SCIM5B30/31

Analog Voltage Input Modules, Narrow Bandwidth

Description

SCIM5B30 and SCIM5B31 voltage input module provides a single channel analog input signal which is filtered, isolated and converted to a standard level voltage output (Figure 1). This signal output is controlled by a logic-switch which enables these modules to share a common analog bus. No external multiplexers are required.

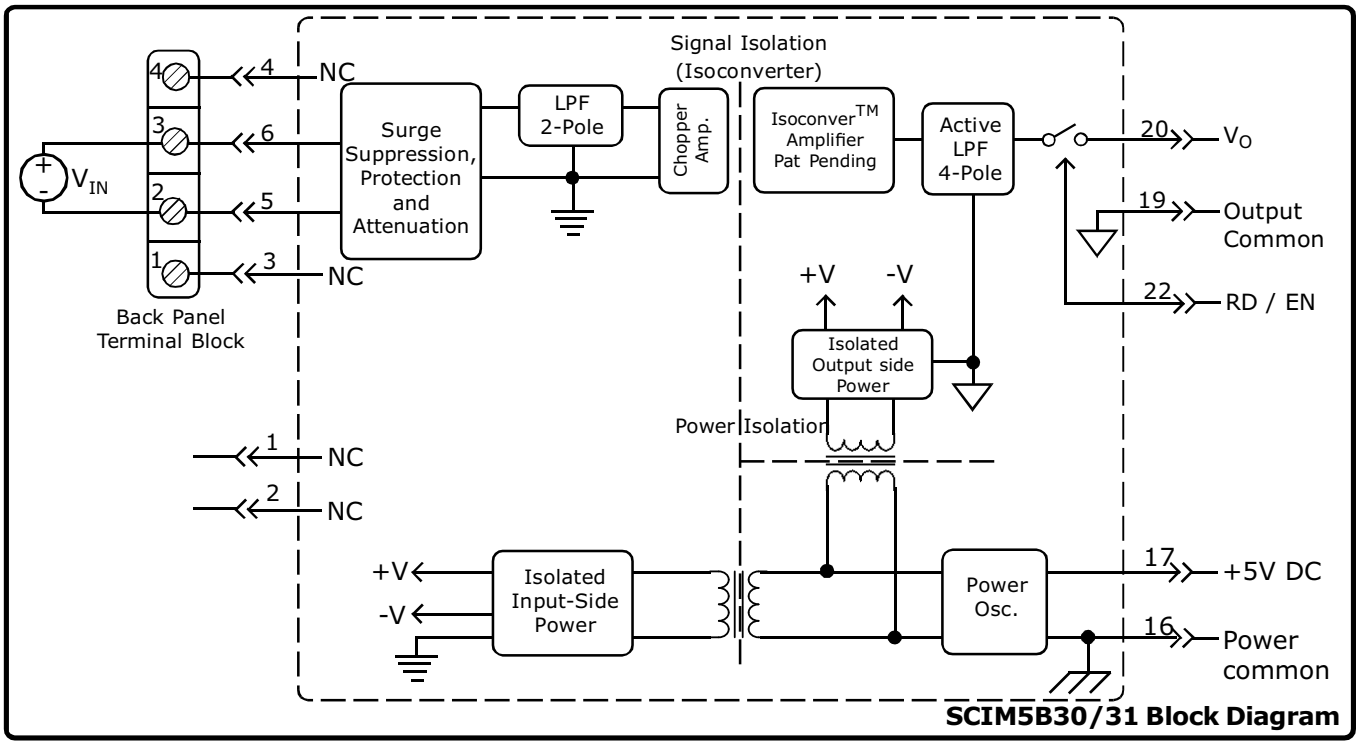
The SCIM5B modules are designed with a completely isolated output side circuitry which can be floated to more than ±50V from Power Common, pin 16. No connection is required between I/O Common and Power Common for proper operation of the output switch. the output switch can be turned on continuously by simply shorting pins 22, 19.

Input Signal filtering is accomplished with a six-pole active filter which provides more than 95dB of normal-mode-rejection at 60Hz and 90dB at 50Hz. Two poles of this filter are on the input side of the isolation barrier, and the other four are on the output side.

After the filtering, the input signal is chopped by a proprietary converter circuit which eliminates common mode spikes and surges The module is powered from +5VDC, ±5%. A special input protection circuitry on the SCIM5B30 and SCIM5B31 modules protect against accidental high-line voltages upto 250VAC

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
- ANSI/IEEE C37.90.1 Transient Protection
- 250V AC Continuous Protected on Input
- 160dB CMR
- 95dB NMR at 60Hz, 90dB at 50Hz
- ±0.03% Accuracy
- ±0.005% Linearity
- ±1uV/°C Drift
- CSA , FM , CE and ATEX Compliant
- Mixes and Matches with all SCIM5B Types on Backpanel



SCIM5B30/31 Block Diagram

Specifications

Typical at T_A=+25°C and +5V power

Module	SCIM5B30	SCIM5B31
Input		
Range	±10mV to ±1V	±1V to ±40V
Bias Current	±0.5nA	±0.05nA
Resistance		
Normal	50MΩ	650KΩ (minimum)
Power Off	40KΩ	650kΩ (minimum)
Overload	40KΩ	650KΩ (minimum)
Protection		
Continous	250V rms max.	*
Transient	ANSI/IEEE C37.90.1	*
Isolation		
CMV, Input to Output		*
Continous	1500Vrms max	*
Transient	ANSI/IEEE C37.90.1	*
CMR (50Hz or 60Hz)	160dB	*
NMR	95dB at 60Hz, 90dB at 50Hz	
Noise		
Input, 0.1 to 10Hz.	0.2µV rms	2µV rms
Output, 100KHz.	200µV rms	*
Bandwidth, -3dB	4Hz.	*
Response Time, 90% Span	200ms	*
Accuracy (1)	±0.03% Span	*
Nonlinearity	±0.005% Span	*
Stability		
Input Offset	±1µV / °C	±20µV / °C
Output Offset	±20µV / °C	*
Gain	±25ppm / °C	±50ppm / °C
Output		
Range	See Ordering Information	*
Resistance	50W	*
Protection	Continuous Short to Ground	*
Selection Time (to ±1mV of Vout)	6uS at C_{load} =0 to 2000pF	*
Current Limit	±8mA	*
Output Enable Control		
Max Logic "0"	+0.8V	*
Min Logic "1"	+2.4V	*
Max Logic "1"	+36V	*
Input Current "0,1"	0.5µA	*
		*
Power supply voltage	+5V DC ±5%	*
Power supply Current	30mA	*
Power supply Sensitivity	±2µV/% RTI(2)	±200µV/% RTI(2)
Mechanical Dimensions (H) (W) (D)	2.28" x 2.26" x 0.60" (58mm x 57mm x 15mm)	*
Environmental		
Operating Temp. Range	-40°C to +85°C	*
ATEX Group II, Cat, 3	-20°C to +40°C	
Storage Temp. Range	-40°C to +85°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 Susceptability	Performance A ±0.5% Span Error	*
ESD,EFT,Surge,VoltageDips	Performance B	*

Notes:

*. Same specification as SCIM5B30

(1). Includes nonlinearity, hysteresis and repeatability

(2). RTI = Referenced to input.

Ordering Information

Model	Input Range	Output Ranges
SCIM5B30-01	-10mV to +10mV	1,2,8
SCIM5B30-02	-50mV to +50mV	1,2,8
SCIM5B30-03	-100mV to +100mV	1,2,8
SCIM5B30-04	-10mV to +10mV	3,4,8
SCIM5B30-05	-50mV to +50mV	3,4,8
SCIM5B30-06	-100mV to +100mV	3,4,8
SCIM5B30-07	-1V to +1V	1,2,8
SCIM5B31-01	-1V to +1V	1,2,8
SCIM5B31-02	-5V to +5V	1,2,8
SCIM5B31-03	-10V to +10V	1,2,8
SCIM5B31-04	-1V to +1V	3,4,8
SCIM5B31-05	-5V to +5V	3,4,8
SCIM5B31-06	-10V to +10V	3,4,8
SCIM5B31-07	-20V to +20V	1,2,8
SCIM5B31-08	-20V to +20V	3,4,8
SCIM5B31-09	-40V to +40V	1,2,8
SCIM5B31-10	-40V to +40V	3,4,8

Output Ranges Available

Output Range	Part No. Suffix	Example
1. -5V to +5V	Z	SCIM5B30-01Z
2. -10V to +10V	X	SCIM5B30-01X
3. 0V to +5V	NONE	SCIM5B30-04
4. 0V to +10V	D	SCIM5B30-04D
8. 1V to +5V	Y	SCIM5B30-04E