCER

Measurement of deformed signals for all types of electrical networks, wave train and phase angle

TRM3 TA

The TRM3 TA is an insulated **measure transducer** which allows converting parameters from AC electrical networks of any kind of shape : wave train, phase angle, syncopate..., for single or 3-phase loads supplied by thyristor gradators.

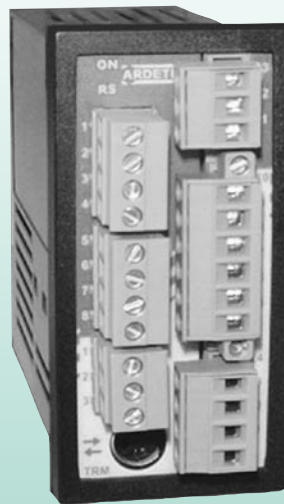
Measurement of RMS values, active power, p. factor, energies, current and voltage peaks.

Universal, with more than **24 measurable parameters** which can be assigned on choice by programming on the output channels.

Moreover, it is fully configurable by the user with the PC software.

Functions

- ◆ **Programmable input calibers :**
1A and 5A_{AC} current,
(safened by a screwed connecting)
150V and 500V_{AC} voltage.
- ◆ **Galvanic partition :**
Inputs/Supply /outputs : 2 kV (4KV optional)
Between outputs : 1 kV

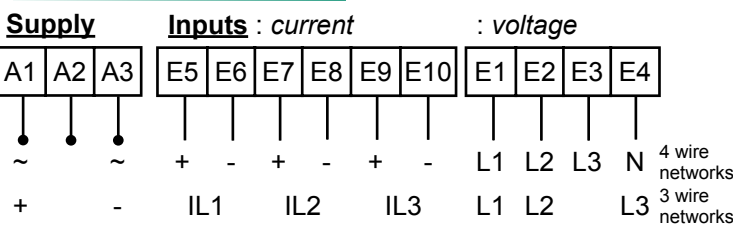


- ◆ Broad supply range.
- ◆ Variable response time according to the period of the deformed signal. Watching of the current and voltage max. on all the network periods.
- ◆ Programmable measure cycle according to the modulation period (20ms to 80s : mode manual) or adjusted automatically (mode automatic)

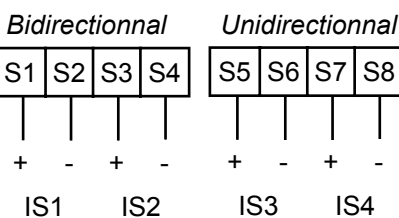
Output options

- ◆ **Analog outputs and / or relay :**
(up to 4 possible outputs)
 - *Uni and bidirectional current outputs :*
0/5mA, 0/10mA, 0/20mA, 4/20mA
-5/5mA, -10/10mA, -20/20mA
 - *Voltage outputs (optional) :*
-10/10V, 0/10V, -5/5V, 0/5V
 - *Relay outputs : setpoint or pulses*
- ◆ **Digital output Modbus/Jbus**
Digital data link RS485 2 wire

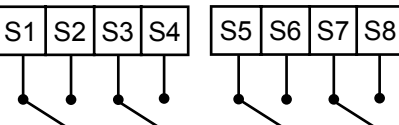
Wiring



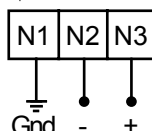
Analog outputs



Relay outputs



Data link RS485

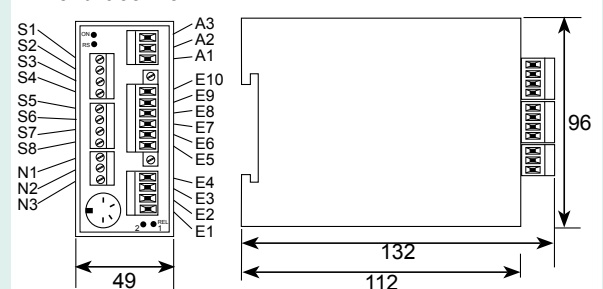


(for details of the wiring see the manual delivered with the instrument)

Presentation

Dimensions : (H x L x D) 96 x 49 x 112 mm
(P=132, with terminals)

Front face view



- ◆ **Protection :** Housing / terminals : IP 20
- ◆ **Case :** Self-extinguishing housing of black UL94VO ABS Latching on symmetrical DIN rail. Plug-off connectors for screwed connecting (2.5mm², flexible or rigid).
- ◆ **Weight :** 400g (with packaging)
- ◆ **Operating T° :** 0°C to +55°C.
- ◆ **Storage T° :** -25°C to +70°C.
- ◆ Climatic trials (10 days) : 40°C/93%HR. IEC 60068-2-3-30
- ◆ **CE marking**

Technical features

TRM 3 TA

Inputs	
<u>Voltage</u>	2 programmable calibers Un = 150 and 500 Vac
<u>Current</u>	2 programmable calibers 1 and 5 A In = 1.2 and 6 Aac
<u>Oversteppings</u>	measurable : 1.2 Un and 1.2 In
<u>Overloads</u>	Permanent : 750 V, 10 A During 10s : 1000 V, 50 A
<u>Power draw</u>	Voltage input : resistance 1 MΩ Current input: < 0.2 VA
<u>Test voltage</u>	2KV/50Hz/1min.
<u>Frequency</u>	50Hz (option : 60 Hz)
<u>Type of network</u>	Single or 3 phase balanced with or without neutral 4 or 6 wire
<u>Thermic drift</u>	< 200ppm
1 to 4 possible outputs : analog and/or relay.	
<u>Analog outputs</u> (option A)	
<u>Galvanic partition</u>	2KV (option:4KV)
<u>Output signal</u>	Programmable (in mA) : 2 bidirectionnal : -20/20 -10/10 -5/5 mA 2 unidirectionnal : 0/5 0/10 0/20 4/20 mA
<u>Scale setting</u>	0 to 100% of measure range by progr.
<u>Admissible load</u>	Up to 600 Ω (20 mA)
<u>Resolution</u>	24000 points
<u>Accuracy</u>	< 0.1% of full scale on -20/20mA (in relation to the display) < 0.2% on -5/5mA
<u>Residual ripple</u>	±2,5 mV (peak to peak) on 50 Ω load
<u>Response time</u>	<120ms for Umax and Imax 2x (measure cycle) for the other values
<u>Thermic drifts</u>	<100ppm (±20mA) <200ppm (0/20mA)
<u>Relay outputs</u> (option R) (setpoint or pulses)	
<u>Galvanic partition</u>	2KV (option:4KV)
<u>Type of contact</u>	On potential free contact
<u>Rated load</u>	5A - 250 Vac
<u>Response time</u>	100 ms for Umax and Imax 2x(measure cycle) for the other values
<u>Pulse output</u>	
<u>Count rate</u>	1 to 4 pulses per second.
<u>Width of the pulses</u>	100 to 400ms by programming
<u>Weight of the pulses</u>	programmable
<u>Setpoint output</u>	
<u>Hysteresis</u>	Adjusting of the setpoints programmable.
<u>Time delay</u>	Programmable, 0 to 15% of the setpoint. Programmable, 0 to 15 sec.
<u>Up to 24 measurable parameters</u>	
<u>Measured parameters</u>	Single and mesh voltages, line current, active and apparent powers, phase cosines and total cosine, active energies in and out, RMS values...
<u>Accuracy rating</u>	Voltage, Current : 0.5 Power : 1 (IEC 60688) Energies : 2 (5A) and 3 (1A)
<u>Phase angle :</u>	Voltage, Current : 0.2 Power : 0.5 Energies : 1 (5A) and 2 (1A) (IEC61036) (Saved every 5 min.).
<u>Wave train :</u>	Real time simultaneous sampling of the voltage and current. Digital calculation on 32 bits. Measurement of the deformed signals.
<u>Measuring method</u>	Programmable on several levels
<u>Digital filtering</u>	Variable according to the period of the deformed signal (between 20ms and 80s).
<u>Measure cycle</u>	
<u>Digital output RS 485</u> (option N)	
<u>Galvanic partition</u>	2KV
<u>Type</u>	2 wire
<u>Speeds</u>	4800 / 9600 / 19200 bauds
<u>Protocole</u>	Modbus/Jbus RTU 8 bits, programmable parity. 1 or 2 stop bits.
<u>Format of the data</u>	programmable, integer 16 bits.
<u>Power supply</u>	
<u>2 Versions : High or low voltage (to be specified on order)</u>	
<u>High voltage (2)</u>	90...270 Vac or 88...350 Vdc
<u>Low voltage (3)</u>	20...40 Vac or 20...60 Vdc
<u>Power draw</u>	5 VA

Coding

Type : TRM 3 TA

Options : A R N I

Possible output combinations : analog and/or relays

2A : option 2 bidirectionnal analog outputs

4A : option 2 uni. and 2 bidirectionnal outputs

2R : option 2 relay outputs

4R : option 4 relay outputs

N : option digital output RS422/485

I : option network frequency at 60Hz

Power supply : High or low voltage (specify)

(2) HT : high voltage : 90...270 VAC or 88...350 VDC

(3) BT : low voltage : 20...40 VAC or 20...60 VDC

Option to be specified

Voltage outputs : -10 / +10 V 0 / +10 V -5 / +5 V 0 / +5 V

Galvanic partition 4 KV

Order example :

- For a TRM3 TA with 2 relay outputs, 2 analog outputs and a digital output, in high voltage power supply, request reference : **TRM3 TA 2A2RN-2**

This instrument is dedicated to industrial applications. It has to be mounted in an electrical switchbox, or equivalent.



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