

# SCIM7B32/33

## Isolated Process Current/Voltage Input Modules

### Description

SCIM7B32 current input modules is a single channel analog input which if filtered, isolated, amplified, and converted to standard-level current input. A five pole filter is provided with signal filtering, this module accepts input signals in the 4-20mA or 0-20mA.

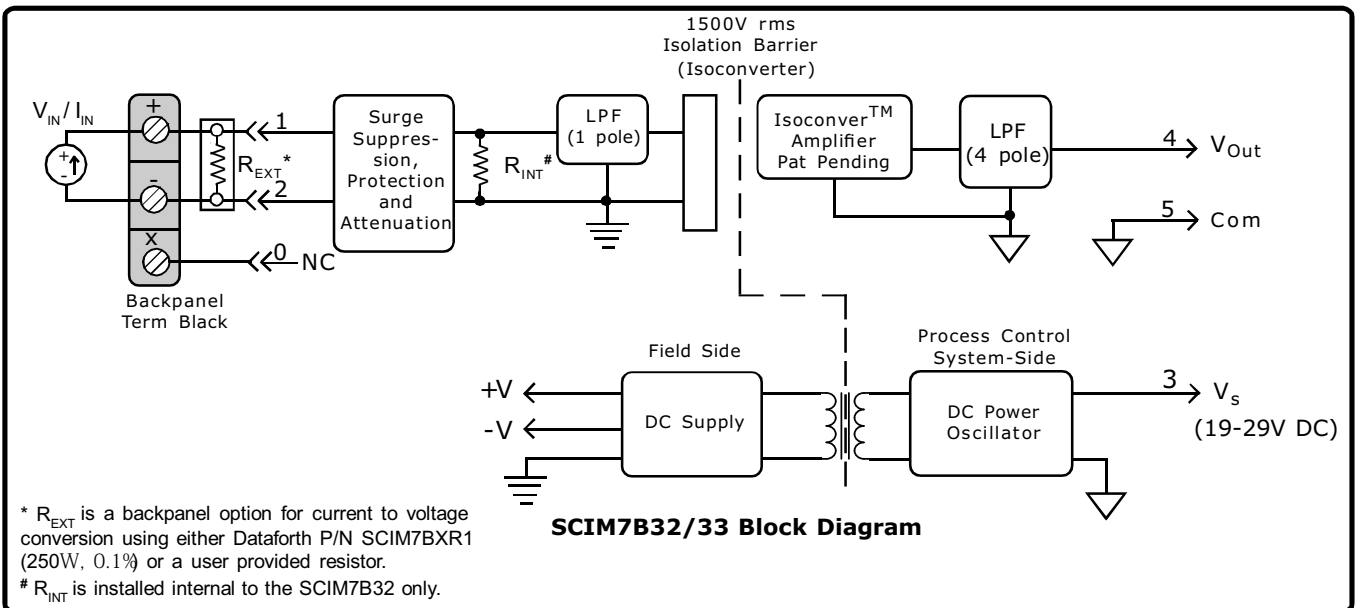
The SCIM7B33 voltage input modules accepts input signals in the +1V to +5V or 0 to +5V ranges from the field and provide a high level output to the process control system. As an alternative, the SCIM7B33 can be used with an external 250Ω resistor to accept input signals in the 4 - 20mA or 0 - 20mA ranges. Using the external sense resistor allows the module to be removed without disrupting the current loop.

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 nay 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.
- 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
- Noise, 500µV Peak (5MHz), 300uV rms (100KHz)
- CMRR, up to 105dB
- 100Hz Signal Bandwidth
- 80dB per Decade of Attenuation above 100Hz
- Easy DIN Rail Mounting
- CSA , FM , CE and ATEX Compliant



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

Module	SCIM7B32	SCIM7B33
<b>Input</b>		
Signal Range	4–20 $\mu\text{A}$ , 0–20 $\mu\text{A}$	+1 to +5V, 0 to +5V
Bias Current	N/A	$\pm 0.1\text{nA}$
Resistance		
Normal	<100 $\Omega$	2M $\Omega$
Power off	<100 $\Omega$	2M $\Omega$
Overload	30K $\Omega$	2M $\Omega$
Protection		
Continuous	120V rms max.	*
Transient	ANSI/IEEE C37.90.1	*
<b>Output</b>		
Signal Range <sup>(1)</sup>	See ordering information	*
Effective available power <sup>(1)</sup>	40 $\mu\text{W}$	*
Resistance	<1 $\Omega$	*
Protection	Continuous short to ground	*
Voltage/Current Limit	$\pm 12\text{V}$ , $\pm 14\text{mA}$	*
CMV (Input to Output)		
Continuous	1500V rms	*
Transient	ANSI/IEEE C37.90.1	*
CMRR (50 or 60Hz)	105dB	*
Accuracy <sup>(2)</sup>	$\pm 0.03\%$ Span typical, $\pm 0.1\%$ Span max	*
Nonlinearity <sup>(3)</sup>	$\pm 0.01\%$ Span typical, $\pm 0.02\%$ Span max	*
Stability (-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$ )		
Gain	$\pm 35\text{ppm}/^{\circ}\text{C}$	*
Input Offset	N/A <sup>(4)</sup>	*
Output Offset	$\pm 0.003\%$ Span/ $^{\circ}\text{C}$	*
<b>Noise</b>		
Peak at 5MHz B/W	500 $\mu\text{V}$	*
RMS at 10Hz to 100KHz B/W	300 $\mu\text{V}$	*
Peak at 0.1Hz to 10Hz B/W	1mV RTI	*
<b>Frequency and Time Response</b>		
Bandwidth, -3dB	100Hz	*
NMR (-3dB at 100Hz)	80dB/Decade above 100Hz	*
Step Response, 90% span	5ms	*
Power supply voltage	14 to 35V DC	*
Power supply Current <sup>(1)</sup>	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	*
<b>Environmental</b>		
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 resistances.

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). Input offset term included in output offset specifications.

**Ordering Information**

Model	Input Range	Output Range
SCIM7B32-01	4 - 20mA	1, 2, 3, 4, 5
SCIM7B32-02	0 - 20mA	1, 2, 3, 4, 5
SCIM7B33-01	+1 to +5V	1, 2, 3, 4, 5
SCIM7B33-02	0 to +5V	1, 2, 3, 4, 5

**Output Ranges Available**

Output Range	Part No. Suffix	Example
1. 1 to +5V	NONE	SCIM7B32-01
2. 0 to +5V	A	SCIM7B32-01A
3. 0 to +10V	D	SCIM7B32-01D
4. -5V to +5V	C	SCIM7B32-01C
5. -10V to +10V	B	SCIM7B32-01B