

SCIM7B40/41

Isolated Analog Voltage Input Modules, Wide Bandwidth Description

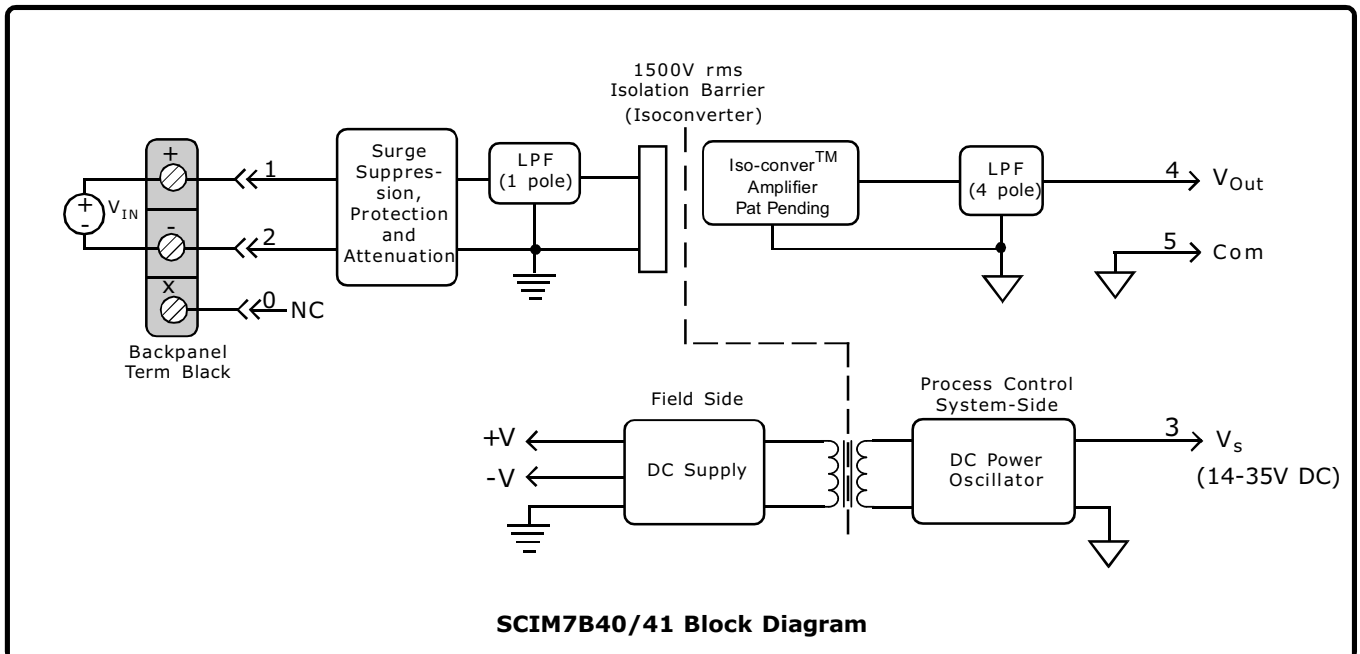
SCIM7B40/41 voltage input modules is a single channel analog input which if filtered, isolated, amplified, and converted to standard-level voltage output. A five pole filter is provided with signal filtering. One pole of the filter is on the process control system side of the isolation barrier, and the other four poles are on the field side.

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 accept a wide 14 - 35VDC power supply range (+24VDC nominal). The mechanical size (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 any of the "DIN" backpanels.

Features

- Wide range of millivolt and Voltage input Signals
- Standard Output of either 0 to 10V/+10V, 0 to 5V, 1 to 5V.
- 10KHz Bandwidth
- 1.5KV Isolation
- Accuracy $\pm 0.03\%$ of span typical, $\pm 0.1\%$ 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	SCIM7B40	SCIM7B41
Input		
Signal Range	See Ordering Information	*
Bias Current	$\pm 1\text{nA}$	$\pm 0.1\text{nA}$
Resistance		
Normal	50M Ω	500K Ω min
Power off	30K Ω min	500K Ω min
Overload	30K Ω min	30K Ω min
Protection		
Continuous	120Vrms max	*
Transient	ANSI/IEEE C37.90.1	*
Output		
Signal Range ⁽¹⁾	See Ordering Information	*
Effective available power ⁽¹⁾	40mW	*
Resistance	<1 Ω	*
Protection	Continuous Short-to-Ground	*
Voltage/Current Limit	$\pm 16\text{V}$, +14mA	*
CMV (Input-to-Output)		
Continuous	1500V rms	*
Transient	ANSI/IEEE C37.90.1	*
CMRR (50 or 60Hz)	110dB	100dB
Accuracy ⁽²⁾	$\pm 0.03\%$ Span typical, $\pm 0.1\%$ Span max	*
Nonlinearity ⁽³⁾	$\pm 0.01\%$ Span typical, $\pm 0.02\%$ Span max	*
Stability (-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$)		
Gain	$\pm 35\text{ppm}/^{\circ}\text{C}$	$\pm 55\text{ppm}/^{\circ}\text{C}$
Input Offset	$\pm 0.5\mu\text{V}/^{\circ}\text{C}$	$\pm 5\mu\text{V}/^{\circ}\text{C}$
Zero Suppression	$\pm 0.005\%$ (V_z) Span/ $^{\circ}\text{C}$	*
Output Offset	$\pm 0.002\%$ Span/ $^{\circ}\text{C}$	*
Noise		
Peak at 5MHz B/W	2 mV	*
RMS at 10Hz to 100KHz B/W	1 mV	*
Peak at 0.1Hz to 10Hz B/W	1 μV RTI	*
Frequency and Time Response		
Bandwidth, -3dB	10KHz	*
NMR	80dB/Decade >10KHz	*
Step Response, 90% span	50 μs	*
Power supply voltage	14 to 35V DC	*
Power supply Current ⁽¹⁾	12mA	*
Power supply Sensitivity	$\pm 0.001\%/V_S$	*
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	-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$	*
Storage Temp. Range	-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$	*
Relative Humidity	0 to 95% Noncondensing	*
Emissions EN61000-6-4	ISM, Group 1	*
Radiated, Conducted	Class A	*
Immunity EN61000-6-2	ISM, Group 1	*
RF	Performance A $\pm 0.5\%$ Span Error	*
ESD,EFT,Surge, Voltage Dips	Performance B	*

Note:

- * Specifications same as preceding model.
- (1). Output range and supply current specifications are based on minimum output load resistance. Minimum output load resistance is calculated by V_{out}^2/P_E , where P_E is the output effective available power that guarantees output range, accuracy, and linearity specifications.
- (2). Accuracy includes the effects of repeatability, hysteresis, and linearity.
- (3). Non-linearity is calculated using the best-fit straight line method.
- (4). V_z is the nominal input voltage that results in a 0V output.

Ordering Information

Model	Input Range	Output Range
SCIM7B40-02	0 to +100mV	1, 2, 3, 4, 5
SCIM7B40-03	0 to +1V	1, 2, 3, 4, 5
SCIM7B40-07	$\pm 100\text{mV}$	1, 2, 3, 4, 5
SCIM7B40-08	$\pm 1\text{V}$	1, 2, 3, 4, 5
SCIM7B41-01	0 to +10V	1, 2, 3, 4, 5
SCIM7B41-02	$\pm 5\text{V}$	1, 2, 3, 4, 5
SCIM7B41-03	$\pm 10\text{V}$	1, 2, 3, 4, 5
SCIM7B41-04	0 to +5V	1, 2, 3, 4, 5
SCIM7B41-05	0 to +20V	1, 2, 3, 4, 5
SCIM7B41-06	0 to +40V	1, 2, 3, 4, 5

Output Ranges Available

Output Range	Part No. Suffix	Example
1. 1 to +5V	NONE	SCIM7B30-01
2. 0 to +5V	A	SCIM7B30-01A
3. 0 to +10V	D	SCIM7B30-01D
4. -5V to +5V	C	SCIM7B30-01C
5. -10V to +10V	B	SCIM7B30-01B