

Isolating Signal Converter TV 500-Ex ...with integr. transmitter supply ST 500-Ex



Features

- Switch-selectable inputs
 0/4 ... 20 mA and 0/2 ... 10 V
 intrinsically safe ATEX II 1 GD [EEx ia] IIC
- Switch-selectable outputs
 0/4 ... 20 mA simultaneous 0/2 ... 10 V
- Supply voltage 85 ... 253 V AC
 or 10 ... 30 V AC/DC
- Full 3-port isolation
- Integrated transmitter supply
 (ST500-Ex only)
- Power-on LED
- 22.5 mm case for DIN rail mounting



General information

The isolating signal converter can be used to isolate industry standard signals 0/4...20 mA or 0/2...10 V DC to the input, which is intrinsically safe, isolated and converted into industry standard signals for process control systems. The ST500-Ex provides an isolated transmitter supply for direct connection of active 2- and 3-wire sensors out of the Ex-area.

Short information

Ex-i inputs	The connected devices need to be certified depending on the operation-place.
Current output	Max. burden 1 kΩ for direct driving of proportional valves.
Multi-range	Inputs and outputs are configurable between 0/4...20 mA and 0/2...10 V by DIP-switches on the front panel.

Ordering code

1. 2. 3.
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1. **Device type**
 TV500-Ex-ia Isolating Signal converter
 for area 0 or area 20 (permanent explosion hazard)
 ST500-Ex-ia Power feed signal converter
 for area 0 or area 20 (permanent explosion hazard)
 with integr. transmitter supply
2. **Measuring range**
 10 Inputs 0/4 ... 20 mA and 0/2 ... 10 V DC
 Outputs 0/4 ... 20 mA and 0/2 ... 10 V DC
3. **Supply voltage**
 0 85 ... 253 V AC
 5 10 ... 30 V AC/DC

Technical data

Explosion protection

Certification	:	TÜV 97 ATEX 1150	
Protection	:	⚡ II (1) GD [Ex ia] IIC	
U ₀	:	25.2 V	
I ₀	:	1 mA	
	:	95 mA	
P ₀	:	< 1 mW (curve linear)	
	:	600 mW (curve linear)	
Area classification EEx:		ia/IIC	ia/IIB
C ₀	:	107 nF	820 nF
	:	107 nF	820 nF
L ₀	:	50 mH	50 mH
	:	2.3 mH	14 mH
C _i , L _i	:	negligible	

The intrinsically safe circuit is galvanically separated from the non-intrinsically safe circuits up to a sum of the peak values of the nominal voltage of 375V.

Power supply

Supply voltage	:	85 ... 253 V AC or 10 ... 30 V AC/DC
Frequency	:	47 ... 63 Hz
Power consumption	:	< 3.5 VA
Operating temperature	:	-10...55 °C (14 ... 131 °F)
Rated voltage	:	500 V AC ac.. to VDE 0110 Gr. 2 between input/output/supply voltage
Test voltage	:	4 kV DC between input/output/supply voltage
CE-conformity	:	ATEX-directive 94/9/EG, European standard EN50014:1994-03,
(Certifikate ST500ATEX.001)	:	EN50020:1996-04
	:	EMV-directive, European standard EN50081-1:1993-03, EN50082-2:1996-02

Inputs

Current input	:	0/4 ... 20 mA switch selectable, R _i = 25 Ω, overload max. 100 mA
Voltage input	:	0/2 ... 10 V DC switch selectable, R _i ca. 40 kΩ, overload max. 100 V
Span	:	adjustable approx. +/-20 %
and 4 mA/2 V		

Transmitter supply : approx. 20 V DC, R_i approx. 300 Ω (ST500-Ex only)

Outputs

Current output	:	0 ... 20mA, 4 ... 20mA switch selectable, max. burden 1 kΩ
Voltage output	:	0 ... 10V, 2 ... 10V switch selectable, max. load 15mA, short circuit protected (simultaneous to current output max. 5mA)
Rise time (T ₉₀)	:	< 100 ms
Accuracy	:	< 0.3 %
Temperature error	:	< 0.01 %/K
Repeat accuracy	:	< 0.1%
Supply error	:	< 0.1%
Error rating	:	(input/output 4 ... 20 mA, both DIP-switches on)
- break of wire	:	Output current < 2.5 mA
- shorted line	:	Output current > 23 mA, < 27 mA (between terminal. 1 and 2 , only ST500)

Case : standard case of polycarbonate 8020 UL94V (mounting in dry, clean and well monitored area acc to EN50020, part 6.1)

Weight	:	approx. 200 g
Protection	:	case IP30, terminals IP20 finger safe acc. German BGV A3
Connection	:	screw terminals with pressure plate, max. 2,5 mm ² wire

Connection diagram

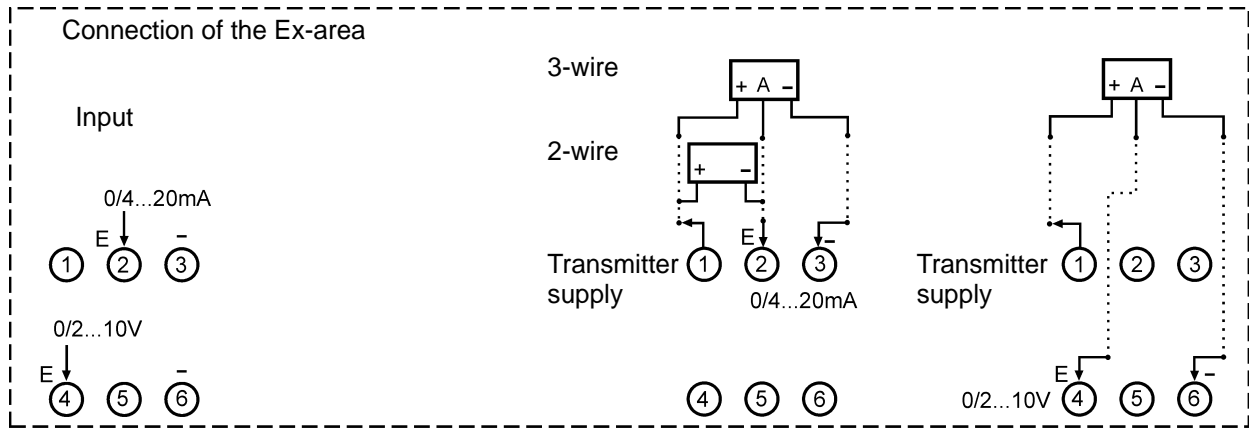
Converter TV500-Ex

Converter ST500-Ex

Connection of sensors

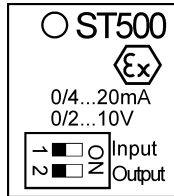
with current output

with voltage output

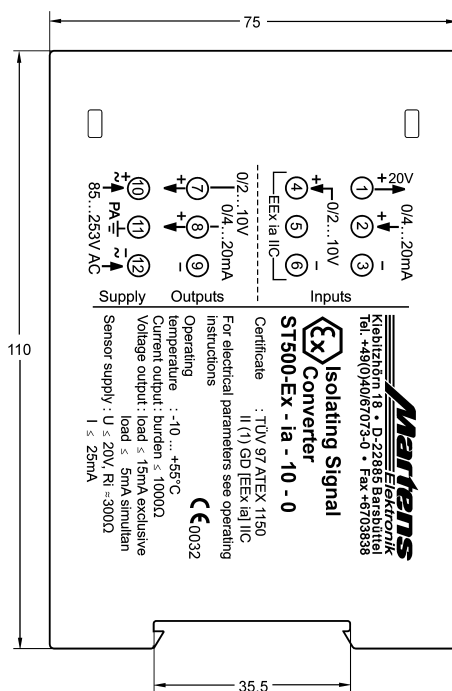
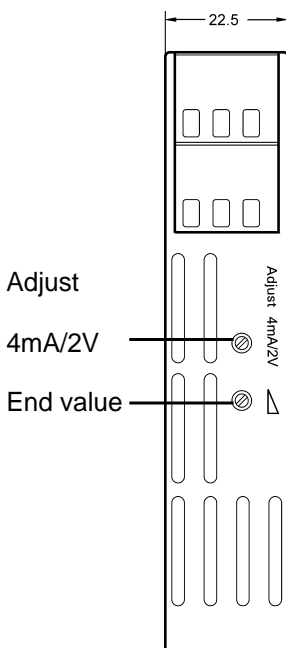


⊥ PA: Protective earth terminal (PE)
acc. to VDE0100 part 540

Front panel controls

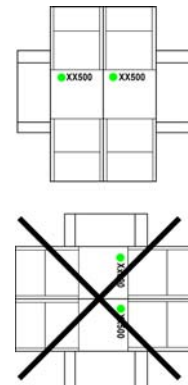


	0 ... 20 mA	4 ... 20 mA
	0 ... 10 V	2 ... 10 V
Input	S1 OFF	S1 ON
Output	S2 OFF	S2 ON



Caution!

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



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

EG-KONFORMITÄTSBESCHEINIGUNG EC-CERTIFICATE OF CONFORMITY



Zertifikat-Nr.:
Certificate No.:

ST500ATEX.001



Objektbezeichnung:
Object identification:

ST500Ex, TV500Ex

Objektbeschreibung:
Object description:

*Speisetrenner/Trennverstärker für
eigensichere Stromkreise*

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:

ST500Ex.002 vom 2.6.97

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: 1994-03
EN 50020: 1996-04*

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

TÜV 97 ATEX 1150

Aussteller dieses Zertifikats:
Holder of certificate:

*Martens Elektronik GmbH
Kiebitzhörn 18
D-22885 Barsbüttel*

Hersteller / Importeur:
Manufacturer / importer:

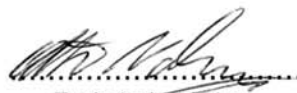
*Martens Elektronik GmbH
Kiebitzhörn 18
D-22885 Barsbüttel*

Anerkennung des
Qualitätssicherungssystems:
Recognition of quality assurance:

TÜV 96 ATEX 1141 Q

Barsbüttel, den 2.03.2005

Ort, Datum
Place, date


.....
Technischer Leiter
Technical manager


.....
Qualitätssicherung
Quality assurance