

Isolating Switching Repeater TS 500-Ex

1- and 2-channel device



Features

- Input for switching contact, proximity switch Namur type acc. to DIN EN 60947-5-6 or opto-coupler
- Input intrinsically safe acc to ATEX II (1) G [Ex ia] IIC/IIB
ATEX II (1) D [Ex iaD]
- Switchable line fault detection for broken and shorted lines
- Output relay SPDT contact or electronic (transistor passive) available
- Supply voltage 230 V AC or 24 V DC
- Power on LED, status / error LED
- 22.5mm case for DIN rail mounting



General information

Isolating switch-coupler TS500-Ex can be used for monitoring and controlling digital signals out of the hazardous area. The intrinsically safe input is suitable for switching contact, proximity switch acc. Namur DIN EN 60947-5-6), or passive electronic outputs of other devices. The devices must be installed out of the Ex-area because only the input is intrinsically safe.

Short information


- Operating mode The Operating mode between input and output can be selected by DIP switches at the front panel (open-circuit or close circuit working). The frontside LEDs indicate the activated output.
- Line fault detection When operating with Namur proximity switches the controlling function for broken line and shorted line can be activated by DIP-switch (see page 2). In case of an error, the output changes to inactive and the LED indicators are flashing. For connection with switching contacts external resistors are necessary (see page 3).

⚠ Requirements

- It is necessary to keep the conditions of the ATEX EC-Type Examination Certificate.
- The device must be installed in dry and good monitored rooms.
- If the intrinsic safety input is connected to the dust and dangerous area of zone 20 or 21, it has to be ensured that the corresponding devices in this circuit have the requirements of category 1D or 2D.
- Repairing and design modifications are only allowed at works.

Technical data


Explosion protection

Certification : DMT 99 ATEX E 079
 Approval :  II (1) GD [Ex ia] IIC/IIB or II (1) D [Ex iaD]
 Max. voltage (no load) U_0 : 10.6 V
 Max. short circuit current I_0 : 26.8 mA
 Max. power consumption P_0 : 71.0 mW
 (characteristic linear)

Input classification

| | | | |
|---------------------------|------------|---------------|---------------|
| | <i>EEx</i> | <i>ia/IIB</i> | <i>ia/IIC</i> |
| Max. external capacity | : | 16.2 μ F | 2.3 μ F |
| Max. external inductivity | : | 110.0 mH | 20.0 mH |
| Internal capacity | : | negligible | |
| Internal inductivity | : | 36 μ H | |

Power supply

Supply voltage : 230 V \pm 10 % AC, 47 ... 63 Hz
 : 24 V \pm 15 % DC (safety voltage 253 V AC/125 V DC)
 Power consumption : < 2 W
 Operating temperature : -10 ... 55 °C (14 ... 131 °F)
 Rated voltage : 400V AC acc. VDE0110 group 2 between input/output/supply voltage
 Test voltage : 4kV DC between input/output/supply voltage
-conformity : ATEX-directive 94/9/EG
 EN 60079-0:2006 EN 60079-11:2007
 EN 61241-0:2006 EN 61241-11:2007
 IEC 61000-4-2/3/4/5/6/8/11

Inputs (intrinsically safe)

No load voltage : approx. 8 V (acc. to DIN EN 60947-5-6, Namur)
 Short circuit current : approx. 8 mA (acc. to DIN EN 60947-5-6, Namur)
 Switching point : inactive \leq 1,2 mA, aktiv \geq 2,1 mA, Hysterese ca. 0,5 mA
 Broken line detection : \leq 0.1mA
 Shorted line detection : \geq 7.5mA

Output (relay)

Switching capacity : <253 V AC <100 VA <2 A; <100 V DC <50 W <2 A
 Max. switching frequency : 5 Hz
 Max. switching delay : 20 ms (2-channel: 50 ms)

Electronic output (transistor passive)

Max. voltage : 35 V DC (safety voltage 253 V AC/125 V DC)
 Max. current : 50 mA (short circuit proof)
 Voltage drop : \leq 3.5 V (at load 50 mA)
 Max. switching frequency : 2,000Hz (50 % keying ratio)
 Max. switching delay : 300 μ s

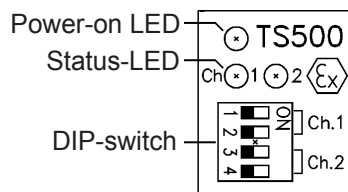
Case : standard case of polycarbonate 8020 UL94V-1
 acc. to DIN EN 60715:2001-09

Weight : approx. 200 g

Protection : case IP30, terminals IP20 finger safe acc. to German BGV A3

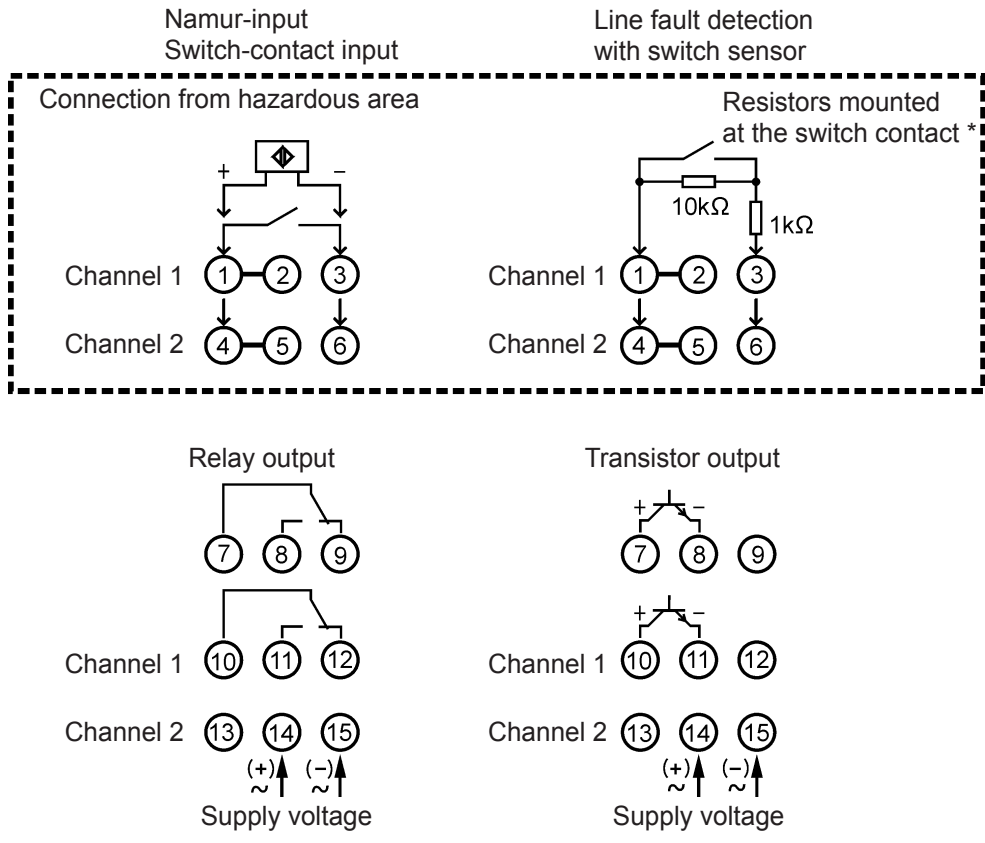
Connection : screw terminal with pressure plate, max. 2.5 mm², wire

Panel controls

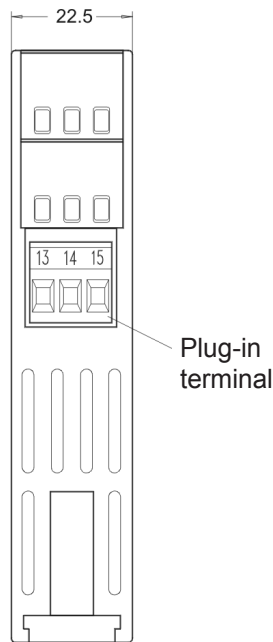
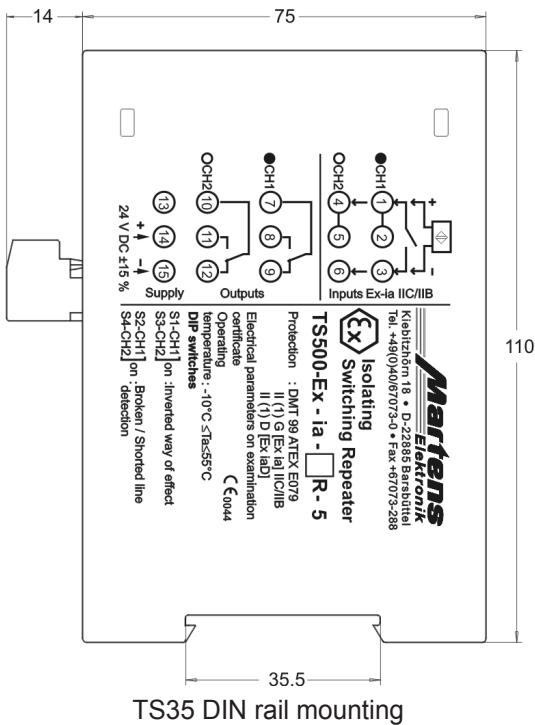


| Way of effect | Channel 1 | Channel 2 |
|---------------------------------|-----------|-----------|
| non inverted (N.O.) | S1 off | S3 off |
| inverted (N.C.) | S1 on | S3 on |
| Broken line/shorted line | | |
| non active | S2 off | S4 off |
| active | S2 on | S4 on |

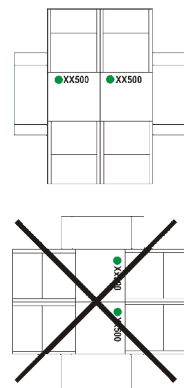
Connection diagram



* Necessary for line fault detection in connection with switch sensors.



Caution!
Mounting of multiple units without distance is only permitted in horizontal orientation.



Ordering code

TS500-Ex-ia- 1. - 2.

(categoric „ia“ includes „ib“)

1. Output

1R 1-channel with relay output
2R 2-channel with relay output
1T 1-channel with electronic output
2T 2-channel with electronic output

2. Supply voltage

0 230 V AC ±10 % 50-60 Hz
5 24 V DC ±15 %

EG-KONFORMITÄTSBESCHEINIGUNG EC-CERTIFICATE OF CONFORMITY



Zertifikat-Nr.:
Certificate No.:

TS500ATEX.002



Hersteller / Importeur:
Manufacturer / Importer:

*Martens Elektronik GmbH
Kiebitzhörn 18
D-22885 Barsbüttel*

Produkt:
Product:

TS500EX

Produktbeschreibung:
Object description:

*Trennschaltverstärker
Isolating Switching Repeater*

Wir erklären in alleiniger Verantwortung, dass das bezeichnete Produkt die Schutzanforderungen der Europäischen Richtlinien erfüllt.

We hereby declare in sole responsibility that the designated product fulfills the safety requirements of the European directives.

Erfüllung der EMV-Richtlinie 2004/108/EG

Fulfills the EMC directive 2004/108/EG

Prüfung nach den Normen:

EN 61326: 2004-05

Tested in compliance with norms:

Erfüllung der ATEX-Richtlinie 94/9/EG

Fulfills the ATEX directive 94/9/EG

Prüfung nach den Normen:

EN 60079-0: 2006

EN 60079-11: 2007

Tested in compliance with norms:

EN 61241-0: 2006

EN 61241-11: 2006

EG - Baumuster-
prüfbescheinigung:
EC-type examination certificate:

DMT 99 ATEX E 079

Datum der Erstanbringung des:

10.2009

CE-Zeichens auf das Produkt

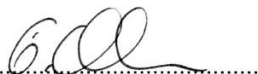
Date of first application of the CE mark
to the product

Ort, Datum:

Barsbüttel, den 05.10.2009

Place, date:

Rechtsverbindliche Unterschrift:



Legally binding signature:

Geschäftsleitung, manager