TIS

PROGRAMMABLE INDICATOR

CE c(UL)us IP 65 / NEMA 4X

- UNIVERSAL, 3 WIRE- TC, RTD AND LINEAR INPUT
- INPUT FILTER AND RANGE SCALING
- ISOLATED PV RETRANSMISSION
- ISOLATED 24V TRANSMITTER POWER SUPPLY
- 2x INDEPENDENT ALARMS
- PEAK MAX/ MIN LEVEL MEMORY
- IP 65 AND NEMA 4X FRONT PROTECTION

OTIS

SPECIAL FUNCTIONS

Peak high and peak low detection
the instrument memorizes and displays the maximum and minimum measured value.

Digital filter
A Digital input filter may be applied, this function affects the displayed value, the alarm and analog retransmission response. The time constant of this filter is programmable between 1 and 5 seconds.

Dip switch
For protection and selection of the operative mode.

PRODUCT SPECIFICATIONS

Case:	PC/ABS, black color.
Self estinguishing degree:	V-0 according to UL746C.
Front protection:	designed and tested for IP 65 (*) and NEMA 4X (*) for indoor location (when panel gasket is installed). (*) Test were performed in accordance with IEC 529, CEI 70-1 and NEMA 250-1991 STD.
Rear terminal board:	rear safety cover. IP20 protection.
Weight:	250g max.
Power supply:	- (switching mode)from 100 to 240V AC 50/60 Hz (-15% to +10% of the nominal value) or 24V DC/AC (±10% of the nominal value).
Consumption:	6VA max.
Common mode rejection ratio:	from -20 to +70°C.
Normal mode rejection ratio:	from 20% to 85% RH, not condensing.
Insulation resistance:	> 100MΩ according to IEC 348.
Insulation voltage:	1500V r.m.s. according to IEC 348.
EMC/Safety:	this instrument is conforms to council directives 89/336/EEC (reference harmonized standard EN 50081-2 and EN 50082-2), 73/23/EEC and 93/68/EEC (reference harmonized standard EN 61010-1).
	Sampling time: 500 mSec typical.
Accuracy:	±0.1% fsv ±1 digit @ 25°C ambient temperature.
Temperature drift:	120dB @ 50/60Hz.
	60dB @ 50/60Hz.
	TC inputs: < 200 ppm/°C of the fsv (RJ excluded).
Operative temperature:	RTD inputs: < 400 ppm/°C.
Storage temperature:	Linear inputs: < 300 ppm/°C.
Humidity:	0-50°C.

MEASURING INPUTS

3 types of input are programmable:

Thermocouples

Indication:	°C/°F programmable.
Line resistance:	100Ω max, with max. error equal to 0.1% of the input span.
Burn out:	detection of the open input circuit (wires or sensor) with underrange or overrange selectable indication.
Input impedance:	> 1MΩ.
Calibration:	thermocouple type L: according to DIN 42710-1977. All the other thermocouples: according to IEC 584-1.

Standard range table

TC type	°C	°F
J	-100/1000	-150/1850
K	-100/1370	-150/2500
L	-100/900	-150/1650
R	0/1760	0/3200
S	0/1760	0/3200
T	-100/400	-150/750
N	0/1400	0/2550

RTD Input

Input:	RTD Pt 100Ω, 3 wire connection with programmable °C or °F indication.
Input circuit:	current injection (160µA).
Line resistance:	automatic compensation up to 20Ω/wire with no measurable error.
Calibration:	according to DIN 43760.
Standard ranges:	see table at right.
Sensor break:	the device is capable of detecting a fault on the input signal due to an opening of one or more input wires, displaying it as "overrange". It is alsocapable of detecting the short circuit of the sensor displaying it as "underrange".

Standard range table

RTD type	°C	°F
Pt 100	-200/+600	-320/+1100
Pt 100	-199.9/+600.0	-/-

Standard range table

Input	Impedance
0-20 mA	5 Ω
4-20 mA	5 Ω
0-60 mV	>1MΩ
12-60 mV	>1MΩ
0-5 V	>200 kΩ
1-5 V	>200 kΩ
0-10 V	>400 kΩ
2-10 V	>400 kΩ

Linear inputs

Read-out:	programmable by front push-buttons from -1999 to +4000.
Decimal point:	keyboard programmable in any position.

ALARMS

Number of alarms:	up to 3 independent alarms.
Thresholds:	from 0 to 100% of the programmed read-out span.
Hysteresis:	programmable from 0.1 to 10.0% of the programmed read-out span.
Alarm types:	high or low process alarm programmable.
Alarm reset type:	selection of Automatic or Manual reset. The manual reset is provided by front push-buttons.
Output of the alarms 1 and 2:	two relays: SPDT.
Contacts rating:	3A - 250V AC on resistive load. 3A - 30V DC on resistive load.
Output of the alarm 3:	one relay: SPST with NO contact.
Contact rating:	2A - 250V AC on resistive load. 2A - 30V DC on resistive load.
Alarm indications:	the indicators AL1, AL2 and/or AL3 are lit when the alarms are in the ON condition.
Alarms manual reset function:	the indicators flash when the alarm condition is not present, but the alarm has not yet been reset.

ANALOG RETRANSMISSION

|	
Type:	0-20mA or 4-20mA (programmable). The output is galvanically isolated.
Max load:	500 ohm.
Output resolution:	$\dfrac{[\text{ Display resolution (in E.U.)}]}{[\text{ Retransmission span (in E.U.)}]} \cdot 20\text{mA}$
	note: the resolution cannot be better than 0,05% of output span (10µA for 20mA output or 5mV for 10V output)
Accuracy:	± 0.1% of f.s.v.
	note: The analog re-transmission substitutes the relay AL3. The TIS MK1 model is not UL listed.

AUXILIARY POWER SUPPLY

Type:	Isolated
Voltage:	24V DC (-15% to +10% of the nominal value)
Current:	max. 32mA short circuit protected

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HOW TO ORDER

MODEL	INPUT	OPTIONS	POWER SUPPLY	CUSTOMISATION
TIS Programmable Digital Indicator	4000 TC, RTD 8000 TC, RTD, linear	0 not required 1 2 alarms 2 2 alarms + analog retrans. (mA) 3 3 alarms 4 2 alarms + TX Auxiliary power supply	3 from 100 to 240V AC (switching) 5 24V AC/DC	000 Std ERO Label
TIS				**000**

DIMENSIONS AND PANEL CUT - OUT
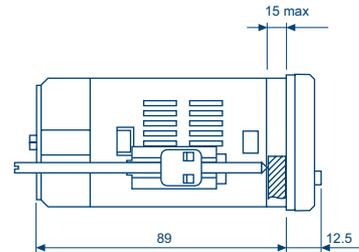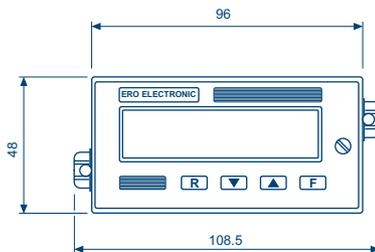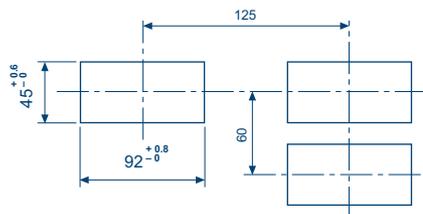
REAR TERMINAL BLOCK

TIS (standard)
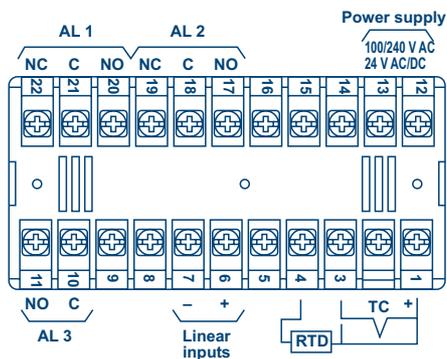
TIS (with analog retransmission)

A170.CAT.TIS.00E