- Instantly integrate any standard 4-20 mA sensor into the LonWorks® digital network.

- Supports loop and self powered devices.

- Digitally calibrated for accuracy and custom inputs.

- Very stable 15 ppm voltage reference.

- Input can be re-scaled anywhere between 0-23 mA with a resolution of 0.8 uA and accuracy of 10 uA.

- Very compact 1.5" L x 1.5" W x 0.5" H electronics are environmentally sealed. Two 4-40, grounded, screw holes allows the unit to be easily mounted.

- J1 Header allows easy integration and is supplied with mating connector attached to flying leads.

- Operates from a wide power supply range of 10- 32 VDC. Input power is reverse voltage protected, current limited and has transient voltage suppression.

- Operates over a wide temperature range of –40 to 85 degrees C.

- All data is available using Standard Network Variable Types (SNVT)

- On-board service pin header and LED.

- TP/FT-10 transceiver with DC blocking capacitor
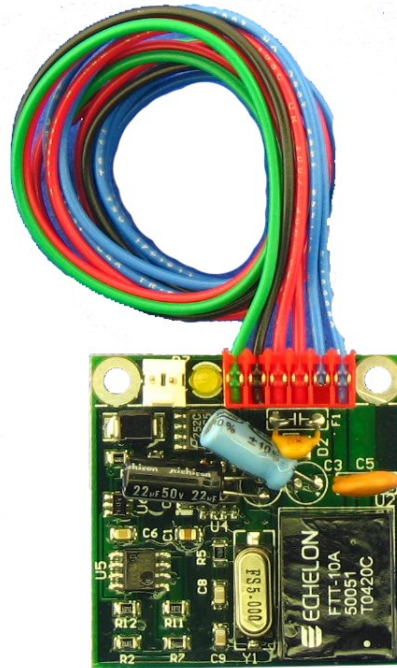
DESCRIPTION

The Model 1450 allows a single 4-20 mA output device to be instantly integrated into a LonWorks Network. It has a single analog input which measures the output of a 4-20 mA transmitter.

The current output of the 4-20 mA transmitter is measured and converted to a SNVT_lev_percent value that conforms with a LonMark Standard Network Variable, SNVT, specification. This allows the digitized value to be shared among other LonWorks d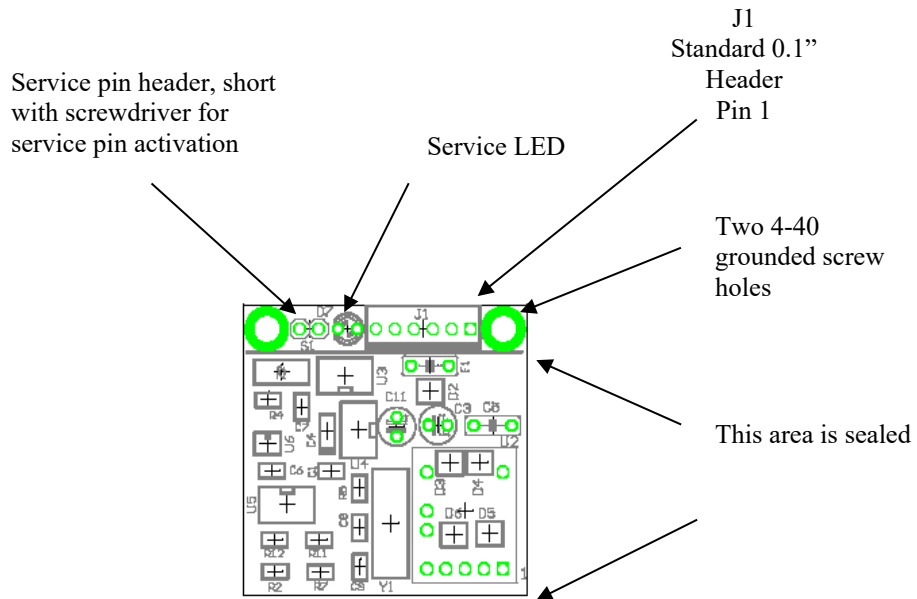evices. The analog value is also interpreted as a digital value by means of a configurable minimum and maximum input values.

The electronics are sealed for long-term resistance to moisture.

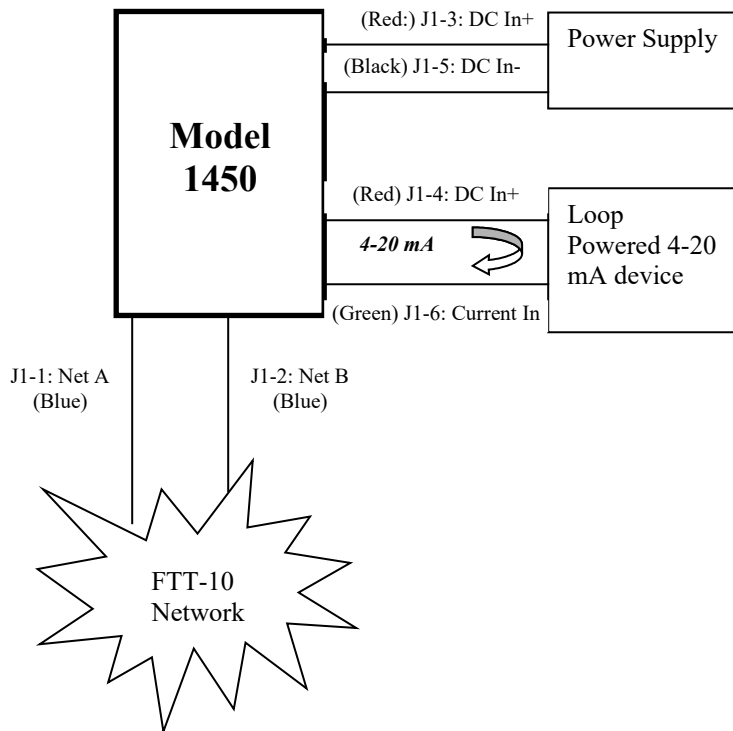| NOTE	This PDF datasheet has attachments. To access them, it may be necessary to use an actual Adobe Reader. since some readers built into internet browsers do not allow access to attachments.

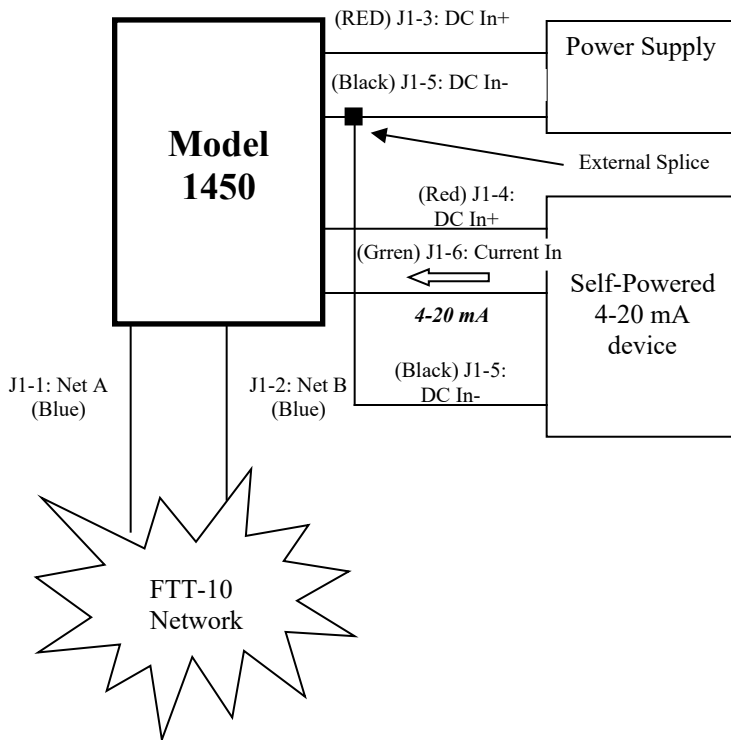Innovative Sensors
Open Communications Solutions

1 / 6

NEUROLOGIC RESEARCH CORPORATION
www.neurologic-research.com
REV 2.00 COPYRIGHT 2016-17

WIRING AND INSTALLATION

Service pin header, short
with screwdriver for
service pin activation

Service LED

J1
Standard 0.1"
Header
Pin 1

Two 4-40
grounded screw
holes

This area is sealed

J1 Header Wiring Connections

Pin	Wire Color	Description
1	Blue	FT-10 Network A (non-polarized)
2	Blue	FT-10 Network B (non-polarized)
3	Red	Input DC Power + (J1-3 and J1-4 are shorted)
4	Red	Input DC Power + (J1-3 and J1-4 are shorted)
5	Black	Input DC Power - / Ground
6	Green	Current Input

Loop Powered 4-20 mA Wiring Diagram

Self Powered 4-20 mA Wiring Diagram

Innovative Sensors
Open Communications Solutions

NEUROLOGIC RESEARCH CORPORATION
www.neurologic-research.com
REV 2.00 COPYRIGHT 2016-17

NETWORK INTERFACE

The sensor data and configuration is available using Standard Network Variable formats that have been defined by the LonMark Association. The Model 1450 has self documentation of the network interface enabled and it can be uploaded by the installation tool. Additionally, an XIF is also attached to this PDF datasheet.

NOTE	This PDF datasheet has attachments. To access them, it may be necessary to use an actual Adobe Reader. since some readers built into internet browsers do not allow access to attachments.

Configuration Network Variables

Configuration network variables are input network variables that are non-volatile and retained when power is lost. If using the Echelon LonMaker software, simply use the Browser to view and edit the following values.

Network Variable	Format	Description
nciAIOffset	SNVT_lev_percent	Offset to be added to nvoAI before sent onto the network
nciMinDelta	SNVT_lev_percent	Minimum change required before a network update
nciDILow	SNVT_lev_percent	nvoDI is set to ST_OFF if at or below this value
nciDIHigh	SNVT_lev_percent	nvoDI is set to ST_ON if at or above this value
nciMinSendT	SNVT_time_sec	Minimum elapsed time before a network update is sent
nciMaxSendT	SNVT_time_sec	Maximum elapsed time before a network update is sent

Output Network Variables

The Model 1450 firmware is designed to control output network variable traffic for integration into large LonWorks networks. The nciMaxSendT configuration network variable is the send heartbeat for the entire device. Output network variables will be transmitted at least once every nciMaxSendT. To disable this, set nciMaxSendT to 0.

The output network variables nvoAI is only transmitted if there is a minimum of nciMinDelta change form the last transmitted value. However, output network variables are only transmitted if nciMinSendT has elapsed since last update. nciMinSendT acts as a throttle to minimize traffic even if the data is changing rapidly.

Network Variable	Format	Description
nvoAI	SNVT_lev_percent	Input current. Factory Calibration is 0% = 4 mA, 100%=20 mA but it can be re-scaled using nviCalibrate and nviCalibVal input network variables. Returns +163.83% on input fault condition
nvoDI	SNVT_lev_discrete	Input current interpreted as a discrete. Return ST_OFF if input is below nciDILow and ST_ON if input is above nciDIHigh. ST_NUL in input fault condition

Input Network Variables

Network Variable	Format	Description
nviCalibrate	Unsigned 1-byte Integer	- 00 – Zero Cmd. The applied current input signal corresponds to 0%. - 01 – Span Cmd. The applied current input signal corresponds to 100%. - 02 – Calibrate Value #1. The applied current input signal corresponds to lower value, which is nviCalibVal. - 03 – Calibrate Value #2. The applied current input signal corresponds to upper value, which is in nviCalibVal. - 15 – Reset calibration to factory defaults
nviCalibVal	SNVT_lev_percent	See nviCalibrate for description. Used with Commands 2 and 3.

SPECIFICATIONS

Electronics

Operating Environment	-40 to 85C, 0-95% RH non-condensing
Input Voltage Operating	10 to 32 VDC
Current Input Accuracy	10 uA at 25 C Temperature effect is 15 ppm per degree C
Current Input Resolution	0.8 uA
Input Power Protection	Input power is fused and transient voltage protected. (Fuses do not need to be replaced)

Dimension and Materials

Dimension	1.5" W x 1.5" L x 0.5" H

ORDERING INFORMATION

1450	**Model 1450 LonWorks Single 4-20 mA Input Interface**

LonWorks is a trademark of Echelon Corporation

Innovative Sensors
Open Communications Solutions
6 / 6
NEUROLOGIC RESEARCH CORPORATION
www.neurologic-research.com
REV 2.00 COPYRIGHT 2016-17