

# SCM7B39



## **Isolated Process Current Output Modules**

#### **Description**

SCM7B39 process current modules accept high-level signals from the process control system and provide either 0 to 20mA or 4 to 20mA current to the field (Figure 1).

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 process control system side of the isolation barrier, and the other four poles are on the field side.

After the initial process control system side filtering, the 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, filtered, and converted to a process current for output to the field.

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.

#### **Features**

- · Accepts High-Level Voltage Input
- Provides 4-20mA or 0-20mA Current Output
- 1500Vrms Transformer Isolation
- Accuracy, ±0.03% of Span Typical, ±0.1% Max
- ANSI/IEEE C37.90.1 Transient Protection
- Output Protected to 120Vrms Continuous
- Noise, 46μAp-p (5MHz), 4μArms (100kHz)
- 110dB CMRR
- · Easy DIN Rail Mounting
- · CSA C/US Certified
- · CE and ATEX Compliant

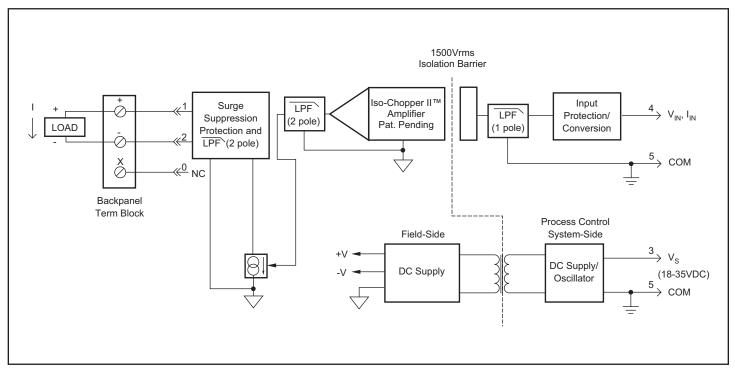


Figure 1: SCM7B39 Blok Diagram



#### **Specifications** Typical\* at 25°C and +24VDC

Module	SCM7B39-01,-02,-03	SCM7B39-04
Output Signal Range <sup>(1)</sup> Effective Available Power <sup>(1)</sup> Protection Continuous	4-20mA, 0-20mA 320mW 120Vrms max	4-20mA *
Transient Current Limit	ANSI/IEEE C37.90.1 32mA	*
Input Signal Range Bias Current Resistance Normal Power Off Overload Protection Compliance	1 to +5V, 0 to +10V $\pm 1$ nA 10MΩ 30kΩ min 30kΩ min $\pm 35$ Vpeak (no damage) N/A	4-20mA N/A 270Ω >20kΩ N/A ±7.5Vpeak 35VDC max
CMV (Input-to-Output) Continuous Transient CMRR (50 or 60Hz)	1500Vrms ANSI/IEEE C37.90.1 110dB	* * *
Accuracy <sup>(2)</sup> Linearity <sup>(3)</sup>	±0.03% Span typical, ±0.1% Span max ±0.01% Span typical, ±0.02% Span max	*
Stability (-40°C to +85°C) Gain Output Offset Noise Peak at 5MHz B/W RMS at 10Hz to 100kHz B/W Peak at 0.1Hz to 10Hz B/W	±25ppm/°C ±0.0035% Span/°C 46μΑ 4μΑ 42nA	±50ppm/°C ±0.0045% Span/°C * * *
Open Output Loop Detection Response Detection Time	N/A N/A	Input Resistance > 20kΩ 5ms
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 ±0.0003% <b>%</b> <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 EN61000-6-4 Radiated, Conducted Immunity EN61000-6-2 RF ESD, EFT	-40°C to +85°C -40°C to +85°C 0 to 95% Noncondensing ISM, Group 1 Class A ISM, Group 1 Performance A ±0.5% Span Error Performance B	*

### **Ordering Information**

Model	Input Range	Output Range
SCM7B39-01 SCM7B39-02 SCM7B39-03 SCM7B39-04	+1 to +5V 0 to +10V 0 to +10V 4 to 20mA	4 to 20mA 0 to 20mA 4 to 20mA 4 to 20mA
00W17 D03-04	+ 10 Z0111A	+ 10 Z0111A

<sup>\*</sup>Contact factory or your local Dataforth sales office for maximum values.

 $<sup>^{\</sup>star}$  Same specification as SCM7B39-01, -02, -03.

<sup>(1)</sup> Output Range and Supply Current specifications are based on maximum output load resistance. Maximum output load resistance is calculated by  $P_E/I_{\text{out}^2}$  where  $P_E$  is the Output Effective Available Power that guarantees output range, accuracy, and linearity specifications. Output effective available power is independent of supply voltage. (2) Accuracy includes the effects of repeatability, hysteresis, and linearity.

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