



Galvanic separation unit

FEATURES

- Power supply for 2-wires types of transducers and signal conditioners
- μA to mV conversion for long distance signal transmission
- Certified for use with measuring chains in potentially explosive atmospheres
- Galvanic separation voltage: 4 kV_{RMS}
- High rejection of frame voltage
- DIN-Rail mounting



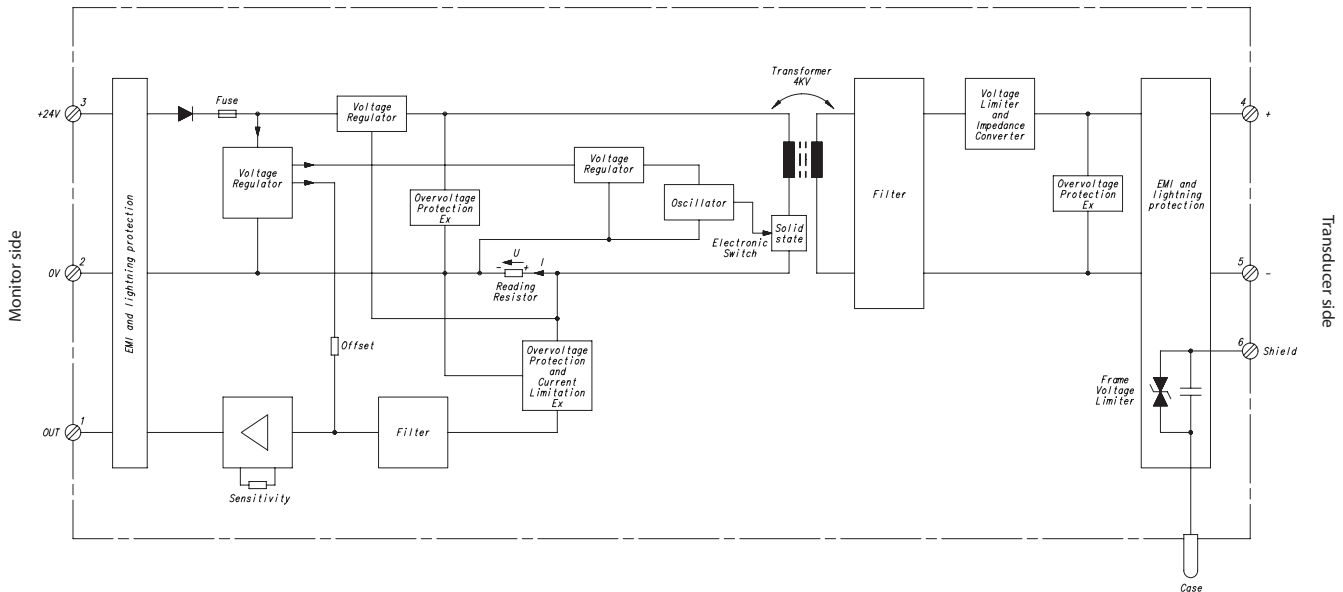
DESCRIPTION

The versatile GSI 124 galvanic separation unit replaces its predecessors: GSI 122, GSI 123 and GSI 130. The GSI 124 is for use with piezo-electric transducers with integrated electronics (eg. CE XXX), piezo-electric transducer signal conditioners (eg. IPC XXX) and proximity probe signal conditioners (eg. IQS 4XX series).

The unit is intended for use in 2-wire transmission systems at high frequencies. More generally, it may be used to supply any electronic system having a consumption of less than 20 mA.

The GSI 124 avoids the use of Zener barriers for Exi applications. It allows the transmission of AC signals over long distances. The unit rejects a large amount of the RMS voltage of ground noise and avoids AC noise pickup which can occur between the sensor case and the poles of the sensor.

BLOCK DIAGRAM



SPECIFICATIONS

Environmental characteristics

General

Temperature

- Operating : 0°C to 70°C
- Storage : -20°C to +85°C

Vibration (according to IEC68.2.6) : 5Hz to 35 Hz, 90 minutes/axis
0.15 mm peak below resonance frequency, 1 g peak above

Humidity (according to IEC68.2.30) : Up to 90%, non-condensing

• Storage : Up to 95%, non-condensing

Shock : Half-sine, 6 g peak, 11 ms, 3 shocks/axis

(according to IEC68.2.27)

Induced signal susceptibility : Performance criteria B

(according to IEC61000-4-4/5)

RF susceptibility : Performance criteria A

(according to IEC61000-4-3)

RF Emissions

(according to IEC61000-4-3)

- Limits at 1 m : 30 MHz to 230 MHz < 60 dB μ V/m (quasi-peak)
- : 230 MHz to 1000 MHz < 67 dB μ V/m (quasi-peak)

Electrostatic discharge : Performance criteria B

(according to IEC61000-4-2)

Explosive atmospheres (ordering option A2)

- EC type examination certificate : LCIE 05 ATEX 6033 X
II (2) G (outside potentially explosive zone) [Ex ib] IIC



For specific parameters of the mode of protection concerned and special conditions for safe use, please refer to the "EC type examination certificate" that is available from Vibro-Meter SA on demand.

- cCSAus certificate : cCSAus certificate 1699234
Class I, Div 1, Groups A,B,C,D [Ex ia]

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SPECIFICATIONS (Continued)

Electrical Characteristics

Power supply (user side)

Supply voltage

- With IPC XXX and CE XXX : $20 V_{DC}$ to $30 V_{DC}$
- With IQS 4XX : $22.5 V_{DC}$ to $30 V_{DC}$

Current consumption (with $24 V_{DC}$ supply)

- Without load on transducer side : ≤ 20 mA
- With 12 mA on transducer side : ≤ 50 mA
- With 20 mA on transducer side : ≤ 70 mA
- With a short-circuit on transducer side : ≤ 70 mA

Output signal (monitor side)

- Voltage output dynamic range (with $10\text{ k}\Omega$ load) : $\geq 2 V_{DC}$
 $\leq U_{\text{supply}} - 2.5 V_{DC}$
- Output impedance : $\leq 1\ \Omega$ protected against short-circuits
- Power supply voltage rejection ratio
- Standard (ordering option A1) : ≥ 55 dB at 10 Hz to 400 Hz
 ≥ 35 dB at 400 Hz to 100 kHz
 - Explosive (ordering option A2) : ≥ 55 dB at 10 Hz to 400 Hz
 ≥ 35 dB at 400 Hz to 5 kHz
 ≥ 28 dB at 5 kHz to 100 kHz
- Thermal output signal offset drift (0 ... 70°C) : $\leq 4\text{ mV}/^\circ\text{C}$ (200 ppm/ $^\circ\text{C}$)
- Thermal output signal sensibility drift (0 ... 70°C) : $\leq 100\text{ ppm}/^\circ\text{C}$
- AC output signal residual noise
- Band width: 0 to 1 kHz : $\leq 2\ \mu\text{V}_{RMS}/\sqrt{\text{Hz}}$
 - Band width: $>1\text{ kHz}$: $\leq 4\ \mu\text{V}_{RMS}/\sqrt{\text{Hz}}$

Input signal (transducer side)

- Output supply voltage on 2-wires transmitting line : $21.5 V_{DC} \pm 2.5 V_{DC}$ (without load)
- Impedance : $\leq 90\ \Omega$
- Current dynamic range on 2-wires transmitting line : 0 mA to 20 mA
- Short-circuit current limit on 2-wires transmitting line : ≤ 30 mA
- Maximal load capacitance
- Standard : $C_{\text{max}} = 200\text{ nF}$
 - Explosive atmospheres : $C_{\text{max}} = 99\text{ nF}$
- Maximal load inductance
- Standard : $L_{\text{max}} = 30\text{ mH}$
 - Explosive atmospheres : $L_{\text{max}} = 25\text{ mH}$

Transfer Characteristics (ordering option B)

Sensitivity

- IPC XXX and CE XXX : $1\text{ V}/\text{mA} \pm 10\text{ mV}/\text{mA}$
- IQS 4XX : $3.2\text{ V}/\text{mA} \pm 32\text{ mV}/\text{mA}$

Output offset voltage (zero)

- IPC XXX (12 mA_{DC} on transmitting line) : $7 V_{DC} \pm 100\text{ mV}_{DC}$
- CE XXX (5 mA_{DC} on transmitting line) : $7 V_{DC} \pm 100\text{ mV}_{DC}$
- IQS 4XX (17.5 mA_{DC} on transmitting line) : $8 V_{DC} \pm 100\text{ mV}_{DC}$

SPECIFICATIONS (Continued)

Band width

IPC XXX and CE XXX (ordering option B1 and B2)

- Frequency band with a transfer inside ± 0.5 dB : DC to 20 kHz
- Typical frequency cut at -3 dB : 30 kHz

IQS 4XX (ordering option B3)

- Frequency band with a transfer inside ± 0.5 dB : DC to 10 kHz
- Typical frequency cut at -3 dB : 25 kHz

Linearity : < 0.2%

Galvanic separation voltage : 4 kV_{RMS}

Physical Characteristics

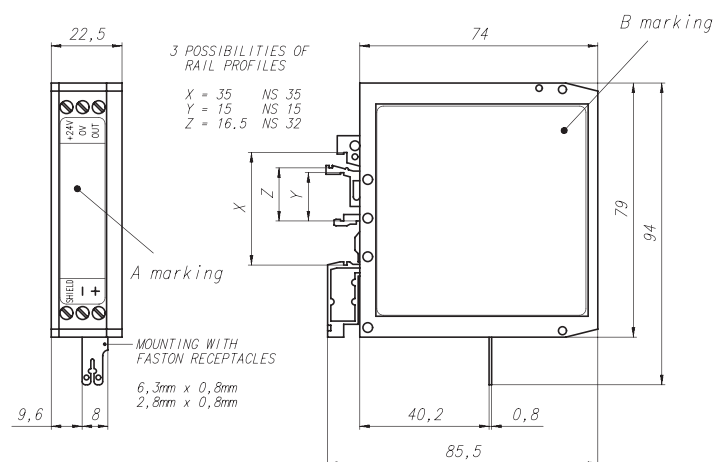
Dimensions : See mechanical drawing

Weight : 130 gr

Electronic housing material : Polyamide (PA 6.6) green

Electrical connections : With terminal screw - see mechanical drawing

MECHANICAL DRAWING

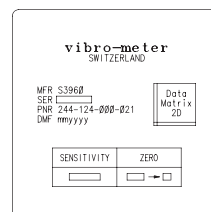


Standard

A marking



B marking



ATEX

A marking



B marking

