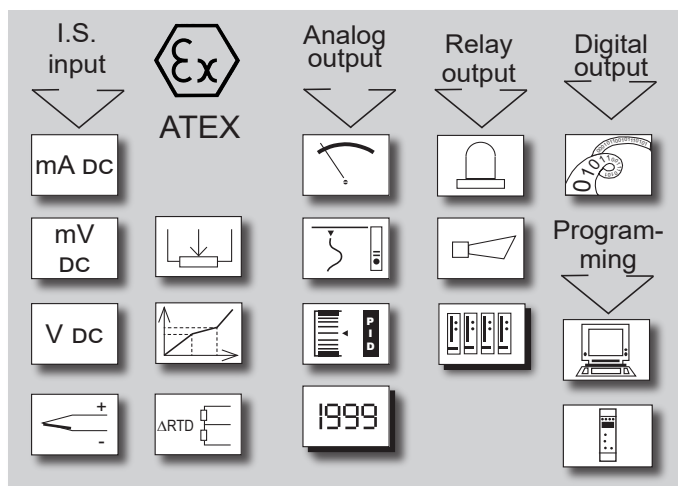


INTRINSIC SAFETY PROGRAMMABLE CONVERTERS

μC-SI 820



This converter has **intrinsic safety inputs**: this is associated equipment, placed in safe area. They have input circuits for connecting on a sensor placed in hazardous area and output circuits for connecting in safe area only.

These instruments have obtained a UE examination certificate of the type according to the prescriptions of the standards EN 60079-0 (2006), EN 60079-11 (2007), EN 60079-26 (2007), EN 61241-0 (2006) and EN 61241-11 (2006) in accordance with the directive ATEX 2014/34/UE.

Marking Ex II(1)GD, [Ex ia] IIC and [Ex iaD].

- **Replacing of the CVP 820 KN** (see paragraph CONNECTINGS)
- **Universal input:** $\pm 100\text{mV}$, $\pm 1\text{V}$, $\pm 10\text{V}$, $\pm 20\text{mA}$, Pt100 3 wire, ΔPt100 2 wire, Ni 100, thermocouple, resistance and potentiometer. Typical response time 100ms (+40ms for the analog output).
- Supply for 2-wire sensor
- **1 insulated programmable analog output** 0-4-20mA (active) current.
- **2 relay outputs:** 2 inverting relays. (8A/250 VAC on resistive load).
- **1 digital output**, insulated, RS485 Modbus/Jbus



Features

Detection of the sensor rupture.
Insulation input / outputs / supply.
Self-zero, self-calibration and self-diagnosis
Mode driver: the analog output and the relays are piloted either by the digital data link or locally by the micro-console.
Function simulation of the input measure
Easy programming on front face by a micro-console or by PC software MCVision.

Programming with the Micro-console

This miniaturised console connected on the front face of the instruments with a allows:
Visualising the measure and the state of the analog outputs and the relays.
Visualising and modifying the programming.
Teleloading programming files for duplication to other converters.

Programming by PC: MCVision

Software for programming and analysis (Windows environment) allowing:
The storage of configurations as files which can be consulted, modified, duplicated or loaded into the converters.
All files can then be edited and printed with or without connecting a converter.

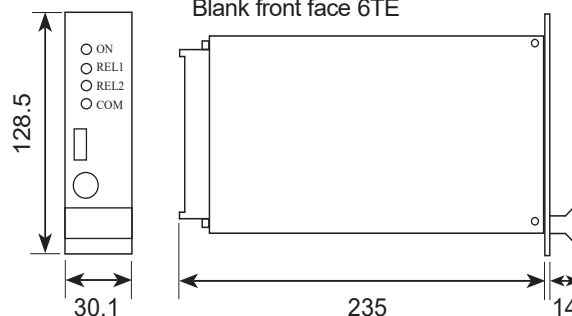
Digital data link RS485 (Modbus/Jbus)

Allows communication with processing and exploitation units (programmable PLC's), as well as a complete configuration of the input, the output and the safeties.
The reading of the measures via the digital data link is performed by programming, either in ASCII or double integer format.



Description

External features: rack drawer 19" 3U Europe board
100 x 220 mm
front face 6TE (30.42 mm).
Mounting: outside of the hazardous area
Accessories: empty rack equipped for 1 to 14 drawers
Blank front face 6TE



Operating T°: -10° to 60°C
Storage T°: -20 to 70°C

Coding

Power supply: High or low voltage (specify)
(2): high voltage: 90...265 VAC or 88...350 Vdc
(3): low voltage: 20...40 VAC or 20...64 Vdc
Frequency of the supply: 50 Hz to 400 Hz (VAC)
Power draw: 4 W max. 6 VA max.

For a converter with universal IS input + analog output + 2 relays + digital output, powered in 230 V, request reference:

μC-SI 820 ARN-2

Features

µC-SI inputs

Types of INPUTS	Measure range adjustable from :	Intrinsic error	Console resolution	Input impedance
mA	-22 to +22mA with $\sqrt{\clubsuit}$	< ±0,05% of the MR Input resolution : 14 bits	10 µA	Drop 0.9V max. ≥ 1MΩ
mV $\spadesuit$	-110 to +110mV with $\sqrt{\clubsuit}$		10 µV	
V	-11 to +11V with $\sqrt{\clubsuit}$		1 mV	
Thermocouples $\spadesuit$ Standard IEC 581	°C °F	<±0.1% $\spadesuit(3)$ 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			
Pt100Ω sensor (1) $\spadesuit$ 3 wire, Standard IEC 751 (DIN 43760)	°C °F	<±0.1% of the MR	0.1°C / 0.1°F	Current 250µA
	-200/850 -328/1562			
Ni 100 sensor, 3 w (1) $\spadesuit$	-60/260 -76/500			
Differential measures from 2 sensors Pt100Ω 2 wire Stand. IEC 751(2) $\spadesuit$	°C °F			
	-200/270 -328/518			
Resistive sensors	Calibers 0-440 Ω and 0-2.2 kΩ $\spadesuit$ (0-8.8 kΩ optional)	<±0.1% of the MR (0.5% for 0-2KΩ)		-
Potentiometer	from 100Ω to 10 kΩ $\spadesuit$			
Supply for 2-wire sensor	14.0 min. (at 22mA), 14.5V min. (at 20mA), 23.1V max. protection from short circuits : 25 mA max.			
Special linearisation programming up to 20 points	On input : mV, V, mA. Resistive sensors and potentiometer			

- (1) Line resistance <25Ω
(2) Line resistance <10Ω and R. max. 400Ω
(3) Or 25 µV typical (50µV Max.)
 $\clubsuit$ CJC efficiency : ±0.03°C/°C ±0.5°C from -10°C to +60°C
MR measure range
 $\sqrt{\text{ }}$ Square root extraction

- $\clubsuit$ A 12 µA pulsed current allows the detection of line or sensor rupture
 $\clubsuit$ Cut off: the console display and the µC output remain at down scale for an input signal < than the cut off value, programmable from 0% to 100% of the input range.
Thermic drift <150ppm /°C

µC-SI outputs

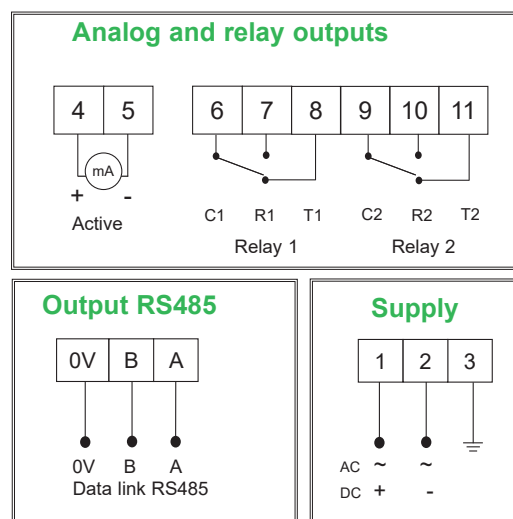
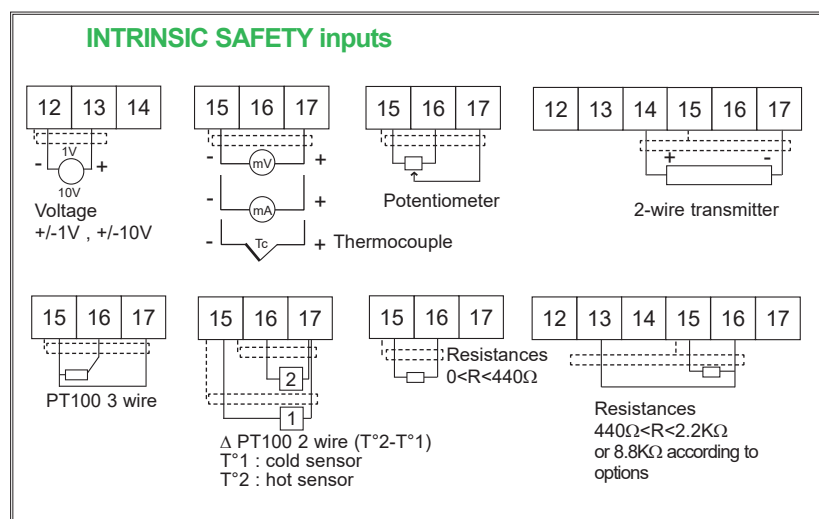
OUTPUT types	Features
1 analog output (mA active)	DC or reverse current 0-20mA Load impedance ≤ Lr 600Ω
2 NO/NC contact relays	2 setpoints per relay, configurable on the whole MR. Hysteresis programmable from 0 to 100%. Time delay programmable from 0 to 25s. (8A/250 VAC on resistive load).
Insulated digital data link	RS485 (Modbus/Jbus) (IEA RS485) 1 start bit, 8 data bits without parity and 1 stop bit.

Galvanic insulation:

- 1kV-50Hz-1min.: Between analog output and digital data link.
2kV-50Hz-1min.: Between supply and [analog outputs / relay contact].
3.8kV-50Hz-1min.: Between analog outputs and relay contact.
Between input and [supply / outputs].

ELECTRICAL PARAMETERS RELATING TO THE SAFETY						
	Terminals	Uo	Io	Po	Lo	Co
Sensor supply	14 - 17	23.1V	100mA	578mW	4mH	138nF
Current (mA) Voltage (mV) Thermocouple (tc)	15 - 17	6.5V	20.9mA	34mW	75mH	25µF
Voltage (1V, 10V) Resistance (440Ω)	12 - 13 15 - 16					
Sensor (Ni100, Pt100, ΔPt100) Potentiometer	15-16-17 16-17 13-16					
	13-15-16	6.5V	20.9mA	34mW	75mH	25µF
Resistance (2kΩ, 8kΩ)	13-15-16	6.5V	20.9mA	34mW	75mH	25µF
Um < 350 Vdc and Um < 265 Vac						

Wiring



CAUTION: The connecting of the intrinsic safety inputs is different between the CVP 820 KN and the µC-SI 820 ARN

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