PROFSI3-APT/ANIV…-ISH

Intrinsic safety converter

- **for use in ATEX explosive areas Gas or Dust [Ex ia] I/IIC**
- **Pt100 or potentiometer input**
- **active or passive 4-20mA recopy**
- **digital signal transfer – HART® compatible**
- **all removable screw terminals**
- **pull-out power distribution by flat cable**
- **35 mm hat profile DIN rail mount (NFC 63015 EN 50022)**

PROFSI3-APT/ANIV...-ISH intrinsic safety converters enable the connection in input of a temperature sensor RTD-Pt100 (APT model) or potentiometer (ANIV model) providing safety between hazardous explosive area and safe area by galvanic isolation.
Those converters are provided with an active or passive 4-20mA output galvanically isolated and HART compatible. PROFSI3-APT/ANIV...-ISH are programmable via the digital signal transfer HART. Jacks on front panel can be used either for the 4-20mA recopy test or for the connection of a HHC programming unit in order to configure or to use the digital signal HART.
PROFSI3-APT/ANIV...-ISH housing is an independant symmetric DIN rail mount unit. Connections are done by mean of pullout screw terminals. Power supply can be AC (from 48VAC to 240VAC) or DC (from 20VDC to 48VDC). Power distribution by plug-in flat cable saves space and time during wiring.

Specifications

APT model
Input Pt100 3-wire – compatible with temperature sensor XTSOND
Measuring range -200°C to +850°C (by default:0 to 400°C)
Accuracy ± 0.2°C
Line compensation up to 100Ω without full scale restriction
Other input as Pt100 difference or resistor difference configurable with software « 32H »

ANIV model
potentiometer range: 900Ω to 100kΩ
zero and full scale programmable on the full range of the potentiometer
Cursor max resistor : 0.1%F.S.
Accuracy ± 0.1%

Output 4-20mA : load available 550Ω
Optoelectronically isolated
Load effect: 1.10^{-4} / 100Ω
Thermal drift: zero: 75ppm/°C
gain: 50ppm/°C
Front panel LED:

- for power supply

2mm test jacks on front panel for:

- 4-20mA on safe side without opening the loop
- connection of a HHC program hand held unit

PROFSI3...-ISH allows transmission in both sides of FSK (HART) signals added on 4-20mA loop signal. A suitable HHC programming unit can be connected on the test jacks or between the converter and the device operating the 4-20mA signal.
A switch located behind the front panel gives access to an extra communication load (HART) on the recopy or a 10Ω load for measuring the current loop (standard delivery Hart communication position)

Power supply

According to models:

- from 48VAC to 240V-50Hz or 60Hz 4VA
- from 20VDC to 48VDC 3VA

Environmental

Operating temperature : from -20 to +60°C
Storage temperature : from -40 to +80°C

Special conditions for a safe use

PROFSI3-...-ISH is an apparatus complying with ATEX Directive 2014/34/UE n° LCIE 03 ATEX 6078X
General marking :
I (M1) or II (1) G or II (1) D or II 2 (1) D-IP6X [Ex ia] I/IIC – T80°C –
Ambient temperature : -20°C ≤ Ta ≤ +60°C

- Category (M1) or (1)G or (1)D

This apparatus is an intrinsically safe associated material, it is strictly forbidden to install it in an explosive area.

- Category 2(1)D-IP6X

This apparatus can be installed in presence of combustible dust when it is mounted inside an IP6X enclosure that also comply with the requisitions of the EN61241-1 standard.
Enclosure marking: 2(1)D-IP6X
The intrinsically safe terminal blocks can be only connected to intrinsically safe certified equipments or in accordance with clause 5.7 of EN60079-11 standard. These combinations must be compatible as regard intrinsic safe rules.

Mechanical

DIN enclosure for hat-profile symmetric 35mm DIN rail as per NFC 63015 and EN50022
All connections by pull-out screw terminals max size 2.5 mm²
Power distribution by plug-in flat cable
Dimensions: width on rail : 29mm
depth: 120mm
height: 90mm (145mm overall including cables)
Minimal distance between rails: 180mm
Weight: 200g
Conditions of installation

- Mounting PROFSI3 series on DIN rail must take in account thermal dissipation and risk of overheating generated by enclosures installed side by side. In case of a high concentration of enclosures, we recommend to leave a free space of 10mm between each group of 8 units (horizontal rail) and between each group of 4 units (vertical rail).
- Mounting in a cabinet: in this case, it is recommended to close the electrical cabinet and to provide a circulation of fresh air even by mean of an air conditioner to keep the inside temperature at a level compatible with the recommended operating temperature among the units.

EXPLOSIVE ATMOSPHERES
EXPLOSIONSGEFÄHRDETE BEREICHE

ATMOSPHERES EXPLOSIBLES

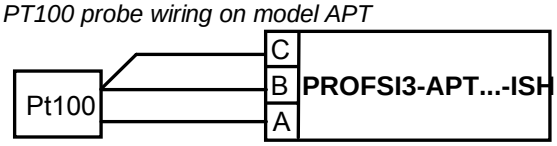
Selection table

Power supply	models		Electrical parameters for ATEX safety						
			Uo	Io	Po	Co IIC	Lo IIC	Co IIB	Lo IIB
	PROFSI3		V	mA	mW	nF	mH	nF	mH
48 to 240VAC 50Hz or 60Hz	PROFSI3-APT-AUP-ISH	PT100 3 wire input	25,2	13,1	82,5	107	200	820	700
	PROFSI3-ANIV-AUP-ISH	Potentiometer input	25,2	13,1	82,5	107	200	820	700
20 to 48VDC	PROFSI3-APT-C024-ISH	PT100 3 wire input	25,2	13,1	82,5	107	200	820	700
	PROFSI3-ANIV-C024-ISH	Potentiometer input	25,2	13,1	82,5	107	200	820	700

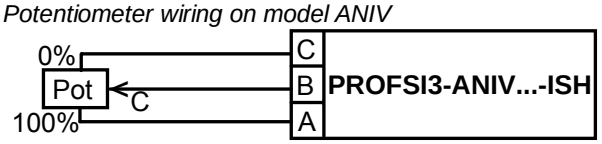
The safety parameters are not taken in account if the temperature sensor Pt100 connected is a model XTSOND...covered by EC type examination certificate LCIE 02 ATEX 6073X

Input wiring - CN1

PT100 probe wiring on model APT

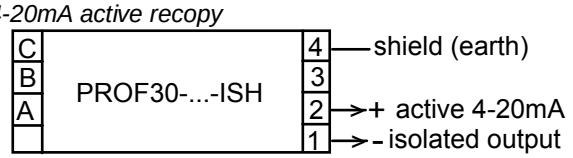


Potentiometer wiring on model ANIV

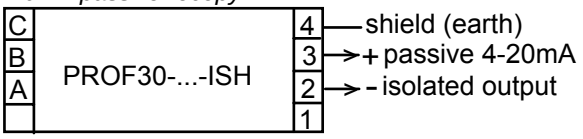


Output wiring - CN2

4-20mA active recopy

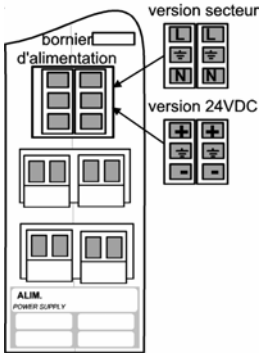


4-20mA passive recopy



The passive output must be connected to a circuit with max voltage = 26V. U = RI ≤ Vin – 13V

Power – CN3/CN4

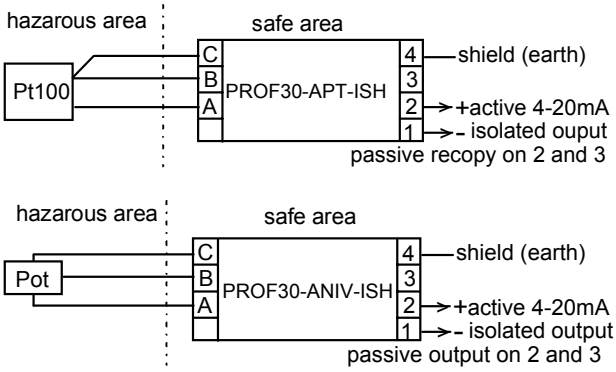


Power distribution by mean of plug-in jumpers from one unit to its neighbour.
All connectors are removable (AC : orange connectors ; DC : black ones)

Caution ⚠ All units are equipped with 2 terminal blocks to dispatch the auxiliary power supply. One block for input and one block to make a bridge to the next unit by mean of a flat cable supplied in standard.

To avoid electrical chocks, all these connectors must always be filled. If only one of the 2 terminal blocks is used (without giving supply to the next unit), the second block must be filled by the 3-points empty cap delivered in standard.
Cable-layer should connect power supply wires and jumpers on both ends of the line of interfaces

Wiring synoptic

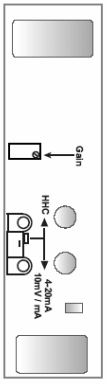


Access on front panel for the control of the 4-20mA loop or HART programming

2mm test jacks on front panel for:

- 4-20mA on safe side without opening the loop
- connection of a HHC program hand held unit

A switch located behind the front panel gives access to an extra communication load (HART) on the recopy or a 10Ω load for measuring the current loop (standard delivery Hart communication position). It's recommended not to commutate the switch while the device is under voltage.
Without Hart digital signal be careful to be settled on « 4-20mA » to avoid an important voltage drop



CE The apparatus bears CE mark as per 2014/30/UE and meets CEI 61326-1.
Complementary tests have been carried out as per other standards. Please call our technical team for further information

This equipment has a 1-year warranty including parts and labour for apparatuses returned in our factory. Even after this warranty period has expired, only A puissance 3 has the authority to modify and repair a certified electrical component or apparatus for hazardous atmospheres. Should this clause is not adhered to, A puissance 3 can no longer be held liable.

This data sheets acts as the ATEX instruction manual

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