



TxIsoLoop-1 / TxIsoLoop-2

LOOP-POWERED ISOLATORS - OPERATING MANUAL V1.0x D



INTRODUCTION

The TxIsoLoop-1 and TxIsoLoop-2 are 0(4)-20 mA signal isolators with one and two channels respectively. They provide signal protection by electrically isolating the input signal from the output. The 4-20 mA input is measured and an identical isolated signal is produced at the output. Its power is obtained from the 0(4)-20 mA input loop, dropping the need for an external power supply.

CHARACTERISTICS

- Input/output galvanic isolation.
- Models for 1 or 2 channels.
- Don't require power supply.
- High accuracy.
- Calibration free.

ESPECIFICAÇÕES

- Input Signal (INPUT): 0 to 20 mA; 4 to 20 mA (check minimum current for proper operation)
- Max. Input voltage ($V_{in\ max}$): 32 Vdc
- Voltage drop input/output without protection (V_{drop}): < 3 Vdc
- Voltage drop input/output with protection (V_{drop}): < 5 Vdc
- Output Signal (OUTPUT): 0(4) to 20 mA
- Max. Load (R_L): 1450 R
- Accuracy: 0.2 % FS @ 0 a 60 °C / $R_L = 250\ R$
0.3 % FS @ -20 a 75 °C / $R_L = 250\ R$
- Operating current: > 0,1 mA
- Overload: < 40 mA; < 32 Vdc
- Response time: 2 ms @ $R_L = 250\ R$
- Isolation: 3000 Vac / 10 s
240 Vac continuous
- EMC: EN 61326-1
- Ambient temperature range: -20 to + 75 °C
- Humidity: 20 a 90 %
- Case: ABS (60 %) + PC (40 %). Protection: IP40
- Wire gauge for connections: 0.14 a 1.5 mm²
- Recommended torque: 0.8 Nm
- Terminal blocks injected in Polyamide.

ELECTRICAL INSTALLATION

For proper operation, the TxIsoLoop requires some minimum voltage in the input loop. This voltage can be found in two ways:

1. In type source devices (transmitters, controllers, etc), this voltage is provided by the device itself.

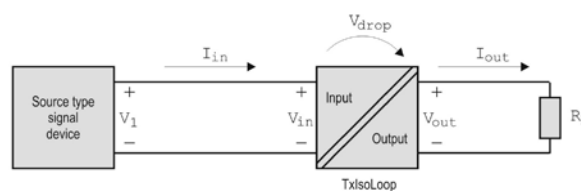


Fig. 1 – TxIsoLoop typical connections

The minimum operating voltage can be calculated by the equation below:

$$V_1 = V_{in} \quad \text{Where: } V_{in} = V_{drop} + (I_{out(max)} \times R_L)$$

$$I_{in} = I_{out}$$

2. In sink type devices (2-wire transmitters) the energy is provided by an external power supply in series in the loop, as shown in Fig. 2.

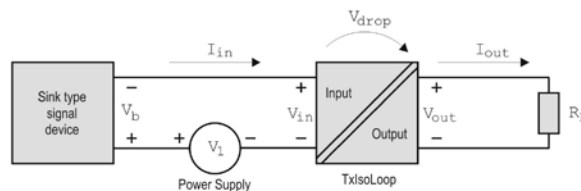


Fig. 2 – TxIsoLoop used to isolate a 2-wire transmitter

In this arrangement, the power supply must provide enough voltage such as power both the 2-wire transmitter and the TxIsoLoop.

The minimum voltage required to allow proper operation can be obtained from the equation below:

$$V_1 = V_b + V_{in} \quad \text{Where: } V_1 = \text{Power supply voltage}$$

$$V_b = \text{Voltage required by the 2-wire transmitter}$$

$$V_{in} = V_{drop} + (I_{out(max)} \times R_L)$$

$$I_{in} = I_{out}$$

ELECTRICAL WIRING

The figure below shows the wiring scheme.

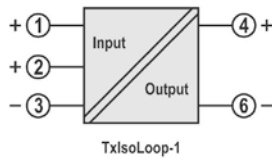


Fig. 3 – TxIsoLoop-1 connections

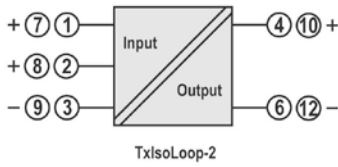


Fig. 4 – TxIsoLoop-2 connections

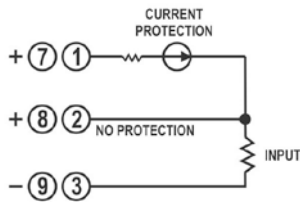


Fig. 5 – TxIsoLoop-1 and TxIsoLoop-2 connections with and without protection

RECOMENDATIONS FOR INSTALLATION

- Signal wires should be installed in grounded conduits and away from power or contactor wires.
- The instrument should have its own power supply wires, which should not be shared with electrical motors, coils, contactors, etc.
- Installing RC filters is strongly recommended at contactor coils or any other inductors.
- System failure should always be taken into account when designing a control panel to avoid irreversible damage to equipment or people.

MECHANICAL INSTALLATION

The transmitter is intended for DIN rail mounting:

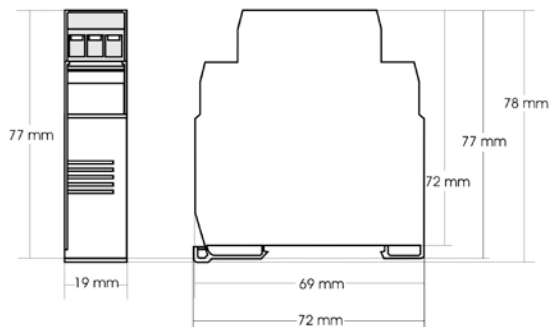


Fig. 6 – Isolator dimensions

SAFETY INFORMATION

Any control system design should take into account that any part of the system has the potential to fail. This product is not a protection or safety device and its alarms are not intended to protect against product failures. Independent safety devices should be always provided if personnel or property are at risk.

Product performance and specifications may be affected by its environment and installation. It's user's responsibility to assure proper grounding, shielding, cable routing and electrical noise filtering, in accordance with local regulations, EMC standards and good installation practices.