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Find the *Dataforth SCM5B31-03* at our website: *Click HERE*

SCM5B30/31

Analog Voltage Input Modules, Narrow Bandwidth

Description

Each SCM5B30 and SCM5B31 voltage input module provides a single channel of analog input which is filtered, isolated, amplified, and converted to a high-level analog voltage output (Figure 1). This voltage output is logic-switch controlled, allowing these modules to share a common analog bus without the requirement of external multiplexers.

The SCM5B modules are designed with a completely isolated computer side circuit which can be floated to ±50V from Power Common, pin 16. This complete isolation means that no connection is required between I/O Common and Power Common for proper operation of the output switch. If desired, the output switch can be turned on continuously by simply connecting pin 22, the Read-Enable pin, to I/O Common, pin 19.

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

After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit. Isolation is provided by transformer coupling, again using a proprietary technique to suppress transmission of common mode spikes or surges. The module is powered from +5VDC, ±5%.

A special input circuit on the SCM5B30 and SCM5B31 modules provides protection against accidental connection of power-line voltages up to 240VAC.

▶ Features

- Accepts Millivolt and Voltage Level Signals
- High-Level Voltage Outputs
- 1500Vrms Transformer Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- Input Protected to 240VAC Continuous
- 160dB CMR
- 95dB NMR at 60Hz, 90dB at 50Hz
- ±0.03% Accuracy
- ±0.005% Linearity
- ±1µV/°C Drift
- CSA C/US Certified
- CE and ATEX Compliant
- Mix and Match SCM5B Types on Backpanel

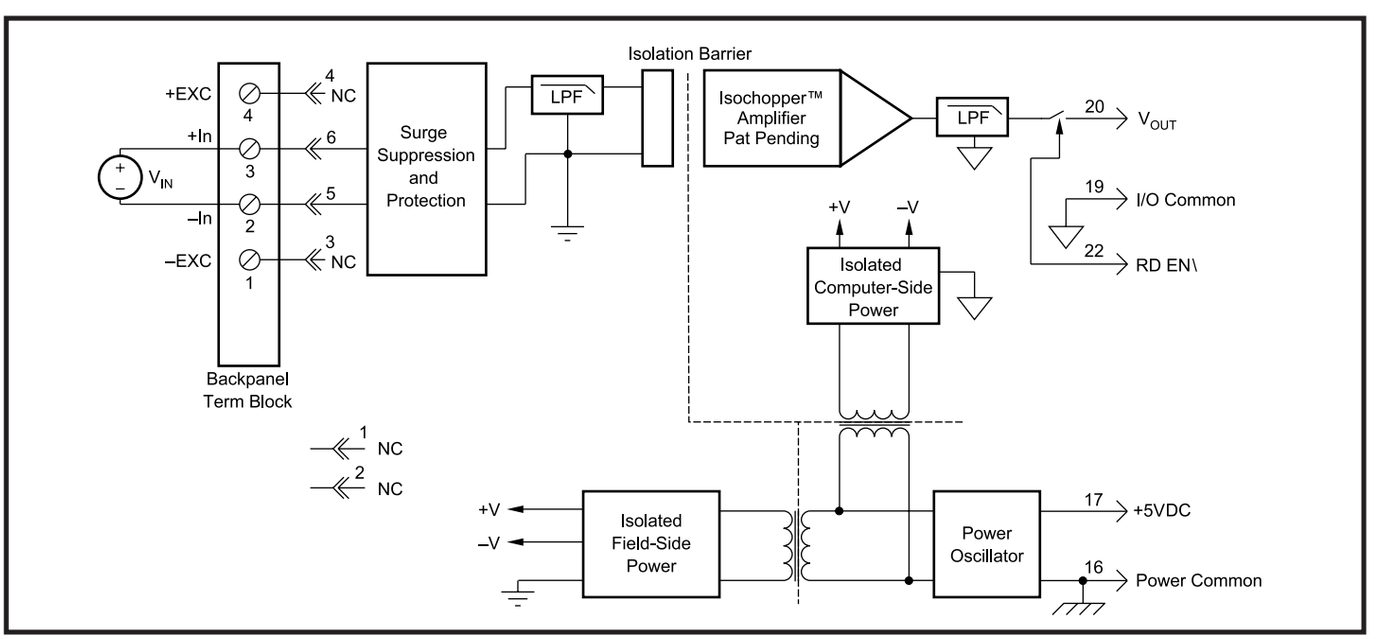


Figure 1: SCM5B30/31 Block Diagram

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Specifications

Typical* at T_A=+25°C and +5VDC power

Module	SCM5B30	SCM5B31
Input Range	±10mV to ±1V	±1V to ±40V
Input Bias Current	±0.5nA	±0.05nA
Input Resistance		
Normal	50MΩ	650kΩ (-01 thru -06) 2MΩ (-07 thru -10)
Power Off	40kΩ	650kΩ (-01 thru -06) 2MΩ (-07 thru -10)
Overload	40kΩ	650kΩ (-01 thru -06) 2MΩ (-07 thru -10)
Input Protection		
Continuous	240Vrms max	*
Transient	ANSI/IEEE C37.90.1	*
CMV, Input to Output		
Continuous	1500Vrms max	*
Transient	ANSI/IEEE C37.90.1	*
CMR (50Hz or 60Hz)	160dB	*
NMR	95dB at 60Hz, 90dB at 50Hz	*
Accuracy(1)	±0.03% Span	*
Linearity	±0.005% Span	*
Stability		
Input Offset	±1µV/°C	±20µV/°C
Output Offset	±20µV/°C	*
Gain	±25ppm/°C	±50ppm/°C
Noise		
Input, 0.1 to 10Hz	0.2µVrms	2µVrms
Output, 100kHz	200µVrms	*
Bandwidth, –3dB	4Hz	*
Response Time, 90% Span	0.2s	*
Output Range	See Ordering Information	*
Output Resistance	50Ω	*
Output Protection	Continuous Short to Ground	*
Output Selection Time (to ±1mV of V_{OUT})	6µs at C_{load} = 0 to 2000pF	*
Output 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	+5VDC ±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	*
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	Performance B	*

NOTES:
* Contact factory or your local Dataforth sales office for maximum values.
* Same specification as SCM5B30.
(1) Includes linearity, hysteresis and repeatability.
(2) RTI = Referenced to input.
(3) Same as SCM5B31-01 with 50MΩ input resistance.

Ordering Information

Model	Input Range	Output Range†
SCM5B30-01	–10mV to +10mV	1, 2
SCM5B30-02	–50mV to +50mV	1, 2
SCM5B30-03	–100mV to +100mV	1, 2
SCM5B30-04	–10mV to +10mV	3, 4
SCM5B30-05	–50mV to +50mV	3, 4
SCM5B30-06	–100mV to +100mV	3, 4
SCM5B30-07(3)	–1V to +1V	1, 2
SCM5B31-01	–1V to +1V	1, 2
SCM5B31-02	–5V to +5V	1, 2
SCM5B31-03	–10V to +10V	1, 2
SCM5B31-04	–1V to +1V	3, 4
SCM5B31-05	–5V to +5V	3, 4
SCM5B31-06	–10V to +10V	3, 4
SCM5B31-07	–20V to +20V	1, 2
SCM5B31-08	–20V to +20V	3, 4
SCM5B31-09	–40V to +40V	1, 2
SCM5B31-10	–40V to +40V	3, 4

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –5V to +5V	NONE	SCM5B30-01
2. –10V to +10V	D	SCM5B30-01D
3. 0V to +5V	NONE	SCM5B30-04
4. 0V to +10V	D	SCM5B30-04D

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