

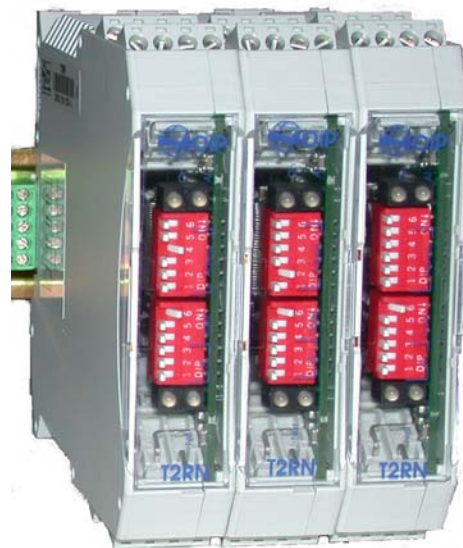
Digital measurement transmitters: T2RN

6 specific input channels
Multi-communication interfaces
Easy setting and commissioning

For applications where sensors are placed on wide areas, or modular applications, solutions of network measurement modules avoid install important cable length and analog transmitters occurring on accuracy of the measurement chain.

T2RN modules digitise the main industrial signals: 4-20mA, 0-10V coming from sensor-transmitters, thermocouples and resistive probes as Pt100 or Pt1000, switches, ...

They represent an alternative in cost to centralised data acquisition device.



Specifications:

T2RN allows 6 input channels to be measured at the same time:

- 2 channels are reserved for 4-20mA signals
- 2 channels are reserved for 0-10V signals
- the 2 other channels are suitable for thermocouples, resistive probes or contact (switch) inputs.

Removable units are mounted on DIN rail which allows connection to power supply and to communication bus.

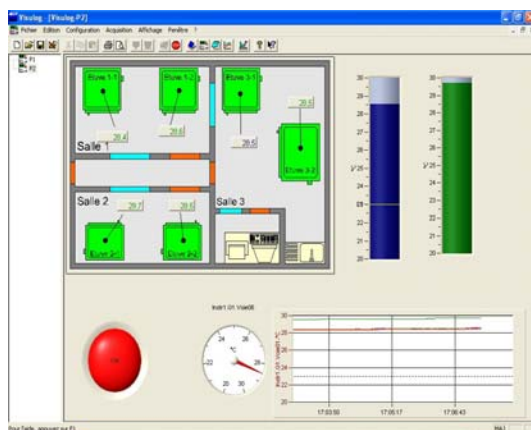
Several optional communication modules allow to transmit data via Ethernet or radio

Applications: Monitoring

Temperature monitoring with take into account of door opening and closing.

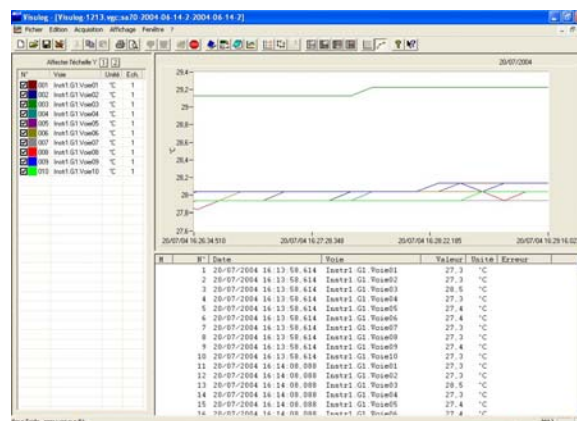
Display of average, minimum, maximum and standard deviation of each sensor.

Numerical values, curves, bargraphes and installation synoptic are used for visualisation.



Environmental control and monitoring system

Allows evolution and events to be supervised in real time thanks to VISULOG software, to save data on PC and then to insure data traceability.



DATA ACQUISITION

Technical specifications: (specifications given at 23°C +/-5°C)

- Process inputs

Function	Range	Resolution	Accuracy at 1 year
Current 0-20 mA	- 0.2 to +24 mA	1 μ A	0.1 % + 4 μ A
Voltage 0-10 V	- 3 to +14 V	1 mV	0.1 % + 2 mV

Input impedance for voltage process R= 1 M Ω
 Power supply of current loop 24V, maximum current I=50mA
 Shunt value for current process gauge R=22 Ω

- Temperature inputs

Resistive probes

Sensor	Range	Resolution	Accuracy at 1 year
PT100	- 200 °C to 850 °C	0.01 °C	0.05 % R + 0. 2°C
PT1000	- 200 °C to 850 °C	0.01 °C	0.05 % R + 0. 2°C

Thermocouples

Sensor	Range	Resolution	Accuracy at 1 year
K	-250°C to -200°C	0.5°C	0.02 % R + 1°C
	-200°C to -120°C	0.2°C	0.02 % R + 0.2°C
	-120°C to +60°C	0.1°C	0.02 % R + 0.2°C
	+60°C to +250°C	0.1°C	0.02 % R + 0.1°C
	+250°C to +900°C	0.1°C	0.02 % R + 0.1°C
	+900°C to +1 300°C	0.1°C	0.02 % R + 0.1°C
T	-250°C to -200°C	0.5°C	0.02 % R + 1°C
	-200°C to -100°C	0.2°C	0.02 % R + 0.3°C
	-100°C to +80°C	0.1°C	0.02 % R + 0.2°C
	+80°C to +400°C	0.1°C	0.02 % R + 0.1°C
S	-50°C to +150°C	1°C	0.2 % R + 1°C
	+150°C to +550°C	1°C	0.2 % R + 1°C
	+550°C to +1 450°C	0.5°C	0.2 % R + 0.5°C
	+1450°C to +1 750°C	0.5°C	0.2 % R + 0.5°C

Using the internal reference junction compensation, add ± 0.5 °C to accuracy on table above.

For other available thermocouple types, contact us: www.aoip.com or export@aoip.com.

- Switch inputs

Test current I = 0.2 mA +/-10 %
 Maximum voltage for open circuit : 10 V
 Line resistance $R_L \leq 4$ k Ω
 Logic state 1 closed, logic state 0 open.

CEM Standards

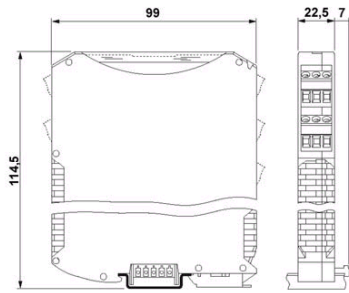
T2RN Performances are according to generic standard EN 61326
 Emission EN 55022, EN 61000-3-2, EN 61000-3-3.
 Immunity : EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11.

Operating conditions

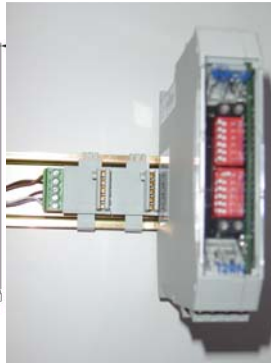
According to publication CEI 359 (French national standard NF C 42-600).
 Reference range: 23 °C \pm 1 °C, Relative humidity: 45 % to 75 %.
 Nominal range and limit of use: 0 °C to +50 °C, Relative humidity: 20 % to 80 % without condensation.
 Limit range of storage and transport: -30 °C to +70 °C.
 Appliance of standards range from 0 to 2 200 m.

DATA ACQUISITION

Mechanical characteristics



Masse 100g
Weight: 100 g



PC Communication

2 wires RS485 communication with Modbus® protocol allowing master station to be connected to slave stations. Speed is adjustable from 4800 to 38400 bauds. Network is able to have 1km length and to count 64 addresses for 1 communication port (Many communication ports can be used at the same time).

Communication bus is established via DIN rail between common modules.

Power supply

Power supply via DIN rail: 24V

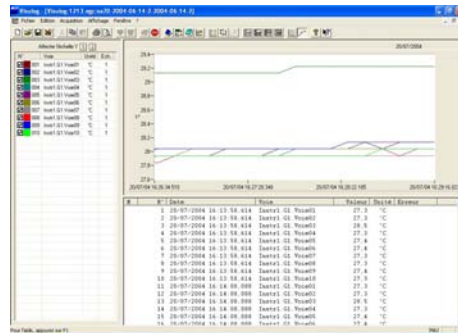
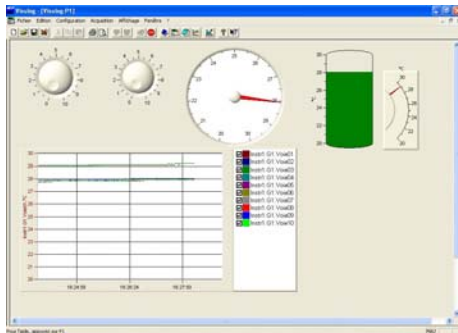
Other models, associated software et accessories

T2RN AR: Via network, allows siren and alarm flash to be activated thanks to 2 relays addressable on alarm thresholds of other T2RN.

LTCTM: Configuration software of T2RN network: Channels declaration, choice of connected sensor, scaling for an easy reading, sensor correction after calibration.

VISULOG TM: Supervision, acquisition and traceability software. Allows measurement events to be monitored in real time.

Visulog has functions as login, password, user group and administrator, audit trail for an utilisation according to 21 CFR part 11 standard.



Communication accessories

To be used on all different industrial network, many options are available

RS485/RS232 converter:	ATC 052
RS485/ USB converter:	ATC 053
RS485/ Ethernet converter:	ATC 054
Radio modem 500mW (T2RN side):	ATC 058
Radio receiver 500mW (PC side):	ATC 059
Radio receiver 25mW (PC):	ATC 060

ORDERING INSTRUCTION

Transmitter:	T2RN
2 relays module:	T2RNAR
RS485/RS232 converter:	ATC 052
RS485/ USB converter:	ATC 053
RS485/ Ethernet converter:	ATC 054
Configuration software:	LTCTM
Acquisition/monitoring software:	VISULOGTM

Power supply Accessories

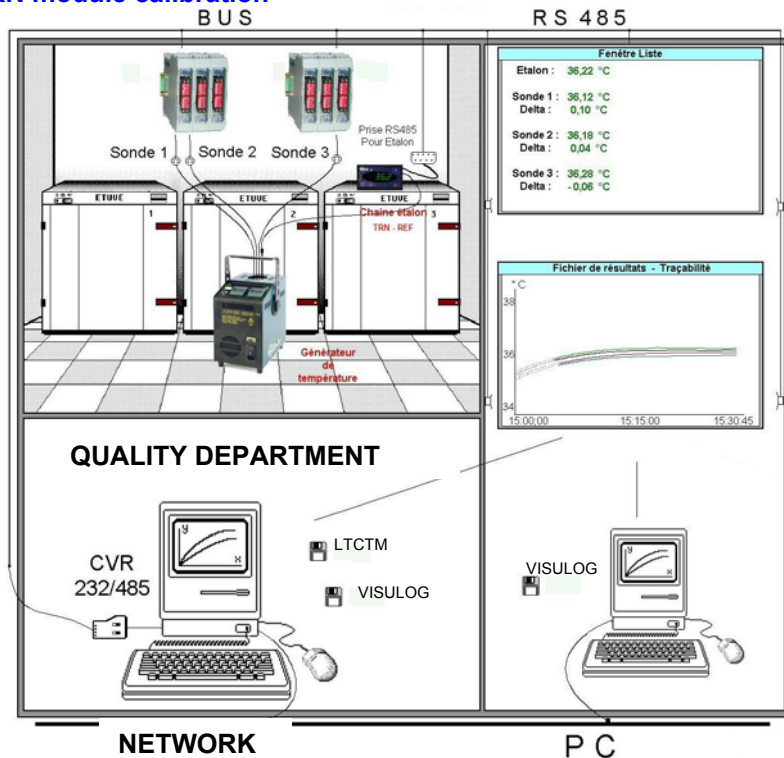
Transformer 230V /24V:

for 5 T2RN:	ATC 050
for 10 T2RN:	ATC 051
for 20 T2RN	ATC 056

Radio modem 500mW (T2RN side):	ATC 058
Radio receiver 500mW (PC side):	ATC 059
Radio receiver 25mW (PC):	ATC 060
Power supply for 5 T2RN:	ATC 050
Power supply for 10 T2RN:	ATC 051
Power supply for 20 T2RN	ATC 056

DATA ACQUISITION

T2RN module calibration



AOIP offers calibration baths and dry-block, Temperature reference chains in order to perform necessary calibration. Our COFRAC Laboratory is also able to help you in calibration and to provide support as well as traceability to international standards.



Accréditation
n° 2.1524
Électricité-magnétisme

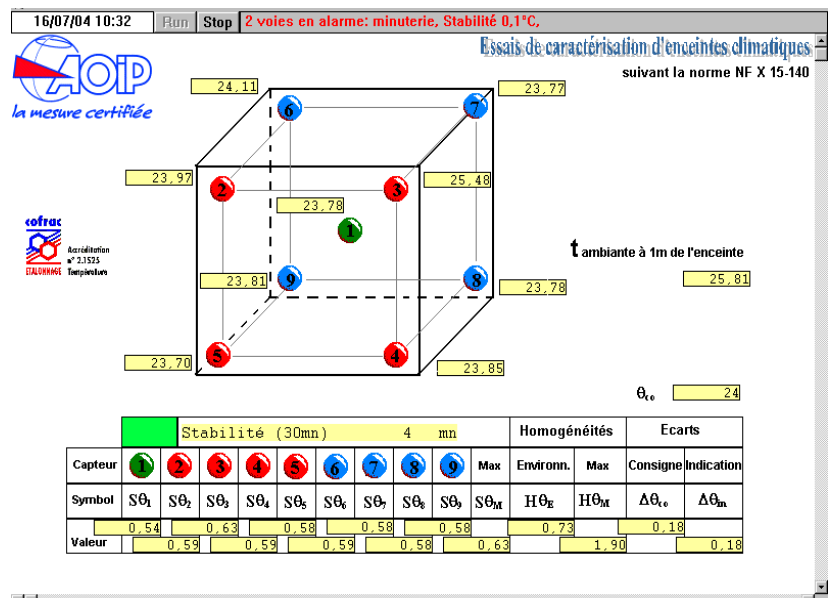


Accréditation
n° 2.1525
Température



Measuring probes are compared with the standard one. Temperature differences are taken into account by the software and can be corrected for each probe.

MAPPING SOLUTION OF AUTOCLAVES AND STERILIZERS ACCORDING TO NFX 15-140



PC10 data logging system allows to perform mapping of autoclaves. Results are given for each and for the complete set of probes. A paper report can be then printed



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