DIGITAL PANEL METERS

DIGITAL PROGRAMMABLE PANEL METERS 96x48

ITI 16 – ITI 17

PROCESS MEASUREMENTS
TEMPERATURE

- **Two-colors display 14 mm green/red with possible change of color on alarm or pre-alarm.**
- **IP65 on the front.**
- **Scaling in 2 points.**
- **Linearization from 1 to 21 segments.**
- **In temperature linearization additionnal of programmable sensors by RS232/485.**
- **2 pre-alarm thresholds and 2 alarm thresholds with acknowledgement.**
- **Memorizing of the minis and the maximum one**
- **Connection by detachable connector block**

ENTRIES

ITI 16	ITI 17
Current of process	Temperature
Voltage of process	Current of process
D.C voltage	Voltage of process
	D.C voltage
	Resistance

For all the instruments of this series, the programming is very simply carried out using the 3 keys keyboard located on front . For those equipped with an RS232/485, the programming can be carried out using a PC
software LTCTM provided with this option, or by any software output using MODBUS.
Process values can be realed either in 2 points,or inearized using from 3 to 22 points(2 to 21 segments)possible
Display from -19999 to 99999.
Connections are carried out with the back on screw connectors.

OPTIONS OF EXITS
- 2 alarm relays
  or
- 2 alarm relays ,analog output 0-10V or 0-20mA and RS232/485 Modbus or ASCII output.

POWER SUPPLY
- 20 to 60 V D.C and 18 to 44 V A.C 47 to 420 Hz
  or
- 115 to 300 V D.C and 90 to 260 V A.C, 47 to 420 Hz

DIMENSIONS

Format 96 x 48 mm.
Panel cut out in conformity with DIN43700
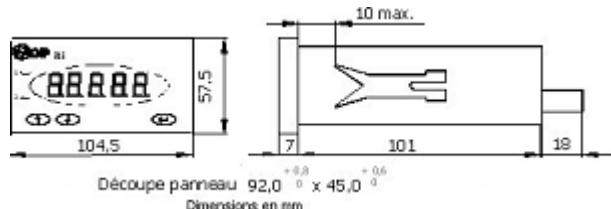
DIGITAL PANEL METERS

ITI 16 :Process Signals Measurement

The ITI 16 is intended for the measurement process of voltage and current .

D.C. current

Range	Extended range	Res.	Uncertainty
20 mA	- 2 à +24mA	1 µA	0,1 % L + 4 µA
4-20 mA	+3,2à+24mA	1µA	0,1 % L + 4µA
Loop power : 24 V- ± 10 % @ 20 mA.			
Applicable maximum current : 50 mA			

D.C voltage

Range	Extented range	Res.	Uncertainty
100 mV	-15 à +160 mV	10 µV	0,1 % L + 20 µV
1 V	- 0,1 à +1,2 V	100 µV	0,1 % L +200µV
10 V	- 1 à +12 V	1 mV	0,1 % L + 2 mV
100 V	- 10 à +120 V	10 mV	0,1 % L +20 mV

Uncertainty given for one year for a temperature ranging between 18 and 28°C
Input resistance mA : 50Ω
Input resistance:
- Range 10 V : 1,11 MΩ.
- Other ranges V : 10 MΩ.
  Applicable maximum voltage: 150 V~_.

ITI 17 :Process signals and temperature Measurement

The ITI 17 is intended for measurements of process and temperature by resistive probes and thermocouples.
The software also makes it possible to introduce additional linearizations for the couples B, C, E, L, Mo, N, Pl, R, U and probes JPt100, Ni100, Pt25, Pt50.
Connections are carried out at the back on removable screwing.

D.C. current

Range	Extended range	Res	Uncertainty
20 mA	- 2 à 24mA	1 µA	0,1 % L + 4 µA
4-20 mA	+3,2 à 24mA	1µA	0,1 % L + 4µA
Loop power : 24 V- ± 10 % @ 20 mA.			
Applicable maximum current: 50 mA			

D.C voltage

Range	Extended range	Res.	Uncertainty
60mV	- 6 à 75 mV	1µV	0,1%L +10 µV
100 mV	- 15 à 160mV	10 µV	0,1 %L+20 µV
1V	- 0.1 to +12 V	100µV	0.1%L+2 mV
10 V	- 1 à + 12 V	1 mV	0,1 % L + 2 mV
100 V	- 10 à + 120 V	10 mV	0,1 % L +20 mV

Resistance

Range	Extended range	Res	Uncertainty☞ (1 an, 18°C -28 °C)
150 Ω	0 à 160 Ω	10 mΩ	± (0,1 % L + 20 mΩ)
400 Ω	0 à 420 Ω	10 mΩ	± (0,1 % L + 50 mΩ)

3 wire : add0,05 % L/Ω of leads.

Temperature by resistor probes

Range	Extended range	Res.	Uncertainty (1 year, 18°C à 28°C)
150°C	- 200 à + 150°C	0,01°C	± (0,1 % L + 0,05 °C)
850°C	- 200 à + 850°C	0,1°C	± (0,1 % L + 0,2°C)

3 wire : add(0,05 % L + 0,15°C)/Ω of leads.
Linearization conforms to the standard INTO 60751/1995 for probe platinum 100 Ω à 0°C, international scale of température EIT 90.

Temperature by thermocouples

Couple	Range of température	Res.	Uncertainty
K	- 100 à + 1 370°C - 200 à – 100°C	0,1°C	± (0,1 %L+0,3°C) ± 0,5 %
T	- 100 à + 400°C - 200 à – 100°C	0,1°C	± (0,1 %L+0,3°C) ± 0,5 %
J	- 100 à + 1 200°C - 200 à – 100°C	0,1°C	± (0,1 %L+0,2°C) ± 0,4 %
S	+ 300 à + 1 768°C - 50 à + 300°C	1°C	± (0,1 % L + 1 C) ± 3 °C

Uncertainty due to the internal junction of reference = ± 1°C
Uncertainty due to the use of a junction of reference external (AN8002) = ± 0,2°C typical et 0,5°C maxi.
Linearization conforms to the standard EN 60584-1/1995, international scale of temperature EIT 90.
Possibility to add other thermocouples via software LTCTM

Measurement on potentiometer
ITI 17 makes it possible to measure on potentiometers.

DIGITAL PANEL METERS

RELAY, ANALOG AND DIGITAL OUTPUTS(OPTIONS)

Thresholds Relay:
In addition of the front LED indication 2 relays for the 2 alarms can be used.

Breaking capacity from the Ä relays/250 V~, 1 250VA ou 5A / 30 V-, 150W max.

Analog exit allowing the copy of measurement output:
Programmable in 0-10 V or 0-20 mA.
- Resistance of load$\geq$ 1 kΩ sur 10 V, $\leq$ 800 Ω sur 20 mA.
- Insulation input/output : 60 V, except if the ITI supplies the sensor
- Accuracy: $\pm$ (0,1% +5mV ou 10µA).
- 4 000 pts of resolution.
- Programmable in 2 points by the keyboard or software LTCTM with for example.
  AnA.LO = 22,00°C pour 0 V ou 0 mA
  et AnA.HI = 60,55°C pour 10 V ou 20 mA.

Digital display RS232/485
Programmable exit by keyboard allowing . communication in ASCII or MODBUS RTU for network application.
The instruments connected in network with transmitters or AOIP DATA acquisition systems to a PC equipped with the software of supervision LWTM or LW1 allowing display of measurements in real or remote time in the form of synoptic, curves, numerical bargraphes, tables.

Logiciel LTCTM
Software provided with the ITI equipped with an digital outputl allowing:
- To prepare the programming of the instruments and to store those on PC.
- To add to the instrument linearization additional one of thermocouple (B, C, E, L, Mo, N,Pl, R, U) and one of resistive probe (JPt100, Ni100, Pt25, Pt50).

Software provided on a floppy disk also containing instruction manual, a text file about communication in Modbus and of the ASCII orders .

GENERAL CARACTERISTIQUES
- Reference23 domain $\pm$ 5°C (45 à 75% de HR), temperature coefficient <10% precision/°C.
  Operating domain to 50°C (20 à 80% HR without condensation).
  Limits operation domain- 10°C à + 50°C. Storage temperatures limit - 30°C à + 70°C.
- Safety: apparatus conforms to the European standard EN 61010-1. Category II, pollution 2.
  Tension of assignment compared to the ground:
  Measurement input 150 V Analog output or output RS232/RS485 60 V Relay output 250 V.
- EMC and Emission: EN 55022/1994, class B.
  Immunity: IN 50082-1/1992
  ConClusted: IEC 801-3/1984.
  ConClusted: IEC 801-4/1988.
  Electrostatic discharges: IEC 801-2/1991.
- Weight 160g.

INSTRUCTIONS TO ORDER

I	T	I	1	-			

Process Indicator — 6
Process and temperature Indicator. — 7

Power supply 20V à 60V- 18 à 44V 47 à 420Hz — 5
Power supply 90V à 260V115V à 300V - — 8

Without option — 0
Alarms, analog, RS232/RS485 output — 1
Alarms output — 2

French instruction manual — F
English instruction manual — G

Accessories
AN8002 Compensation of external cold junction.
Er42062-001 Circuit protective RC for contact relay.
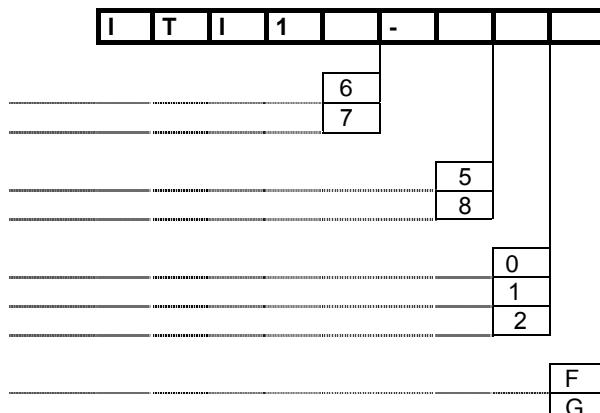
AOIP
BP 182
91006 EVRY CEDEX France
Tel : 0810 10 AOIP
www.aoip.com

cofrac
Accréditation
n° 2.1525
Température
n° 2.1524
ETALONNAGE Electricité-magnétisme