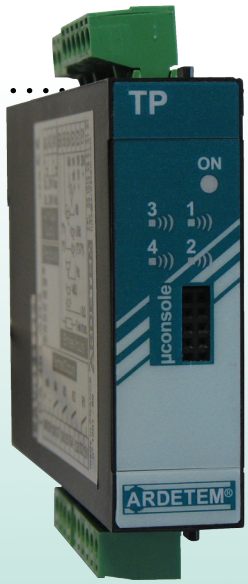
PROGRAMMABLE CONVERTERS
TPI 4001



Features

Typical response time: 5ms

- **Universal power supply**:
  20 to 270 Vac and 20 to 300 Vdc
- **Universal input**:
  ±100mV, ±1V, ±10V, ±300V, ±20mA, Pt100 3 wire, Ni 100, ΔPt100, thermo-couple, resistance and potentiometer.
- Supply for 2-wire sensor
- **Analog output**, insulated (A)
  0-4-20mA current (active/passive) or 0-10V voltage.
- **Relay outputs** (R): 2 inverting relays (8A/250 VAC on resistive load).
- **Digital data link** (N): insulated RS485 Modbus/Jbus

Detection of the sensor rupture.

Insulation between input / outputs / supply.

Self-zero and self-diagnosis.

Mode driver: the analog output is piloted either by the digital data link, or locally by the micro-console.

Function simulation of the input measure.

Programming either with the micro-console or by PC with the software SUPERVISION.

Configuration

Easy programming with the micro-console or with the PC software SUPERVISION.

Programming with the micro-console

This miniaturised micro-console connected on the front face of the instruments allows:
- the visualisation of the measure and the status of analog and relay outputs,
- the visualisation and modification of the programming,
- the teleloading of programming files for duplication to other converters.

Programming by PC: SUPERVISION

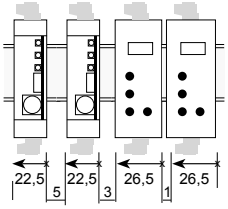
Software for programming (Windows environment) allowing:
- the storage of configurations as files which can be consulted, modified, duplicated or loaded into the converters,
- the edition and printing of files with or without having a converter connected.

Digital data link RS485 (Modbus/Jbus)

Allows the communication with processing and explotation systems (PLC's), as well as a complete configuration of the input, the output and the safeties.

Dimensions

Self-extinguishing case of black UL 94VO ABS.
Mounting in switchbox: latching on symmetrical DIN rail.
Rack version: consult.



Dimensions: 22.5x75x120 mm
with µconsole: 26.5x80x130 mm

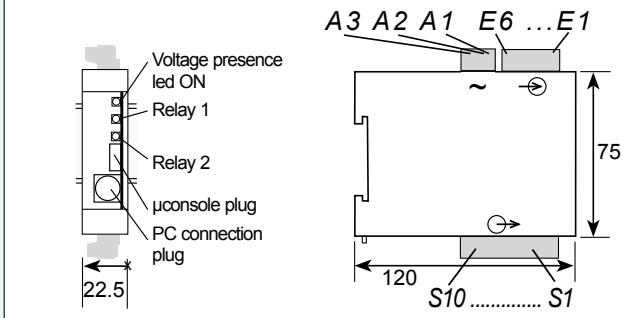
To allow inserting the µconsole: mount the instruments vertically (on horizontal DIIN rail), leaving a 5 mm space between each.

Operating T°: -10° to 50°C
Storage T°: -20 to 70°C

CE according to the directive EMC 2004/108/CE.

Conform with standards:
IEC 61000-6-4 on emissions, IEC 61000-6-2 immunity (industrial environment)
IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-6 (level 3)
Sensitiveness < ±3% of the measure range

Dimensions



Coding

Type TPI 4001 ARN

Outputs:
- **A** analog I/U insulated
- **R** 2 inverting relays
- **N** digital RS 485

Power supply:
20 to 270 VAC and 20 to 300 Vdc
Power draw : 3.5 W max. 6 VA max.
Dielectric withstanding : 2 kV-50Hz-1min.

Order example: ***For a converter with universal input*** *+ 1 analog output + 2 relays, request reference* ***TPI 4001 AR****.*

Available versions:

TPI 4001	A	AR	ARN	-

(for different configurations: consult)

ARDETEM 69510 SOUCIEU EN JARREST - Tél. : 33(0)4 72 31 31 30 Fax. : 33(0)4 72 31 31 31

Features

Inputs

Types of **INPUTS**	Measure range adjustable from:	Intrinsic error	Console resolution	Input impedance
mA	-22 to +22mA with √ ♣	< ±0.05% of the MR (3)	10 µA	5 Ω
mV♠	-110 to +110mV with √ ♣		10 µV	≥ 1MΩ
V	-1.1 to +1.1V with √ ♣		1 mV	
	-11 to +11V with √ ♣		1 mV	
	-330 to +330V with √ ♣		10mV	
Thermocouples ♠* Standard IEC 581	°C °F	♦(2) <±0.1% of the MR	0.1°C / 0.1°F	≥ 1 MΩ
J	-160/1200 -256/2192			
K	-270/1370 -454/2498			
B	200/1820 392/3308			
R	-50/1770 -58/3218			
S	-50/1770 -58/3218			
T	-270/410 -454/770			
E	-120/1000 -184/1832			
N	0/1300 -32/2372			
L	-150/910 -238/1670			
W	1000/2300 1832/4172			
W3	0/2480 32/4496			
WRE5	0/2300 32/4172			
Sensor Pt100Ω (1)♠* 3 wire, Standard IEC 751 (DIN 43760)	°C °F -200/850 -328/1562	<±0.1% of the MR	0.1°C / 0.1°F	Current 250µA
Sensor Ni 100 3 wire (1)♠*	-60/260 -76/500			
Differential measures from 2 sensors Pt100Ω 2 wire Standard IEC 751 ♠**	-200/270 -328/518			
Resistive sensors	Calibers 0-440 Ω and 0-2.2 kΩ ♣ (0-8.8 kΩ optional)	<±0.1% of the MR (0.5% for 0-2KΩ)	-	
Potentiometer*	de 100Ω à 10 kΩ ♣			
Supply for 2-wire sensor	24 VDC ±15% with protection from short-circuits. 25 mA max.			
Special linearisation *programming up to 20 points*	On input: mV, V, mA. Resistive sensors and potentiometer			

* Inputs with 2 measures (see response time)
(1) Line resistance <25Ω
(2) Or 30 µV typical (60µV Max.)
♦ CJC efficiency: ±0.03°C/°C ±0.5°C from -5°C to +55°C
MR Measure range
√ Extraction of the square root

(3) if cycle time = 2ms
- intrinsic error < ± 0.1% of the MR
- thermic drift < 250 ppm/C°

♣ Cut off : the display of the console and the output of the µC remain at down scale for an input signal < than the cut off value, programmable from 0% to 100% of the input scale.

♠ A 12 µA pulsed current allows the detection of line or sensor rupture.

Thermic drift <150ppm /°C (voir 3)

** line resistance <10Ω and R. max. 400Ω

Outputs

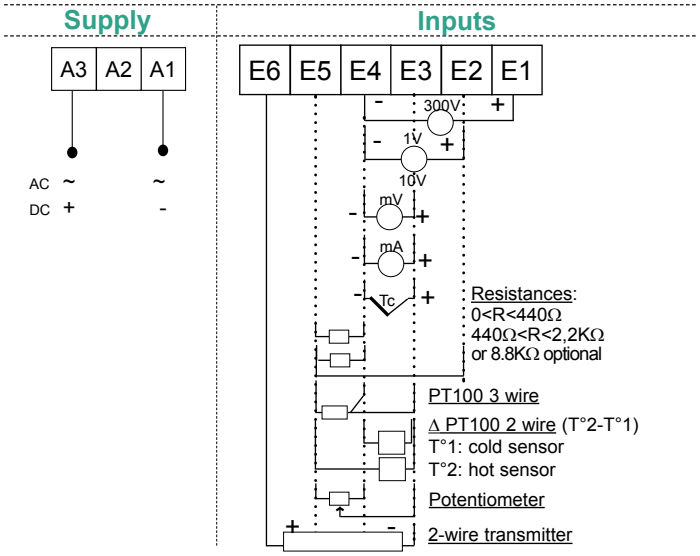
TPI 4001	Code	Types of **OUTPUTS**		Features
●	A	1 analog	Current active/passive	Current : Direct or reversed 0-20mA Load impedance ≤ Lr 600Ω
			Voltage	Voltage : Direct or reversed 0-10V Load impedance ≥ Lr 5000Ω
●	R	2 inverting relays		2 setpoints per relay, configurable on the whole MR. Hysteresis programmable from 0 to 100%. Time delay programmable from 0 to 25 sec. (8A/250VAC on resistive load).
●(5)	N	Digital data link RS485 Protocole MODBUS/JBUS (EIA RS485) insulated. (with or without parity, even or odd, 1 or 2 stop bits)		

(5) The digital data link N and the voltage output A are not available simultaneously.

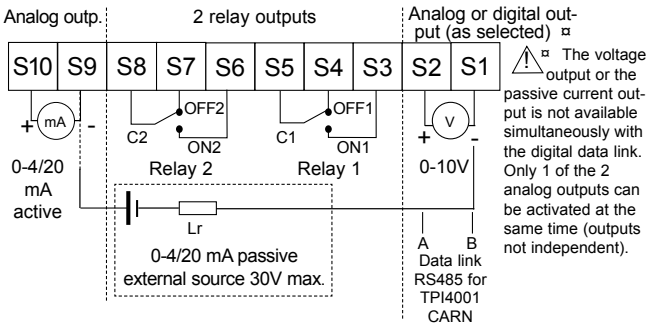
Galvanic partition: 2kV-50Hz-1min. between supply, input, analog output, relay outputs and digital data link 1kV-50Hz-1min. between analog output and digital data link.

Wiring

Upper connectors



Lower connector



Response time of the outputs

(for a variation of the input signal from 0 to 90%)

Programmable cycle time	Max. response time analog	relays	Rejection
2 ms	5 ms	20 ms	-
20.0 ms	40 ms	55 ms	50 Hz
100 ms	200 ms	215 ms	50 Hz / 60Hz

The response times are garanteed 10 min. after setting the converter on tension and 30 sec. after a saving of the programming, a revert from measure overrrange or a sensor rupture.

For the inputs with 2 measures (TC, Pt100, Ni100 and potentiometer) the 2nd measure is performed every minute. During this measurement, the max. response time on the relays or the analog output will be increased by 5ms, 20ms or 100ms according to the value of the programmed cycle time (2 ms, 20 ms, 100 ms).
In case the sensor rupture detection is being used (inputs mV and t°), add 2ms to the response time of the outputs.

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