



# SCM7B35

## Isolated 2-Wire Transmitter Interface Modules With Loop Power

### FEATURES

- ACCEPTS MILLIVOLT AND VOLTAGE LEVEL SIGNALS
- 2-WIRE TRANSMITTER INTERFACE
- ACCEPTS 4-20MA SIGNALS
- PROVIDES AN ISOLATED +24VDC SUPPLY TO POWER THE LOOP
- PROVIDES HIGH LEVEL VOLTAGE OUTPUTS
- 1500VRMS TRANSFORMER ISOLATION
- ACCURACY,  $\pm 0.03\%$  OF SPAN TYPICAL,  $\pm 0.1\%$  MAX
- ANSI/IEEE C37.90.1-1989 TRANSIENT PROTECTION
- 120VRMS INPUT PROTECTION
- CMRR, 105DB
- 80DB PER DECADE OF ATTENUATION ABOVE 100HZ
- EASY DIN RAIL MOUNTING
- CSA CERTIFIED, FM APPROVAL PENDING
- CE COMPLIANT

### DESCRIPTION

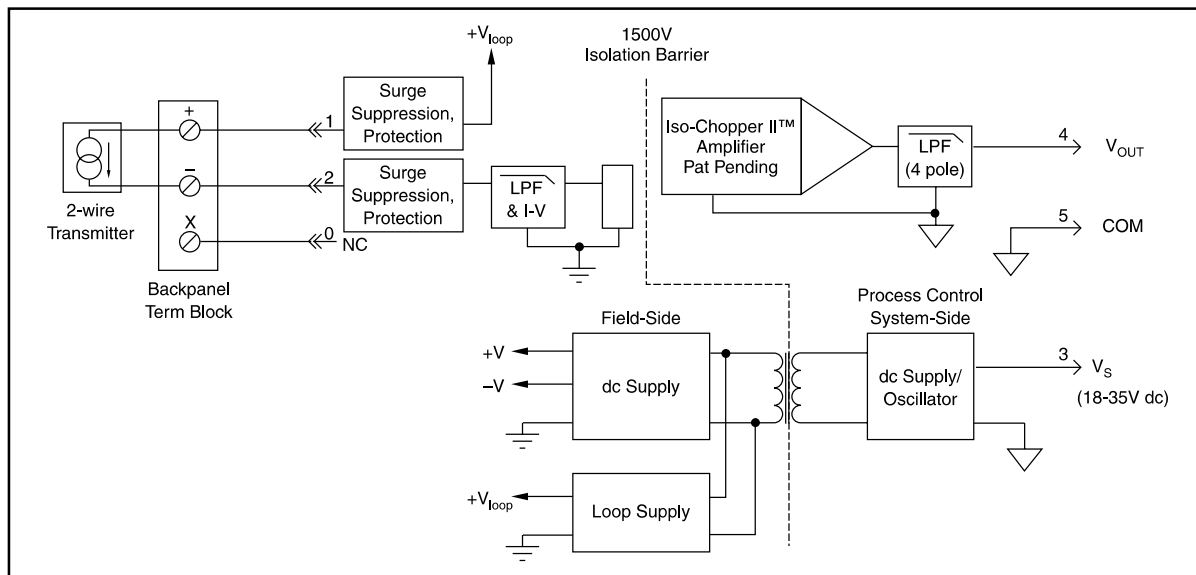
SCM7B35 current input modules accept input signals in the 4-20mA range from the field and provide a high level voltage output to the process control system (Figure 1). Current to voltage conversion occurs internal to the module, which is factory calibrated to ensure the highest accuracy.

Loop power is provided by the module, enabling a 2-wire transmitter to be directly connected without the need for a separate dc power supply for the 2-wire transmitter.

These modules incorporate a five-pole filtering approach to maximize both time and frequency response by taking advantage of both Thomson (Bessel) and Butterworth characteristics. One pole of the filter is on the field side of the isolation barrier; four are on the process control system side.

After the initial field-side filtering, the input signal is chopped by a proprietary chopper circuit and transferred across the transformer isolation barrier, suppressing transmission of common mode spikes and surges. The signal is then reconstructed and filtered for process control system output.

Modules accept a wide 18 - 35VDC power supply range (+24VDC nominal). Their compact packages (2.13"x1.705"x0.605" max) save space and are ideal for high channel density applications. They are designed for easy DIN rail mounting using any of the "-DIN" backpanels.



## SPECIFICATIONS Typical at 25°C and +24VDC

Module	SCM7B35
Input Signal Range Protection Continuous Transient Loop Voltage	4-20mA  120Vrms max ANSI/IEEE C37.90.1-1989 +24Vdc <sup>5</sup>
Output Signal Range <sup>1</sup> Effective Available Power <sup>1</sup> Resistance Protection Voltage/Current Limit	(see ordering information) 40mW < 1Ω Continuous Short-to-Ground ±16V, ±14mA
CMV (Input-to-Output) Continuous Transient CMRR (50 or 60Hz)	1500Vrms ANSI/IEEE C37.90.1-1989 105dB
Accuracy <sup>2</sup> Nonlinearity <sup>3</sup> Stability (-40C to +85°C) Gain Input Offset Output Offset Noise Peak @ 5MHz B/W RMS @ 10Hz to 100kHz B/W Peak @ 0.1Hz to 10Hz B/W	±0.03% Span typical, ±0.1% Span max ±0.01% Span typical, ±0.02% Span max  ±40ppm/°C N/A <sup>4</sup> ±0.003% Span/°C  5mV 500μV 3μV
Frequency and Time Response Bandwidth, -3dB NMR (-3dB at 100Hz) Step Response, 90% Span	100Hz 80dB per decade above 100Hz 5ms
Supply Voltage Current <sup>1</sup> Sensitivity	18 to 35VDC 56mA ±0.0002%/V <sub>s</sub>
Mechanical Dimensions (H)(W)(D)	2.13" x 1.705" x 0.605" max 54.1mm x 43.3mm x 15.4mm max
Environmental Operating Temperature Range Storage Temperature Range Relative Humidity Emissions Immunity	-40°C to +85°C -40°C to +85°C 0 to 90% noncondensing EN50081-1, ISM Group 1, Class A (Radiated, Conducted) EN50082-1, ISM Group 1, Class A (ESD, RF, EFT)

### NOTES

<sup>1</sup> Output Range and Supply Current specifications are based on minimum output load resistance. Minimum output load resistance is calculated by  $V_{OUT}^2/P_E$ , where  $P_E$  is the Output Effective Available Power that guarantees output range, accuracy, and linearity specifications.

<sup>2</sup> Accuracy includes the effects of repeatability, hysteresis, and linearity.

<sup>3</sup> Nonlinearity is calculated using the best-fit straight line method.

<sup>4</sup> Input offset term included in output offset specification.

<sup>5</sup> +24V will be supplied to the loop for an open loop condition. Approximately +22V to +16V will be supplied for a corresponding 4mA to 20mA input. Loop voltage is independent of supply voltage.

## ORDERING INFORMATION

MODEL	INPUT RANGE	OUTPUT RANGE
SCM7B35-01	4 to 20mA	+1 to +5V
SCM7B35-01A	4 to 20mA	0 to +5V
SCM7B35-01D	4 to 20mA	0 to +10V
SCM7B35-02	4 to 20mA	+2 to +10V

Call 800-444-7644  
For Information and Assistance

