PROGRAMMABLE SIGNAL CONDITIONERS
INTRINSIC SAFETY
TPIv-SIN 40/41

Features

- **Connection with footing** to the local bus of the range of 7mm modules of inputs/outputs and converters TPIs and concentrators TPIvM.
- **Universal input:** ±100mV, ±1V, ±10V, ±150V, ±270V, ±20mA, Pt100, Ni 100 (2, 3 or 4 wire), ΔPt100 thermocouple, resistance and potentiom.
- **Average response time** 150ms
- **Supply for 2-wire sensor**
- **Isolated analog output** (A) 0-4-20mA current (active/passive) or 0-10V voltage.
- **Relay outputs** (R): 2 change-over relays (5A/250 VAC on resistive load).

Sensor break detection and self-diagnosis.

Isolation between input/outputs/supply.

Mode simulation: allows validating the configuration or the installation.

Programming with the micro-console or with the PC software SlimSET via a standard USB / µUSB cable.

This series has intrinsically safe inputs: they are associated equipment, to be placed in safe area or ATEX/IECEx area 2. They have input circuits for connection to a sensor placed in hazardous area and output circuits for connection only in safe area or ATEX/IECEx area 2.

These appliances have obtained a UE examination certificate of the type according to the prescriptions of the standards EN 60079-0, EN 60079-7, EN 60079-11 and EN 60079-15 in accordance with the directive ATEX 2014/34/UE.

Marking: II 3 (1) G Ex ec nC [ia Ga] IIC T4 Gc

Configuration

Easy programming with a micro-console or by PC software SlimSET (via a standard USB / µUSB cable).

Programming with the Micro-console

The graphical rear-lit LCD with tactile keyboard allows the visualisation of the following information:

- the value of the measure with its unit,
- the value of the analog output,
- the product tag name,
- the status of the relay outputs.

• Scrolling message for programming help in various languages
• Passcode protected programming

Programming by PC: SlimSET

Programming software (Windows environment) allowing:
The storage of the 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 signal conditioner connected.

This converter may either operate in an autonomous way or belong to a local network consisting of converters and modules of the range TPIs.
Each converter or module is latched on the DIN rail via a 5-points footing allowing the distribution of the communication and supply signals (24 Vdc ±30% power supply).
The modules allow to increase the number of analog or relay outputs. Up to 50 modules or converters can be connected on the same bus, and up to 200 different measures can be made to transit.
A supervision and concentrator module (of the range TPIvM) with output Modbus / Modbus TCP / Ethernet / Profinet / Profibus and option Datalogger on SD card can also be added on the bus.

Marking:

II 3(1)G Ex ec nC [ia Ga] IIC T4 Gc
SIRA 17ATEX4222 X
IECEx CSA 17.0025 X

ATEX
ZONE 2

Process
Control
Equipment
E482453

Features

Supply: *16.8 to 31.2Vdc*
Power draw: 2.5 W max.
Operating temperature: -20 to +60°C
Storage temperature: -20 to +70°C
Installation: Pollution degree 2 / voltage surge II

Protection: housing/terminals: IP 20
Removable terminal blocks for screwed connections (2.5 mm², flexible or rigid)
Weight: 290g (with packaging)
Self- extinguishing case of black UL 94VO PA66.
Mounting in switchbox: latching on symmetrical DIN rail.

Compliance with standards:

Directive LV 2014/35/UE .....EN 61010-1
Standard for UL electrical safety .....UL 61010-1
.....CSA C22.2 NO.61010-1-12
Directive ATEX 2014/34/UE .....EN 60079-0, EN 60079-7
.....EN 60079-11, EN 60079-15
IECEx.....IEC 60079-0, IEC 60079-7
.....IEC 60079-11, IEC 60079-15
Directive EMC 2014/30/UE .....EN 61326-1

Coding

Type TPIv-SIN 40/41 AR

Outputs:
A analog I/U isolated
R 2 change-over relays

Available versions:

TPIv-SIN 40/41	A	AR

(consult with us for different configurations)

Order example: For a signal conditioner with universal input + *1 analog output + 2 relays: reference* ***TPIv-SIN 41AR***

• *Standard programming cable USB type A male to µUSB type B male: reference* **C1-µUSB**

• *CJC terminal (option): reference* **B1CSF-4**

Features

Inputs

TPIv-SIN 40	TPIv-SIN 41	Types of INPUTS	Measure range adjustable from:		Permanent overload	Intrinsic error	Input impedance
●	●	mA(1)	-2 to +22mA (U)		±100mA	< ±0.1% of the MR for inputs of the type (U) < ±0.05% of the MR for inputs of the type (B)	Max. drop 0.9V
			22 to +22mA(B)				
●	●	mV(1)	-10 to +110mV (U)		±1V		≥ 1MΩ
			-110 to +110mV (B)				
●	●	V	-0.1 to +1.1V (U)		±50V		
			-1.1 to +1.1V (B)				
			-1 to +11V (U)				
			-11 to +11V (B)				
			-15 to +165V (U)		±300V		
			-165 to +165V (B)				
			-30 to +300V (U)				
			-300 to +300V (B)				
	●	Thermocouples(1) Standard IEC 581 J K B R S T E N L W W3 WRE5	°C -160/1200 -270/1370 200/1820 -50/1770 -50/1770 -270/410 -120/1000 0/1300 -150/910 1000/2300 0/2480 0/2300	°F -256/2192 -454/2498 392/3308 -58/3218 -58/3218 -454/770 -184/1832 -32/2372 -238/1670 1832/4172 32/4496 32/4172	-	(3) <±0.1% of the MR or 30µV typical (60µV max.)	≥ 1 MΩ
	●	Pt100Ω sensor (1)(2) Standard IEC 751 (DIN 43760)	°C	°F	-	<±0.1% of the MR	Current 250µA
			-200/850	-328/1562	-		
	●	Ni 100 sensor (1)(2)	-60/260	-76/500	-		
	●	Differential measures from 2 sensors Pt100Ω 2-wire Standard IEC 751 (1)	-200/270	-328/518	-		
	●	Resistive sensors	Calibers 0-440 Ω(1)(2) and 0-10 kΩ		-	<±0.1% of the MR	Max. current 250µA
	●	Potentiometer	from 100Ω to 10 kΩ		-		Max. voltage 100mV
●	●	Supply for 2-wire sensor	27...17 Vdc / 0...20mA with protection from short-circuits: 25 mA.				
●	●	Special linearisation programming up to 20 points	On inputs: mV, V, mA. resistive sensor and potentiometer				
●	●	Extraction of the square root	On inputs mV, V or mA				

(1) Sensor break detection:
mA input (if down scale ≥ 3,5mA)
Other inputs: a 12µA pulsed current allows the detection of line or sensor break

(2) Wiring possible in 2, 3 and 4 wire
Influence of the line resistance (0<Rl<<25Ω) included in the announced intrinsic error.

(3) CJC efficiency (-20 to +60°C):
Internal CJC: ±2°C ±0,03°C/°C
CJC (option terminal): ±1°C

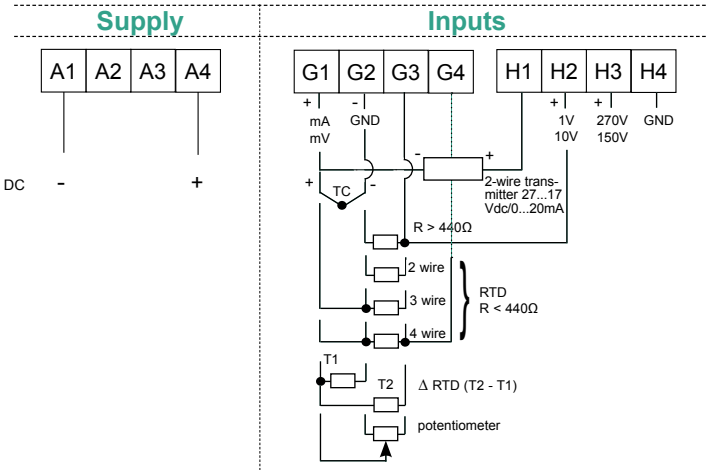
MR Measure range

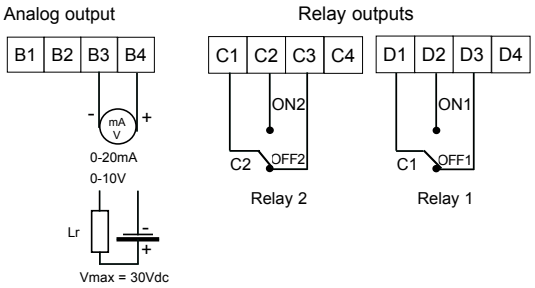
Thermal drift <150ppm /°C

Outputs

Code	Types of OUTPUTS		Features
A	1 analog	Current active/passive	Current: Direct or reversed 0-20mA Load impedance ≤ Lr 600Ω Voltage: Direct or reversed 0-10V Load impedance ≥ Lr 10KΩ Accuracy: 0.1% in relation to the display Ripple: 0.2% Response time in relation to the display: 40ms
		Voltage	
R	2 change-over relays		2 setpoints per relay configurable over the whole MR. Hysteresis programmable from 0 to 100%. Time delay programmable from 0 to 999.9 sec. (5A/250 VAC on resistive load)

Connectings





PARAMETRES ELECTRIQUES RELATIFS A LA SECURITE SAFETY ELECTRICAL PARAMETERS						
Type de mesure Measure type	Câblage Wiring	Uo (V)	Io mA	Po (mW)	Co (µF)	Lo (mH)
Alimentation capteur 2-wire sensor supply	G1-H1	28.4	90.5	643	0.077	4
mV, V, mA, Tc, RTD Résistance, potentiomètre Resistance, potentiometer	G1-G2-G3 G4-H2 H3-H4	8.0	2.0	2.0	8.4	>1000
Um < 250 Vdc and Um < 250 Vac						

Response time of the outputs:

(for a variation from 10 to 90% of the input signal)

Average response time: 150 ms

Add 40 ms for the response time on the analog output, or 10 ms for the response time on the relay outputs.

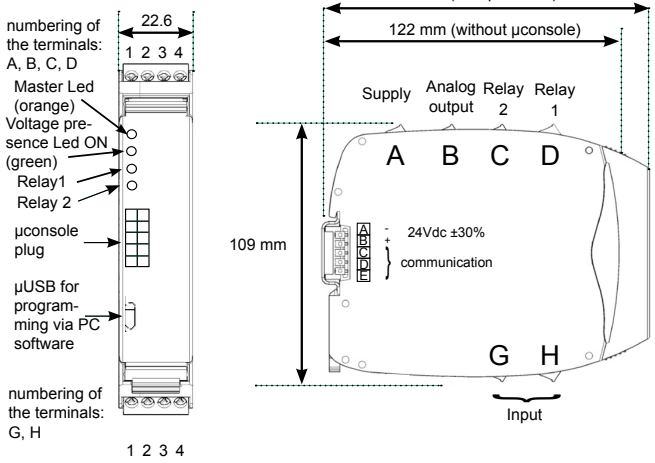
Galvanic isolation:

3.8kV-50Hz-1min. between input and [supply/outputs]

3.0kV-50Hz-1min. between relay output 1 and [analog output/supply/relay output 2]

3.0kV-50Hz-1min. between relay output 2 and [analog output/supply/relay output 1]

Dimensions



ARDETEM - CA CO/137 TPIvSIN - A 10/17- Any data in this documentation may be modified without prior notice

ARDETEM®
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

your representative