

## General Instructions

These instructions refer to the SCX-102 model. Adtech is a subsidiary of PYRAGON. Supplementary sheets are attached if the unit has special options or features. For detailed specifications, refer to SCX-102 Loop Isolator Catalog (form 1950). All PYRAGON instruments are factory calibrated. Unless otherwise marked the sex 102 is calibrated for 4-20 mA input and 4-20ma output in 0-750 ohm range. Adjustments are normally not necessary. A simple check should be performed to verify calibration before installation to ensure that it matches the field requirement.

The SCX-102 is a two wire input loop powered isolator that accepts a 4-20ma input signal and provides an isolated 4-20 mA output signal. The transmitted 4-20 mA signal is electrically isolated from the output receiving device, thus making it possible to interface instrumentation that is at different ground potential.

The SCX-102 derives its operating power from the input signal and does not need an external operating power supply.

The input connections are made on the top side and provide for alternate connection to facilitate input current monitoring by use of a millimeter. Voltage output signals may be obtained by adding external output shunts e.g. 250n for 1-5 vdc. An output voltage clamp is provided as standard to protect against accidental open circuit on the output.

The standard mounting is din rail types 'G' and 'T' 32mm and 35mm respectively. Many optional mounting configurations are provided at the end of this document.



SCX-Loop Isolator

*Design and specifications are subject to change without notice.*

*For latest revision, go to  
**PYRAGON.com***

## Table of Contents

Installation .....	2
Calibration Instructions .....	3
Filed Instructions .....	4
Outline and Mounting .....	4
Maintenance .....	6
Trouble Shooting .....	6

## Installation

The instrument is supplied in a non-metallic general purpose Din rail mount enclosure as standard. NEMA 4, 7 or 12 enclosures are optionally available. Installation area/location must agree with the supplied instruments including operating temperature and ambient conditions. For detailed mounting and installation refer to page 4.

### ■ Electrical Connections

The instrument is supplied in a non-metallic general purpose Din rail mount enclosure as standard. NEMA 4, 7 or 12 enclosures are optionally available. Installation area/location must agree with the supplied instruments including operating temperature and ambient conditions. For detailed mounting and installation refer to page 4.

### ■ Controls

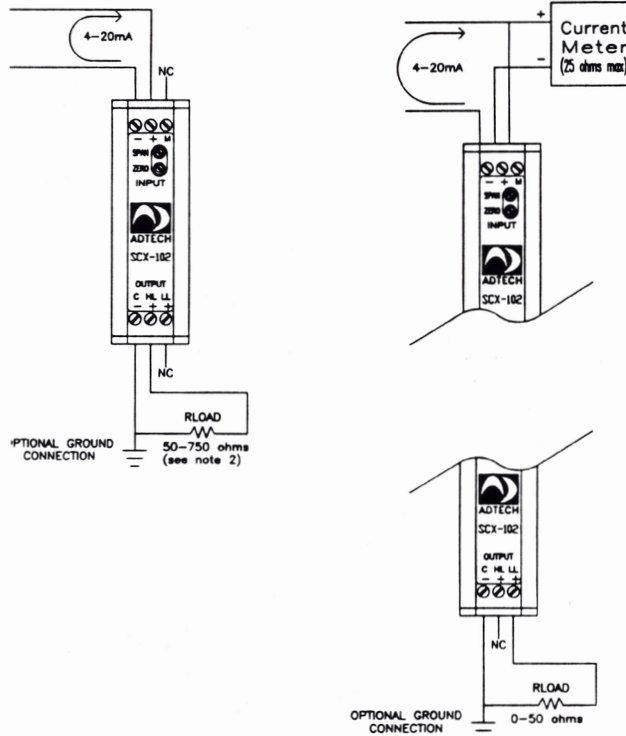
The SCX-102 is supplied with two multi-turn controls. Multi-turn ZERO and SPAN controls are provided to calibrate the SCX-102. The controls are accessible through the instrument front panel for ease of adjustment.

### ■ Connections

Common standard connections are shown below and on the instrument face plate.



*The output load must always be connected.*



## Calibration Instructions

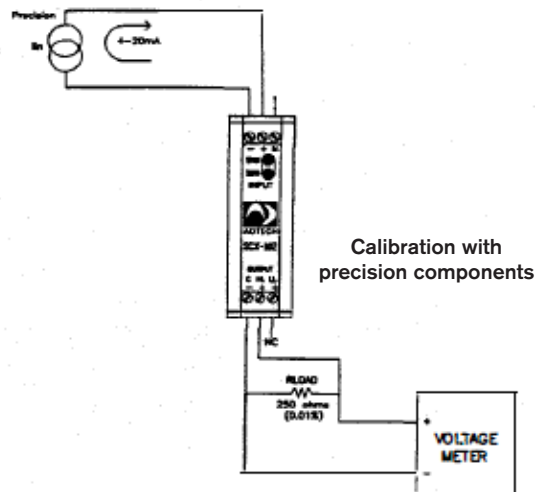
The calibration can be performed in two methods. With and without precision components.

### ■ Calibration with precision components

The procedure when high precision input source, 5 digit DVM and  $250 \pm 0.01\%$  shunt is available.

To perform a calibration check or recalibration of the instrument, follow the procedure below.

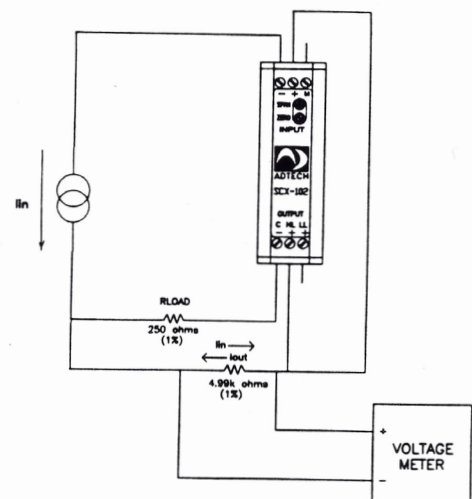
- ❶ Make sure the input output wiring is connected properly per diagram on front page.
- ❷ The input signal source must be adjustable from 0-100% in steps of at least 25%. The source must be either precalibrated or a precision millimeter should be used to monitor the input.
- ❸ Monitor the output across a  $250\Omega \pm 0.01\%$  shunt.
- ❹ Set the input source to 4.000 mA and adjust the multi-turn control marked ZERO to provide 4.000  $\pm$  mA (1.000 vdc) within desired accuracy.
- ❺ Set the input source to 20.000 ma and adjust the multi-turn potentiometer control marked SPAN to provide 20.000 mA (5.000 vdc across 250 ohm).
- ❻ Repeat steps D and E until desired accuracy is achieved.
- ❼ Check linearity at input of 8.000, 12.000 and 16.000 mA.
- ❽ This completes the calibration.



### ■ Calibration without precision components

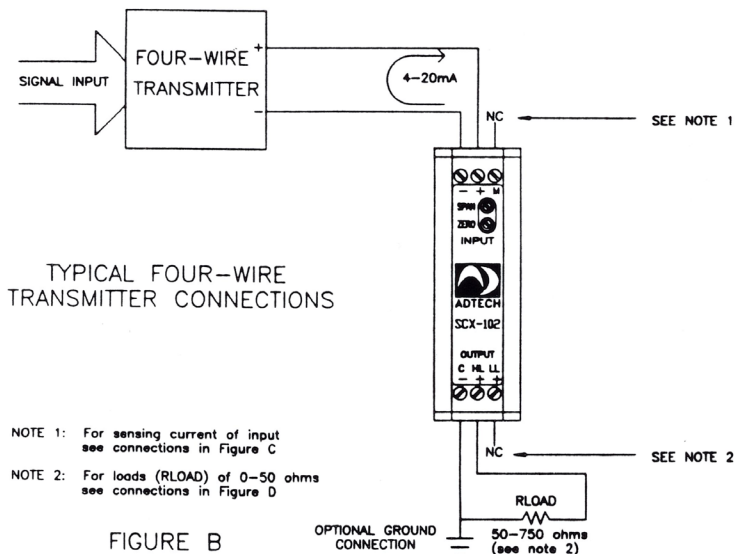
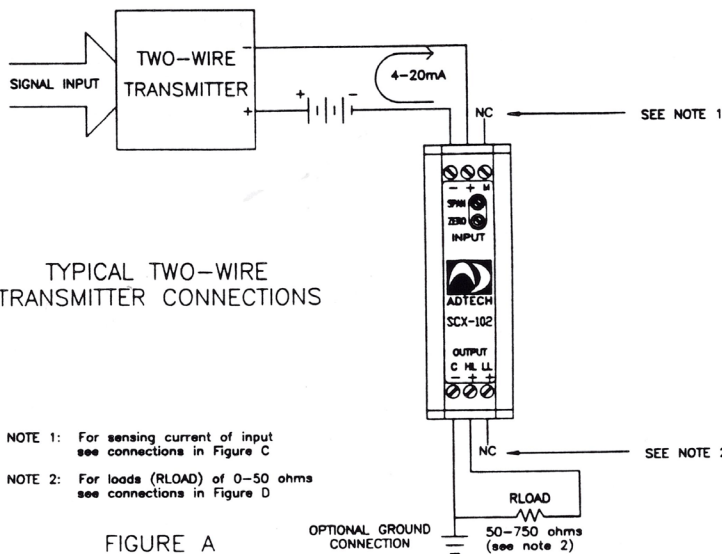
In this case the input and the output are connected to provide differential error that must be nulled out. This procedure does not need high precision source or shunt. This method cannot be used when the isolator is connected in the actual circuits, because it needs connecting the input to the output which violates the I/O isolation.

- ❶ Remove the input/output wiring and connect the instrument per figure below.
- ❷ Set the input source to approximately 4 mADC and adjust the multi-turn potentiometer marked ZERO to provide 0.000 volt reading on the null meter.
- ❸ Repeat steps B and C until both readings provide 0.000 vdc on the null meter.
- ❹ Check at inputs of 8, 12 and 16 ma for error if any.

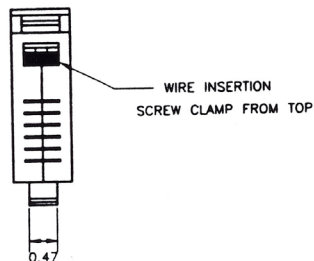
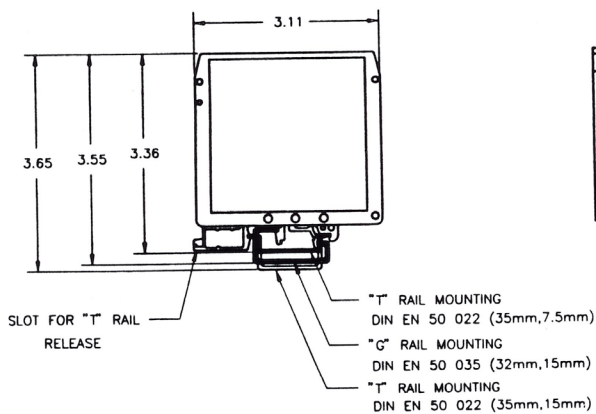
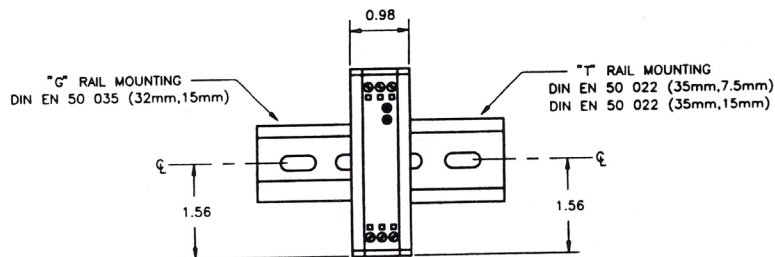


Note 1: Current source need not be a precision source  
 Note 2: Voltage at Meter=% Error(of 20mA) directly

# Filed Connections

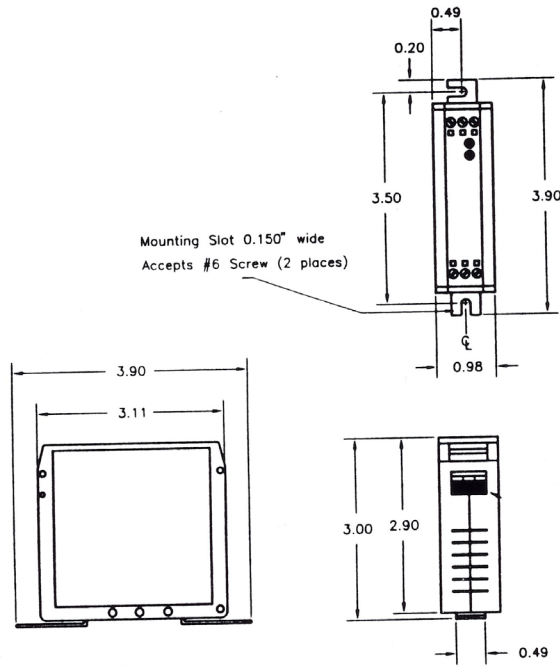


# Outline and Mounting

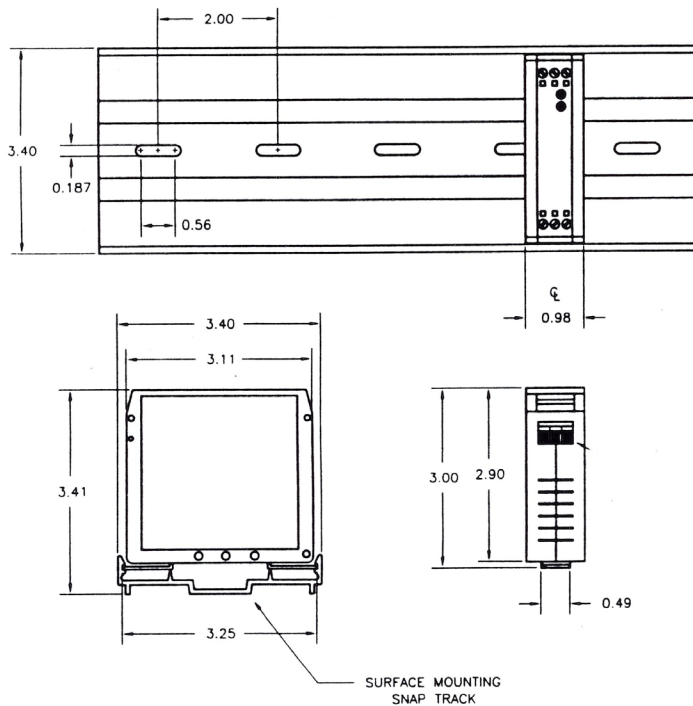


## STANDARD MOUNTING DIN RAIL G&T RAIL

**Outline and Mounting (continued)**



**SURFACE MOUNT (OPTION)**



**SNAPTRACK MOUNT (OPTION)**

## Maintenance

These instruments are electronic and require no maintenance except periodic cleaning and calibration verification. If the unit appears to be mis-operating it should be removed and checked on the bench. If defective, it should be replaced with a known good spare and the defective one returned for factory test and service for total reliability check.

## Troubleshooting

PYRAGON does not recommend field trouble shooting of these device. Make sure the input and output connections are correctly made and recheck operation. Return a defective instrument to PYRAGON factory for prompt check and recalibration.

**PYRAGON**  
ELECTRONIC INSTRUMENTATION

*Adtech is a subsidiary of PYRAGON*

95 Mt Read Blvd.,#149, Rochester, NY 14611 ■ 1-281-697-0444 ■ [PYRAGON.com](http://PYRAGON.com)