

## FEATURES:

- Provides continuous 1500 volt CMV isolation between input and output current loops
  - Provides an isolated current analog output capable of driving 20mA through a 750  $\Omega$  load
  - Derives all operating power from the input current loop
  - Contributes less than 1.75 volts of additional loop voltage drop
  - Requires no calibration
  - High density DIN rail mount enclosure is less than 1 inch wide
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The R. C. Systems Co., Inc. Model ST-51A Loop Powered Isolator is designed to eliminate problems often encountered when terminating field current loops to control room instrumentation. A chopper amplifier and inductive coupling transformer provide complete electrical isolation, eliminating ground loops and protecting control room devices from noisy transients and high fault condition voltages.

The Model ST-51A accepts current loop inputs as low as 1 milliamp and duplicates them at the isolated current output. No potentiometers exist within the unit and there is no complicated calibration procedure to carry out.

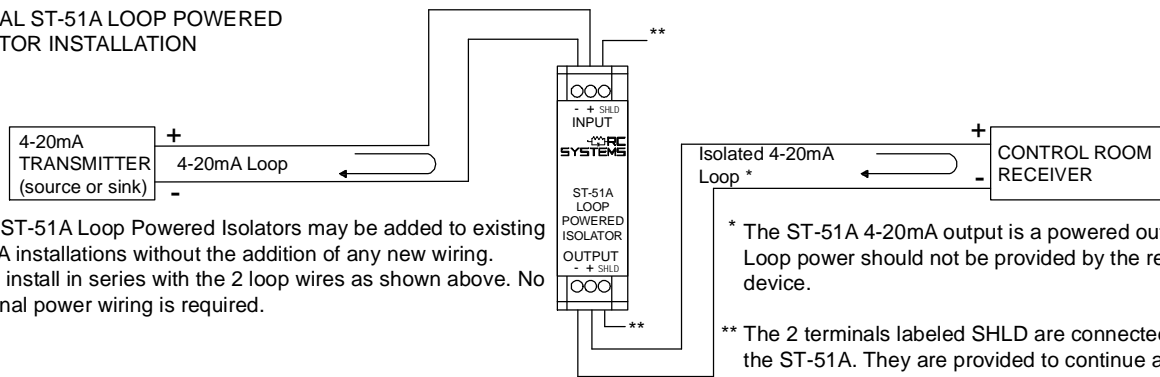
Since all operating power for the circuit is derived from the current loop, no power supply wiring exists. This makes the Model ST-51A a very easy device to install. Also, very little loop drive capability is sacrificed since the additional loop voltage drop is less than 1.75 volts. The ST-51A input impedance adds less than 87 ohms to the loop when the input current is 20mA. For example: If an ST-51A output drove current into a 250 ohm load; and if the field wiring impedance was 50 ohms, then the drive capability required by the current transmitter would be no more than 387 ohms.

Standard ST-51A packaging is a general purpose plastic housing designed for high density DIN rail mounting. NEMA 4X and Explosion-Proof packaging is optional.

# SPECIFICATIONS

|                   |   |
|-------------------|---|
| SIGNAL INPUT      | 4-20 milliamps  |
| SIGNAL OUTPUT     | 4-20 milliamps into a maximum 750 ohm load                              |
| LOOP VOLTAGE DROP | 1.75 volts maximum, 1.5 typical; plus the drop across the isolated load |
| PROTECTION        | 250mA forward, .5 amp reverse   |
| ACCURACY          | ±.1% of full scale  |
| TEMPERATURE RANGE | -20 - 60 degrees C  |
| TEMPERATURE DRIFT | .02% per degree C over the ambient temperature range                    |
| ISOLATION         | 1500 volt continuous CMV isolation                                      |
| HOUSINGS          | General purpose high density DIN rail mount                             |

## TYPICAL ST-51A LOOP POWERED ISOLATOR INSTALLATION



Model ST-51A Loop Powered Isolators may be added to existing 4-20mA installations without the addition of any new wiring. Simply install in series with the 2 loop wires as shown above. No additional power wiring is required.

\* The ST-51A 4-20mA output is a powered output. Loop power should not be provided by the receiving device.

\*\* The 2 terminals labeled SHLD are connected inside the ST-51A. They are provided to continue a signal shield wire on towards an earth connection.

## ALL DIMENSIONS IN INCHES

