

# PROGRAMMABLE SAFETY CONVERTER

# TPI tL10 / µCtl10

ARDETEM

SFERE

Designed according to the standard EN61508 in order to fulfill the requirements of a safety integrity level (SIL 2).



**SIL 2**  
(Standard EN61508)

## 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 isolated analog output (A)** programmable in 0-4-20mA (active/passive) current or in 0-10V voltage.

## Configuration

Easy programming on front face with a micro-console or with the PC software SuperVISION (ARDETEM) or MCvision (SFERE)

### Programming with the Micro-console

This minaturised 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/MCvision

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.

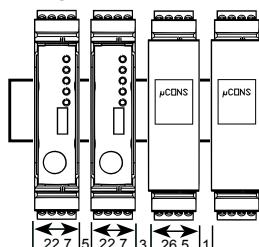
## Dimensions

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



Dimensions: 22.5x75x120 mm.  
with µconsole: 26.5x80x130 mm

To allow the inserting of the µconsole: 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

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

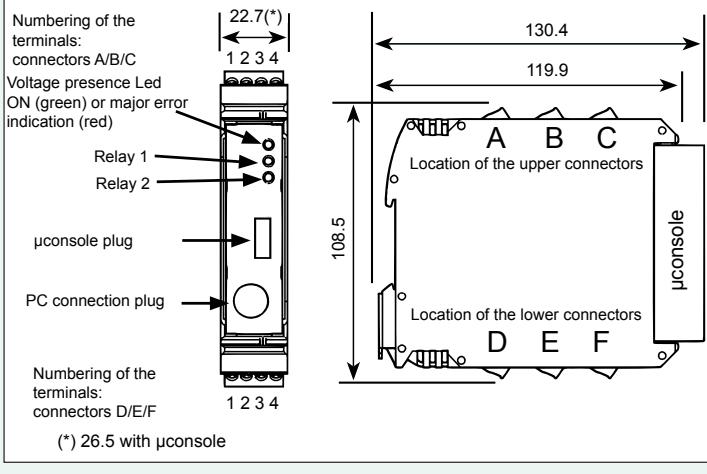
Compliance with standards:

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)

Sensitivity < ±1% of the measure range

## Dimensions



## Coding

### Types:

ARDETEM reference: TPItL10

SFERE reference: µCtl10

Type	TPI/µC tL10 AR
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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 TPItL10/µCtl10 AR

# 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	
V	-0.1 to +1.1V	±50V		1 mV	
	-1 to +11V			10 mV	≥ 1MΩ
	-30 to +330V	±600V		100 mV	
Thermocouples*	°C	°F	<±0.1% of the MR (2)	0.1° or 1° C or F	≥ 1 MΩ
Standard IEC 581	J K B R S T E N L W W3 WRE5	-160/1200 -270/1370 200/1820 -50/1770 -50/1770 -270/410 -120/1000 0/1300 -150/910 1000/2300 0/2480 0/2300		-256/2192 -454/2498 392/3308 -58/3218 -58/3218 -454/770 -184/1832 -32/2372 -238/1670 1832/4172 32/4496 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	-		
Resistive sensors	Calibers 0-440 Ω * and 0-2.2 kΩ (0-8.8 kΩ optional)	-	<±0.1% of the MR (0.5% for 0-2 kΩ)	0.1Ω (400Ω) 1Ω (2kΩ)	Current max. 250µA
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

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

Thermal drift <150ppm /°C

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

## Outputs

Code	Types of OUTPUTS		Features
A	1 analog	Current active/ passive	Current: Direct or reversed 0-4-20mA Load impedance ≤ Lr 600Ω
		Voltage	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



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

# Connectings

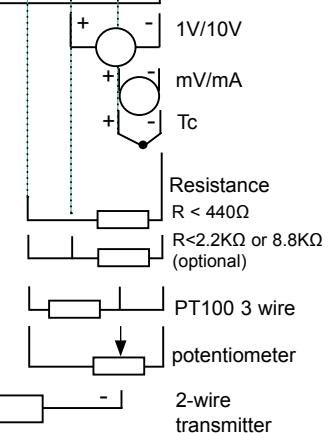
## Upper connectors

### Supply

A1 A2 A3 A4

B1 B2 B3 B4

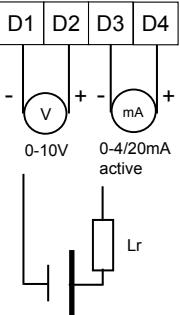
### Inputs



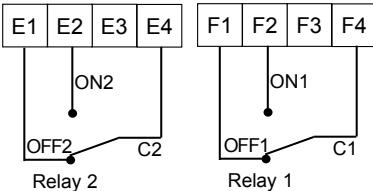
## Lower connector

### Outputs

#### Analog output



#### Relay outputs



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

## Features related to the safety

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

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

your representative

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