

Isolating Switching Repeater TS 500-Ex

1- and 2-channel device



Features

- Intrinsically safe input acc. ATEX II (1) GD [EEx ia] IIC for switching contact, proximity switch Namur type acc. to DIN EN 60947-5-6 or opto-coupler
- 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

Input devices	In gas explosive areas mechanical switching contacts or passive sensors without certificate may be connected if they fulfill DIN EN 50020 and EN 50014. When using external devices connected to TS500Ex, and passive sensors in dust explosive areas zone 20 and 21, a certificate of conformity is necessary.
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 LED's 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).


Technical data

Explosion protection

Certification : DMT 99 ATEX E 079
 Approval :  II (1) GD [EEx ia] IIC
 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 *EEx* *ia/IIB* *ia/IIC*
 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, European standard EN50014:1997, EN50020:2002,
 (Certificate TS500ATEX.001) EN50284:1999, IEC61241-0:2004
 EMV-directive, European standard EN50081-1:1993-03, EN50082-2:1996-02

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)

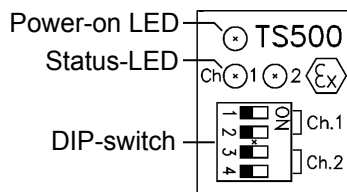
Switching capacity : <253 V AC <100 VA <2 A; <100 V DC <50 W <2 A
 Max. switching frequency : 5 Hz
 Max. switching delay : 20 ms (2-channel: 50 ms)

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

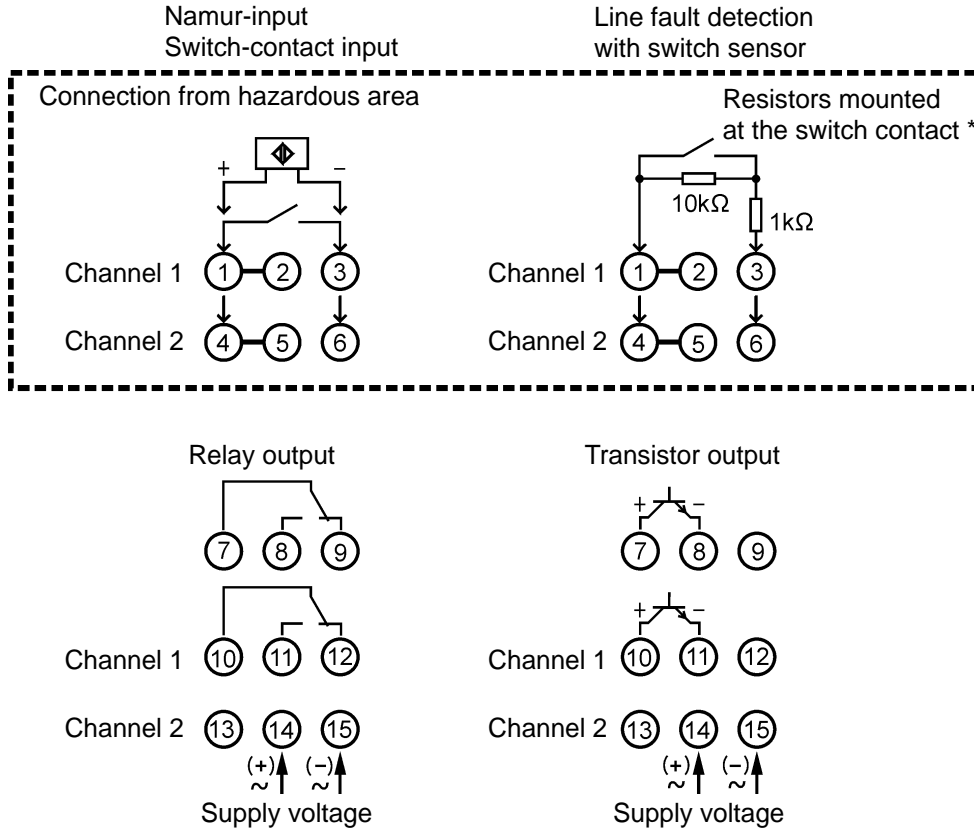
Case : standard case of polycarbonate 8020 UL94V-1
 Weight : approx. 200 g
 Protection : case IP30, terminals IP20 finger safe acc. to German BGV A3
 Connection : screw terminal with pressure plate, max. 2.5 mm², wire

Panel controls

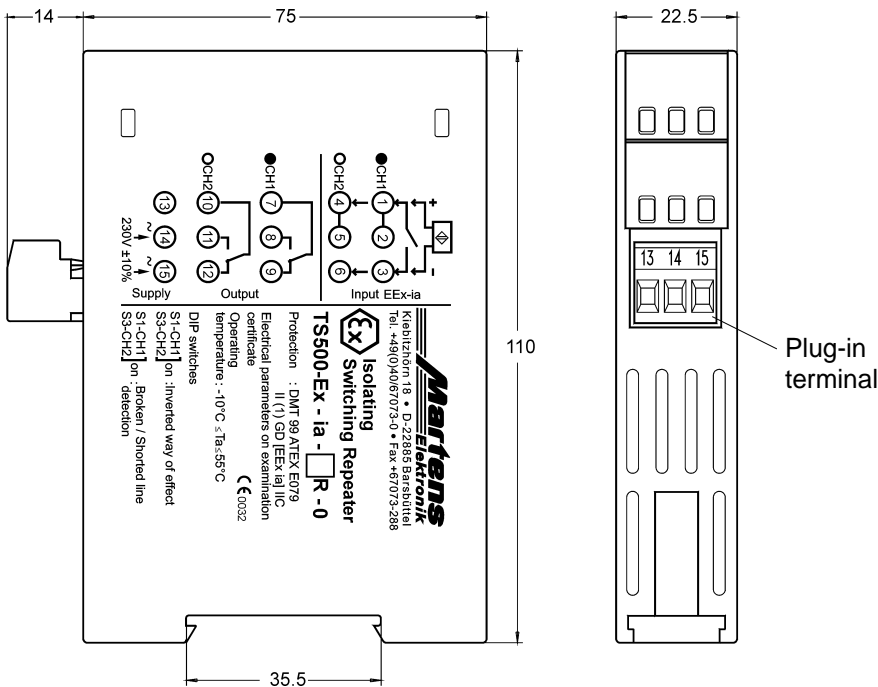


Way of effect	Channel 1	Channel 2
non inverted (N.O.)	S1 off	S3 off
inverted (N.C.)	S1 on	S3 on
Broken line/shorted line		
non active	S2 off	S4 off
active	S2 on	S4 on

Connection diagram



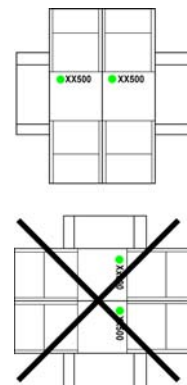
* Necessary for line fault detection in connection with switch sensors.



TS35 DIN rail mounting
acc. to DIN 46277 and DIN EN 50022

Caution!

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



Ordering code

TS500-Ex-ia- 1. - 2.

(categoric „ia“ includes „ib“)

2. 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

3. 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.001



Objektbezeichnung:
Object identification:

TS500Ex

Objektbeschreibung:
Object description:

Trennschaltverstärker
Isolating Switching Repeater

Erfüllung der EMV-Richtlinie 89/336/EWG
Fullfills the EMC directive 89/336/EWG

Prüfung nach den Normen:
Tested in compliance with norms:

EN 50081-1: 1993-03
EN 50082-2: 1996-02

Technischer Bericht:
Technical report:

TS500_B.001 vom 29.4.99

Erfüllung der ATEX-Richtlinie 94/9/EG
Fullfills the ATEX directive 94/9/EG

Prüfung nach den Normen:
Tested in compliance with norms:

EN 50014: 1997
EN 50020: 2002
EN 50284: 1999
IEC 61241-0: 2004

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

DMT 99 ATEX E 079

Aussteller dieses Zertifikats:
Holder of certificate:

Martens Elektronik GmbH
Kiebitzhörn 18
D-22885 Barsbüttel

Hersteller / Importeur:
Manufacturer / importer:


Martens Elektronik GmbH
Kiebitzhörn 18
D-22885 Barsbüttel

Anerkennung des
Qualitätssicherungssystems:
Recognition of quality assurance:

TÜV 96 ATEX 1141 Q

Barsbüttel, den 10.10.2006

Ort, Datum
Place, date


Technischer Leiter
Technical manager


Qualitätssicherung
Quality assurance