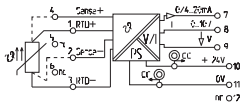
Active Converter, 3-Way, RTD

- Universally adjustable using DIP switch
- Bul. 931S Configurator to assist with DIP switch selection, download at www.ab.com
- Three way isolation
- Linearization
- Power supply can be cross-connected using center jumpers

931S-P1C2D-DC

Specifications	***Active Converter, 3 Way, RTD***
Wiring Diagram	
Standards Compliance	UL 508, UL 1604, CSA C22.2 No. 142-M1987, CSA C22.2 No. 213-1987, EN 50178:1997, EN 61000-6-1:2007, EN 61000-6-2: 2005, EN 61000-6-3:2007, EN 61000-6-4:2007
Certifications	cULus (Class 1, Div. 2, Groups A, B, C and D, NRAG/7.E10314), CE
Input Ratings	
Sensor	PT100/2-/3-/4-cond., Ni100/2-/3-/4-cond., potentiometer: min. 0...100 Ω, max. 0...100 kΩ, resistor: 0...450 Ω
Temperature Range	Configurable
Input	Passive
Output Ratings	
Voltage	0...10V
Current	0...20 mA / 4...20 mA
Load Impedance (voltage/current)	≥ 1 kΩ / ≤ 600 Ω
Step Response Time	fast/ slow: 2-, 3-, 4-conductor: 1.2 / 2.2 s; potentiometer: 0.5 /1.1 s
Line resistance in measuring	50 Ω for 3- and 4- conductor
Offset Current/ Voltage	max 100 µA/max. 0.05V
Wire Break Detection	LED flashed (output value > 20 mA, >10V)
Fine Adjustment	≥ ± 5 %, Version 1: > = 12.5% / Poti: 12.5...25%
Status Indicator	Active: LED On; Wire broken: LED Flashing; Error: LED Off
Output	Active
General Specifications	
Supply Voltage	24V DC ± 25 %
Power Consumption	830...880...980 mW at I_{OUT} = 20 mA
Current-carrying Capacity of Cross-Connect	≤ 2 A
Operating Temperature	0 °C...+55 °C
Storage Temperature	-20 °C...+85 °C
Default Settings	PT100/3-cond./ 0...100°C / 4...20 mA / man. fine calib.: off / slow step response
Rated Insulation Voltage	300V
Impulse Withstand Voltage	4 kV
Isolation Voltage Input - Output	2 kV_{eff} / 5 s
Surge Category	III
Pollution Severity	2
Connection Type	Screw
L x W x D	92.4 x 17.5 x 112.4

Signal Conditioner	Cat. No.	Pkg. Quantity
	931S-P1C2D-DC	1

Switch positions/setting options

■ = on
□ = off

Selection of input	Switch 1		
Input	1	2	3
PT100 2-conductor	■	■	■
PT100 3-conductor	□	■	■
PT100 4-conductor	■	□	■
R 2-conductor	□	□	■
NI100 2-conductor	■	■	□
NI100 3-conductor	□	■	□
NI100 4-conductor	■	□	□
Potentiometer	□	□	□

Selection of minimum input size			Switch 1			
ϑ_{min}	R_{min}	$Poti_{min}$	4	5	6	7
0 °C	0 Ω	0 %	■	■	■	■
–10 °C	10 Ω	10 %	■	■	■	□
–20 °C	20 Ω	20 %	■	■	□	■
–25 °C	20 Ω	25 %	■	■	□	□
–30 °C	30 Ω	30 %	■	□	■	■
–40 °C	40 Ω	40 %	■	□	■	□
–50 °C	50 Ω	50 %	■	□	□	■
–60 °C	60 Ω	60 %	■	□	□	□
–70 °C	70 Ω	70 %	□	■	■	■
–80 °C	80 Ω	80 %	□	■	■	□
–90 °C	90 Ω		□	■	□	■
–100 °C	100 Ω		□	■	□	□
–150 °C	150 Ω		□	□	■	■
–200 °C	200 Ω		□	□	■	□
Special range			□	□	□	■

Activating the manual fine calibration	Switch 1
Man. Cal.	8
On	□
Off	■

Choice of measuring range			Switch 2				
T	R	Potentiometer	1	2	3	4	5
40K	20 Ω	20 %	■	■	■	■	■
50K	25 Ω	25 %	■	■	■	■	□
60K	30 Ω	30 %	■	■	■	□	■
70K	35 Ω	35 %	■	■	■	□	□
80K	40 Ω	40 %	■	■	□	■	■
90K	45 Ω	45 %	■	■	□	■	□
100K	50 Ω	50 %	■	■	□	□	■
110K	55 Ω	55 %	■	■	□	□	v
120K	60 Ω	60 %	■	□	■	■	■
125K	62.5 Ω	62.5 %	■	□	■	■	□
130K	65 Ω	65 %	■	□	■	□	■
140K	70 Ω	70 %	■	□	■	□	□
150K	75 Ω	75 %	■	□	□	■	■
160K	80 Ω	80 %	■	□	□	■	□
170K	85 Ω	85 %	■	□	□	□	■
180K	90 Ω	90 %	■	□	□	□	□
190K	95 Ω	95 %	□	■	■	■	■
200K	100 Ω	100 %	□	■	■	■	□
250K	125 Ω	—	□	■	■	□	■
300K	150 Ω	—	□	■	■	□	□
350K	175 Ω	—	□	■	□	■	■
400K	200 Ω	—	□	■	□	■	□
450K	225 Ω	—	□	■	□	□	■
500K	250 Ω	—	□	■	□	□	□
550K	275 Ω	—	□	□	■	■	■
600K	300 Ω	—	□	□	■	■	□
650K	325 Ω	—	□	□	■	□	■
700K	350 Ω	—	□	□	■	□	□
750K	375 Ω	—	□	□	□	■	■
800K	400 Ω	—	□	□	□	■	□
850K	425 Ω	—	□	□	□	□	■
900K	450 Ω	—	□	□	□	□	□

Selection of output	Switch 2	
Output	6	7
0...10V	■	□
0..20 mA	□	□
4..20 mA	□	■

Selection of step response time	Switch 2
Step Response	8
Slow	■
Quick *	□

* less exact measuring

Accessories

The table below indicates the accessories available for each signal conditioner.

Markers		Jumpers		End Barrier	Cable	
1492-M5X10	1492-M6X10	1492CJLJ5-2-*	1492-CJLJ6-*	931H-EB1	931U-CABLE	Cat. No.
High-Density Signal Conditioners						
	•		•			931H-A2A2N-DC
•			•			931H-A2C2D-DCHART
•			•			931H-C2C2D-DC
	•		•			931H-P2C1D-DC
	•		•			931H-T2C1D-DC
	•		•			931H-T1C1D-DC
	•		•	•		931H-A1A1N-IP
	•		•	•		931H-P2A2N-OP
Standard Signal Conditioners						
•						931S-A1A1N-IP1
•						931S-A1A1N-IP2
•						931S-A2A5N-OP
•		•				931S-A2A2N-DC
•		•				931S-A1A1N-DC
•						931S-C1A2D-OP
•						931S-C4C5D-BC
•		•				931S-P1C2D-DC
•		•				931S-T9C2D-DC
•		•				931S-F1C2D-DC
	•	•				931S-B1C6D-DC
	•	•				931S-A3C2D-DC
	•					931S-A3A2D-OP
		•				931S-A4C2D-DCHALL
	•					931S-V1R1D-MC1R
•		•				931S-C2R1D-DC2R
						931S-C3C3J-DC
Universal Signal Conditioners						
•					•	931U-C9A2C-OP
•					•	931U-C9C7C-BC

* For size and color, please see product selection tables below.

Snap-in Markers

Description	Markers Per Card	Marker Size	Pkg. Quantity	Cat. No.
Snap-in Markers	144	5 X 10 mm	5	**1492-M5X10**
Snap-in Markers	120	6 X 10 mm	5	**1492-M6X10**

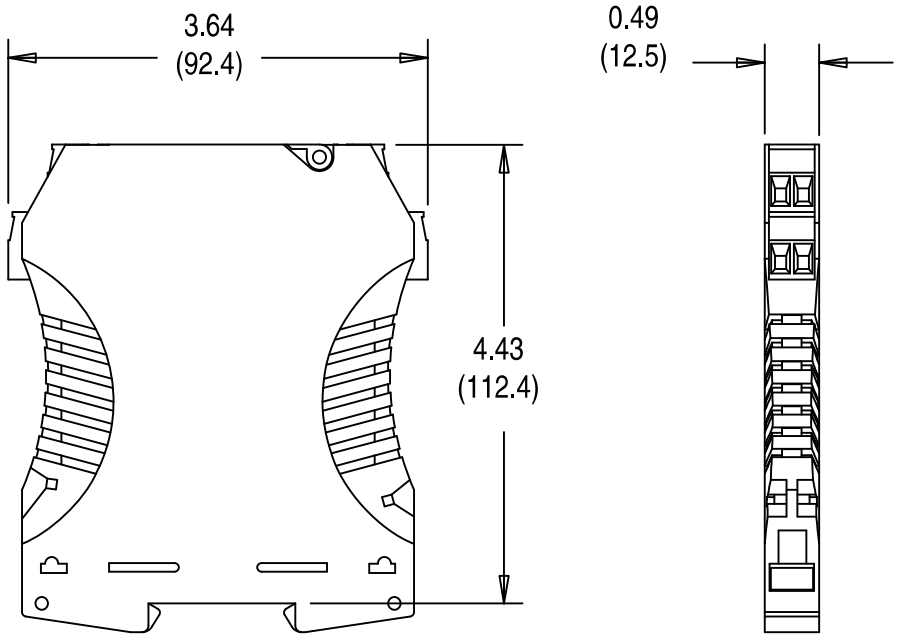
Plug-in Jumpers

Description	Color	Pkg. Quantity	Cat. No.
Plug-In Jumper, 2-pole, Yellow	Yellow	60	**1492-CJLJ5-2**
Plug-In Jumper, 2-pole, Red	Red	60	1492-CJLJ5-2-R
Plug-In Jumper, 2-pole, Blue	Blue	60	1492-CJLJ5-2-B
Plug-In Jumper, 2-pole, Black	Black	60	1492-CJLJ5-2-BL
Plug-In Jumper, 2-pole, Red	Red	60	1492-CJLJ6-2-R
Plug-In Jumper, 2-pole, Blue	Blue	60	1492-CJLJ6-2-B
Plug-In Jumper, 3-pole, Red	Red	60	1492-CJLJ6-3-R
Plug-In Jumper, 3-pole, Blue	Blue	60	1492-CJLJ6-3-B
Plug-In Jumper, 10-pole, Red	Red	20	**1492-CJLJ6-10-R**
Plug-In Jumper, 10-pole, Blue	Blue	20	**1492-CJLJ6-10-B**
Plug-In Jumper, 41-pole, Red	Red	10	**1492-CJLJ6-41-R**
Plug-In Jumper, 41-pole, Blue	Blue	10	1492-CJLJ6-41-B

Approximate Dimensions

Approximate dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

- 931S-A2A2N-DC
- 931S-C3C3J-DC
- 931S-C4C5D-BC
- 931S-F1C2D-BC
- 931U-C9A2C-OP



- 931S-B1C6D-DC
- 931S-C1A2D-OP
- 931S-C2R1D-DC2R
- 931S-P1C2D-DC
- 931S-A1A1N-DC
- 931S-A1A1N-IP1
- 931S-A1A1N-IP2
- 931S-A2A5N-OP
- 931S-T9C2D-DC
- 931S-V1R1D-MC1R