

SCIM5B392

Matched-Pair Servo/Motor Controller Modules

Description

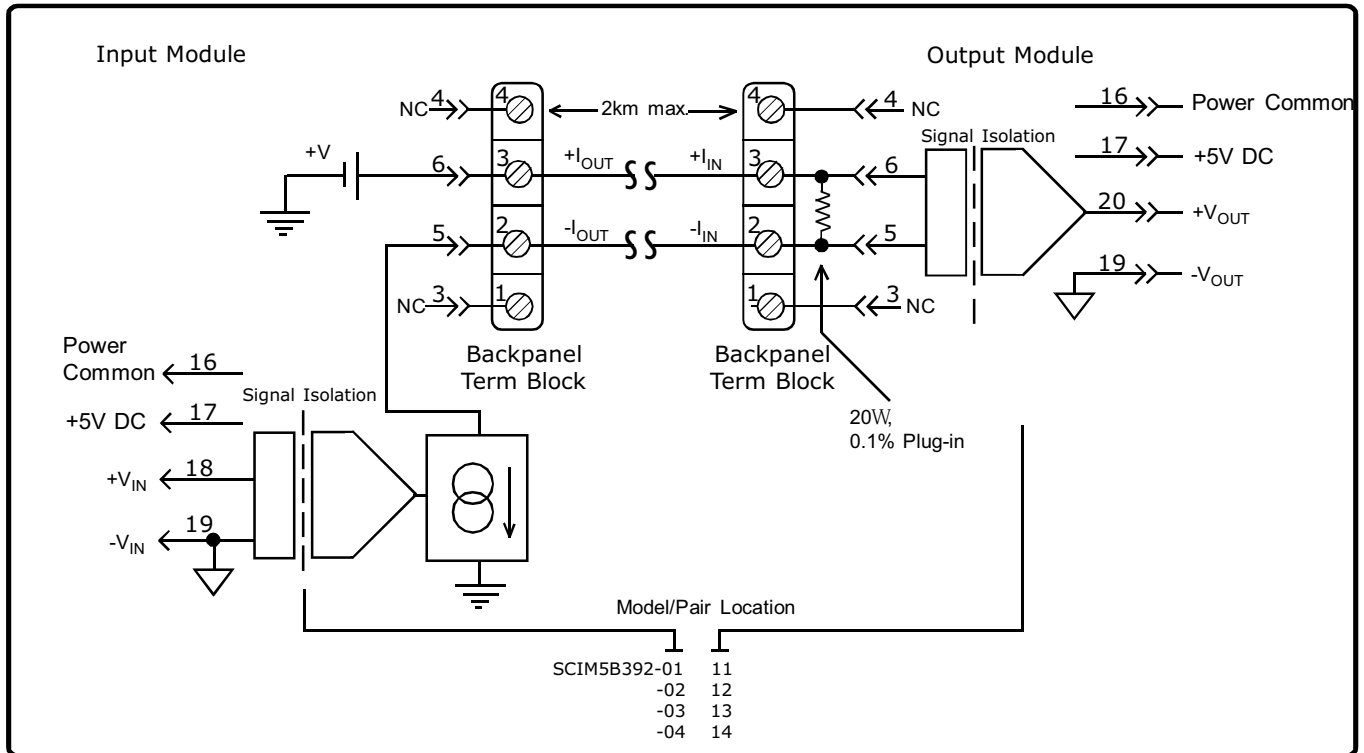
SCIM5B392 is a Servo/motor controller designed for extending a servo or motor controller signal to a long distance with the intent of noise pickup and/or contacting hazardous voltages. This module is combination of two modules: namely voltage input/current output module and a current input/voltage output module (Figure 1).

The voltage input module is connected to the servo or motor controller voltage output which provides 4 to 20mA output which is connected to the input of the current input module. The module provides an output voltage identical to that of the servo or motor controller. The original controller signal is being isolated (twice) and extended through 4 to 20mA current loop.

Several mounting options are available for the SCIM5B392 module set. If a large number of channels are required, the SCIMPB01 16 channel backpanel and SCIMPB05 8 channel backpanel are available. Smaller number of channel can be accommodated with the SCIMPB03 single channel mounting panel and SCIMPB04 dual channel mounting panel. These can be mounted on a DIN rail.

Features

- Extends the Distance (upto 2KM) and isolates Servo/Motor Controller Signals
- Provides Isolated Current Loop Interface Between Controller and Motor or Actuator
- Accepts High Level Voltage Inputs up to $\pm 10V$
- Provides High Level Voltage Outputs up to $\pm 10V$
- 1.5KV Isolation (3KV Total Loop)
- ANSI/IEEE C37.90.1 Transient Protection
- Current Loop is Protected to 250V AC continuous
- 1KHz Signal Bandwidth
- 100dB CMR
- $\pm 0.06\%$ Total Loop Accuracy
- $\pm 0.01\%$ Total Loop Linearity
- CSA , FM , CE and ATEX Compliant



SCIM5B392 Block Diagram

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

Module	SCIM5B392-01,-02,-03,-04, (Input)	SCIM5B392-11,-12,-13,-14, (Output)
Input		
Range	See Ordering Information	4mA to 20mA
Resistance	50M Ω (-01,-02) 2M Ω (-03,-04)	20 Ω
Accuracy	N/A	$\pm 0.1\%$
Stability	N/A	$\pm 10\text{ppm}/^{\circ}\text{C}$
Protection		
Continuous	$\pm 36\text{V}$ (no damage)	240V rms max
Transient	N/A	ANSI/IEEE C37.90.1
Output		
Range	4mA to 20mA	See Ordering Information
Range Capability	10%	N/A
Output Compliance Voltage (Open Circuit)	22V DC	N/A
Loop Resistance Range	0 to 600 Ω (0 to 700 Ω for Power Supply voltage greater than 4.95V DC)	N/A
Resistance	N/A	50 Ω
Selection Time (to $\pm 1\text{mV}$ of V_{OUT})	N/A	6 μs at $C_{\text{LOAD}} = 0$ to 2000pf
Current Limit	26mA	+8mA
Protection		
Continuous	240V rms max	Short to Ground
Transient	ANSI/IEEE C37.90.1	N/A
CMV		
Continuous	1500V rms max	*
Transient	ANSI/IEEE C37.90.1	*
CMR (50 or 60Hz)	100dB	*
NMR (-3dB AT 1KHz)	80dB per Decade above 1KHz	120dB per Decade above 1KHz
Accuracy	$\pm 0.03\%$ Span	*
Nonlinearity	$\pm 0.005\%$ Span	*
Stability		
Zero	$\pm 0.5\mu\text{A}/^{\circ}\text{C}$	$\pm 50\mu\text{V}/^{\circ}\text{C}$
Span	$\pm 20\text{ppm}/^{\circ}\text{C}$	$\pm 25\text{ppm}/^{\circ}\text{C}$
Noise		
Output, 100KHz	10 μA p-p	200 μV rms
Bandwidth, - 3dB	1KHz	1KHz
Rise Time, 10 to 90% Span	340 μs	750 μs
Sample and Hold		
Output Droop Rate	40 $\mu\text{A}/\text{s}$	N/A
Acquisition	50 μs	N/A
Enable Control		
Max Logic "0"	+0.8V	*
Min Logic "1"	+2.4V	*
Max Logic "1"	+36V	*
Input Current "0"	0.5 μA	*
Power supply voltage	+5V DC $\pm 5\%$	*
Power supply Current	170mA	30mA
Power supply Sensitivity	$\pm 0.5\mu\text{A}/\%$ typ	$\pm 20\mu\text{V}/\%$ RTI
Mechanical Dimensions (H) (W) (D)	2.28" x 2.26" x 0.60" (58mm x 57mm x 15mm)	*
Environmental		
Operating Temp. Range	-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$	*
ATEX Group II, Cat, 3	-20 $^{\circ}\text{C}$ to +40 $^{\circ}\text{C}$	*
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 Dip	Performance B	*

Ordering Information (for module pairs)

Model	Input Range	Interface	Output Range
SCIM5B392-0111	0V to +5V	4mA to 20mA	0V to +5V
SCIM5B392-0212	-5V to +5V	4mA to 20mA	-5V to +5V
SCIM5B392-0313	0V to +10V	4mA to 20mA	0V to +10V
SCIM5B392-0414	-10V to +10V	4mA to 20mA	-10V to +10V

Ordering Information (for single modules)

Model	Input Range	Output Range	Bandwidth
SCIM5B392-01	0V to +5V	4mA to 20mA	1KHz
SCIM5B392-02	$\pm 5\text{V}$	4mA to 20mA	1KHz
SCIM5B392-03	0V to +10V	4mA to 20mA	1KHz
SCIM5B392-04	$\pm 10\text{V}$	4mA to 20mA	1KHz
SCIM5B392-11	4mA to 20mA	0V to +5V	1KHz
SCIM5B392-12	4mA to 20mA	$\pm 5\text{V}$	1KHz
SCIM5B392-13	4mA to 20mA	0V to +10V	1KHz
SCIM5B392-14	4mA to 20mA	$\pm 10\text{V}$	1KHz