

SCIM7B36

Isolated Potentiometer Input Modules

Description

SCIM7B35 potentiometer input modules is a single channel resistance input which if filtered, isolated, amplified, and converted to standard-level voltage output. A five pole filter is provided with signal filtering, this SCIM7B36 modules interface to slide wires and potentiometer in both 2 or 3 wire configuration and incorporates.

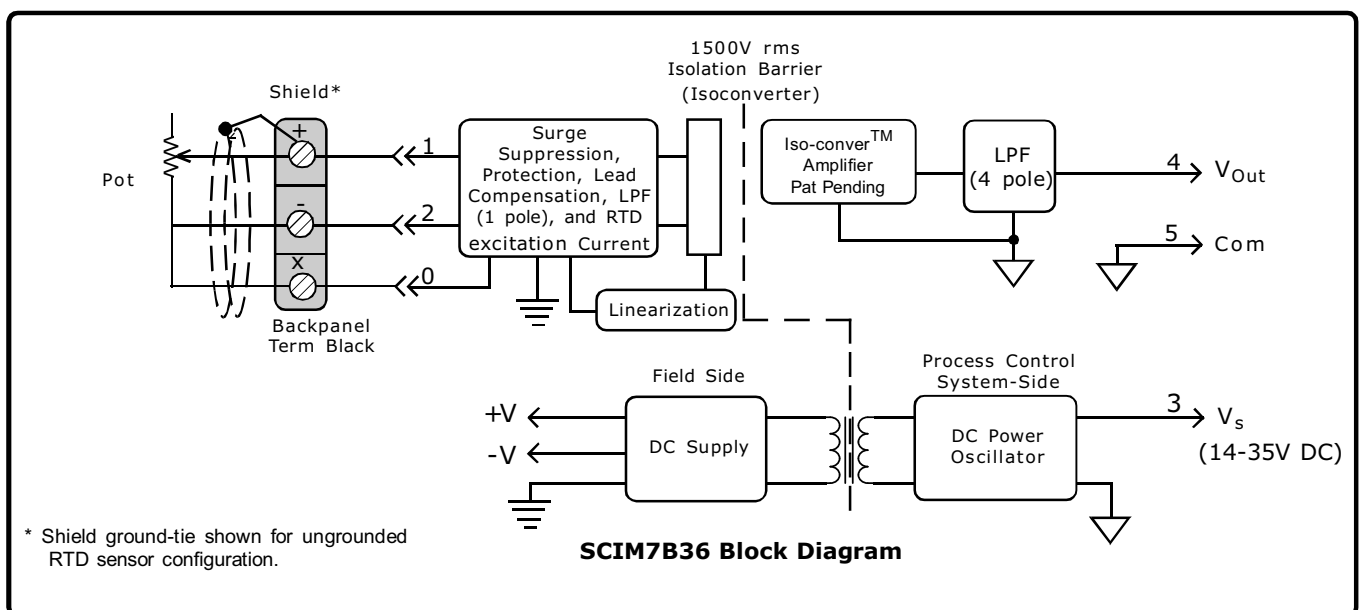
In the 3-wire configuration lead resistance compensation is provided if the resistance of the "x" lead is closely equivalent to that of the "+" lead. Internal to the module measurement error due to lead resistance is canceled.

The input signal is chopped by a proprietary converter circuit after initial filter stage, isolation is provided by transformer coupling which eliminates common mode spikes and surges. The signal is then reconstructed and filtered for process control system output.

These modules accepts a wide 14 - 35VDC power supply range (+24VDC nominal). The mechanical (2.13"x1.705"x0.605" max.) save space and are ideal for high channel density applications. They are designed for easy DIN Rail mounting using nay of the "DIN" backpanels.

Features

- Industry's First 7B Potentiometer Input Module
- Interfaces 100Ω to 10KΩ Potentiometers
- High Level voltage outputs
- 1.5KV Isolation
- Accuracy ±0.03% of span typical, ±0.1% max
- ANSI/IEEE C37.90.1 Transient Protection
- 120V rms Continuous Protected on Input
- Easy DIN Rail Mounting
- CSA , FM , CE and ATEX Compliant



Specifications Typical at: $T_A = +25^{\circ}\text{C}$ and +5V Power supply

Module	SCIM7B36
Input Signal Range Protection Continuous Transient	See Ordering Information 120V rms max ANSI/IEEE C37.90.1
Sensor Excitation Current Lead Resistance effect(3-Wire) ⁽¹⁾	85nA(10K Ω) to 260 μ A(100W) -01 thru -04 $\pm 0.005 \Omega / \Omega$ -05 $\pm 0.02 \Omega / \Omega$ -06 $\pm 0.04 \Omega / \Omega$
Output Signal Range ⁽²⁾ Effective available power ⁽²⁾ Resistance Protection Voltage/Current Limit	See Ordering information 40 μ Ω <1 Ω Continuous short-to-ground $\pm 12\text{V}$, $\pm 14\text{mA}$
CMV (Input to Output) Continuous Transient CMRR (50 or 60Hz)	1500V rms ANSI/IEEE C37.90.1 120dB
Accuracy ⁽³⁾ Nonlinearity ⁽⁴⁾ Stability (-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$) Gain Input Offset Output Offset	$\pm 0.03\%$ Span typical, $\pm 0.1\%$ Span max $\pm 0.01\%$ Span typical, $\pm 0.02\%$ Span max $\pm 60 \pi \mu / ^{\circ}\text{C}$ $\pm 0.01 \Omega / ^{\circ}\text{C}$ $\pm 0.003\%$ Span/ $^{\circ}\text{C}$
Noise Peak at 5MHz B/W RMS at 10Hz to 100KHz B/W Peak at 0.1Hz to 10Hz B/	1 mV 250 μ V 1 μ V RTI
Open Input Response '+' Lead '-' Lead 'x' Lead	Upscale Non-deterministic Downscale
Open Input Detection Time	<6s
Frequency and Time Response Bandwidth, -3dB NMR (-3dB @100Hz) Step Response, 90% span	100Hz 80/85dB 250ms
Power supply voltage Power supply Current ⁽²⁾ Power supply Sensitivity	14 to 35V DC 12 mA $\pm 0.0001\% / \%V_S$
Mechanical Dimensions (H) (W) (D)	2.13"x1.705"x0.605"max (54.1 x 43.3 x 15.4mm) max
Environmental Operating Temp.Range Storage Temp. Range Relative Humidity Emissions EN61000-6-4 Radiated, Conducted Immunity EN61000-6-2 RF ESD,EFT,Surge,Voltage Dips	-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ -40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ 0 to 95% Noncondensing ISM, Group 1 Class A ISM, Group 1 Performance A $\pm 0.5\%$ Span Error Performance B

Note:

- (1). Lead resistance effect is given for the condition of not having NTC thermistor installed in the back panel. As a general rule as long as the load resistance of the (+) lead matches parallel combination of the thermistor and load resistance in the (x)lead, the given specifications apply.
- (2). Output range and supply current specifications are based on minimum output load resistances. Minimum output load resistance is calculated by V_{out}^2 / P_E is the output effective available power that guarantees output range, accuracy, and linearity specifications.
- (3). Accuracy includes the effects of repeatability, hysteresis, and linearity.
- (4). Non-linearity is calculated using the best-fit straight line method.

Ordering Information

Model	Input Range	Output Range
SCIM7B36-01	0-100 Ω	1, 2, 3, 4, 5
SCIM7B36-02	0-200 Ω	1, 2, 3, 4, 5
SCIM7B36-03	0-500 Ω	1, 2, 3, 4, 5
SCIM7B36-04	0-1K Ω	1, 2, 3, 4, 5
SCIM7B36-05	0-5K Ω	1, 2, 3, 4, 5
SCIM7B36-06	0-10K Ω	1, 2, 3, 4, 5

Output Ranges Available

Output Range	Part No. Suffix	Example
1. 1 to +5V	NONE	SCIM7B36-01
2. 0 to +5V	A	SCIM7B36-01A
3. 0 to +10V	D	SCIM7B36-01D
4. -5V to +5V	C	SCIM7B36-01C
5. -10V to +10V	B	SCIM7B36-01B