

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. EN 60664-1 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
 EN 61326-1:2013 EN 60664-1:2007

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 1,2 mA, aktiv 2,1 mA, Hysterese ca. 0,5 mA
 Broken line detection : 0.1mA
 Shorted line detection : 7.5mA

Output (relay)

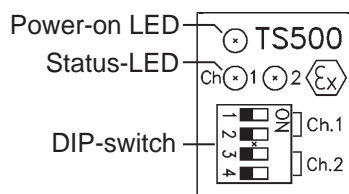
Switching capacity : <253 V AC <100 VA <2 A; <100 V DC <50 W <2 A
 Max. switching frequency : 5 Hz
 Max. switching delay : 20 ms (2-channel: 50 ms)

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 : 3.5 V (at load 50 mA)
 Max. switching frequency : 2,000Hz (50 % keying ratio)
 Max. switching delay : 300 μ s

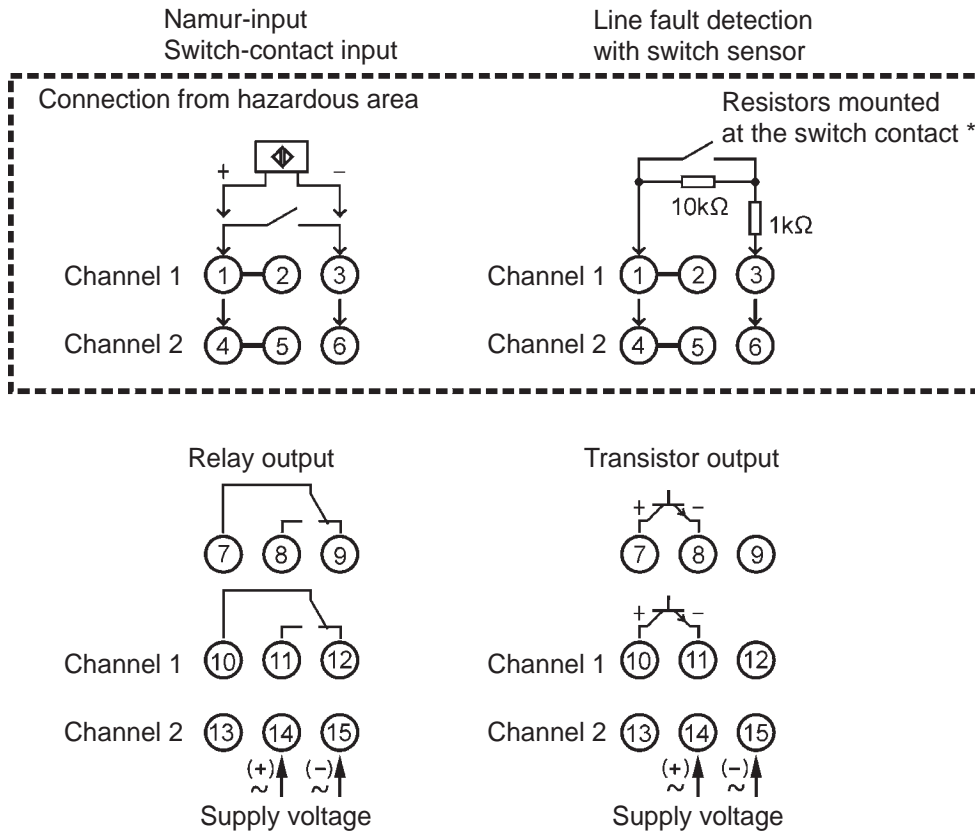
Case : standard case of polycarbonate 8020 UL94V-1
 acc. to DIN EN 60715:2001-09
 Weight : approx. 200 g
 Protection : case IP30, terminals IP20 finger safe acc. to German BGV A3
 Connection : screw terminal with pressure plate, max. 2.5 mm², wire

Panel controls

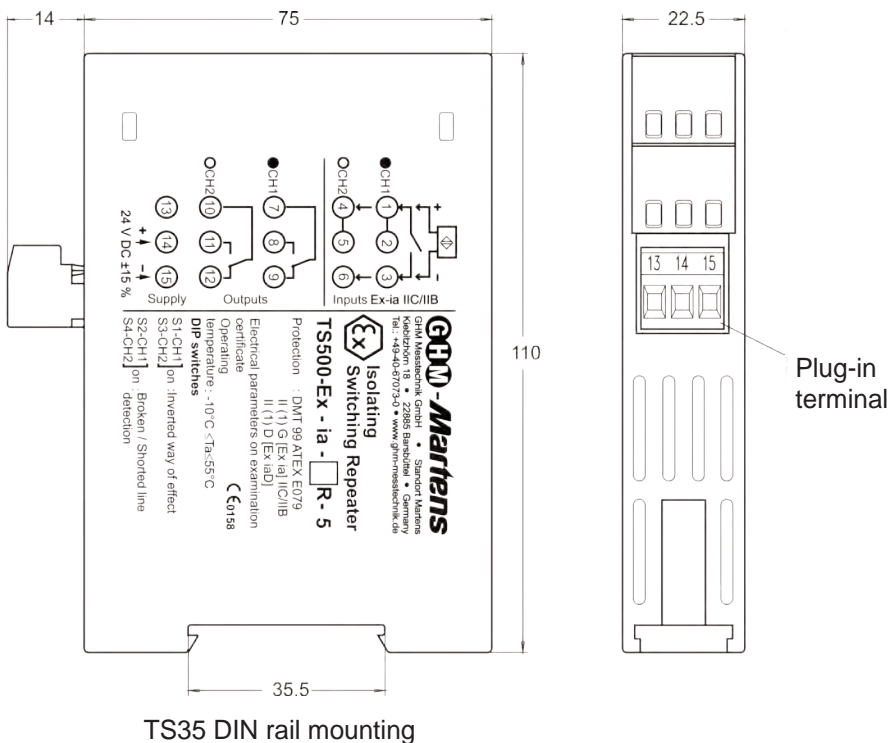


Way of effect	Channel 1	Channel 2
non inverted (N.O.)	S1 off	S3 off
inverted (N.C.)	S1 on	S3 on
Broken line/shorted line		
non active	S2 off	S4 off
active	S2 on	S4 on

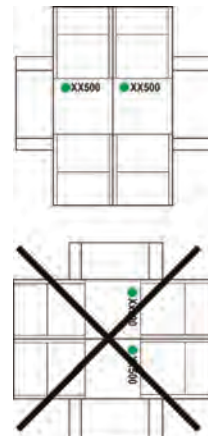
Connection diagram



* 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 %

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EU-KONFORMITÄTSERKLÄRUNG EU-DECLARATION OF CONFORMITY

GHM Messtechnik GmbH Standort Martens, Kiebitzhörn 18, 22885 Barsbüttel, Germany

Dokument-Nr. / Monat.Jahr: **3024 / 04.2016**
 Document-No. / Month.Year:

Wir erklären hiermit als Hersteller in alleiniger Verantwortung, dass die folgenden Produkte konform sind mit den Schutzziele der Richtlinie des Europäischen Parlaments:
 We declare as manufacturer herewith under our sole responsibility that the following products are in compliance with the protection requirements defined in the European Council directives:

Produktbezeichnung: **TS500Ex**
 Product identifier:

Produktbeschreibung: **Trennschaltverstärker**
 Product description: **Isolating switching repeater**

Die Produkte entsprechen den folgenden Europäischen Richtlinien:
 The products conforms to following European Directives:

Richtlinien / Directives	Angewandte harmonisierte Normen oder angeführte technische Normen Applied harmonized standards or mentioned technical specifications
2014/30/EU EMV Richtlinie / EMC Directive	EN 61326-1:2013
2014/35/EU Niederspannungsrichtlinie / Low Voltage Directive	EN 60664-1:2007
2011/65/EU RoHS / RoHS	EN 50581:2012
2014/34/EU ATEX-Richtlinie / ATEX Directive	EN 60079-0:2006 EN 60079-11:2007 EN 60079-26:2004 EN 61241-0:2006 EN 61241-11:2006

Die Produkte stimmen mit den Anforderungen der Richtlinie 2014/34/EU überein. Die in der EG-Baumusterprüfbescheinigungen DMT 99 ATEX E 079 Erg. 2 genannten Normen wurden durch neue Ausgaben ersetzt. Der Hersteller erklärt für die Produkte weiterhin die Übereinstimmung mit den Anforderungen der Richtlinie 2014/34/EU, da für die Produkte eine von den Anforderungen der neuen Normausgaben abweichende, gleichwertige Lösung gewählt wurde.
 The products comply with the directive 2014/34/EU. The norms mentioned in the respective EC type examination certificate DMT 99 ATEX E 079 app. 2 were already replaced by new ones. The manufacturer declares the products continued compliance with the directive 2014/34/EU, because a technically equivalent solution, deviant from the new edition, was used.

Diese Erklärung wird verantwortlich für den Hersteller abgegeben durch:
 The manufacturer is responsible for the declaration released by:

Michael Wulf
 Standortleiter
 Business unit manager

Barsbüttel, 20. April 2016

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Harmonisierungsrechtsvorschriften, beinhaltet jedoch keine Zusicherung von Eigenschaften.
 This declaration certifies the agreement with the harmonization legislation mentioned, contained however no warranty of characteristics.

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