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Produktinformation

Universal Isolating Amplifier TV125M / ST125M

- **Potential separation, conversion, supply and adjustment of standard signals (mA, V ↔ mA, V)**
- **Functional safety up to SIL2**
- **Supply of 2-, 3- or 4-wire transmitters (ST125M)**
- **Intrinsically safe types for zone 0/20**
- **Installation up to zone 2**
- **Minimized type variants due to wide-range power supply**
- **Efficient wiring with scale-able Power Rail-devices**
- **Short downtime due to clear indication**
- **Fast commissioning due to front sided controls**
- **Plug-able, coded and numbered terminals for reliable and interchange-proof wiring**

Characteristics

Isolation amplifiers of series TV/ST125M are suitable for potential separation or to convert the standard signals. The universal design of inputs and outputs, and the internal power supply with wide-range power supply enable a wide spectrum of applications with only one type of device.

Alternatively the power supply can be carried out via a mounting rail bus connector. The pluggable terminal strips allow a simple and time-saving wiring.

The configuration of input and output signals is done by front panel dip switches in a very easy and fast way.

Because of the microprocessor design it´s possible to interpret under- or overshooting the measurement range and indicate by a bi-color status LED on the front panel. In case of an error the output is then set to a defined initial value or ending value.

The initial value and the end value of the measuring range can be adjusted by means of two front-mounted trimmers.
The device version of ST125 additionally provides a transmitter power supply for external 2-, 3- and 4-conductor sensors.

Technical data

Explosion protection

Ignition protection typ ia
Intrinsically safe Inputs

Type	: TV125M(P)-Ex, ST125M(P)-Ex
Zone 0/1/2	: II (1)G [Ex ia Ga] IIC/IIB
Zone 20/21/22	: II (1)D [Ex ia Da] IIIC

Ignition protection typ ic
Intrinsically safe Inputs + zone 2 installation

Type	: TV125MP-Ex, ST125MP-Ex
Zone 2	: II 3G Ex ec [ic] IIB T4 Gc

Limit values

Input circuit

IIB/IIIC (IIC)	: Uo=27,6V; Io= 1,3mA; Po=9,6mW; Co=667nF (85nF); Lo=200mH (100mH) Ui=26V; Ii=113mA; Pi=660mW Ci=1nF; Li=240nH

Output circuit (ST125M(P)Ex, only)

IB/IIIC (IIC)	: Uo=25,9V; Io=92,6mA; Po=598mW; Co=769nF (99nF); Lo=8mH(2mH); Ci=1nF; Li=240nH

Ignition protection typ ec
Without intrinsically safe Inputs, Zone 2 installation

Type	: TV125MP-00, ST125MP-00
Zone 2	: II 3G Ex ec IIB T4 Gc

External power / auxiliary voltage

Wide-range power supply	: 20...125 V DC / 85...253 V AC (47...63Hz)
Power-Rail-supply	: 24 V DC +/- 15 %

Power consumption

Wide-range power supply	: < 4 VA
Power-Rail-supply	: < 2 W

CE Conformity

Low-voltage	: 2014/35/EU
EMC	: 2014/30/EU
ATEX	: 2014/34/EU

Rated voltage	: 300 V AC/DC with overvoltage category 2 and degree of contamination 2 between all circuits. Safe separation with amplified isolation
Ex-operation	: 253 V AC, 125 V DC
Test voltage	: 3kV AC Input/Output/Power supply

Ambient conditions

Working temperature	: -10...60°C
Storage temperature	: -20...80°C
Relatvice air humidity	: 10...90% (no condensation)

Input

Voltage input	: 0...10V or 2...10 V switchable, Ri = 30 kΩ. overload max. 26 V DC
Current input	: 0...20 mA or 4...20 mA switchable; Ri = 51 Ω, 113mA
Measuring span	: adjustable ± 2 %
Zero point	: adjustable ± 2 %

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Output

Voltage output	: 0…10 V or 2…10 V switchable, Load > 500 Ω.
Current output	: 0..20 mA or 4..20 mA switchable, Load < 600 Ω.
Step response T90	: 40 ms
Standard error	: < 0,2 % of the end value
Temperature coefficient	: < 0,01 % / K

Transmitter power supply (ST125M(P), only)

Nominal voltage at 20 mA output current	
Terminals 51, 52	: > 15 V DC
Terminals 51, 41	: > 14 V DC
Ri	: 300 Ω

Housing

Material	: Polyamid (PA) 6.6, UL94V-0
Weight	: 91g
Protection class	: Housing IP30, terminals IP20 BGV A3
Colour	: light grey
Installation width	: 12,5 mm
Dimension (HxT)	: 108 x 114 mm
Assembly	: Mounting rail assembly TS35
Screw terminals	: 0,2..2,5 mm², AWG 24..14, removable encoded
Push-In terminals (option)	: 0.5..1.5 mm², AWG 25..16, (spring clamps) double connection (12A between the connectors), removable encoded
Power Rail (TV/ST125MP)	: 8A over entire bus system (supply via removable terminals 0.2..2.5 mm², AWG 24..14

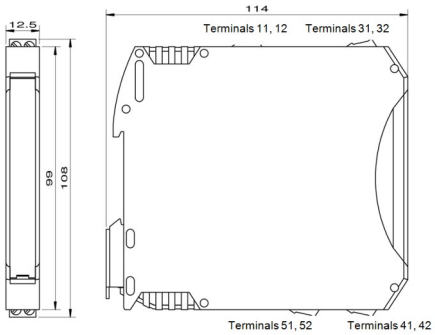
Safety Integrity

Level	: SIL 2 for
Input	4..20 mA or 2..10 V and
Output	4..20 mA or 2..10 V
Device type	: B
HFT	: 0 (1oo1)
Error signaling	: Output 0 V respective 0 mA

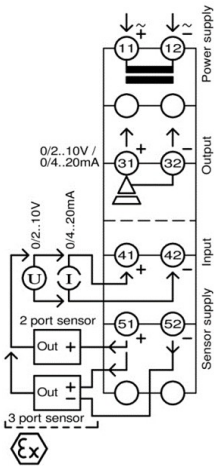
Reaction time

Normal function → error	: 40 ms
error → normal function	: 1s (self resetting)

Mechanical design / dimensions



Connection diagram



Order code

1. 2. 3. 4.

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1.	**Device version**	
	TV125M	Wide-range power supply 20..125 V DC / 85..253 V AC
	TV125MP*	Power supply 24 V DC +/- 15 % via rail mounted connecting terminal (Power Rail)
	ST125M	Transmitter power supply, Wide-range power supply 20..125 V DC / 85..253 V AC
	ST125MP*	Transmitter power supply, Power supply 24 V DC +/- 15 % via rail mounted connecting terminal (Power Rail)
2.	**Explosion protection**	
	00	No intrinsically safe input and no intrinsically safe transmitter power supply. The devices TV125MP and ST125MP may be installed in Zone 2 acc. to ATEX-ignition type "ec".
	Ex	**In case of installing the devices out of the ex-zone:** Input and transmitter feed are intrinsically safe in accordance to ignition protection type "ia" for zones 0 and 20. The devices TV125MP and ST125MP may be installed in Zone 2 acc. to ATEX-ignition type "ic".
3.	**Input**	
	10	0/2…10 V / 0/4…20 mA
4.	**Options**	
	00	without option
	01	Push-In terminals (plug-in)

* Rear bus plug included

Accessories

Art. No.	Type	Description
190109	PRVK	Power Rail 5- pole supply terminal. Connection site: left