

ZS-030

Intrinsically Safe Stabilized Power Supply with Circuit Isolation with/without Transfer Communicating Signal HART

- Galvanic isolation of 4 to 20 mA current loop and supply of intrinsically safe transmitter
- With 0.1 % accuracy isolates 4 (0) to 20 mA signal or converts 4 to 20 mA signal into 0 to 20 mA signal, active or passive output
- Two-way converting of HART protokol through galvanic isolation
- Housing IP 20 (to DIN rails TS 35 and TS 32)
- Intrinsic safety II (1) G [Ex ia] IIC
- Meet harsh industrial requirements and EMC standards according to EN 61326-1/A1



Application

The stabilized power supply ZS-030 galvanically isolates a 4 to 20 mA linear current signal and supplies transmitters in two-wire connection in areas with explosion hazard. It can also be used for a galvanic isolation of an intrinsically safe loop 4 (0) to 20 mA and for a conversion of a 4 to 20 mA linear current signal into a 0 to 20 mA signal. The device support communication with SMART transmitters with HART protocol by galvanic isolation.

Description

The device must be installed in area without explosion hazard. Only wires connected to the intrinsically safe side of the device (terminals 1 to 3) can lead into the area with explosion hazard. ZS-030 is designed for rail mounting (DIN TS 35 and TS 32). Plastic box used is highly mechanically resistant and temperature stable.

Technical Specifications

Application: galvanic isolation of current loop and supply of intrinsically safe transmitter

Input Signal:
4 (0) to 20 mA

Output Signal:
4 (0) to 20 mA, max. 600 Ω

Conversion Accuracy:
≤ ±0.1 % (for 0.5 to 20 mA input current)

Supply Voltage for Two-wire Transmitter:
(between terminals 2 and 3)
without HART 16 to 19 V DC / 21 mA
with HART 15 to 19 V DC / 21 mA

Voltage Drop between Terminals 1 and 2:
without HART < 230 mV / 21 mA
with HART < 2 V / 21 mA

Supply Voltage:
230 V AC (±10 %), 48 to 62 Hz

Power Consumption:
Max. 5 VA

Isolation:
4000 V AC input and output circuits against mains circuit
2500 V AC output circuit against input circuit and transmitter supply

Intrinsically safe version

Factor of intrinsic safety:

Ⓔ II (1) G [Ex ia] IIC according to EN 50020 and EN 50014

Certification:

Certificate No. FTZÚ 02 ATEX 0146 X

Terminals 1, 2 a 3:

U_o = 19.1 V	U_i = 28 V
I_o = 65 mA	I_i = 93 mA
P_o = 0.66 W	P_i = 0.66 W
C_o < 220 nF	C_i ~ 0 nF
L_o < 5 mH	L_i ~ 0 mH

Terminals U and N:

U_m = 250 V

Terminals 4 and 5:

U_m = 250 V

Supplementary Specifications

The power supply is produced as a device of 2nd class of protection, installation overvoltage class 3 according to EN 61010-1. Type of supply circuit for transmitters is SELV. The power supply is resistant against long-term short circuit of output and is protected by a reversible temperature fuse. The power supply is designed for continuous operation and has no mains switch. The power input is internally protected by FAST 80mA / 230 V AC fuse. Input supply voltage lead must allow switching off. The device installation must be in compliance with EN 50014 and EN 50020.

Effects of Ambient Temperature:

≤ ±0.1 % / 10 °C for signal conversion
±1.1 % / 10 °C for transmitter supply voltage

Intrinsically Safe Stabilized Power Supply ZS-030 with Circuit Isolation

Effect of Mains Supply Voltage Change:
without effect on signal conversion

EMC (Electromagnetic Compatibility):
According to EN 61326-1:98/A1:99

Insulation resistance: Min. 50 MΩ

Operation Conditions

Ambient Temperature:
-30 to +60 °C

Humidity:
10 to 80 % rh

Elevation:
up to 2000 m above sea level

Other Data

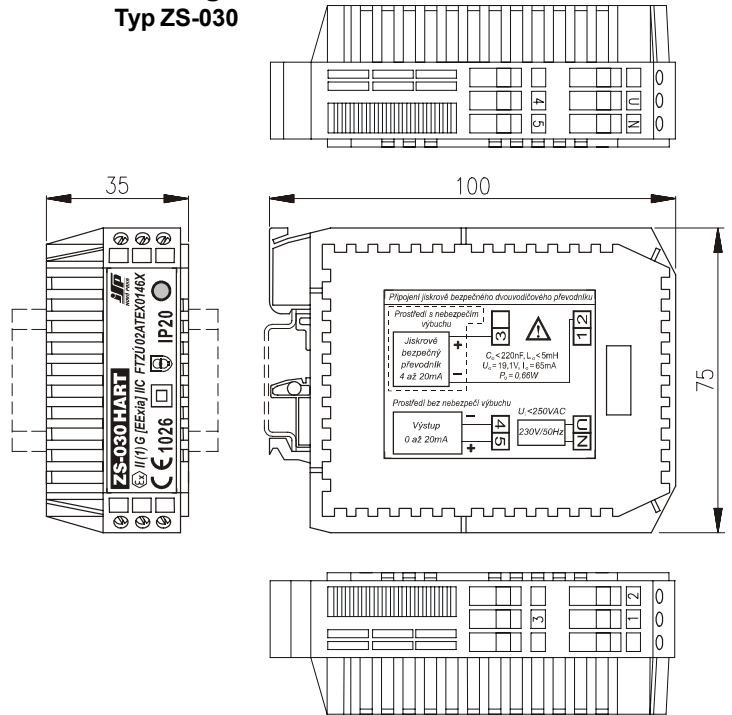
Housing According to EN 60529:
IP 20

Weight:
270 g

Material of Boxes:
polyamide

Appropriate Mounting Rails:
35 x 27 x 7.5 mm EN 50022
35 x 24 x 15 mm EN 50022
35 x 27 x 15 mm
32 mm EN 50035 G-32

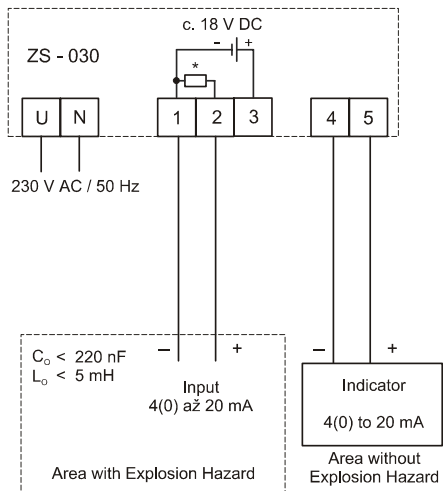
Dimensional Drawings Typ ZS-030



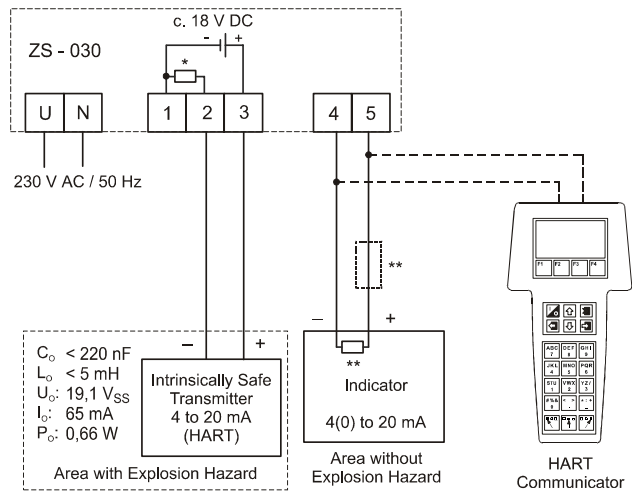
Screw terminals for connection of wires with 0.5 to 1.5 mm² cross-section.
The minimum distance between mains terminals and the metal panel is 8 mm!

Electrical Connections

Galvanic Isolation of Intrinsically Safe Loop 4(0) to 20 mA



Connection of Intrinsically Safe 2-wire Transmitter



* Voltage Drop without HART communication < 230 mV / 21 mA
Voltage Drop with HART communication < 2 V / 21 mA

** HART communication requires between terminals 4 and 5 a minimum loop resistance of 250 ohms

Type	Description
• 119 030 →	Intrinsically Safe Stabilized Power Supply ZS-030 with Circuit Isolation, II (1)G [EEx ia] IIC, FTZÚ 02 ATEX 0146X (Rail Mounted Version, DIN TS 35 and TS 32)
Code	Signal Conversion
• 0 →	4 to 20 mA into 4 to 20 mA or 0 to 20 mA into 0 to 20 mA without HART communication
• 1	4 to 20 mA into 0 to 20 mA without HART communication
2	4 to 20 mA into 4 to 20 mA or 0 to 20 mA into 0 to 20 mA with HART communication
3	4 to 20 mA into 0 to 20 mA with HART communication

Example of Order: 119 0300

• ... Ex Stock Version