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Find the *Dataforth SCM5B41-09D* at our website: *Click HERE*

SCM5B40/41

Analog Voltage Input Modules, Wide Bandwidth

Description

Each SCM5B40 and SCM5B41 wide bandwidth voltage input module provides a single channel of analog input which is amplified, isolated, 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.

The input signal is processed through a wide bandwidth pre-amplifier on the field side of the isolation barrier. After amplification, 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 SCM5B40 and SCM5B41 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
- 100dB CMR
- 10kHz Signal Bandwidth
- ±0.03% Accuracy
- ±0.01% Linearity
- ±1µV/°C Drift
- CSA C/US Certified
- CE and ATEX Compliant
- Mix and Match SCM5B Types on Backpanel

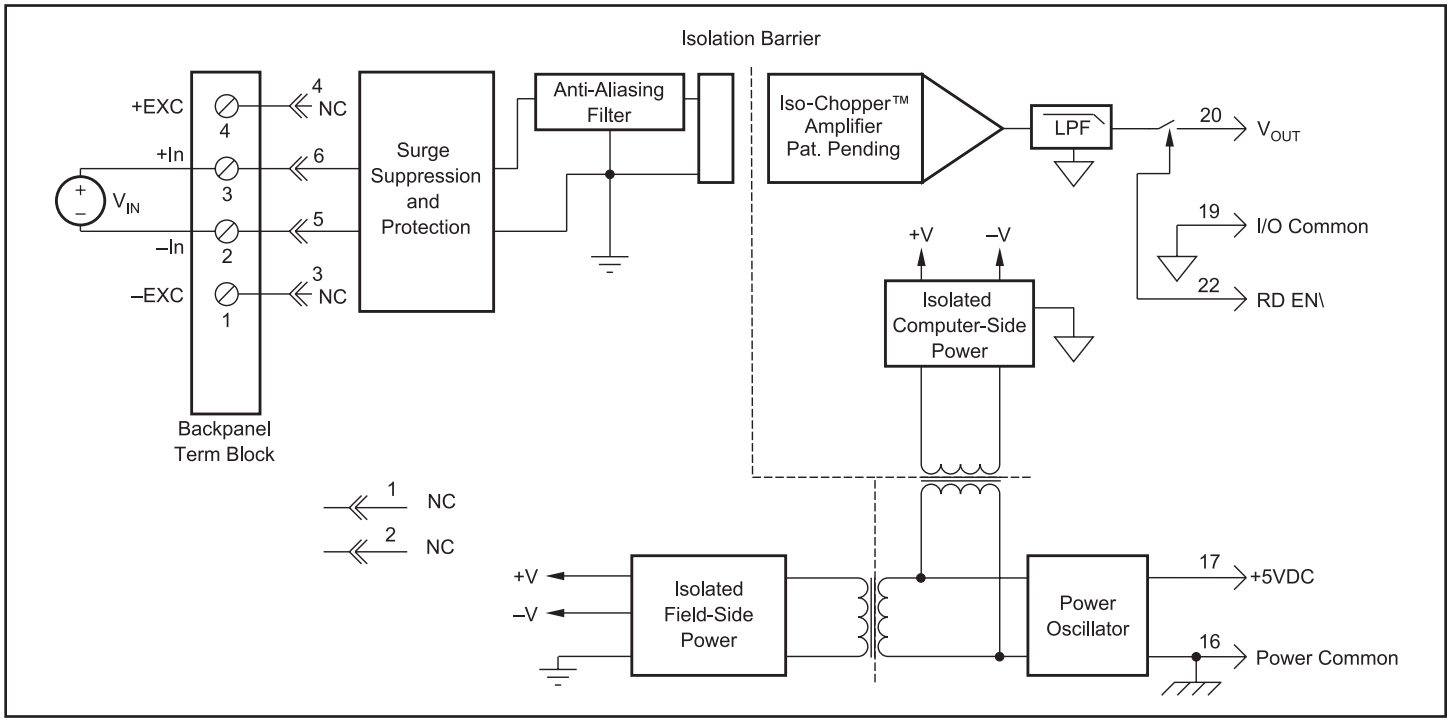


Figure 1: SCM5B40/41 Block Diagram

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Specifications

Typical* at T_A = +25°C and +5VDC power

Module	SCM5B40	SCM5B41
Input Range	±10mV to ±1V	±1V to ±40V
Input Bias Current	±0.5nA	±0.05nA
Input Resistance		
Normal	200MΩ	650kΩ(-01 thru -04) 2MΩ(-05 thru -10)
Power Off	40kΩ	650kΩ(-01 thru -04) 2MΩ(-05 thru -10)
Overload	40kΩ	650kΩ(-01 thru -04) 2MΩ(-05 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)	100dB	*
NMR (–3dB at 10kHz)	120dB per Decade above 10kHz	
Accuracy(1)	±0.03% Span	*
Linearity	±0.01% Span	*
Stability		
Input Offset	±1µV/°C	±20µV/°C
Output Offset	±40µV/°C	*
Gain	±25ppm/°C	±50ppm/°C
Noise		
Input, 0.1 to 10Hz	0.4µVrms	2µVrms
Output, 100kHz	10mVp-p	*
Bandwidth, –3dB	10kHz	*
Rise Time, 10 to 90% Span	35µs	*
Settling Time, to 0.1%	250µs	*
Output Range	See Ordering Information	*
Output Resistance	50Ω	*
Output Protection	Continuous Short to Ground	*
Output Selection Time	6µs at C_{load} = 0 to 2000pF	
(to ±1mV of V_{OUT})		*
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 SCM5B40.
(1) Includes linearity, hysteresis and repeatability.
(2) RTI = Referenced to input.
(3) Same as SCM5B41-01 with 200MΩ input resistance.

Ordering Information

Model	Input Range	Output Range†
SCM5B40-01	–10mV to +10mV	1, 2
SCM5B40-02	–50mV to +50mV	1, 2
SCM5B40-03	–100mV to +100mV	1, 2
SCM5B40-04	–10mV to +10mV	3, 4
SCM5B40-05	–50mV to +50mV	3, 4
SCM5B40-06	–100mV to +100mV	3, 4
SCM5B40-07(3)	–1V to +1V	1, 2
SCM5B41-01	–1V to +1V	1, 2
SCM5B41-02	–5V to +5V	1, 2
SCM5B41-03	–10V to +10V	1, 2
SCM5B41-04	–1V to +1V	3, 4
SCM5B41-05	–5V to +5V	3, 4
SCM5B41-06	–10V to +10V	3, 4
SCM5B41-07	–20V to +20V	1, 2
SCM5B41-08	–20V to +20V	3, 4
SCM5B41-09	–40V to +40V	1, 2
SCM5B41-10	–40V to +40V	3, 4

†Output Ranges Available

Output Range	Part No. Suffix	Example
1. –5V to +5V	NONE	SCM5B40-01
2. –10V to +10V	D	SCM5B40-01D
3. 0V to +5V	NONE	SCM5B40-04
4. 0V to +10V	D	SCM5B40-04D

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