

Intrinsically safe power supply and isolator ZS-30EEx1



- ✓ Ex II (1)G [EEx ia] IIC
I (M1) [EEx ia] I **Ex-rated**
intrinsically safe
- ✓ Full galvanic separation of circuits
(IN-OUT, IN-SUPPLY, OUT-SUPPLY)
- ✓ Accuracy 0.1%
- ✓ Casing can be mounted on a standard
TS35 rail

Application and functions

The ZS-30EEx1 power supply and isolator is a partially intrinsically safe device with an external (input) intrinsically safe circuit.

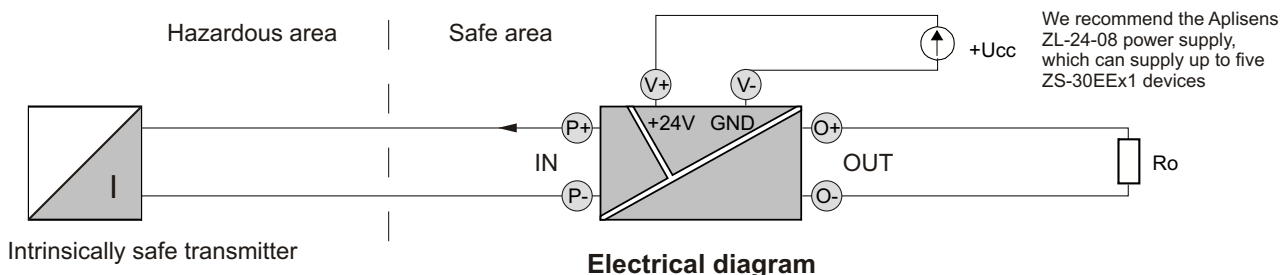
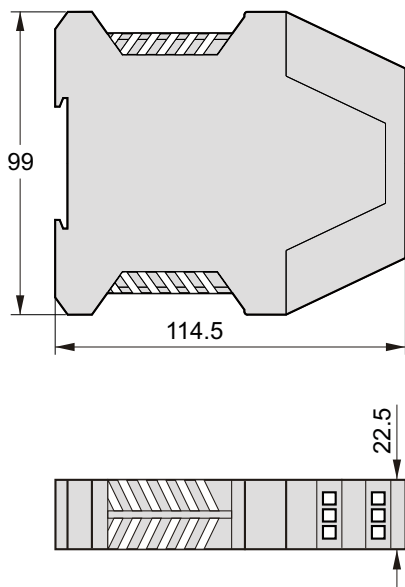
The ZS-30EEx1 is designed to supply power to intrinsically safe transmitters used in a hazardous area, with a 4...20 mA signal in a two-wire transmission, and to transform that signal through a galvanic separation circuit into one of the standard signals used in automatic control.

The supply voltage of the intrinsically safe input circuit of the standard version of the ZS-30EEx1 is 20 V DC. At the customer's request this voltage can be altered to 16, 18, 22 or 24 V DC.

The output circuit can be connected to any apparatus with a separated supply voltage of < 250 V (from transformer-based network supplies).

Calibration

The user can adjust the setting of the start-point and width of the range using potentiometers accessible via marked holes in the front panel.



Technical parameters

- Input parameters

Input signal from the transmitter 4...20 mA

Standard version

| | | | | | |
|---|--------|--------|------|--------|---------------|
| Supply voltage of the input circuit U_{IN} | 16 V | 18 V | 20 V | 22 V | 24 V |
| Maximum voltage on the terminals of the input circuit U_0 | 16.8 V | 18.9 V | 21 V | 23.1 V | 25.2 V |

Input voltage after loading by the transmitter with output signal 4...20 mA
 $U_{IN20} = U_{IN} [V] \cdot 0.7$
 U_{IN} is the supply voltage of the input circuit

Maximum shorting current of input circuit $I_0 = 92 \text{ mA}$

- Output parameters

| Output signal | Output load resistance |
|----------------------------|--------------------------------|
| 4...20 mA | 500 Ω |
| 0...20 mA | 500 Ω |
| 0...5 mA | 2 k Ω |
| 0...5 V, 1...5 V, 0...10 V | 10 k Ω |

Standard version

- Galvanic separation

IN-OUT optoelectronic
 IN-SUPPLY, OUT-SUPPLY pulse transformer
 Test voltage between circuits 2.5 kV AC, 50 Hz or equivalent DC

- Conversion errors

Accuracy 0.1%
 Non-linearity $\pm 0.05\%$
 Effect of temperature fluctuations $\leq \pm 0.1\% / 10^\circ\text{C}$
 Effect of load resistance fluctuations $\leq \pm 0.05\%$
 Effect of supply voltage fluctuations $\leq \pm 0.1\%$

- Dynamic characteristics

Time constant c. 0.05 s (by arrangement: 0.1...1 s)

- Power supply

Supply voltage 24V DC $\pm 10\%$
 Permitted ripple $\leq 1\%$
 Supply current $\leq 90 \text{ mA}$

- Conditions of normal use

Ambient temperature 5...60 $^\circ\text{C}$
 Relative humidity 30...80%

- Casing

Ingress protection rating IP 20

- Weight

0.2 kg

Ordering procedure

Standard version ($U_{IN} = 24 \text{ V}$, output 4...20 mA): **ZS-30EEEx1**

Special version: **ZS-30EEEx1 /** **/**
 Input circuit voltage \uparrow
 Output signal \uparrow

Important: For transmitters in version ALW with switched on illumination of display and used internal resistor 250 Ω should be specified model ZS-30EEEx1/24V/25.2V.