



PROGRAMMABLE SAFETY CONVERTER TPI t L 10

SIL 2
(Standard EN61508)

The TPI t L10 has been designed according to the standard EN61508 in order to fulfill the requirements of a safety integrity level (SIL 2).



Features

- **Universal power supply:**
20 to 270 Vac and 20 to 300 Vdc
- **Universal input:**
100mV, 1V, 10V, 300V, 20mA, Pt100 3 wire, Ni 100, thermocouple, resistance and potentiometer.
Typical response time: 500 ms
- Supply for 2-wire sensor
- **1 insulated analog output (A)**
programmable in 0-4-20mA (active/passive) current or in 0-10V voltage.

Relay outputs (option R): 2 change-over relays (5A/250 VAC on resistive load).

Insulation: input / outputs / supply.

Safety:

Checking of the current on the output loop
Self-diagnosis
Sensor rupture detection (according to input)
Checking of the configuration data
Programming protected by code

Test functions:

- Simulation of the input measure
- Simulation of the analog output
- Test for setting in safety position

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

Configuration

Easy programming on front face with a micro-console or with the PC software SUPERVISION.

Programming with the Micro-console

This minimised micro-console connected on the front face of the instruments allows:

- the visualisation of the measure and the status of the analog and relay outputs,
- the visualisation and the modification of the programming, (protection by code)
- the teleloading of programming files for duplication to other converters.

Programming by PC: SUPERVISION

Programming software (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.

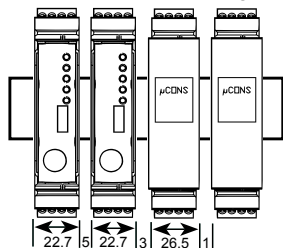
Dimensions

Self-extinguishing case of black UL 94VO ABS.

Mounting in switchbox: latching on symmetrical DIN rail.

Rack version: consult.

Plug-off connectors for screwed connectings
(2.5mm², flexible or rigid)



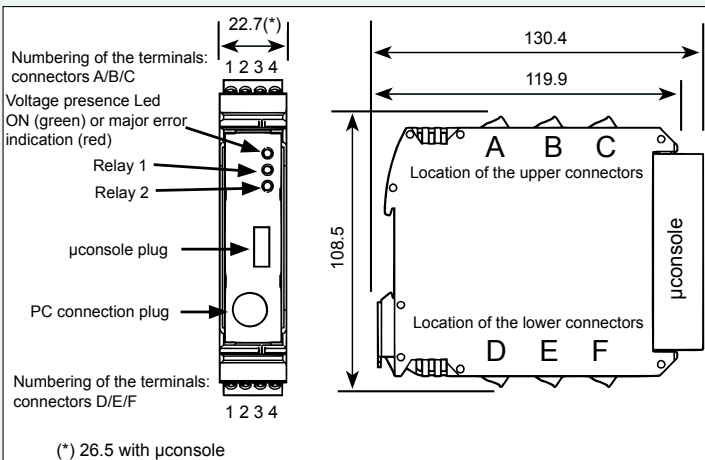
Dimensions: 22.5x75x120 mm
with μ console : 26.5x80x130 mm

To allow the inserting of the μ console: mount the instruments vertically (horizontal DIN rail) leaving a 5mm space between each.

Operating T°: -5° to 50°C

Storage T°: -20 to 70°C

Dimensions



Coding

Type	TPI t L10 AR
Outputs:	
A	analog I/U isolated
R	2 change-over relays

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 + analog output + 2 relays, request the reference TPI t L10 AR

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

Compliance 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 $\pm 1\%$ of the measure range



69510 SOUCIEU EN JARREST

Tél. : 33(0)4 72 31 31 30

Fax. : 33(0)4 72 31 31 31

CA CO/136

Features

Inputs

Types of INPUTS	Measure range adjustable from:		Permanent overload	Intrinsic error	Console resolution	Input impedance
mA*	-2 to +22mA		±100mA	< ±0.1% of the MR	10 µA	Max. drop 0.9V
mV*	-10 to +110mV		±1V		100 µV	≥ 1MΩ
V	- 0.1 to +1.1V		±50V		1 mV	
	-1 to +11V				10 mV	
	-30 to +330V		±600V		100 mV	
Thermocouples* Standard IEC 581	°C	°F	-	<±0.1% of the MR (2)	0.1° or 1° C or 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, Stand.IEC 751 (DIN 43760)	°C	°F	-	<±0.1% of the MR	0.1° or 1° C or F	Current 250µA
	-200/850	-328/1562	-			
Sensor Ni 100 3 wire (1)*	-60/260	-76/500	-	<±0.1% of the MR (0.5% for 0-2 kΩ)	0,1Ω (400Ω) 1Ω (2kΩ)	Current max. 250µA
Resistive sensors	Calibers 0-440 Ω * and 0-2.2 kΩ (0-8.8 kΩ optional)		-			
Potentiometer	from 100Ω to 10 kΩ		-		0,1%	Voltage max. 100mV
Supply for 2-wire sensor	24 Vdc ±15% with protection from short-circuits. 25 mA max.					
Special linearisation programming up to 20 points	On inputs: mV, V, mA. resistive sensors and potentiometer					
Square root extraction	On inputs mV, V or mA					

MR Measure range

Thermal drift <150ppm /°C

- (1) Line resistance <25Ω
 (2) Or 30 µV typical (60µV Max.)
 CJC efficiency: 0.03°C/°C from -5 to 50°C

* Sensor break detection: Input mA (if down scale ≥ 3.5mA)
 Other inputs: a 12µA pulsed current allows the detection of line or sensor rupture.

Outputs

Code	Types of OUTPUTS		Features
A	1 analog	Current active/passive Voltage	Current: Direct or reversed 0-4-20mA Load impedance ≤ Lr 600Ω Voltage: Direct or reversed 0-10V Load impedance ≥ Lr 5000Ω
R	2 change-over relays		2 setpoints per relay, configurable on the whole MR. Hysteresis programmable from 0 to 100%. Time delay programmable from 0 to 25 sec. (250 VAC 5A or 30VDC 2A on resistive load)

Typical response time: 500 ms (for a variation from 0 to 90 % of the input signal)

Add 50 ms for the response time on the analog output

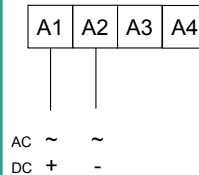
Galvanic partition:

2kV-50Hz-1min. between supply, input, analog output, relay outputs

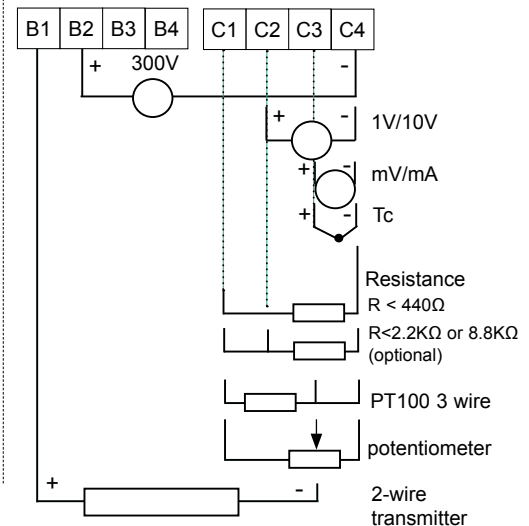
Connectings

Upper connectors

Supply



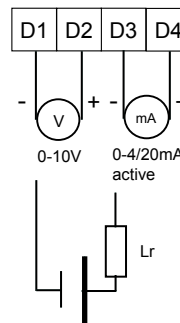
Inputs



Lower connector

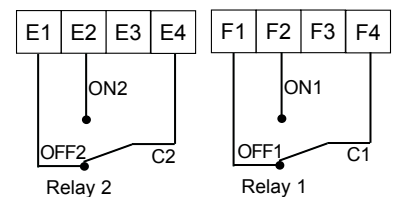
Outputs

Analog output



0-4/20mA passive external source 30V max.

Relay outputs



Only 1 of the 2 analog outputs can be activated at the same time (outputs not independent).

Features related to the safety

TPItL10

Type of the instrument	B
SIL (safety integrity level)	2
HFT (hardware fault tolerance)	0
PFH (probability of failure per hour)	5E10 ⁻⁸ /h
PFD (probability of failure on demand) For a Tproof of 1 year	2,2E10 ⁻⁴
SFF (safe failure fraction)	93%

Only the output 4-20mA and the relays can be used in a safety system.

your representative



RCS Lyon 444-429-476 - Printed in France.

e-mail : info@ardetem.com
 http : //www.ardetem.com

Route de Brindas
 Parc d'activité d'Arbora N°2
 69510 SOUCIEU EN JARREST
 - FRANCE -

Tél. : 33 (0)4 72 31 31 30
 Fax. : 33 (0)4 72 31 31 31