

ISOLATED SIGNAL CONDITIONING can significantly increase your system reliability... here's how:

Linearizes Thermocouple and RTD signals

- Reduces the demands on the software to linearize the signal
- Produces a voltage or current that is directly usable by a display device

Provides sensor excitation for RTD's, strain gages and transmitters

- Simplifies system design and reduces parts and cost
- Increases reliability

Eliminates ground loops

- More accurate data acquisition
- Shortens system start up time

Isolates the field from the computer

- Protects operators
- Protects the data acquisition hardware and the computer
- Minimizes errors caused by common mode voltage

Amplifies the low level sensor signal outside of the electrically noisy computer chassis

- Minimizes or eliminates errors caused by electro-magnetic interference

Provides over-voltage protection

- Protects equipment and personnel from improper wiring, power surges and other faults

Provides convenient screw terminals for field wiring

- Simplifies installation
- Reduces troubleshooting and repair time

Filters out unwanted noise

- Reduces noise from AC power lines, florescent lights, motors, etc.

Mixes and matches many sensor types on one back-plane

- Minimizes initial outlay
- Facilitates future expansion

Customizes the full range of the module to match the sensor signal range

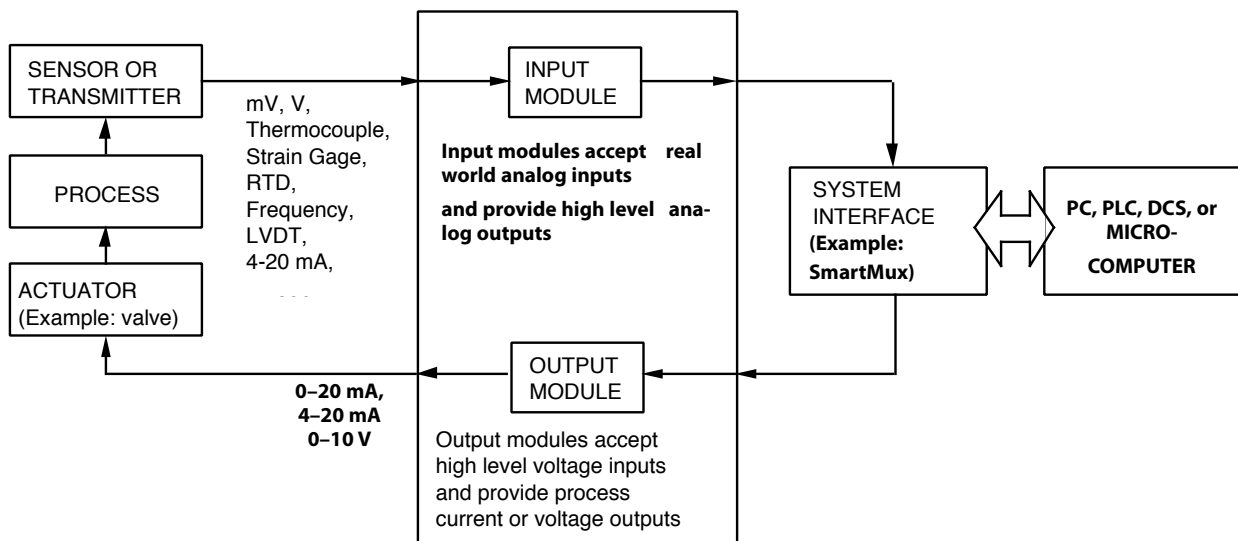
- Maximizes the resolution and accuracy of the reading over small signal spans

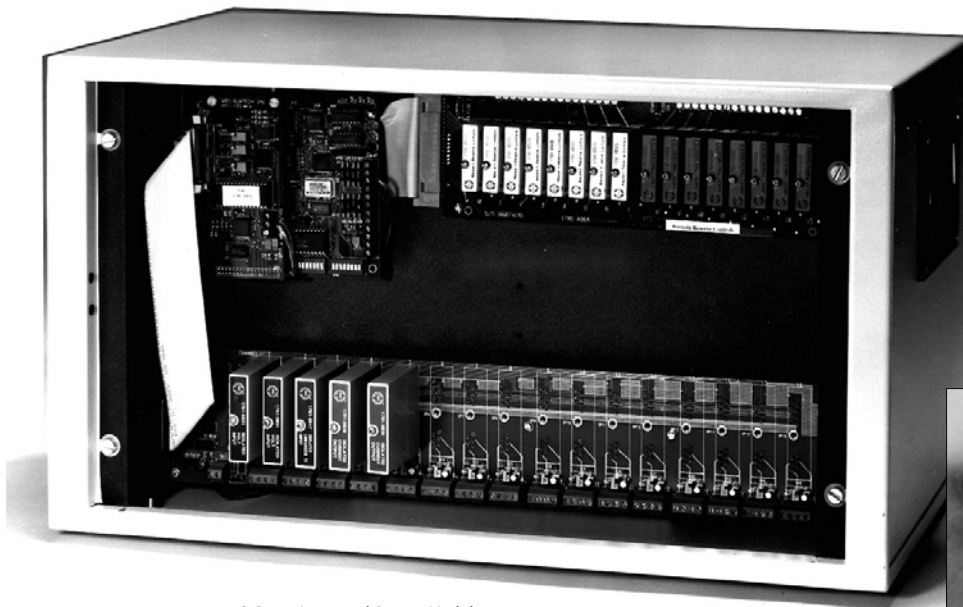
Whether your analog application calls for maximum flexibility, low cost, or high performance, you'll find it in the WRC's broad line of analog signal conditioners. Each offers a unique signal conditioning solution.

The **1781-7B Series** is optimized for use in the process control industry. Features including redundant +24 V dc power, and 1500 V rms isolation facilitate system design. High channel density applications are easily accommodated by the small size of the 7B Series' module. Flexibility is a keynote of the 7B series... these signal conditioners are the system designer's drop-in solution for interfacing to real-world signals.

The **WRC7 Series** provides low-cost, low-isolation signal conditioning using the same pin-out and foot-print as the 1781-7B Series. Modules operate from regulated +24Vdc power supplies and provide nominal 60 V isolation.

Functional Block Diagram of a typical measurement and control loop using signal conditioning subsystems.





1781-7B Series Input and Output Modules



Features

- Accepts most process control input signals
- Powered current input provides +24 V for a transmitter
- Analog current output module
- Complete signal conditioning function: 120 V rms field wiring protection, filtering, amplification, 1500 V rms galvanic isolation
- Pin compatible to industry standard solid-state relays
- Operates from 24 V dc (+14 V dc to +35 V dc) power
- Factory-calibrated accuracy to $\pm 0.1\%$
- Mix-and-match modularity

1781-7B Series Input and Output Modules

The 1781-7B Series represents Western Reserve Control's ongoing commitment to provide cost-effective, isolation-based signal conditioning solutions for the process control industries. The 1781-7B Series is a family of modular, single-channel, plug-in signal conditioning modules that accept inputs from a wide range of process control transducers and signals while providing high-level output voltages or process control currents.

Performance Optimized for Process Control

Featuring a maximum nonlinearity of $\pm 0.02\%$ and factory calibration that guarantees an initial accuracy specification of $\pm 0.1\%$, the 1781-7B Series offers superior performance at a lower cost than existing multipurpose signal conditioners or in-house designs. Other family features include 160 dB of common-mode rejection, 60 dB of normal-mode rejection, up to 1500 V rms of isolation, and 120 V rms of field wiring protection. Short circuit and input overvoltage protection are built-in and the proprietary isolation transformer circuit design of

the 1781-7B Series provides for true channel-to-channel isolation.

CE Approval

European CE approvals EMC directive compliant. Low voltage directive is not applicable. Products comply with ENG1010-1 (IEC1010.)

Rated to Operate in the Industrial Environment

All 1781-7B Series modules are packaged in compact, rugged, 2.1" x 1.7" x 0.6" (54 mm x 42 mm x 14 mm) plastic cases that readily accommodate high channel density applications. The modules are rated over the extended -40°C to $+85^{\circ}\text{C}$ industrial temperature range; and they may be operated in noncondensing, high humidity environments. 1781-7B Series modules can be removed and/or inserted into the backplane without damage to the modules when the power supplies are energized.

Unregulated 24 V dc Linear Power Supplies

The 1781-7B Series is rated for a nominal power supply input of +24 V dc; and, for maximum flexibility, it will accept supply voltages in the +14 V dc to +35

V dc range. Consequently, system performance will not degrade with the use of unregulated supplies. Linear supplies are recommended for better noise rejection. Redundant power supply configurations are available.

Hardware

The 1781-7B Series is complemented by a full line of backplanes (1, 4-, 8-, 16-channel) and rackmount hardware. Each backplane contains screw terminals for field wiring connections, and a miniature cold junction compensation thermistor is installed under the screw terminal blocks for each channel. The 1781-7B Series' simplified pinout ensures that this thermistor compensates the input signals for the thermocouple modules only. Consequently, any module type may be used in any channel on the backplane.

Model	Sensor Type
1781-7B21	dc V input
1781-7B22	dc V output
1781-7B30	dc mV/V input
1781-7B31	dc V input
1781-7B32	dc mA input
1781-7B33	dc V input
1781-7B34/34N	100 Ω platinum or nickle RTD
1781-7B35	dc mA with loop power: two-wire transmitter
1781-7B37	Isolated J, K, T, E, R, S, B, N thermocouple
1781-7B39	dc mA output
1781-7B47	Isolated J, K, T, E, R, S, B thermocouple

1781-7B Series

Accuracy	$\pm 0.1\%$
Power Supply Requirements	+14 V dc to +35 V dc
Configurability	Factory Configured and Trimmed
FM Approval	No
Field Wiring Protection	Up to 120 V rms, continuous
Isolation Voltage	1500 V rms
Common-Mode Rejection @ 50 or 60Hz	120 dB or better (3 Hz modules only)
Normal-Mode Rejection @ 50 or 60Hz	60 dB
Backplanes	1, 4, 8, and 16 channel with built-in
Rated Temperature Range	CJC sensor -40°C to +85°C
Gain Adjustment	None Available to the User
Offset Adjustment	None Available to the User
Package Size	1.663" x 2.11" x 0.563" (42.24mm x 53.6mm x 14.3mm)
Packaging Style	Module
Special Features	Simple pinout, compact package
Short Circuit Protection (Voltage Outputs)	Continuous short to ground

1781-7B21 Isolated Analog Input Modules

Module	Input Range
1781-7B21	±10 V

General Specifications

Input Resistance - Normal 2 MΩ minimum
 Bandwidth, -3 dB 300 Hz

1781-7B30 Isolated Analog Input Modules

Module	Input Range
1781-7B30-01	0 to +10 mV
1781-7B30-02	0 to +100 mV
1781-7B30-03	0 to +1 V
1781-7B30-05	+1 to +5 V
1781-7B30-06	±10 mV
1781-7B30-07	±100 mV
1781-7B30-08	±1 V

General Specifications

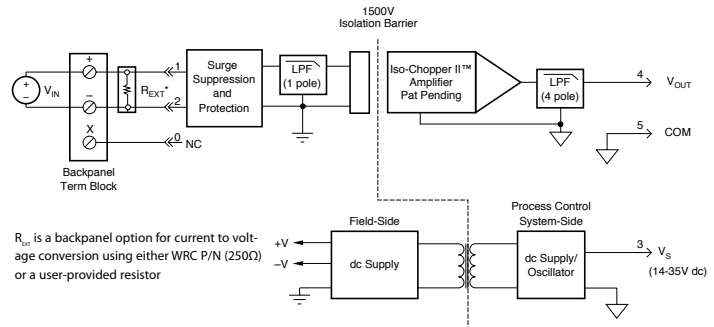
Input Resistance - Normal 50 MΩ minimum
 Bandwidth, -3 dB 3 Hz

1781-7B31 Isolated Analog Input Modules

Module	Input Range
1781-7B31-01	0 to +10 V
1781-7B31-02	±5 V
1781-7B31-03	±10 V
1781-7B31-04	0 to +5 V

General Specifications

Input Resistance - Normal 500 kΩ minimum
 Bandwidth, -3 dB 30 Hz



R_{ext} is a backpanel option for current to voltage conversion using either WRC P/N (250Ω) or a user-provided resistor

Common Specifications

Accuracy† ±0.1% span max., ±0.05% span typical
 Supply Voltage 14 to 35 Vdc
 Current‡ 30 mA maximum

Output Ranges Available

Range	Part # modifier	Example
0 to +10 V	none	1781-7B30-01
+1 to +5 V	D	1781-7B30-01D

Notes:

† Includes the effects of repeatability, hysteresis and linearity

‡ Output range and supply current specifications are based on minimum output load resistance.

Minimum output load resistance is calculated by V_{out}^2/P_i where P_i is the Output Effective

Available Power that guarantees output range, accuracy and linearity specifications.

1781-7B22 Isolated Output (bipolar)

Module	Input Range	Output Range
1781-7B22	±10 V	±10 V

General Specifications

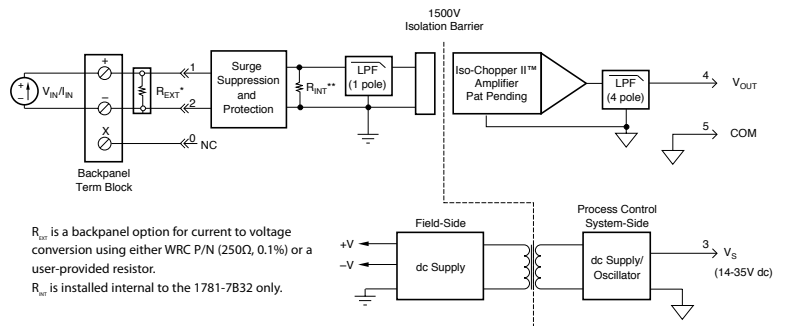
Output Resistance <1 Ω
 Input Resistance 2 MΩ minimum
 Accuracy* ±0.1% span max.
 ±0.05% span typical
 Bandwidth, -3 dB 400 Hz
 Supply Voltage 19 to 29 Vdc
 Current** 30 mA maximum

Notes:

* Includes the effects of repeatability, hysteresis and linearity

** Output range and supply current specifications are based on minimum output load resistance. Minimum output load resistance is calculated by V_{out}^2/P_i where P_i is the Output Effective Available

Power that guarantees output range, accuracy and linearity specifications.



R_{ext} is a backpanel option for current to voltage conversion using either WRC P/N (250Ω, 0.1%) or a user-provided resistor.

R_{int} is installed internal to the 1781-7B32 only.

1781-7B32 Process Current Input

Module	Input Range
1781-7B32-01	4 to 20 mA
1781-7B32-02	0 to 20 mA

General Specifications

Input Resistance - Normal <math>< 100 \Omega</math>

1781-7B33 Process Voltage Input

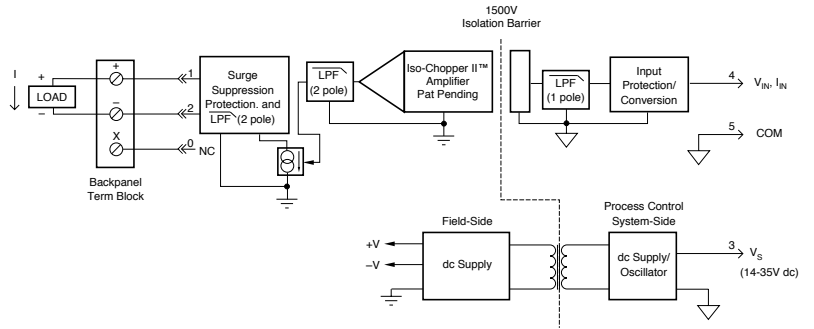
Module	Input Range
1781-7B33-01	+1 to +5 V
1781-7B33-02	0 to +5 V

Output Ranges Available

Range	Part # modifier	Example
0 to +10 V	none	1781-7B30-01
+1 to +5 V	D	1781-7B30-01D

General Specifications

Input Resistance - Normal 2 M Ω



Common Specifications

Accuracy*	$\pm 0.1\%$ span max., $\pm 0.05\%$ span typical
Bandwidth, -3 dB	100 Hz
Supply Voltage	14 to 35 Vdc
Current**	30 mA maximum

Notes: * Includes the effects of repeatability, hysteresis and linearity
 ** Output range and supply current specifications are based on minimum output load resistance. Minimum output load resistance is calculated by V_{out}^2/P , where P is the Output Effective Available Power that guarantees output range, accuracy and linearity specifications.

1781-7B34/34N RTD Input Modules

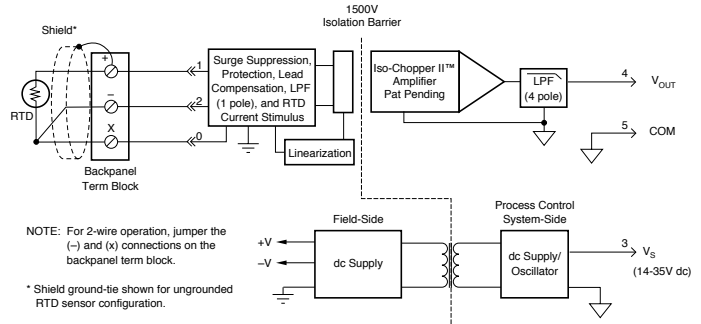
Module Range	Input	Accuracy*	Non-** conformity
100Ω Pt (alpha = 0.00385)			
1781-7B34-01	$\pm 100^\circ\text{C}$	$\pm 0.15\%$	$\pm 0.05\%$
1781-7B34-02	0 to +100 $^\circ\text{C}$	$\pm 0.2\%$	$\pm 0.05\%$
1781-7B34-03	0 to +200 $^\circ\text{C}$	$\pm 0.15\%$	$\pm 0.05\%$
1781-7B34-04	0 to +100 $^\circ\text{C}$	$\pm 0.1\%$	$\pm 0.05\%$
1781-7B34-05	-50 $^\circ\text{C}$ to +350 $^\circ\text{C}$	$\pm 0.1\%$	$\pm 0.05\%$
100Ω Ni (alpha = 0.00672)			
1781-7B34-01N	0 to +300 $^\circ\text{C}$	$\pm 0.3\%$	$\pm 0.12\%$
1781-7B34-02N	0 to +200 $^\circ\text{C}$	$\pm 0.3\%$	$\pm 0.14\%$

General Specifications

Lead Resistance Effect	$\pm 0.02^\circ\text{C}/\Omega$
Sensor Excitation Current	.250 μA
Bandwidth, -3 dB	3 Hz
Supply Voltage	14 to 35 Vdc
Current†	30 mA maximum

Output Ranges Available

Range	Part # modifier	Example
0 to +10 V	none	1781-7B30-01
+1 to +5 V	D	1781-7B30-01D



Notes:
 * Includes the effects of repeatability, hysteresis and conformity. Accuracy is given as a maximum. The typical value is half the maximum.
 ** Nonconformity is calculated using the best-fit straight-line method. Nonconformity is given as a maximum. The typical value is half the maximum.
 † Output range and supply current specifications are based on minimum output load resistance. Minimum output load resistance is calculated by V_{out}^2/P , where P is the Output Effective Available Power that guarantees output range, accuracy and linearity specifications.

1781-7B35 Transmitter Input Modules (2-Wire with Loop Power and Sense Resistor)

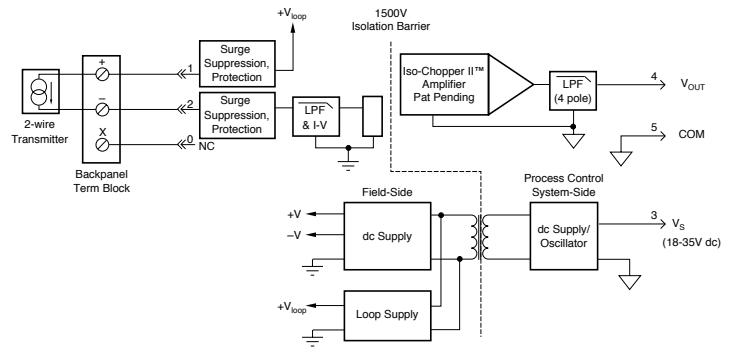
Module	Input Range	Output Range
1781-7B35-01D	4 to 20 mA	+1 to +5 V
1781-7B35-01	4 to 20 mA	0 to +10 V

General Specifications

Loop Voltage	+24 Vdc*
Bandwidth, -3 dB	100 Hz
Supply Voltage	18 to 35 Vdc
Current**	70 mA

Output Ranges Available

Range	Part # modifier	Example
0 to +10 V	none	1781-7B30-01
+1 to +5 V	D	1781-7B30-01D

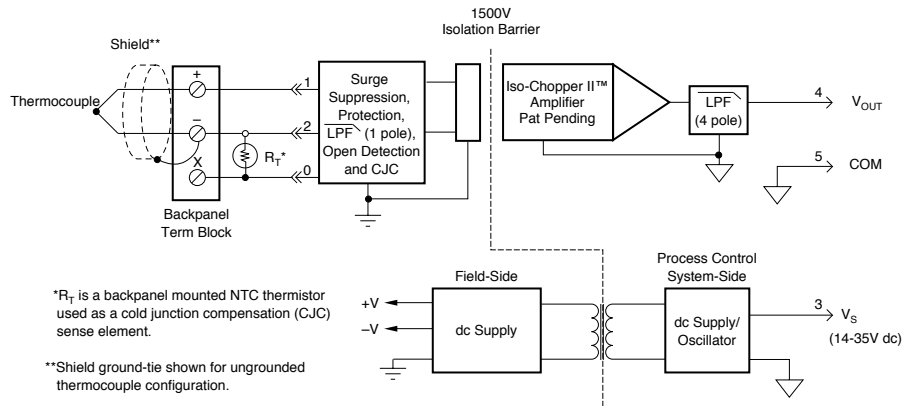


Notes:

- * +24 Vdc will be supplied to the loop for an open loop condition. Approximately +22 V to +16 V will be supplied for a corresponding 4 mA to 20 mA input. Loop voltage is independent of supply voltage.
- ** Output range and supply current specifications are based on minimum output load resistance. Minimum output load resistance is calculated by V_{out}^2/P , where P is the Output Effective Available Power that guarantees output range, accuracy and linearity specifications.

1781-7B37 Thermocouple Input Modules

Model Number	Input Range
1781-7B37-J-01	-100°C to +760°C
1781-7B37-J-10	0°C to +200°C
1781-7B37-J-11	0°C to +400°C
1781-7B37-J-12	0°C to +600°C
1781-7B37-J-13	+300°C to +600°C
1781-7B37-K-02	-100°C to +1350°C
1781-7B37-K-20	0°C to +300°C
1781-7B37-K-21	0°C to +600°C
1781-7B37-K-22	0°C to +1200°C
1781-7B37-K-23	+500°C to +1800°C
1781-7B37-T-03	-100°C to +400°C
1781-7B37-E-04	0°C to +900°C
1781-7B37-R-05	0°C to +1750°C
1781-7B37-S-06	0°C to +1750°C
1781-7B37-B-07	-100°C to +1800°C



General Specifications

Input Resistance - normal	50 MΩ
Accuracy*	±0.1% span max, ±0.05% span typical
Open Input Response	Upscale
Open Input Detection Time	10 s maximum
Bandwidth, -3dB	3 Hz
Supply Voltage	14 to 35 Vdc
Current**	30 mA maximum

Output Ranges Available

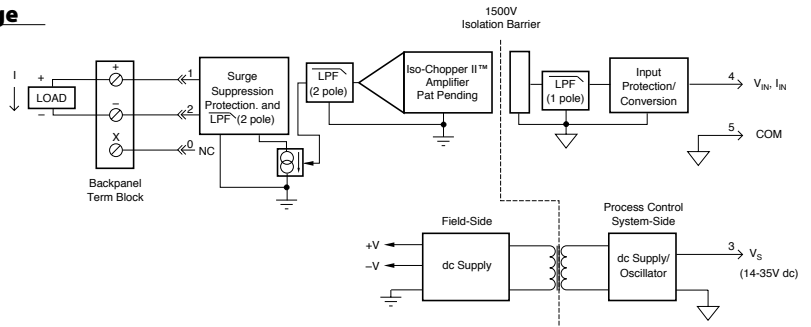
Range	Part # modifier	Example
to +10 V	none	1781-7B30-01
+1 to +5 V	D	1781-7B30-01D

1781-7B39 Process Current Output

Module	Input Range	Output Range
1781-7B39-02	0 to +10 V	0 to 20 mA
1781-7B39-02D	+1 to +5 V	4 to 20 mA
1781-7B39-01	0 to 10 V	4-20 mA

General Specifications

Output Effective Available Power	320 mW
Output Current Limit	32 mA
Accuracy *(see -7B47)	±0.1% span max. ±0.05% span typical
Bandwidth, -3 dB	100 Hz
Supply Voltage	18 to 35 Vdc
Current ** (see -7B47)	70 mA maximum

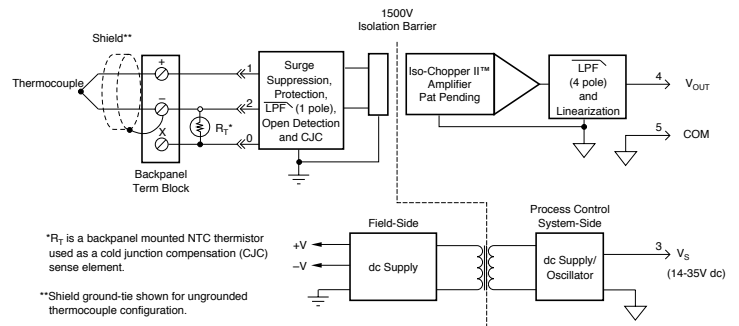


1781-7B47 Linearized Thermocouple Input

Module	Input Range	Accuracy
1781-7B47-J-01	0°C to +760°C	±0.32% span
1781-7B47-J-02	-100°C to +300°C	±0.30% span
1781-7B47-K-03	0°C to +1300°C	±0.32% span
1781-7B47-K-04	0°C to +600°C	±0.18% span
1781-7B47-T-05	0°C to +400°C	±0.38% span
1781-7B47-T-06	-100°C to +200°C	±0.47% span
1781-7B47-E-07	0°C to +900°C	±0.34% span
1781-7B47-R-08	+500°C to +1750°C	±0.30% span
1781-7B47-S-09	+700°C to +1750°C	±0.25% span
1781-7B47-B-10	+800°C to +1800°C	±0.35% span
1781-7B47-N-11	+200°C to +1300°C	±0.27% span

General Specifications

Input Resistance - normal	50 MΩ
Accuracy*	±0.1% span max, ±0.05% span typical
Open Input Response	Upscale
Open Input Detection Time	10 s maximum
Bandwidth, -3dB	3 Hz
Supply Voltage	14 to 35 Vdc
Current**	30 mA maximum



*R_T is a backpanel mounted NTC thermistor used as a cold junction compensation (CJC) sense element.

**Shield ground-tie shown for ungrounded thermocouple configuration.

Output Ranges Available

Range	Part # modifier	Example
0 to +10 V	none	1781-7B30-01
+1 to +5 V	D	1781-7B30-01D

Notes:

* Includes the effects of repeatability, hysteresis and linearity

** Output range and supply current specifications are based on minimum output load resistance.

Minimum output load resistance is calculated by V_{out}^2/P_i where P_i is the Output Effective Available Power that guarantees output range, accuracy and linearity specifications.

Low-Cost Analog Signal Conditioning

WRC's SmartMux™, SmartMux-Lite™, SmartMux-Plus™ and SmartPMux™ remote adapters all use 1781-7B and/or WRC7 series of analog I/O modules for signal conditioning. The 1781-7B modules provide cold-junction compensation; filtering; provide isolated sense currents; isolation; and amplification of the field signal to a standard 0-10 Vdc logic signal.

Many applications do not require all of these features, especially point-to-point isolation. WRC7 Series of analog signal conditioning modules provide differential, signal conditioning in a manner which is compatible with WRC's SmartMux and SmartMux-Lite, SmartMux-Plus and SmartPMux.



Common Specifications:

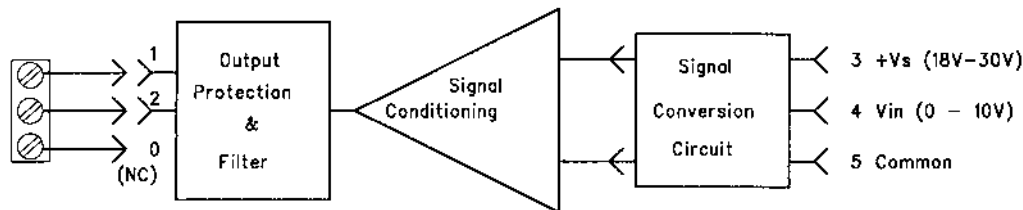
- Package: 0.6" x 1.7" x 1.25" blue module case
- Pin-out: per standard/slim modules
- Power: +24Vdc +/- 10%
- Isolation: when used with WRC SmartMux products, 60 V channel to channel; 1500 V channel to network
- Common Mode Rejection: 120 dB or better
- Normal Mode Rejection: 60 dB
- Accuracy: 0.2%
- Logic side signal: 0 - 10 Vdc
- Bandwidth: >20 KHz

WRC7 SERIES

WRC7 Model	+ V DC Current
WRC7-30	25 mA
WRC7-31	25 mA
WRC7-32	20 mA
1781-7-34	25 mA
1781-7-35	60 mA
WRC7-36	25 mA
WRC7-39	50 mA

WRC7-39: mA Output Module

- WRC7-39-01 4 - 20 mA
- WRC7-39-02 0 - 20 mA

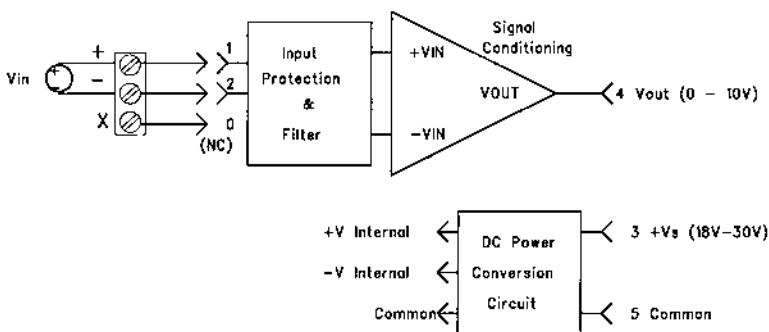


Output Module	WRC7-39-01	WRC7-39-02
Output Configuration	2 wire (+&-)	2 wire (+&-)
Output Current Range	4 - 20 mA	0 - 20 mA
***Output Protection	120 VAC	120 VAC
Output Power Avail.	300 mW	300 mW
**Output Accuracy	+/- 0.2%	+/- 0.2%
**Non-Linearity	+/- 0.02%	+/- 0.02%
**Stability	100 ppm/C	100 ppm/C
Output Compliance Voltage Limit	15 V	15 V
Input Voltage Range	0 to 10 V	0 to 10 V
Input Resistance	>10 MΩ	>10 MΩ

Notes: * Typical @ 25C
 ** (of Span)
 *** Hi to Lo: 0V Lo to GND

WRC7-30/31: Voltage Input Module

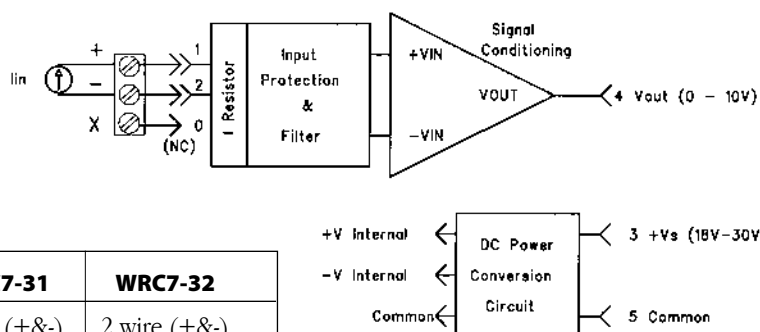
- WRC7-30-02 0-100 mV
- WRC7-30-03 0-1 V
- WRC7-30-05 1-5 V
- WRC7-31-01 0-10 V
- WRC7-31-04 0-5 V
- WRC7-30-08 +/- 1 V
- WRC7-31-02 +/- 5 V
- WRC7-31-03 +/- 10 V



WRC7-32: mA Input Module

for externally powered field transmitters

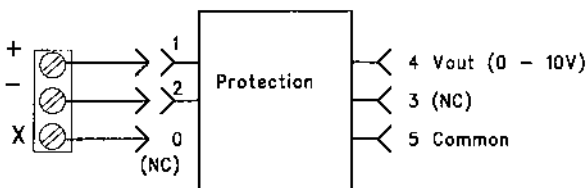
- WRC7-32-01 4-20 mA
- WRC7-32-02 0-20 mA

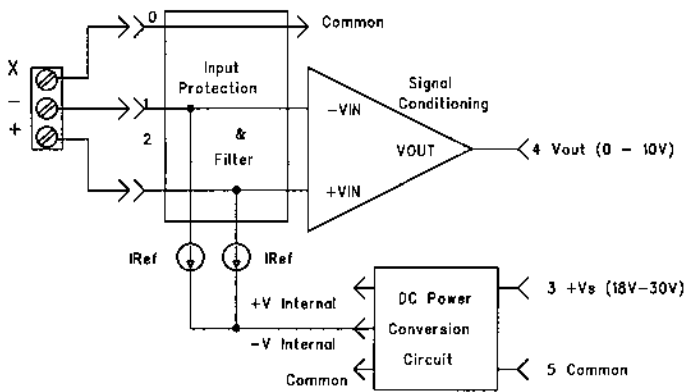


Input Module	WRC7-30	WRC7-31	WRC7-32
Input Configuration	2 wire (+&-)	2 wire (+&-)	2 wire (+&-)
Input Resistance			
Normal	1M Ω	1M Ω	250 Ω
Power Off	1M Ω	1M Ω	250 Ω
Overload	1M Ω	1M Ω	250 Ω
Input Protection			
Normal Mode	120 Vrms	120 Vrms	44 mA
Common Mode	120 Vrms	120 Vrms	120 Vrms
Output Voltage Range	0 to 10 V	0 to 10 V	0 to 10 V
Output Resistance	<1 Ω	<1 Ω	<1 Ω
Output Protection	Cont. Short	Cont. Short	Cont. Short
Output Current Limit	15mA	15 mA	15 mA
**Accuracy	+/-0.2%	+/-0.2%	+/-0.2%
** Non-Linearity	+/- 0.02%	+/- 0.02%	+/- 0.02%
** Stability	100 ppm/C	100 ppm/C	100 ppm/C
Frequency Response	4 Hz	4 Hz	4 Hz

Notes: * Typical @ 25C
 ** (of Span)
 *** Hi to Lo: 0 V Lo to GND

WRC7-1367: 0-10 V Input or Output Module (pass through with signal clamping)





WRC7-34: RTD Input Module

- WRC7-34-01 ±100°C Pt
- WRC7-34-02 0-100°C Pt
- WRC7-34-03 0-200°C Pt
- WRC7-34-04 0-600°C Pt
- WRC7-34-N-01 0-300°C Ni
- WRC7-34-C-01 0-120°C Cu

WRC7-36: Potentiometer Input Module

- WRC7-36-01 0- 100 Ω
- WRC7-36-02 0- 500 Ω
- WRC7-36-03 0- 1 KΩ
- WRC7-36-04 0 - 10 KΩ
- WRC7-39-02 0 - 20 mA

WRC7-57-1: Thermister Input Module

- 10K ohm NI

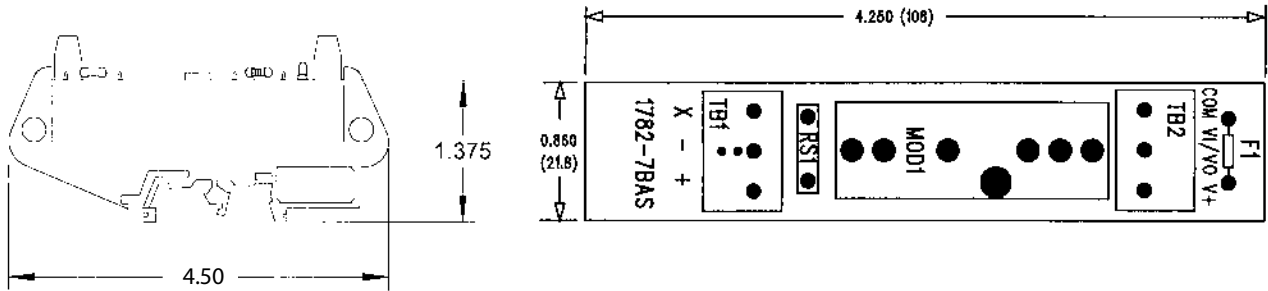
Sourcing Input Module	WRC7-34	WRC7-36	WRC7-57
Input Resistance	1 MΩ	1 MΩ	1 MΩ
Excitation Current			
+Input	0.25 mA	0.25 mA	0.25 mA
-Input	0.25 mA	0.25 mA	0.25 mA
Lead resistance effect			
Equal Resistance +&- Lead	0.01 Ω/Ω	0.01 Ω/Ω	0.01 Ω/Ω
Unequal Resistance +&- Lead	1 Ω/Ω of DR	1 Ω/Ω of DR	1 Ω/Ω of DR
X Lead Resistance	0.02 Ω/Ω	0.02 Ω/Ω	0.02 Ω/Ω
Maximum Lead Resistance (Total)	1000 Ω	1000 Ω	1000 Ω
Input protection			
X to ground	1/8A Fuse	1/8A Fuse	1/8A Fuse
Normal Mode (+ to -)	120 VAC	120 VAC	120 VAC
Common Mode(+&- to X)	120 VAC	120 VAC	120 VAC
**Accuracy	+/-0.2%	+/-0.2%	+/-0.2%
**Non-Linearity	+/- 0.02%	+/- 0.02%	+/- 0.02%
**Stability	100 ppm/C	100 ppm/C	100 ppm/C
Frequency Response	4 Hz	4 Hz	4 Hz
Output Voltage Range	0 to 10V	0 to 10V	0 to 10V
Output Resistance	<1 Ω	<1 Ω	<1 Ω
Output Protection	Cont. Short	Cont. Short	Cont. Short
Output Current Limit	15 mA	15 mA	15 mA

Notes: * Typical @ 25C
 ** (of Span)
 *** Hi to Lo: 0 V Lo to GND

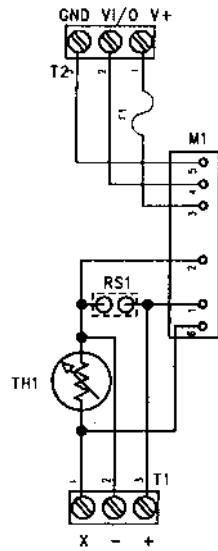
1782-7BAS mounting board accepts one 1781-7B or WRC7 compatible module in a convenient DIN-rail mount package. A temperature sensor is mounted on board to provide cold junction compensation for thermocouple modules.

Field connections are terminated with screw terminals. Logic side connections are terminated with screw terminations.

MOUNTING DIMENSIONS



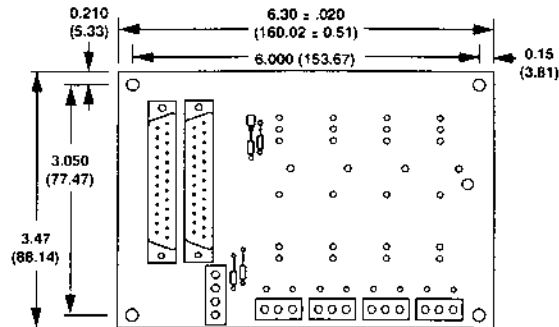
SCHEMATIC DIAGRAM



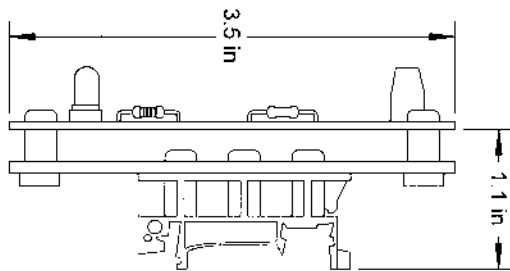
The Panel-Mount 1781-7B04 and DIN-Rail Mount 1782-7B04 are 4-channel backplanes for use with the 1781-7B Series, WRC7 Series or compatible signal conditioner line. Both backplanes are powered by a user supplied 24 V dc power supply with primary and secondary receptacles for uninterrupted operation. One 25-pin D-type connector provides a connection to the “logic” side of the 1781-7B04. Field-side terminations are achieved with screw terminations. For the 1781-7B04, 3/4" standoffs are provided for panel mounting. DIN-rail mounting is provided for the 1782-7B04. The 1781-7B04 Mounting Board is fuse protected through F1. If the input supply voltage connection is reversed, diode DI will be forward biased to protect the modules. Provision is available for a user-provided, second, 25-pin, D-type connector.

MOUNTING DIMENSIONS

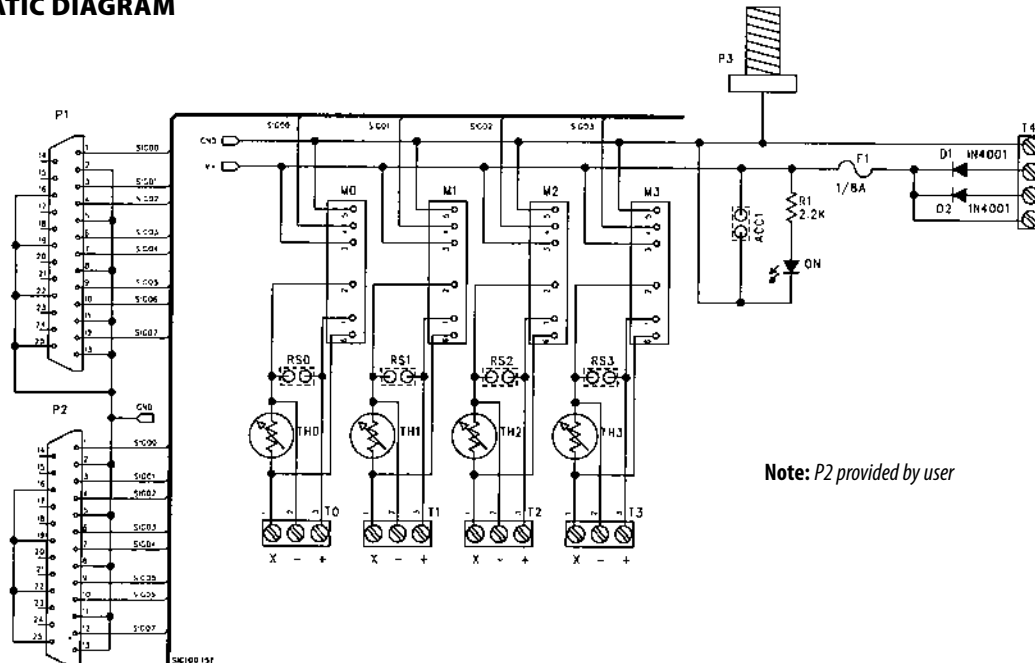
1781-7B04



1782-7B04



SCHEMATIC DIAGRAM

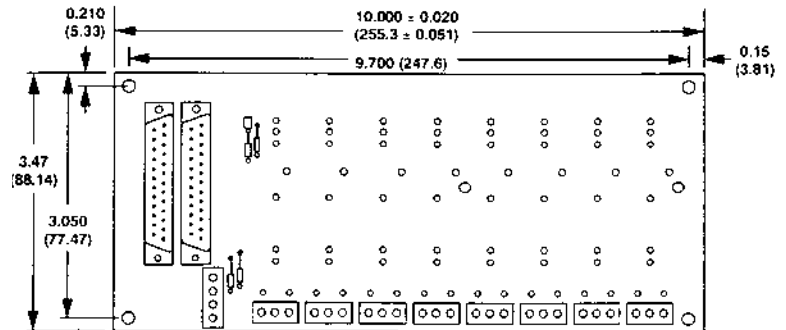


Note: P2 provided by user

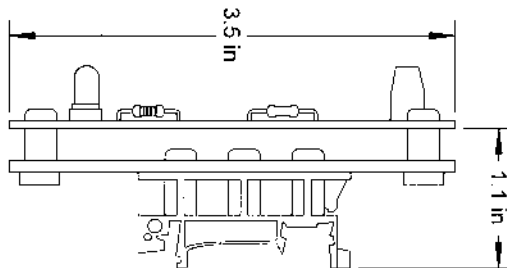
The panel-mount 1781-7B08 and DIN-rail mount 1782-7B08 are 8-channel backplanes for use with the 1781-7B, WRC7, or compatible module line. Both backplanes are powered by a user supplied 24 V dc power supply with primary and secondary receptacles for uninterrupted operation. One 25-pin D-type connector provides a connection to the logic side of the 1781-7B08. Field-side terminations are achieved with screw terminations. For the 1781-7B08, 3/4" standoffs are provided for panel mounting. DIN-rail mounting is provided for the 1782-7B08. The 1781-7B08 Mounting Board is fuse protected through F1. If the input supply voltage connection is reversed, diode DI will protect the modules. Provision is available for a user-provided second 25-pin D-type connector.

MOUNTING DIMENSIONS

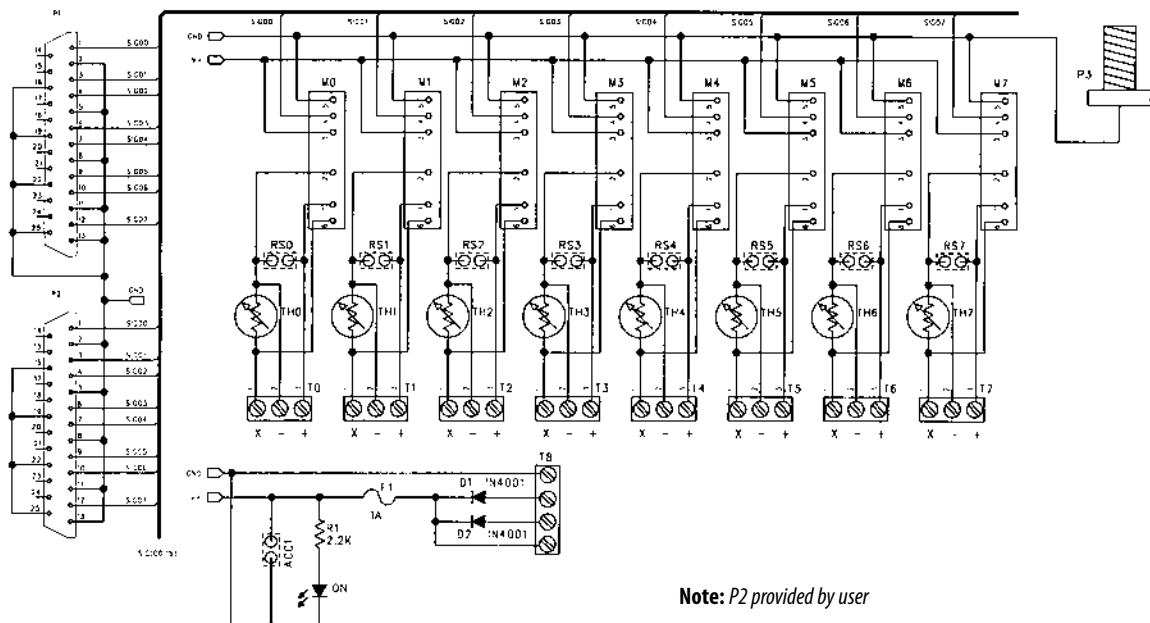
1781 7B08



1782 7B08



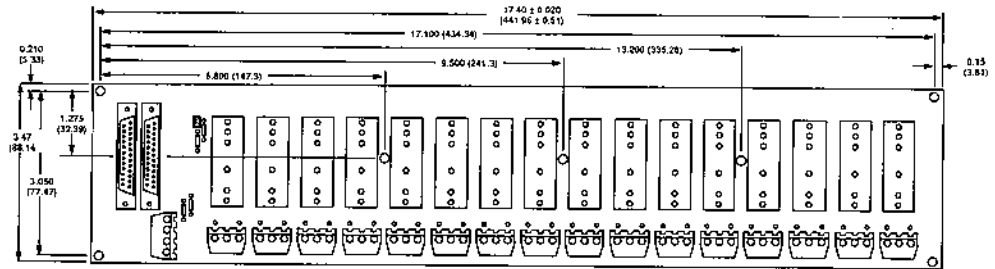
SCHEMATIC DIAGRAM



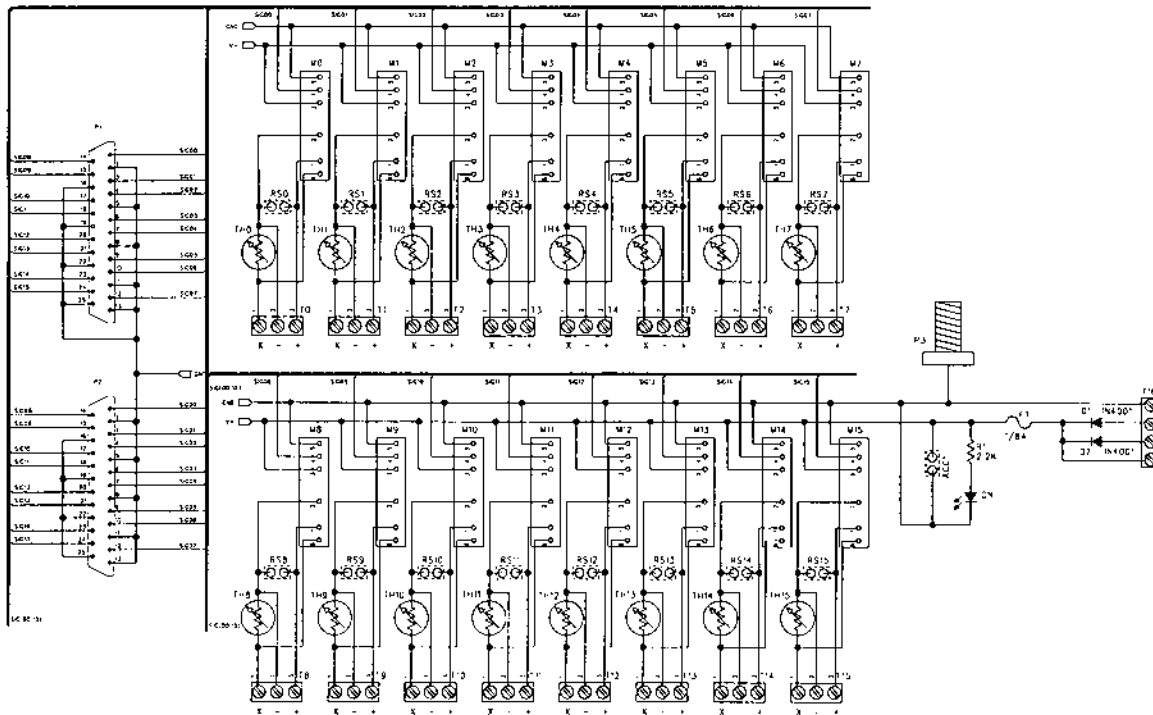
Note: P2 provided by user

The 1781-7B16 is a 16-channel panel-mount backplane for use with the 1781-7B, WRC7, or compatible module line. The 1781-7B16 is powered by a user supplied 24 V dc power supply with primary and secondary receptacles for uninterrupted operation. One 25-pin D-type connector provides a connection to the logic side of the 1781-7B16. Field side terminations are achieved with screw terminations. 3/4" standoffs are provided for panel mounting. DIN-Rail Mounting is not available. The 1781-7B16 Mounting Board is fuse protected through F1. If the input supply voltage connection is reversed, diode DI will protect the modules. Provision is available for a user-provided, second, 25-pin, D-type connector.

MOUNTING DIMENSIONS



SCHEMATIC DIAGRAM



Note: P2 provided by user

The 1781-STB-TC is a special analog termination board for use only with 1781-JxA SmartMux adapters. The 1781-STB-TC provides a low-cost means to provide 15 thermocouple measurements of the same type and range with a SmartMux. The 1781-STB-TC electrically looks like a 1781-5B16 analog input mounting rack to the SmartMux, but it is dedicated to use with a single thermocouple type and range. Applications should be limited to those where isolation between thermocouples is not required. For those applications requiring multiple thermocouple types or isolation between thermocouples, consider the 1781-5B or 1781-7B series of input modules. The 16th. thermocouple input channel is dedicated for cold junction compensation.

APPLYING MOUNTING BOARD

Number of Channels

15 differential thermocouples Plus one input for CJC

Input Voltage Range

+/-5V, +/-100 mV, +/-50 mV, +/-25 mV, +/-10 mV, +/-5 mV

Input Over-voltage Protection

+/- 30V

Input Resistance

1 Gig Ohm

Gain Accuracy

+/- 0.05%

Input Offset

+/- 15 micro-volt

Output Offset

+/- 2.5 milli-volts

CJC Accuracy

+/- 1 degree C

Low Pass Filter Frequency

8 Hz, removable by customer

Common Mode Rejection

100 dB

Power Requirements

+ 5V @ 200 mA

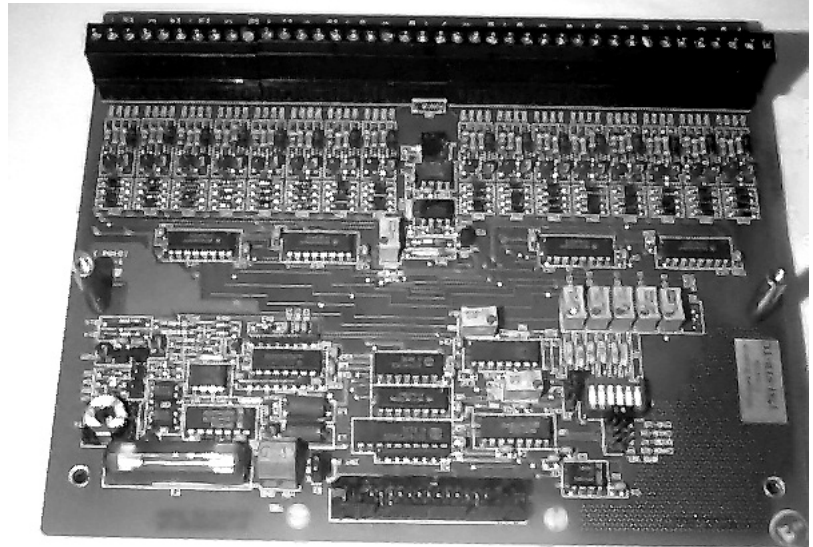
Physical Dimensions

8.25" x 6.8" x 1.97"

(20.95 cm x 17.27 cm x 5.0 cm)

Operating Temperature Range

0 to 60 degree C



1781-STB-TC