

DIGITAL MEASURE TRANSMITTER

true RMS measure

TRM4/ μ TAC400

ARDETEM

SFERE



Type

The transmitters **TRM4/ μ TAC400** are especially designed for the **measurement**, the **control** and the **transmission** of all the parameters of AC electrical networks: voltage, current, power, energy, frequency, etc...

Easy programming, accessible by PC via the software *SuperVISION / MCvision*.

Environment

- Operating temperature: -10°C to +55°C.
- Storage temperature: -25°C to +70°C.
- marking

Functions

- Universal, **32 measurable parameters**, for all network types.

They accept as input by programming:

Current: 1A and 5A AC

Voltage: 100V L-N / 175V L-L and 330V L-N / 600V L-L

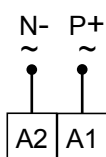
- Quick cycle time: 40ms
- Universal (switching) power supply

Options

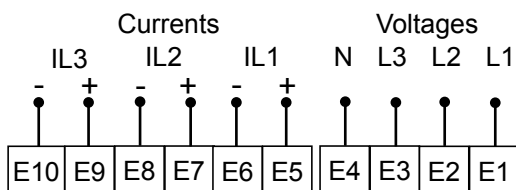
- ♦ Analog outputs (up to 5 outputs)
- ♦ Relay outputs
- ♦ Digital data link RS485
- ♦ Profibus output
- ♦ Ethernet output (Modbus TCP)
- ♦ Harmonics analysis

Wiring

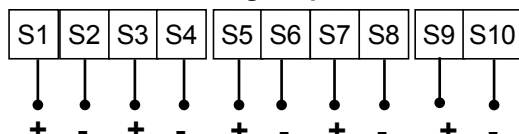
Power supply



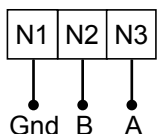
Inputs



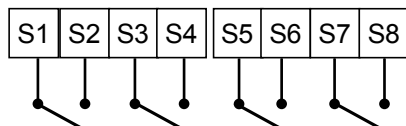
Analog outputs



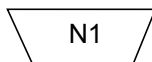
RS485 output



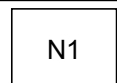
Relay outputs



Profibus output



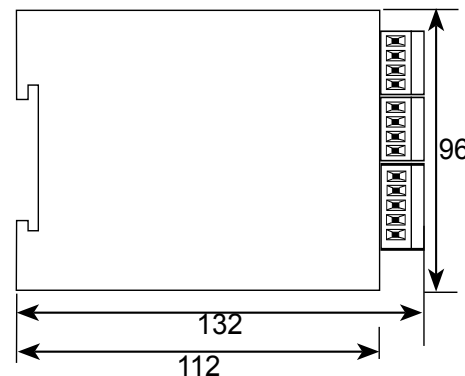
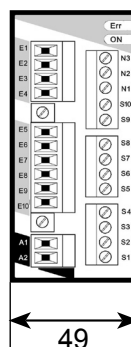
Ethernet output



Dimensions

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

Front face view



Protection : Case / terminals: IP 20

Housing : Self-extinguishing case of black UL94VO ABS
For latching on symmetrical DIN rail
Plug-off connectors for screwed connections (2.5mm², flexible or rigid)

Weight : 200g to 500g



Technical features

Inputs

- **Voltage** 2 programmable ranges:
Un=100V L-N / 175V L-L and 330V L-N / 600V L-L
 - **Current** 2 programmable ranges: 1 & 5A (In=1.2A & In=6A)
- Measurable oversteppings* 1.2 In; 1.2 Un
- Overloads* permanent: 750 V, 2 In
during 10 s: 1000 V, 10 In
- Power draw* voltage input: resistances 1 MΩ
current input: < 0.2 VA
- Test voltage* 2 kV / 50 Hz / 1 min.
- Frequency* 10...50...65 Hz (other frequencies: consult)
- Network type* single or 3-phase balanced/unbalanced with or without neutral

Outputs

- **RS485 output (option ☐ N)**

Type 3 wire (galvanic partition / inputs 2 KV)

Speed 4800 / 9600 / 19200 bauds

Protocol Modbus / Jbus RTU 8 bits programmable parity

Format of the data Integer 16 bits (table of the units) or 32 bits decimal points and units fixed.
- **Relay outputs (option ☐ R)**

Type of contact on potential free contact (galvanic partition: 2KV)
output 1NO

Rated load 5A - 250 VAC

 - either **SETPOINT OUTPUT**

Setting of the setpoints : 0 to 100% of the measure range (program.)

Switching hysteresis : 0 to 15% of the setpoint (programmable)

Time delay : 0 to 15s (programmable)
 - or **PULSE OUTPUT**

Count rate : 4 / 2 / 1 pulses per second according to the programmed width

Width of the pulses : 100 / 200 / 400ms (programmable)
- **Analog outputs (option ☐ A)**

Galvanic partition 1kV (between outputs)
2kV (inputs). 3 bidirectional outputs, possibility of isolation at 4kV (optional).

Output signal programmable:
Bidirectional outputs (up to 3 outputs):
-20/20mA -10/10mA
-5/5mA 0/5mA 0/10mA 0/20mA 4/20mA
Unidirectional outputs (up to 2 outputs):
0/5mA 0/10mA 0/20mA 4/20mA

Scale setting 0 to 100% of the measure range (programmable)

Admissible load up to 600Ω (20mA)

Accuracy of the card < 0.1% of the full scale on -20/20mA
< 0.2% on -5/5mA

Max. residual ripple >25mV (peak to peak) on 500Ω load

Response time typical 60ms maximum<100ms (input/output)

Thermal drifts < 120 ppm caliber -20/+20mA
< 200 ppm caliber 0/20 mA

• Ethernet output (option ☐ F)

- Protocole* TCP/IP (Modbus)
- Speed* 10 / 100M
- Connection* RJ45

Embarked web server for the configuration, the reading of the measures and the management of the measures storage memory.

• Profibus output (option ☐ PB)

- Type* PROFIBUS DP slave
- Speed* Up to 12Mbauds
- Address* Configurable with the soft. SuperVISION/MCvision
- Connection* DB9 Female

• Harmonics analysis (option ☐ H)

Measurement of the voltage and current harmonics of the 3 phases up to rank 50. Retransmission possible in Modbus.

Supply

- Universal power supply
20...270 VAC / 20...300 VDC
- Power draw 6 VA max. in AC, 3.5W max. in DC

Measure

• 32 measurable parameters

- Accuracy rating* Voltages, currents: 0.2 (IEC688-1)
Powers: class 0.5 (IEC688-1)
Active energy: class 1 (IEC62053-21)
Reactive energy: class 2 (IEC62053-23)
- Option P:* Active power: class 0.2 (IEC688-1)
Active energy: class 0.5 (IEC62053-22)
Reactive energy: class 1 (IEC62053-24)
- Thermal drifts* < 200ppm
- Measuring method* Fast simultaneous sampling of the 3 voltages and the 3 currents. Digital calculation on 32 bits. Measuring of deformed signals, sampling frequency 6.4KHz
- Digital filtering* Programmable on several levels
- Energies* Saved
- Cycle time* 40ms (for all network types)

Wiring

With detailed manual, supplied with the instrument.

Coding

Types:

ARDETEM reference: TRM4

SFERE reference: μTAC400

3U, 3V, 3 I, cos φ, cos φ/phase, F, P 10/15min., Q 10/15min., S, P/phase, Q/phase, leak current, E active, E reactive, inductive and capacitive

Options available for all types: ☐ H Harmonics analysis

☐ P option class 0.2

With/without RS485 outputs ☐ N (possibility to have up to 5 outputs),

- Options:** ☐ 2R 2 relay outputs
☐ 4R 4 relay outputs
☐ 2A 2 analog unidirectional outputs
☐ 3A 3 analog bidirectional outputs
☐ 4A 2 unidirectional outputs, 2 bidirectional outputs
☐ 5A 2 unidirectional outputs, 3 bidirectional outputs

Profibus output ☐ PB,

Options: ☐ R 2 relay outputs

Ethernet output ☐ F,

Options: ☐ A 1 bidirectional analog output
☐ R 2 relay outputs

Order example:

• For a TRM4 or a μTAC400 with 2 relay outputs (setpoint or pulses), 3 bidirectional analog outputs and RS485 digital data link, request the reference: **TRM4/μTAC400 3A 2R N**

• For a TRM4 or a μTAC400 with 5 analog outputs and RS485 digital data link, request the reference: **TRM4/μTAC400 5A N**

This appliance is designed for industrial applications. It has to be installed in an electrical cabinet, or equivalent.



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