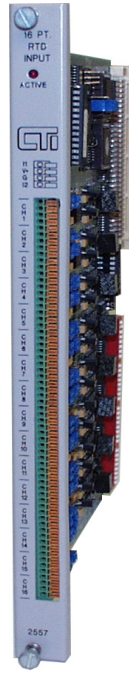


## 2557 16-Channel Isolated RTD Input Module



### Description

The 2557 is a high-speed 16-channel RTD input module designed to be compatible with the CTI 2500 Series or Simatic® 505 I/O base. The 2557 translates millivolt level signals from the RTD element into a scaled temperature value. Multiple RTD types are supported as well as millivolt inputs. The module performs scaling, alarm detection, filtering, peak and valley hold, and averaging. The standard mode logs in as a 16 WX input module. The advanced mode logs in as 16 X, 16 Y, 32 WX, and 32 WY registers in the PLC.

### Features

- Simatic® 505 I/O base format
- 1500 V isolation channel-to-PLC backplane
- 1500 V isolation channel-to-channel
- 16 bit ADC for each channel
- Supports 10 $\Omega$  Cu, 100 $\Omega$  Pt, and 120 $\Omega$  Ni RTDs and millivolt inputs
- Fast 20 mSec update time
- Support for 2, 3, or 4 wire RTD elements

### Specifications

**Input Channels:** 16 RTD or Millivolt inputs (isolated in groups of 2)  
**RTD Types:** 10 $\Omega$  Cu (TCR= 0.00427  $\Omega/\Omega/^\circ\text{C}$ )  
 100 $\Omega$  Pt (TCR= 0.003850  $\Omega/\Omega/^\circ\text{C}$ )  
 European DIN 43760  
 120 $\Omega$  Ni (TCR= 0.00672  $\Omega/\Omega/^\circ\text{C}$ )  
 2, 3, and 4 wire modes  
**RTD Excitation Current:** 250 micro amp  
**Millivolt Input Range:** 0 to 100 mV  
**Millivolt Input Impedance:** >1000M $\Omega$  @ DC  
 > 10K $\Omega$  @ 16 Hz  
**Millivolt Accuracy:**  $\pm$  1.0% full scale or  $\pm$  1.0 mV  
**Lead Compensation:** 20 $\Omega$  per lead wire  
**Input Overrange Protection:** 30 VDC/VAC  
**Measurement Ranges:**  
 10 $\Omega$  Cu -100 $^\circ\text{C}$  to 260 $^\circ\text{C}$  (-148 $^\circ\text{F}$  to 500 $^\circ\text{F}$ )  
 100 $\Omega$  Pt -200 $^\circ\text{C}$  to 850 $^\circ\text{C}$  (-328 $^\circ\text{F}$  to 1562 $^\circ\text{F}$ )  
 120 $\Omega$  Ni -80 $^\circ\text{C}$  to 260 $^\circ\text{C}$  (-112 $^\circ\text{F}$  to 500 $^\circ\text{F}$ )  
**Measurement Units:** Degrees C or F  
**Digital Filtering Time Constant:**  
 80 mSec (16 WX mode)  
 80-6000 mSec (Advanced mode)  
**Update Time (all 16 channels):**  
 18 mSec no filtering  
 20 mSec digital filtering enabled  
 48 mSec advanced functions enabled  
**Repeatability:**  
 $\pm$ 0.2 $^\circ\text{C}$  or  $^\circ\text{F}$  all RTD types (16 WX mode)  
 $\pm$ 0.1 $^\circ\text{C}$  or  $^\circ\text{F}$  all RTD types (advanced mode)  
**Accuracy:**  
**10 $\Omega$  Cu**  
 ( $\pm$ 0.5 $^\circ\text{C}$  at 25 $^\circ\text{C}$ ) ( $\pm$ 1 $^\circ\text{C}$  from 0 $^\circ$  to 60 $^\circ\text{C}$ )  
 ( $\pm$ 1 $^\circ\text{F}$  at 25 $^\circ\text{C}$ ) ( $\pm$ 2 $^\circ\text{F}$  from 0 $^\circ$  to 60 $^\circ\text{C}$ )  
**100 $\Omega$  Pt**  
 ( $\pm$ 0.5 $^\circ\text{C}$  at 25 $^\circ\text{C}$ ) ( $\pm$ 1 $^\circ\text{C}$  from 0 $^\circ$  to 60 $^\circ\text{C}$ )  
 ( $\pm$ 1 $^\circ\text{F}$  at 25 $^\circ\text{C}$ ) ( $\pm$ 2 $^\circ\text{F}$  from 0 $^\circ$  to 60 $^\circ\text{C}$ )  
**120 $\Omega$  Ni**  
 ( $\pm$ 0.5 $^\circ\text{C}$  at 25 $^\circ\text{C}$ ) ( $\pm$ 1 $^\circ\text{C}$  from 0 $^\circ$  to 60 $^\circ\text{C}$ )  
 ( $\pm$ 1 $^\circ\text{F}$  at 25 $^\circ\text{C}$ ) ( $\pm$ 2 $^\circ\text{F}$  from 0 $^\circ$  to 60 $^\circ\text{C}$ )  
**Common Mode Rejection:** >130 db @ 60 Hz  
**Normal Mode Rejection:** >180 db @ 60 Hz  
**Input ESD Protection:** 2 Kv  
**Connector:** 64 position fixed, wire press in  
**Wire Gauge:** 18 to 30 AWG  
**Module Size:** Single-wide  
**Backplane Power Consumption:** 6 Watts  
**Isolation:** 1500 VDC channel group to channel group, 1500 VDC channel to backplane  
**Operating Temperature:** 0 $^\circ$  to 60 $^\circ\text{C}$  (32 $^\circ$  to 140 $^\circ\text{F}$ )  
**Storage Temperature:** -40 $^\circ$  to 85 $^\circ\text{C}$  (-40 $^\circ$  to 185 $^\circ\text{F}$ )  
**Humidity, Relative:** 5% to 95% (non-condensing)



**Control Technology Inc.**

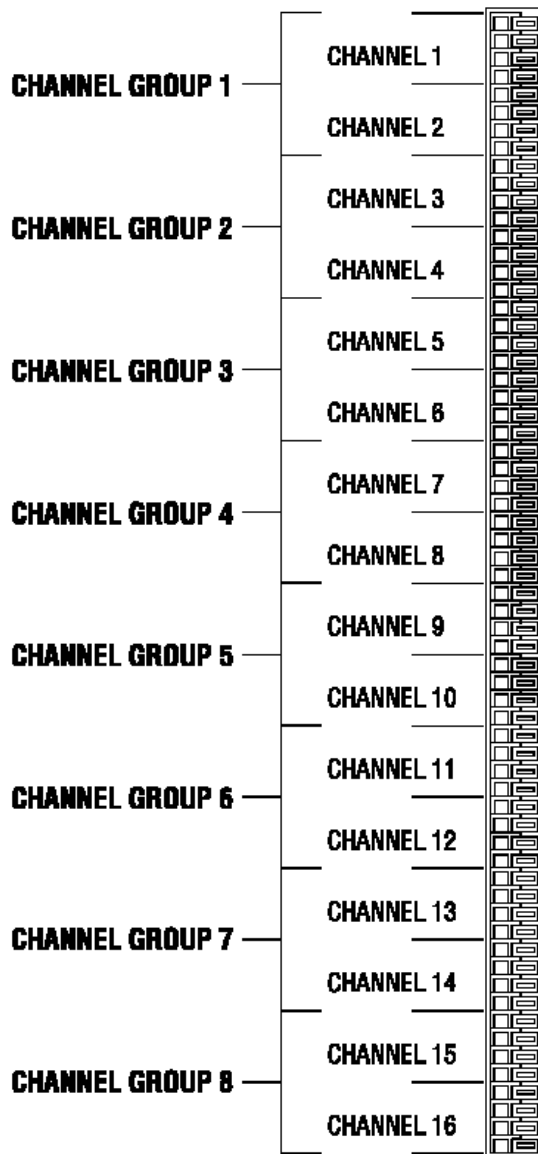
5734 Middlebrook Pike, Knoxville, TN 37921-5962

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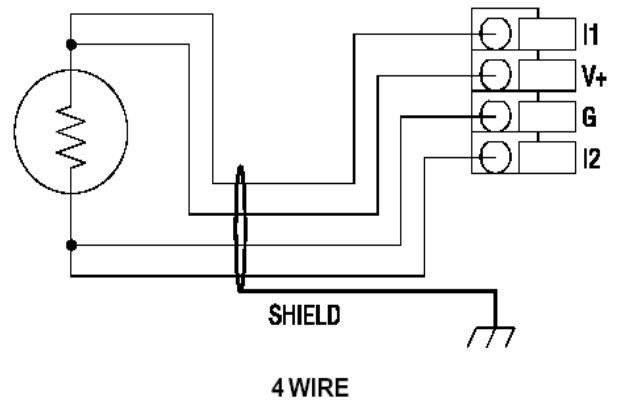
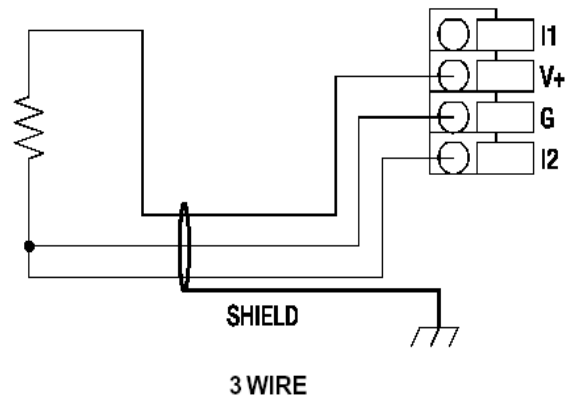
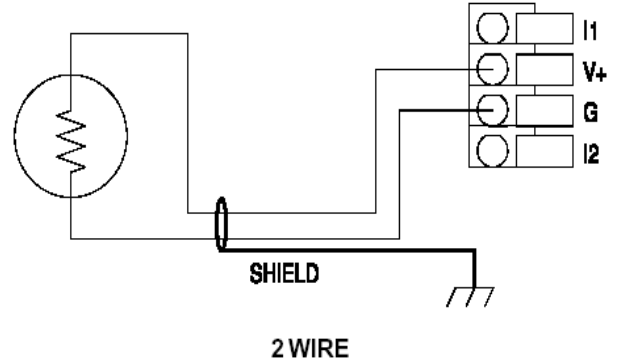
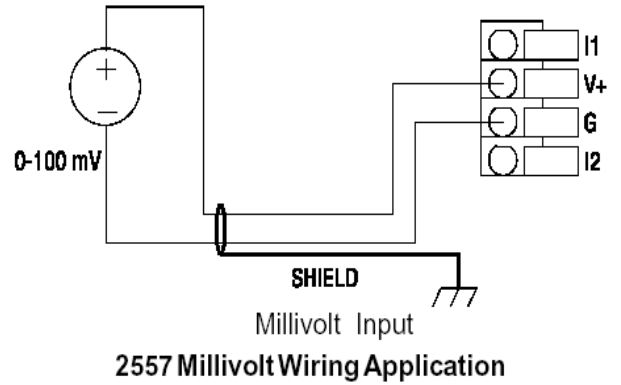
Agency Approvals: UL, UL for Canada  
 FM (Class I, Div 2), CE  
 Shipping Weight: 1.5 lbs (0.68 kg)

**Standard Shipping Configuration:**

3 wire 100  $\omega$  Pt RTD  
 Digital Filtering Enabled  
 Degrees Centigrade  
 Low Density Mode 16 WX



**2557 Connector**



**2557 RTD Wiring Applications**

**NOTE:** The front connector on the module contains a G terminal which may be used for the shield wire if the installation is in a noise free environment. If the installation is in an extremely noisy environment CTI strongly recommends that the shield wires be terminated to the PLC chassis ground.