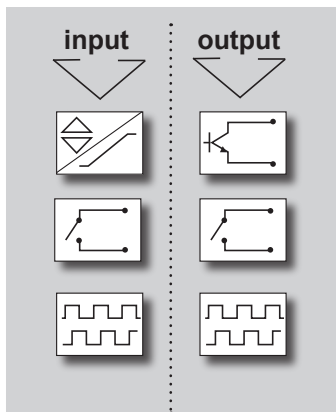


# TNTOR4-SI

for contact or proximity detector, or logic signal



The **TNTOR4-SI** has **intrinsic safety inputs**:

this is **associated equipment**, placed in safe area.

It has input circuits for connection to a sensor placed in hazardous area and output circuits for connection in safe area only.

This instrument has 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) et EN 61241-11 (2006) in accordance with the directive ATEX 2014/34/UE.

marking:  $\text{Ex}$  II(1)GD, [Ex ia] IIC and [Ex iaD]

The TNTOR4-SI is an **intrinsic safety separating for 4 inputs**: type "contact" or "proximity detector", or "logic signal" (version "TNTOR4L"). The 4 outputs are of the type "relay" (option "R"), or "PNP transistor" (option "TP"), or "NPN transistor" (option "TN"), or "TTL logic signal" (option "L").

## Functions:

- Programming of the switching state of each of the 4 channels by jumpers.
- Visualisation on the front face of the switching state of each channel.

## Applications

- PLC input interface.
- Data centralising on PLC.
- Acquisition, regulation, recording, watching of signals.
- Retransmission of logic inputs on panel and switchbox.

## Environment

- Reduced case dimensions.
- Plug-off connectors for screwed connectings
- Operating temperature: -10°C to +50°C
- Storage temperature: -30°C to +80°C
- CE marking

- Complies with standards:

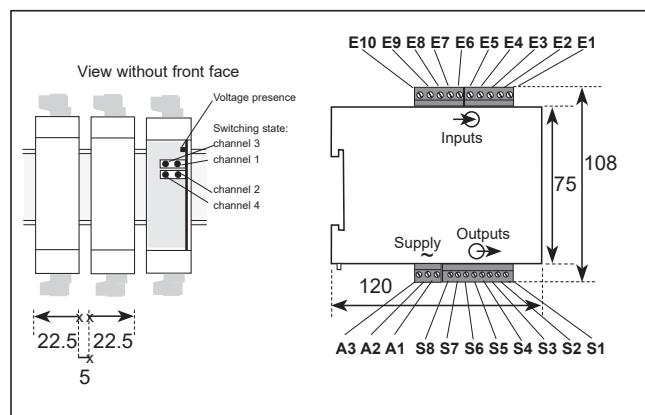


IEC61000-6-4 on rejections and IEC61000-6-2 on immunity (in industrial environment), IEC61000-4-3 level 3, IEC61000-4-4 level 4, IEC61000-4-6 level 3.

The friendly interface

## Description

- ♦ **Housing:** (H x L x D) 75 x 22.5 x 120 mm (H=108, with terminals)



- ♦ **Housing:**

Self-extinguishing case of black UL 94VO for latching on symmetrical DIN rail (mount the cases vertically and provide a 5 mm spacing between each).  
Plug-off connectors for screwed connectings, flexible or rigid:  
2.5mm<sup>2</sup> for the supply and the inputs  
1 mm<sup>2</sup> for the outputs

- ♦ **Weight:** 225g (with packaging).



# Technical features at 23°C

## Potential free contact or proximity detector according to DIN 19234 (NAMUR)

|                                       |         |
|---------------------------------------|---------|
| Sensor supply voltage .....           | 8.5V    |
| Drawn current if type "contact" ..... | 8.5 mA  |
| Switching setpoint .....              | 1.55 mA |
| Hysteresis .....                      | 0.2 mA  |
| Impedance .....                       | 1kΩ     |

## Logic signal

|                                         |       |
|-----------------------------------------|-------|
| Max. voltage between E1/E2, E3/E4 ..... | 10 V  |
| Switching setpoint .....                | 1.55V |
| Hysteresis .....                        | 0.2 V |
| Impedance .....                         | 100kΩ |

## Electromagnetic relay

- 1 potential free "NO / NC" contact per channel
- Switching voltage ..... <= 250 VAC or 30 VDC
- Switching current ..... <= 5 A (on resistive load)
- Switching frequency ..... <= 10 Hz
- Contact material ..... AgCdO

## NPN or PNP transistor

- Common emitter for outputs 1 and 2
- Common emitter for outputs 3 and 4
- protection from short-circuits and polarity inversions.
- Switching voltage ..... <= 30 VDC
- Switching current per output ..... <= 25 mA
- Voltage waste ..... <= 1.5V
- Switching frequency ..... <= 3 kHz (on load < 5kΩ)

## "TTL" logic

- Protection from short-circuits (limitation at 25 mA)
- Low logic level ..... <= 0.5V
- Switching frequency ..... <= 3 kHz

## Galvanic partition:

- inputs / [outputs, supply] ..... 3.8kV eff. 50Hz 1min.
- outputs / supply ..... 2kV eff. 50Hz 1min.
- between "relay" type outputs ..... 2.5kV eff. 50Hz 1min.
- outputs 1 and 2 / 3 and 4 ..... 1.5kV eff. 50Hz 1min.
- ("transistor" or "logic" type)

## 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

## Power draw:

- on load < 7 VA (4W), empty < 4 VA (2W)

## ELECTRICAL PARAMETERS RELATED TO THE INTRINSIC SAFETY (homologation will be obtained shortly)

| Inputs                        | Terminals                                                                    | Uo (Vdc) | Io (mAcd) | Po (mW) | Lo (H) | Co μF |
|-------------------------------|------------------------------------------------------------------------------|----------|-----------|---------|--------|-------|
| Contact or proximity detector | E2, E1 (chan. 1)<br>E4, E3 (chan. 2)<br>E7, E6 (chan. 3)<br>E9, E8 (chan. 4) | 9.6      | 9.9       | 24      | >1     | 3.6   |
| Logic signal                  | E2, E1 (chan. 1)<br>E4, E3 (chan. 2)<br>E7, E6 (chan. 3)<br>E9, E8 (chan. 4) | 9.6      | 0.097     | 0.23    | >1     | 3.6   |

Um < 375 Vdc and Um < 265 Vac

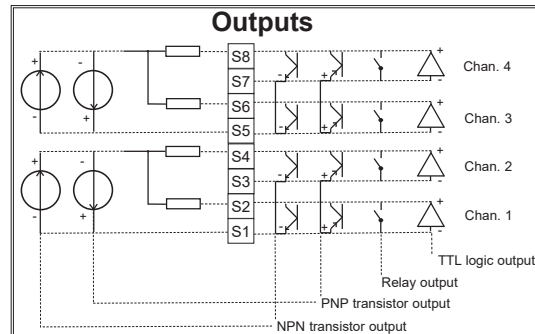
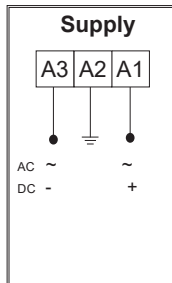
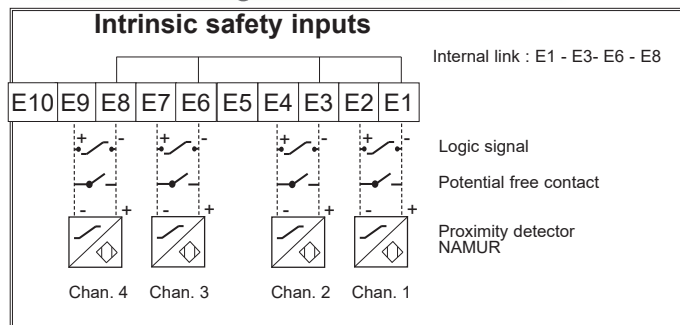
## Coding

|             |                                                                         |
|-------------|-------------------------------------------------------------------------|
| Type        | TNTOR4L-SI R-3                                                          |
| Input type: | TNTOR4: Namur or pot. free contact<br>TNTOR4L: logic                    |
| Supply      | 2: HV<br>3: LV                                                          |
| Outputs:    | R: Relays<br>TP: PNP transistor<br>TN: NPN transistor<br>L: Logic (TTL) |

## Order example:

For a **4-channel separating relay** with logic input, PNP transistor output, powered in low voltage, request reference: **TNTOR4L-SI TP-3**

## Connectings



*This appliance is dedicated to industrial applications. It has to be mounted in an electrical switchbox, or equivalent.*

## SFERE . Société Française d'Etudes et de Réalisations Electroniques

RCS Lyon 423-502-608 - Printed in France

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

Tél. : 04 78 16 04 04 Fax. : 04 78 16 04 05  
Tel. Intern. : 33 4 78 16 04 04 Fax Intern. : 33 4 78 16 04 05

e-mail : info@sphere-net.com . http : //www.sphere-net.com

Your representative