1295 Morningside Ave Units 16, 17, & 18
Toronto ON M1B 4Z4 Canada
Telephone: 416-261-4865 Fax: 416-261-7879
www.scigiene.com

LOOP-POWERED ISOLATORS

TxIsoLoop-1 / TxIsoLoop-2

OPERATING MANUAL

5001532 V1.0

WARRANTY

NOVUS Automation Inc. provides the original purchaser of this instrument a one (1) year warranty against defects in material and workmanship under the following terms:

1. The one year warranty begins on the day of shipment as stated on the sales bill.
2. During the warranty period all costs of material and labor will be free of charge provided that the instrument does not show any evidence of misuse.
3. For maintenance, return the instrument with a copy of the sales bill to our factory. All transportation and insurance costs should be covered by the owner of the equipment.
4. Should any sign of electrical or mechanical shock, abuse, bad handling or misuse be evident the warranty voids and maintenance costs will be charged.

PRESENTATION

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.

SPECIFICATIONS

- Input Signal (INPUT): 0 to 20 mA; 4 to 20 mA
  (check minimum current for proper operation)
- Max. Input voltage (Vin max.): 32 Vdc
- Voltage Drop (Vdrop): < 3 Vdc
- Output Signal (OUTPUT): 0(4) to 20 mA
- Max. Load (RL): 1450 R
- Accuracy : 0.2 % FS @ 0 a 60 ºC / RL= 250 R
  0.3 % FS @ -20 a 75 ºC / RL= 250 R
- Operating current: > 0,1 mA
- Overload: < 40 mA; < 32 Vdc
- Response time: 2 ms @ RL= 250 R
- Isolation: 3000 Vac / 10 s
  240 Vac continuous
- EMC: EN 61326-1
- Ambient temperature range: -20 to + 75 ºC
- 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.

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.

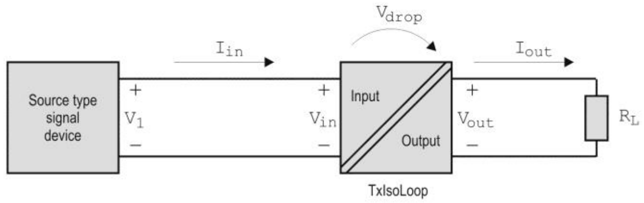

Figure 1 – **TxIsoLoop** typical connections

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

$\mathbf{V_1 = V_{in}}$ where: $\mathbf{V_{in} = V_{drop} + (I_{out(máx)} \ x \ R_L)}$

$\mathbf{I_{in} = I_{out}}$

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 Figure 2.

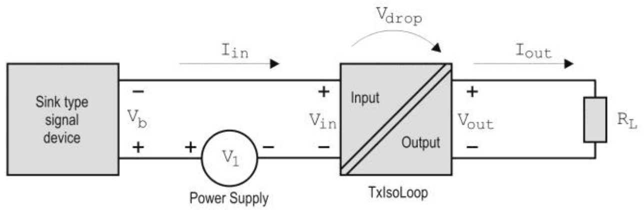

Figure 2 -**TxIsoLoop** used to isolate a 2-wire transmitter

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:

$\mathbf{V_1 = V_b + V_{in}}$ where: $\mathbf{V_1}$= Power supply voltage

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

$\mathbf{V_{in} = V_{drop} + (I_{out(máx)} \ x \ R_L)}$

$\mathbf{I_{out} = I_{in}}$

ELECTRICAL WIRING

The figure below shows the wiring scheme.

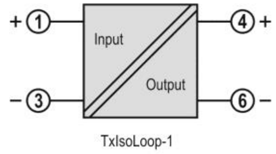

Figure 3 – **TxIsoLoop-1** connections

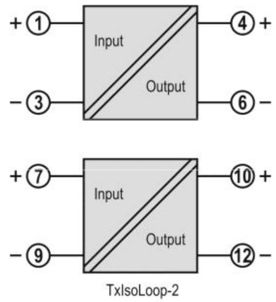

Figure 4 –**TxIsoLoop-2** connections

IT IS IMPORTANT TO FOLLOW THE RECOMMENDATIONS BELOW:

- 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.

ELECTRICAL PANEL MOUNTING

The transmitter is intended for DIN rail mounting:

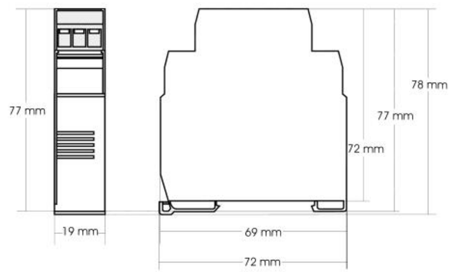

Figure 5 – Isolator dimensions