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MODEL T/P (Temperatures and Process)

INTELLIGENT
PANEL
METER



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FEMA ELECTRÓNICA, S.A.

TAS-1

INTELLIGENT PANEL METER MODEL T/P (Temperatures and Process)

- PROCESS TEMPERATURES RESISTANCES
- UNIVERSAL INPUT SIGNAL
- 4 ALARMS WITH MESSAGE AND 2 RELAYS
- AUXILIARY VOLTAGE FOR TRANSDUCERS

- FRONTAL PROTECTION IP65 / NEMA4
- DIRECT PROGRAMMING VIA KEYPADS
- ADVANCED PROGRAMMING VIA INPUT CODES
- MAINTENANCE AND PROGRAMMING VIA PC

FEMA ELECTRONICA announces the new series TAS-1 of Intelligent Panel Meters, 96x48 mm, which incorporate a new A/D converter system for sensors allowing the unit to reach effective resolutions on display of 32000 counts, with a high stability against thermal variations.

The instrument TAS-1 model T/P, has 5 digits on display and measures process signals (unipolar and bipolar, for DC voltages and currents), temperatures (PT100/RTD and Thermocouples) and resistances.

Reprogramming the unit is specially simple and fast, with direct access to high and low indication levels, and alarm setpoint levels. It also allows 'in situ' final corrections on signal input levels, with a direct access to signal adjust function.

The TAS-1 series can be connected to a computer with a simple plug&play system, and the support software allows a complete reprogramming and maintenance of the unit. The TAS-1 unit keeps always a real time communication with the software.

The TAS-1 has 2 relays controlled by alarms 1 and 2, and has the capability to add expansion boards for output communications and control, thus integrating the TAS-1 series into the world of industrial communications.

The TAS-1 series comply with demanding security and electromagnetic compatibility regulations, as stated on CE directives. The production of the TAS-1 is controlled according to high quality standards.

FEMA ELECTRÓNICA is certified with the quality standard ISO 9001.

For temperature we measure thermocouples and PT100/RTD sensors, internal or external cold junction compensation, several measure and calibration standards for temperature are selectable, indication in Celsius or Fahrenheit, ...

For process we measure a wide variety of unipolar and bipolar voltages and currents, indication and signal adjustments, tare function, ...

For resistances we measure potentiometers from 100Ω to 5KΩ, and resistances up to 5KΩ.

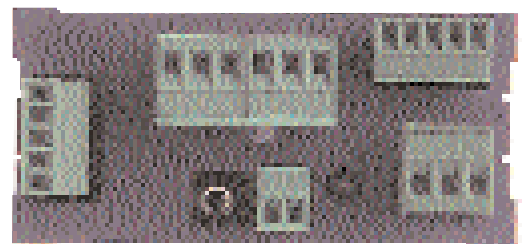
Alarm configuration allows direct access to setpoint values, configure each alarm as high or low, hysteresis and activation delays, control of alarm led, display of alarm text, 2 relays outputs, ...

Standard Power Supply 230/115 Vac, 50/60 Hz.
Optional Power Supply 24 Vdc.



Universal Signal Input for Thermocouples, PT-100/RTD, mV, mA, and V (unipolar and bipolar signals), and resistance measures.

Rear side view of the instrument, with connections for input and output signals, via pushin connectors. Jack connector for computer communicators.



At the display we have 32000 points of effective resolution, display filters, least significant digit blockade, control of 'left zeros', real time indication or average value configurable, ...

Direct access via keypad to the most usual functions, decimal point selection, alarm setpoints, adjustment of input signal high and low level (span and offset), and 'in situ' adjustment for the active signal.

Programming Codes are used for advanced programming, input signal types and their ranges, unit rebound to default configuration, password blockade, activation of Security Mode system for error status treatment, ...

- 32000 COUNTS EFFECTIVE RESOLUTION
- REACTION TO SENSOR BREAKING
- REACTION TO INCORRECT CONNECTIONS
- AUTOMATIC ADJUSTMENT OF INPUT SIGNAL

Instrument for panel mounting, 96 x 48 mm.
 Side clips for fast and firm panel fixation.
 Frontal protection IP/65/NEMA4



5 Digits (-19999/+32000 counts)
 4 Alarms / 2 relays
 Direct Acces keypads for manual configuration.

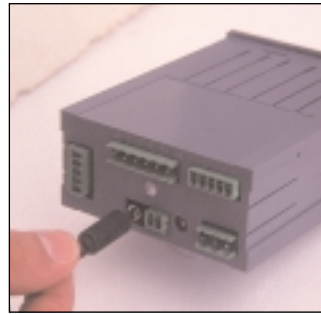
Software for configuration and maintenance

The TAS-1 series are manufactured with the capability to be completely configured and controlled via computer. This capability allows an easy and direct reprogramming and maintenance of the instrument, with a visual and intuitive interface.

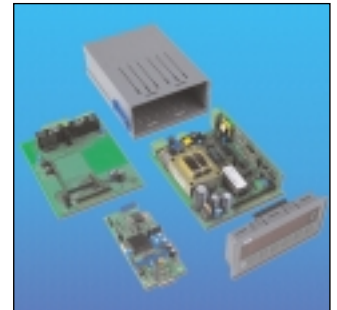
The TAS-1 communicates with the PC via the jack connector placed at the rear of the instrument, or via the RS485 communications board. At the PC, the control software establishes communication with the TAS-1 and maintains on the screen a real-time information about the instrument.

Communication between TAS-1 and the PC does not interfere with the normal function of the instrument. Thus, while a TAS-1 is operating in-field, we can proceed with a portable computer to the adjustment of alarm values, indication values, hysteresis, ...

- INTELLIGENT EXPANSION BOARDS
- ANALOG OUTPUT BOARD 4 ... 20 mA *
- MODBUS - RS485 COMMUNICATIONS BOARD *
- 2 EXTERNAL KEYPAD CONTROLS OR 1 EXTERNAL ISOLATED CONTROL *



Direct connection to a PC for easy reprogramming and real time control of the instrument, as standard option. Cable adapter and communications software provided when needed.



Expansion Boards

The functionality of the TAS-1 series can be increased with the incorporation of intelligent expansion boards. These plug&play boards can be easily added, and allow the instrument to expand its capabilities to the field of industrial communications and control.

Whenever there is a need for a new communication protocol, a new board can be developed and directly plugged into the instrument.

*RS485 Serial Communications
 Protocol MODBUS RTU, PROFIBUS *

* Analog Output 4...20 mA *

* External keypad controls *

* ...

The easiness of adding a new board to the TAS-1 makes this product highly stable against changes on market needs and allows the instrument to be always on top with the new technologies and advanced protocols.

* Contact for Availability

GENERAL SPECIFICATIONS

Indication

Display 5 Digits, 7 Segments, Red Led HighBrightness
 Digit Height 14,2 mm. / 0,56"
 Filter Anti-reflexive
 Range from - 19999 to 32000
 Refresh 5 /sec. (Filter selectable)

A/D Converter

Speed 14 readings/sec.
 Resolution 16 BIT + sign (± 65000 counts)
 CMRR > 130 dB

Alarms and Control Outputs

4 alarms on display
 2 Relays Open/ Closed 2 A. (non inductive), 250 Vac

Auxiliary Voltage for Transducers

Voltage From 10 to 24 Vdc. regulated (adjustable)
 Isolation 500 Vdc
 Current 50 mA. Maximum

Power Supply

Standard: 230 Vac 50/60 Hz. Consumption 3,5W Max
 115 Vac 50/60Hz. Consumption 3,8W Max
 Optional: 24 Vdc. Isolation 1kV. Consumption 4W Max

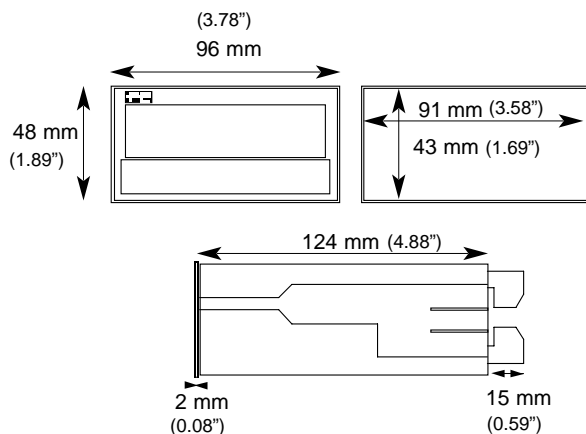
Environmental Data

Working Temperature 0 ... + 50 °C
 Storage Temperature - 20 ... + 85 °C
 Humidity 0 ... 85%, non condensated

Mechanical Characteristics

Dimensions Standard size 1/8 DIN
 96 x 48 x 124 mm. (3,78" x 1,89" x 4,88")
 Frontal IP65 protection (NEMA 4)
 Weight 0,5 Kgs

Dimensions and Panel Cut-Out



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APPLICATIONS

Voltage Inputs

Ranges 0...25mV, 100mV, 1V, 10V, 100V
 ± 100 mV, ± 10 V
 Accuracy 0,05% from reading ± 1 count
 Thermal Drift ± 100 ppm/°C
 Input Impedance 10 M Ω for $V_{in} < 1V$
 500K Ω for $V_{in} > 1V$
 Effective Resolution > 32.000 counts

Current Inputs

Ranges 0/4...20mA, 0/10...50mA
 ± 1 mA, ± 5 mA
 Accuracy 0,05% from reading ± 1 count
 (add 0,02% F.S. for 4...20mA and 10...50mA)
 ± 100 ppm/°C
 Thermal Drift ± 100 ppm/°C
 Input Impedance 3V drop and 10 Ω
 (equivalent to 160 Ω for 20mA)
 Effective Resolution > 32.000 counts

PT100 Input

System 2, 3 and 4 wires selectable
 Excitation Current 250 uA
 Range -200 to +850°C (4-400 Ω)
 Accuracy $\pm 0,3^\circ$ C Typical ($\pm 0,5^\circ$ F)
 Cable Compensation 10 Ω
 Thermal Drift 0,1°C / °C
 Units °C / °F
 Resolution 1° / 0,1°
 Programmable Response to sensor breaking.

Thermocouple Inputs

Type	Range	Accuracy
J	-210°C ... +750°C	0,5 °C
K	-270°C ... +1370°C	0,5 °C
T	-270°C ... +400°C	0,5 °C
B	0°C ... +1800°C	1,0 °C
E	-270°C ... +1000°C	0,5 °C
R	-50°C ... +1770°C	0,7 °C
S	-50°C ... +1770°C	0,7 °C
DIN «J»	-210°C ... +750°C	0,5 °C

Units °C / °F
 Resolution 1° / 0,1°
 Cold Junction Compensation Internal / External
 «CJC» Accuracy 0,5°C to 25°C
 «CJC» Thermal Drift including compensation 0,15°C/°C Typical
 Programmable Response to sensor breaking.

Potentiometer Input

Range 100 to 400 Ω
 400 to 5 K Ω
 (Expandible with an external resistance)
 Excitation Current 250 uA
 Accuracy 0,05% F.S.
 Resolution >10.000 counts
 Thermal Drift ± 100 ppm/°C
 Programmable Response to sensor breaking.

Resistance input

Range 0 ... 5 k Ω
 Excitation Current 250uA
 Accuracy 1 Ω ± 1 count
 Resolution 0,2 Ω
 Thermal Drift ± 100 ppm/°C
 Programmable Response to sensor breaking.

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