SCIM5B43

General Purpose Input Modules, with DC Excitation

Description

SCIM5B43 general purpose input module provides a single channel of transducer input which is filtered, isolated scaled and converted to standard level analog 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.

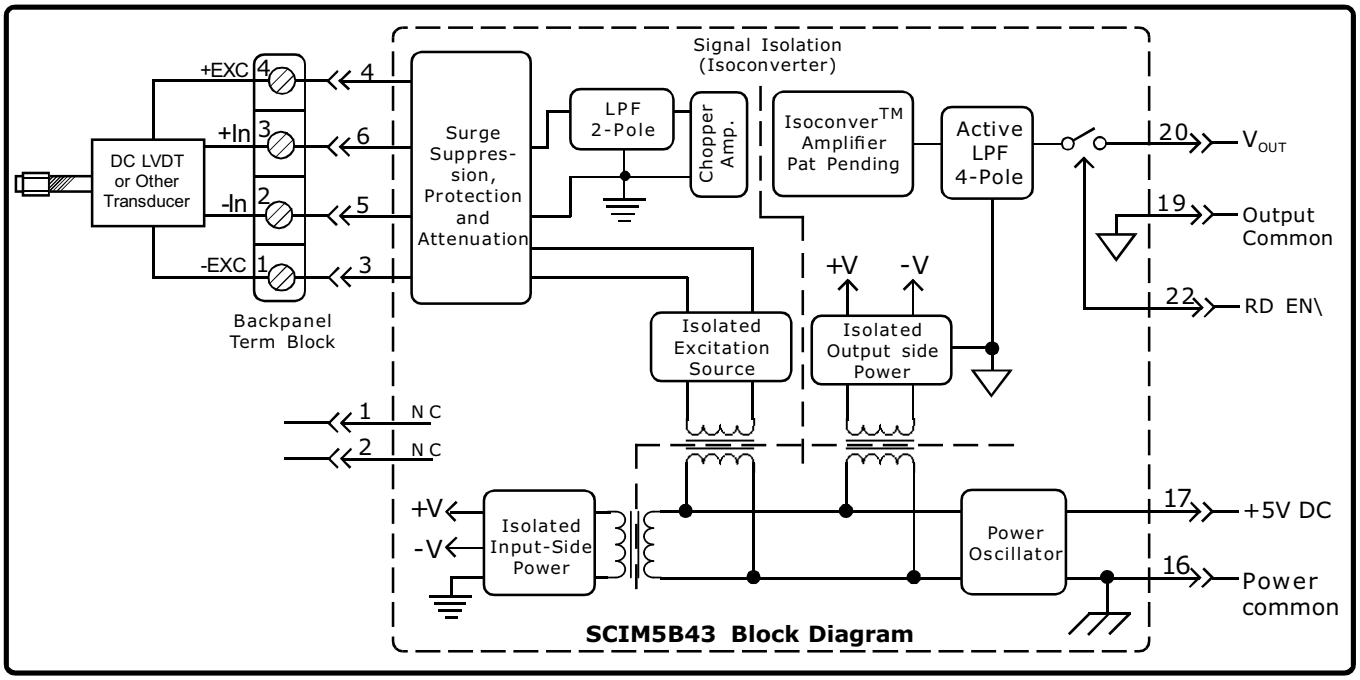
The SCIM5B43 can interface to device which require a precision 10VDC excitation supply. The 1KHz bandwidth significantly reduce ripple and noise inherent in these devices.

Transducer excitation is provided from the module by a very stable 10V source. The excitation supply is fully isolated allowing the amplifier inputs to operate over the fully range of the excitation voltage. This feature offers significant flexibility in real world application. Eight full scale input ranges are provided, from ±1V to ±10V producing full scale output.

The input signal is processed through a pre-amplifier on the input side of the isolation barrier. This pre-amplifier has a gain a bandwidth product of 5MHz and is bandwidth limited to 1KHz after amplification the input signal is chopped by a proprietary converter circuit. Isolation is provided by transformer coupling which eliminates common mode spikes or surges.The module is powered from ±5VDC, ±5%
Special input circuit on the SCIM5B43 module provide protection of the sognal input and the isolated excitaion supply up to 250VAC.

Features

- Interfaces to DC Displacement Transducers and other devices. Requiring a Stable DC Supply.
- Standard Output of either 0 to 10V/±10V, 0 to 5V/± 5V, 1 to 5V
- 1.5KV Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- 250V AC Continuous Protected on Input
- Fully isolated excitation supply.
- 100dB CMR
- 1KHz Signal Bandwidth
- ±0.03% Accuracy
- ±0.005% Linearity
- ±20µV /°C Drift
- CSA, FM, CE and ATEX Compliant
- Mixes and Matches with all SCIM5B Types on Backpanel



Specifications

Typical at T_A=+25°C and +5V Power supply

Module	SCIM5B43
Input	
Range	±1V to ±10V
Bias current	±0.05nA
Resistance	
Normal	2MΩ (Minimum)
Power off	2MΩ (Minimum)
Over load	2MΩ (Minimum)
Protection	
continuous	240V rms max
Transient	ANSI/IEEE C37.90.1 (formerly IEEE-472)
Excitation	
Voltage V_{EXC}	±10.0VDC ±2mV
Current	40mA (maximum)
Load Regulation	±5ppm / mA
Stability	±15ppm / °C
Isolation Protection	
Continuous	250V rms max.
Transient	ANSI/IEEE C37.90.1(formerly IEEE-472)
CMV, Input to Output	
Continuous	1500V rms max
Transient	ANSI/IEEE C37.90.1 (formerly IEEE-472)
CMR (50 or 60Hz)	100dB
NMR (-3dB at 1KHz)	120dB per Decade Above 1KHz
Accuracy (1)	±0.03% Span
Nonlinearity	±0.005% Span
Stability	
Input Offset	±20µV/°C
Output Offset	±40µV/°C
Gain	±50ppm/°C
Noise	
Input, 0.1 to 10Hz	0.4uV rms
Ouput, 100KHz	5mV p-p
Bandwidth, - 3dB	1KHz
Response Time (to 90% final value)	750µs
Output	
Range	See ordering information
Resistance	50Ω
Protection	Continuous Short to Ground
Selection Time (to ±1mV of V_{OUT})	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	200mA at Full Exc. Load, 100mA at No. Exc. Load,
Power supply Sensitivity	±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
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	Performance A ±0.5% Span Error
ESD,EFT,Surge,Voltage Dips	Performance B

Note:
1). Includes excitation error, nonlinearity, hysteresis and repeatability.
2). RTI = Referenced to input.

Ordering Information

Model	Maximum Input	Output Range
SCIM5B43-01	±1V	1,2,3,4,8
SCIM5B43-02	±2V	1,2,3,4,8
SCIM5B43-03	±3V	1,2,3,4,8
SCIM5B43-04	±4V	1,2,3,4,8
SCIM5B43-05	±5V	1,2,3,4,8
SCIM5B43-06	±6V	1,2,3,4,8
SCIM5B43-07	±7V	1,2,3,4,8
SCIM5B43-08	±8V	1,2,3,4,8
SCIM5B43-09	±9V	1,2,3,4,8
SCIM5B43-10	±10V	1,2,3,4,8

Output Ranges Available

Output Range	Part No. Suffix	Example
1. -5V to +5V	Z	SCIM5B43-01Z
2. -10V to +10V	X	SCIM5B43-01X
3. 0V to +5V	NONE	SCIM5B43-01
4. 0V to +10V	D	SCIM5B43-01D
8. 1V to +5V	Y	SCIM5B43-01Y