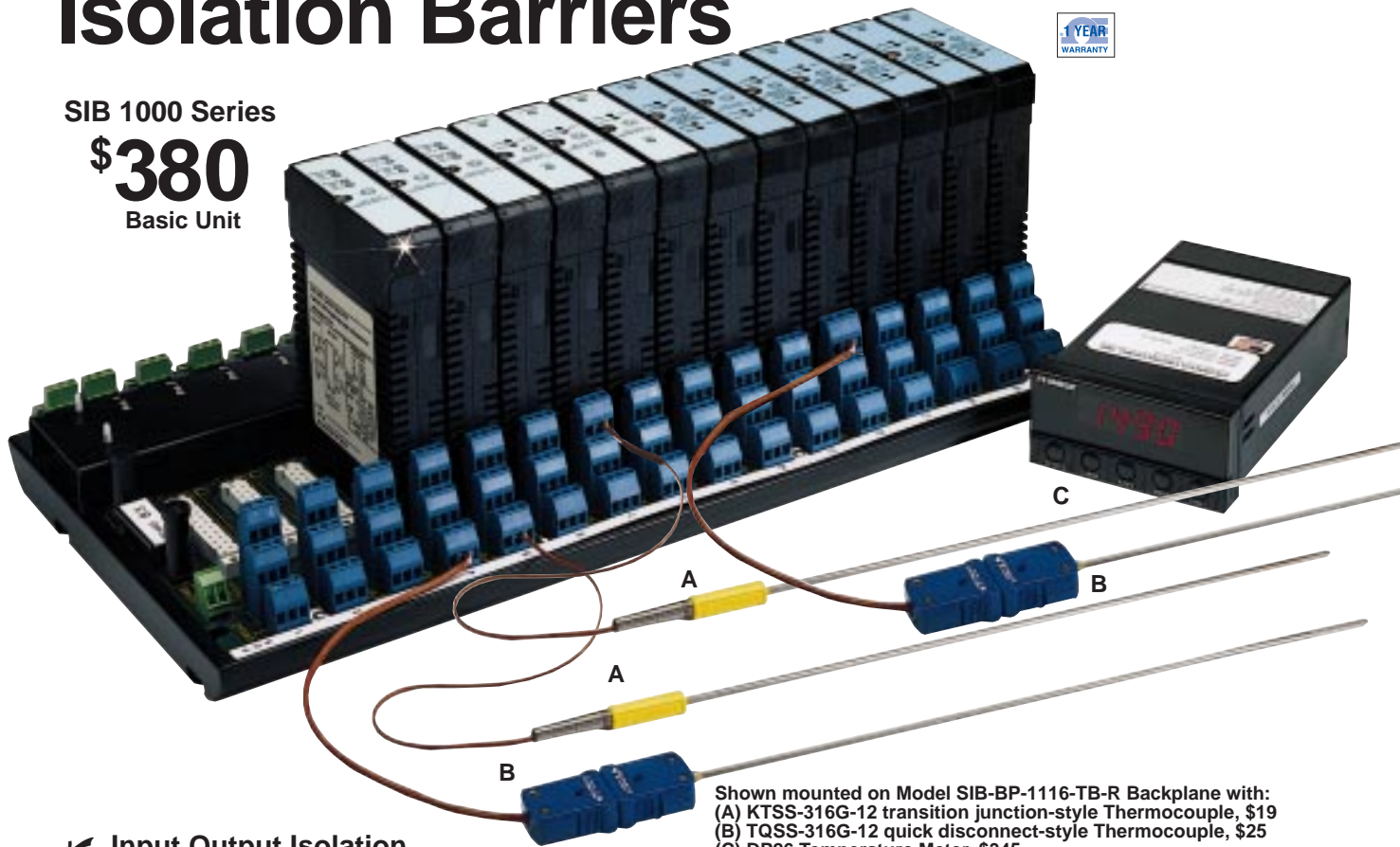


Intrinsic Safety Isolation Barriers



SIB 1000 Series

\$380
Basic Unit



Shown mounted on Model SIB-BP-1116-TB-R Backplane with:
(A) KTSS-316G-12 transition junction-style Thermocouple, \$19
(B) TQSS-316G-12 quick disconnect-style Thermocouple, \$25
(C) DP26 Temperature Meter, \$345

- ✓ Input Output Isolation
- ✓ For J, K, T, E, R, S, B Thermocouples, mV, and Pt100 and Ni100 RTDs
- ✓ Converts Signal from Hazardous Location into 4 to 20 mA Signal
- ✓ Field Programmable Zero and Span Jumpers
- ✓ Single and Dual Input Modules Available
- ✓ Upscale Break Protection Standard

Intrinsic safety isolators accept inputs from low-level millivolt, thermocouple, and RTD (2 and 3-wire) sensors from hazardous locations and convert them into a 4 to 20 mA signal.

The isolators are mounted in a backplane in the non-hazardous area and provide an intrinsic safety barrier as well as signal conditioning and signal isolation.

The SIB1061 single-input and SIB1062 dual-input modules convert the mV or thermocouple signal into a proportional isolated 4 to 20 mA

signal, while the SIB1071/1072 converts RTD signals into an isolated linear 4 to 20 mA signal. (Output for all models is 1 to 5 V across 250 Ω shunt resistor.)

All models feature zero and span jumpers (26 steps each). Reference junction compensators on the mV/thermocouple model and front accessible trimmers on the RTD models allow a quick field reconfiguration over the sensor's entire range with high accuracy and stability.



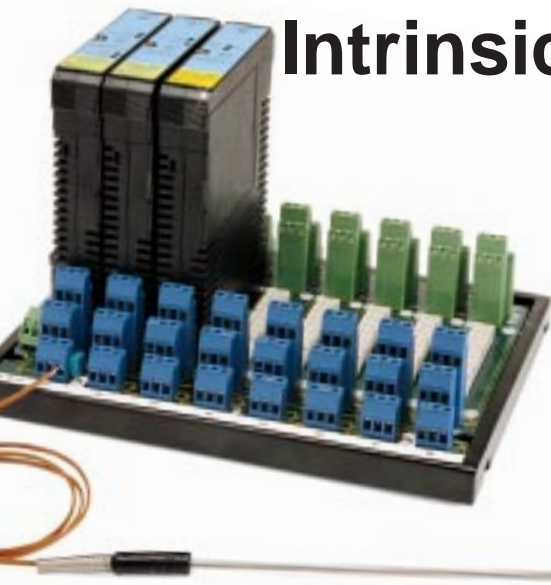
SAA



Approvals

Country (Authority)	Certificate File No.	Standard	Approved For
Australia (SA)	AUS Ex 1288 X	AS 2380.7-1987	(Ex ia) IIC/IIB
Canada (CSA)	LR 66259-7	C 22.2 No. 157	CI.I, II, III; Div 1; Gr.A to G
Europe (CESI)	EX-90.C.117X	EN 50.020 EN 50.014	[EEx ia] IIC/IIB
U.S.A. (FM)	J.I. 3T3A3.AX	FM CI.No. 3610 Entity FM CI.No. 3611 Non Incend	CI.I, II, III; Div 1; Gr.A to G CI.I; Div 2; Gr.A. to D
U.S.S.R. (VNIIVE)	161	22782.5-78 22782.0-81	[Ex ia] IIC/IIB

Intrinsic Safety Isolation Barriers



Specifications

Supply Voltage:

24 Vdc nominal
(21.5 V to 28 V)

Supply Current:

55 mA per
channel max.

Isolation

*I.S. circuit from
Supply: 1500 Vrms
for 1 min. I.S. circuit
from Non I.S.
circuit: 1500 Vrms
for 1 min.*

*I.S. circuit from
ground: 500 Vrms
for 1 min.*

Fuses (2 channels):

Supply; 1 x 125 mA; Protection: 2 x 50 mA

Output: 4 to 20 mA (overload limited at 120%)

on a 500 Ω load or 1 to 5 V across an internal 250 Ω load.

Thermocouple inputs linear to mV input, not temperature.

(Output is linear to temperature for PT100 RTD)

Load Effect: ≤0.1% calibration shift for a line resistance
change from 0 to 10 Ω (each wire)

Input Ranges (see range table)

Millivolt (field programmable): Span limits 5 mV min.,
100 mV max; zero suppression ±300% of user selected
span up to 100% of max. span

Safety Description	Maximum External Parameters				
	Groups		Co (μF)	Lo (mH)	L/R (μF/Ω)
	Cenelec	USA			
<i>Voc - 13.1 V Isc - 26 mA</i>	IIC	A-B	1.1	47	373
	IIB	C-E	3.3	180	1350
	IIA	D-F-G	8.8	400	3100

Thermocouple (field programmable):

Span limits 5 mV min., 75 mV max; zero suppression ±300%
of user selected span up to 100% of max. span;
other span on request

Pt 100 RTD:

Span limits 25°C min 760°C max; zero suppression
±300% of user selected span up to 100% of max. span

References Conditions: 23°C (74°F) 50% R.H. nominal
supply voltage, 250 Ω load (where applicable)

Performance at Reference Conditions

Calibration Accuracy: ±0.1% of full scale

Linearity (terminal based ° or °F IN versus mA OUT

for Pt 100 ranges): ±0.1% of full scale

Temperature Influence on Zero & Span:

Less than ±0.015% of full scale shift for a 1°C (1.8°F)
temperature change

Long Term Stability: After 8000 hours less than ±0.2%
of full scale shift on output

Operating Temperature: 0 to 55°C (32 to 131°F)

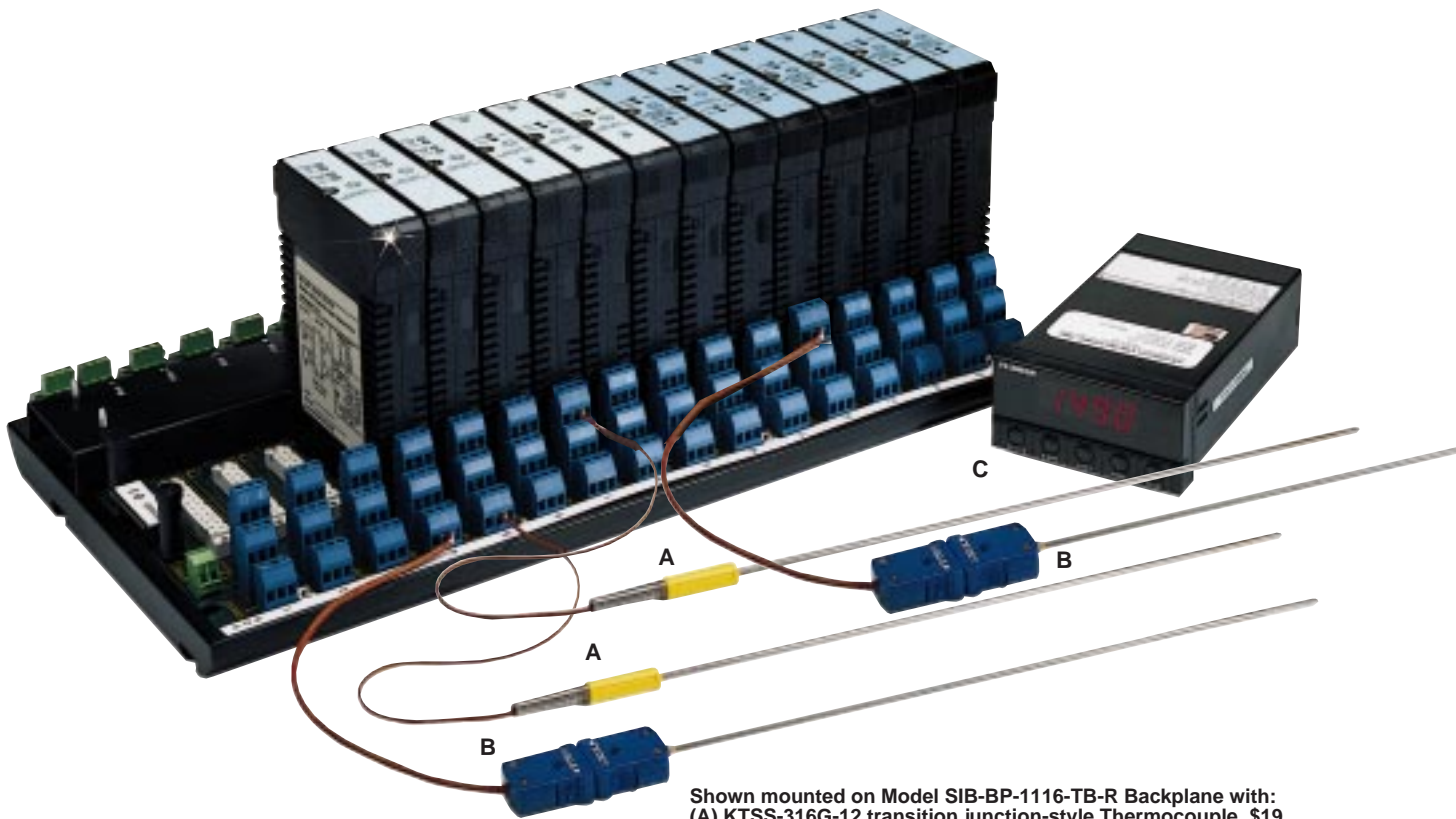
Storage Temperature: -20 to 60°C (-4 to 140°F)

(short term -25 to 70°C/-13 to 158°F)

Relative Humidity: 5 to 90% non-condensing (up to 35°C)

Input Types and Ranges, °C			
Input Types Are Not Programmable	Range Code	Temp. Range, °C	
		Low	High
J,K,T,E, Pt100	1100	-200	0
J,K,T,E, Pt100	1200	-150	0
J,K,T,E, Pt100	1300	-100	0
J,K,T,E, Pt100, Ni100	1400	-50	50
J,K,T,E, Pt100, Ni100	1500	-20	40
J,K,T,E, Pt100, Ni100	1600	-10	50
J,K,T,E, Pt100, Ni100	1700	0	80
J,K,T,E, Pt100, Ni100	1800	0	100
J,K,T,E, Pt100, Ni100	1900	50	100
J,K,T,E, Pt100, Ni100	2000	0	120
J,K,T,E, Pt100, Ni100	2100	0	150
J,K,T,E, Pt100, Ni100	2200	50	150
J,K,T,E, Pt100, Ni100	2300	100	150
J,K,T,E, Pt100, Ni100	2400	0	180
J,K,T,E, Pt100, Ni100	2500	120	180
J,K,T,E, Pt100	2600	0	200
J,K,T,E, Pt100	2700	0	220
J,K,T,E, Pt100	2800	0	250
J,K,T,E, Pt100	2900	150	250
J,K,T,E, Pt100	3000	0	300
J,K,T,E, Pt100	3100	200	300
J,K,T,E, Pt100	3200	0	350
J,K,T,E, Pt100	3300	250	350
J,K,T,E, Pt100	3400	0	400
J,K,T,E, Pt100	3500	200	400
J,K,E,R,S, Pt100	3600	0	500
J,K,E,R,S, Pt100	3700	0	550

Input Types and Ranges, °C			
Input Types Are Not Programmable	Range Code	Temp. Range, °C	
		Low	High
J,K,E,R,S, Pt100	3800	0	600
J,K,E,R,S, Pt100	3900	0	700
J,K,E,R,S, Pt100	4000	0	800
J,K,E,R,S, Pt100	4100	300	800
J,K,E,R,S,B	4200	500	800
J,K,E,R,S,B	4300	0	850
J,K,E,R,S,B	4400	0	900
J,K,E,R,S,B	4500	0	1000
J,K,E,R,S,B	4600	500	1000
J,K,R,S,B	4700	0	1100
J,K,R,S,B	4800	0	1200
J,K,R,S,B	4900	600	1200
J,K,R,S,B	5000	800	1200
K,R,S,B	5100	0	1300
K,R,S,B	5200	800	1300
R,S,B	5300	0	1400
R,S,B	5400	900	1400
R,S,B	5500	0	1500
R,S,B	5600	1000	1500
R,S,B	5700	0	1600
R,S,B	5800	1100	1600
R,S,B	5900	0	1750
R,S,B	6000	1000	1750
B	6100	0	1800
B	6200	1000	1800
mV	0810	0	100



Shown mounted on Model SIB-BP-1116-TB-R Backplane with:
 (A) KTSS-316G-12 transition junction-style Thermocouple, \$19
 (B) TQSS-316G-12 quick disconnect-style Thermocouple, \$25
 (C) DP26 Temperature Meter, \$345

Input Types and Ranges, °F

Input Types Are Not Programmable	Range Code	Temp. Range, °F	
		Low	High
J,K,T,E, Pt100	1150	-300	0
J,K,T,E, Pt100	1350	-250	0
J,K,T,E, Pt100	1360	-200	0
J,K,T,E, Pt100	1370	-100	0
J,K,T,E, Pt100, Ni100	1450	-50	100
J,K,T,E, Pt100, Ni100	1460	-20	100
J,K,T,E, Pt100, Ni100	1750	0	200
J,K,T,E, Pt100, Ni100	2050	0	250
J,K,T,E, Pt100, Ni100	2060	50	250
J,K,T,E, Pt100, Ni100	2150	0	300
J,K,T,E, Pt100, Ni100	2250	100	300
J,K,T,E, Pt100, Ni100	2350	200	300
J,K,T,E, Pt100, Ni100	2450	0	350
J,K,T,E, Pt100, Ni100	2550	250	350
J,K,T,E, Pt100, Ni100	2650	0	400
J,K,T,E, Pt100, Ni100	2750	0	450
J,K,T,E, Pt100, Ni100	2850	0	500
J,K,T,E, Pt100, Ni100	2950	300	500
J,K,T,E, Pt100, Ni100	3050	0	600
J,K,T,E, Pt100, Ni100	3150	400	600
J,K,T,E, Pt100, Ni100	3250	0	700
J,K,T,E, Pt100, Ni100	3350	500	700
J,K,T,E, Pt100, Ni100	3450	0	800
J,K,T,E, Pt100, Ni100	3550	400	800
J,K,E, Pt100	3650	0	900
J,K,E, Pt100	3750	0	1000
J,K,E,R,S, Pt100	3850	0	1100

Input Types and Ranges, °F

Input Types Are Not Programmable	Range Code	Temp. Range, °F	
		Low	High
J,K,E,R,S, Pt100	3860	0	1200
J,K,E,R,S,	3950	0	1300
J,K,E,R,S,	3960	0	1400
J,K,E,R,S,B	4050	0	1500
J,K,E,R,S,B	4150	600	1500
J,K,E,R,S,B	4250	900	1500
J,K,E,R,S,B	4350	0	1600
J,K,E,R,S,B	4450	0	1700
J,K,E,R,S,B	4550	0	1800
J,K,R,S,B	4650	900	1800
J,K,R,S,B	4660	0	1900
J,K,R,S,B	4750	0	2000
J,K,R,S,B	4760	1000	2000
J,K,R,S,B	4850	0	2200
J,K,R,S,B	4950	1100	2200
K,R,S,B	5050	1500	2200
K,R,S,B	5150	0	2400
R,S,B	5250	1500	2400
R,S,B	5550	0	2700
R,S,B	5650	1900	2700
R,S,B	5750	0	2900
R,S,B	5850	2000	2900
R,S,B	5950	0	3200
R,S,B	6050	1800	3200
B	6150	0	3300
B	6250	1800	3300
mV	0810	0	100

Intrinsic Safety Isolation Barriers

Specifications

Termination Boards

Mounting: Surface mounting by front accessible screws or DIN46277 Bar 35 mm TOP HAT rail mounting.

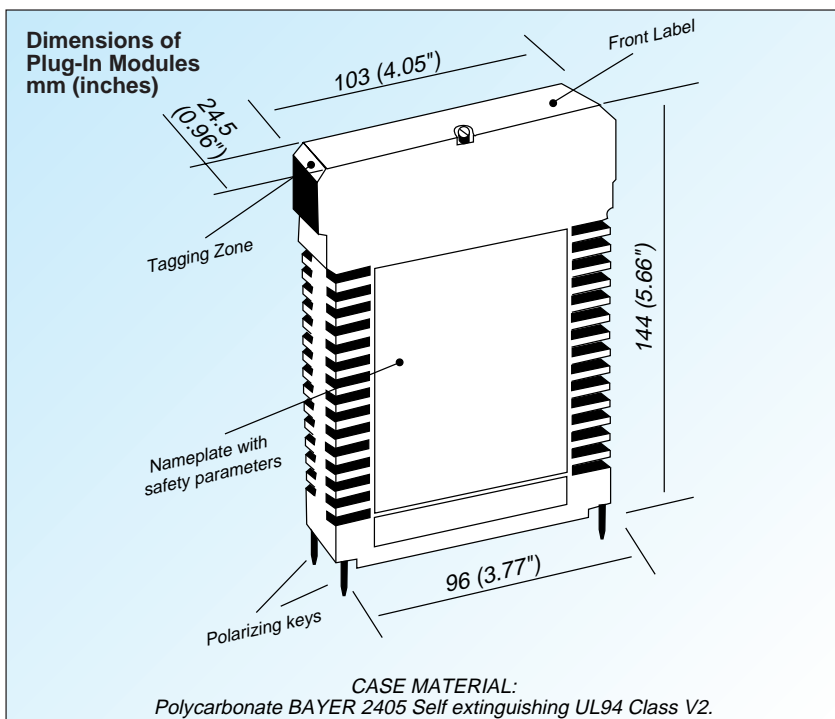
Input Terminations: Compression type, directly accepts solid or braided conductors. 4 terminals per channels (3 for signal 1 for shield) conductors size up to 2.5 mm² (12 AWG) with no exposed conducting surfaces.

Output Terminations: 3 terminals per channel (2 for signal, 1 for shield)

Module Connector: 21 PIN female polarized connector with gold plated contacts.

Supply Bus: Two terminals plus one for shield for conductor size up to 2.5 mm² (12 AWG) polarity reversal protection by shunt diode and series fuse (5 x 20 DIN).

Fuse Rating: TB type 1108 = 1.6 AMP (T) TB type 1116 = 3.15 AMP (T) spare fuse included.



To assemble a complete system, order:

1. Desired input modules
2. Desired backplanes
3. Model U24Y101 power supply.

Ordering Example:

1. Two SIB1061-J-3-3600-AA single input intrinsic safety isolated barriers for type J thermocouple input, 0-500°C (32 to 932°F) range, **\$390 each**.
2. One termination board (backplane), Model SIB-BP-1208/TB, **\$560**.
3. One Model U24Y101 power supply, 24 Vdc unregulated, 1000 mA, **\$128**.

Plug-In Module

To Order (Specify Model Number)

OMEGA Model Number	Elcon Model Number	Price	Description
SIB1061- (*)-3-(**)-AA	1061*-3-(**)-AA	\$390	Single input, mV or thermocouple
SIB1062- (*)-3-(**)-AA	1062*-3-(**)-AA	615	Dual input, mV or thermocouple
SIB1071- (*)-3-(**)-AA	1071*-3-(**)-AA	380	Single input, RTD
SIB1072- (*)-3-(**)-AA	1072*-3-(**)-AA	636	Dual input, RTD

Comes with complete operator's manual

*Insert input type: mV, J, K, T, E, R, S, B, Pt100, Ni100

**Input Range Code from range table on previous page

Ordering Example: SIB1062-K-3200-AA, dual input intrinsic safety barrier for type K thermocouple input, 0 to 350°C (32 to 662°F) range, **\$615**.

Termination Boards/ Backplanes

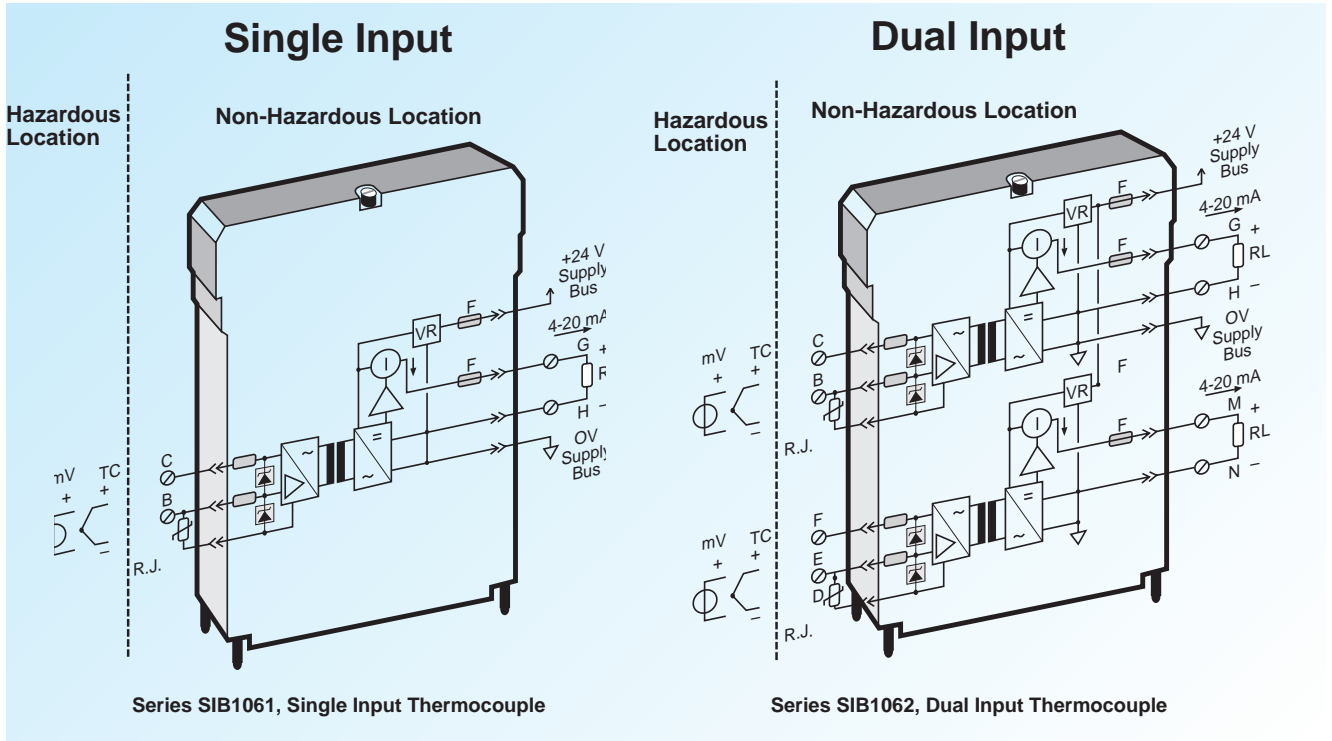


To Order (Specify Model Number)

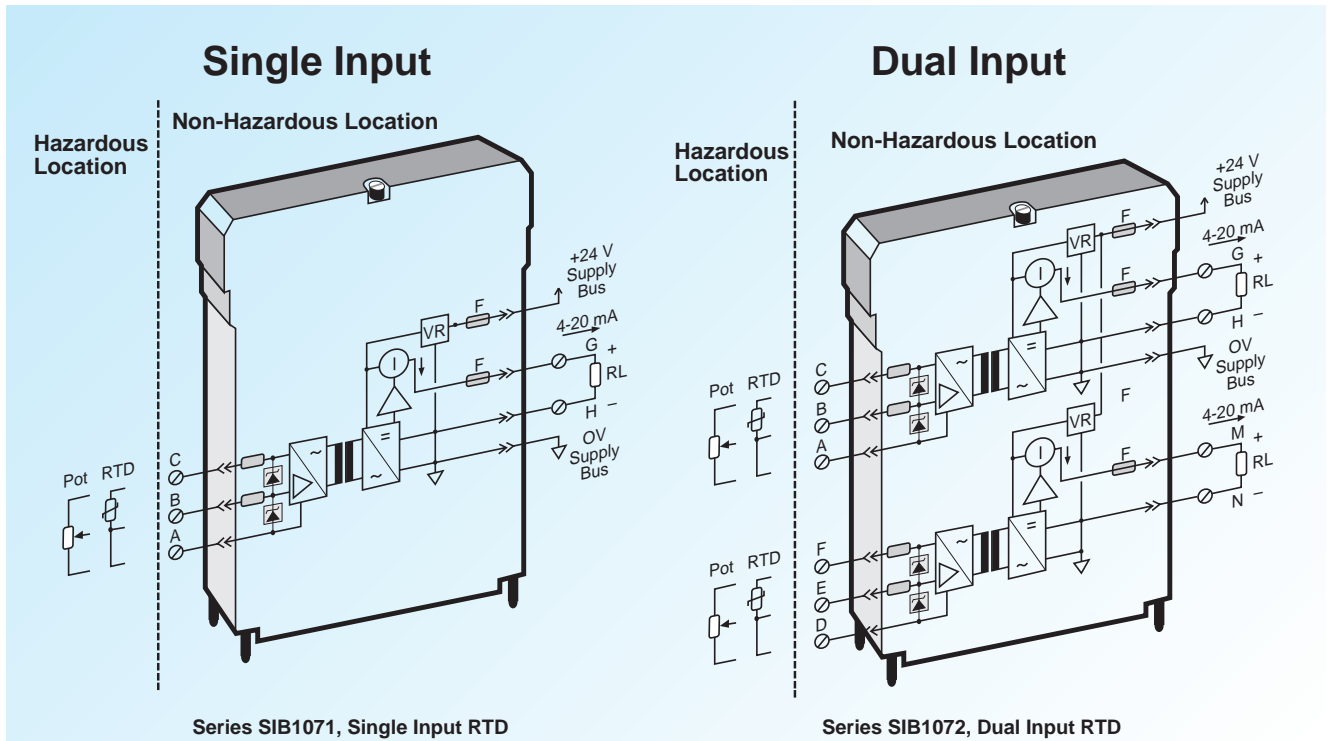
Omega Model Number	Elcon Model Number	Price	No. of Modules	No. of Channels	Outline Dim., mm (inches)	Power/ Description
SIB-BP-1101-SM	1101/SM	\$81	1	2	184 x 33 (7.24 x 1.3)	DC power, single module backplane
SIB-BP-1101-SM-AC	1101/SM-AC	130	1	2	184 x 33 (7.24 x 1.3)	AC power, single module backplane
SIB-BP-1208/TB	1208/TB	560	8	16	188 x 284 (7.40 x 11.2)	DC power, eight module backplane
SIB-BP-1216/TB	1216/TB	1006	16	32	188 x 535 (7.40 x 21.06)	DC power, sixteen module backplane
SIB-BP-1116/TB-R	1116/TB/R	840	16	32	483 x 177 (19 x 6.97)	DC power, sixteen module 19" rack mount

All termination boards except the 1116/TB/R may be mounted horizontally or vertically. The 1101/SM-AC eliminates the need for an external 24 Vdc power supply.

mV/TC Intrinsic Safety Isolator/ Signal Converter

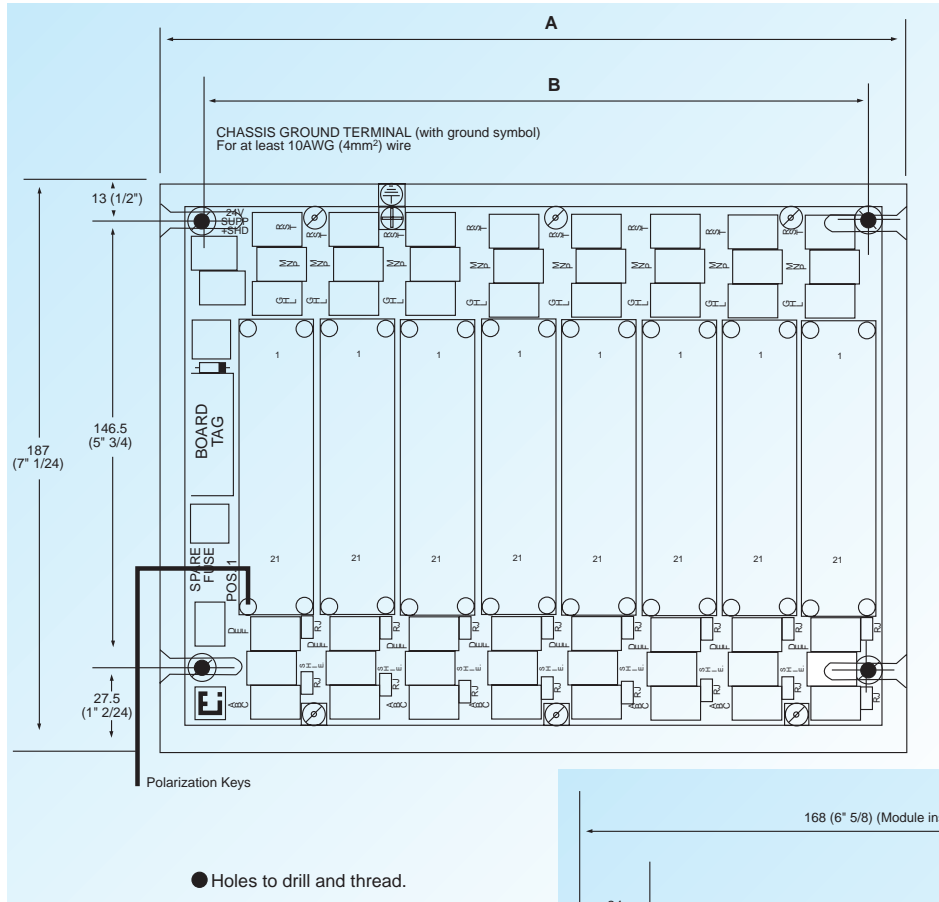


RTD Intrinsic Safety Isolator/Signal Converter



N

Intrinsic Safety Isolation Barriers



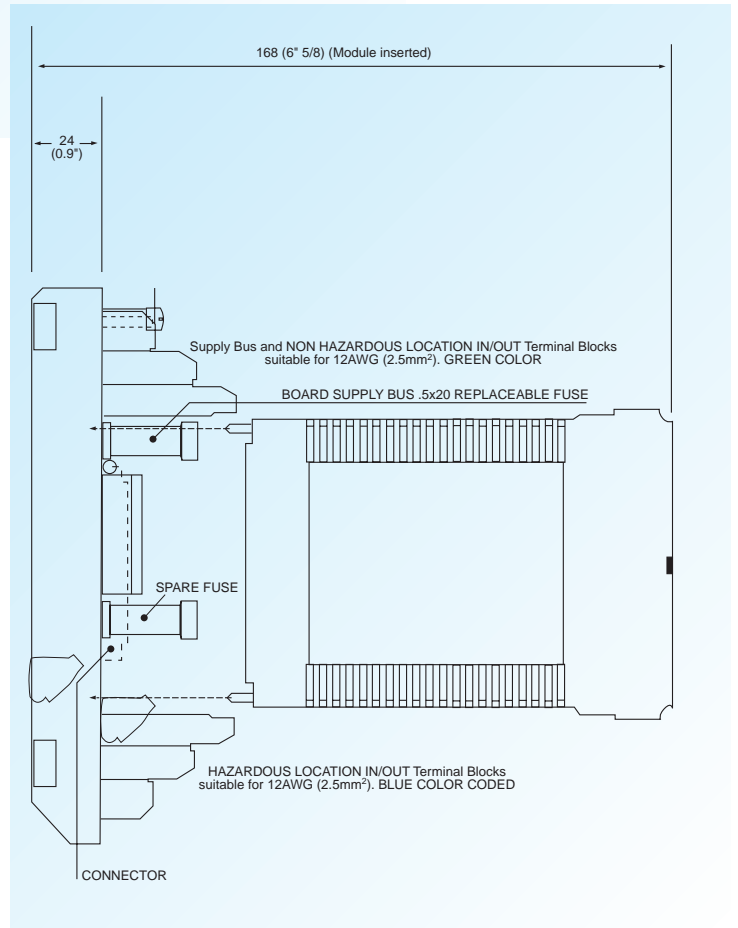
Dimensions of Terminal Boards

All dimensions are in mm (inches)

Dimensions

Termination Board Type				
	1108	1208	1116	1216
A	246 (9 ¹⁶ / ₂₄ "	282 (1 ¹ / ₂ "	460 (18 ¹ / ₈ "	535 (21.06"
B	220 (8 ² / ₃₂ "	255.5 (10 ¹ / ₁₆ "	434 (17 ¹ / ₁₆ "	509 (20"

NOTE:
Leave at least 41 mm (1⁵/₁₆") spacing between holes of one termination board to the holes of the next termination board



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