

Current Output Signal Conditioners

DSCA39







Description

Each DSCA39 current output module provides a single channel of analog output. The input signal is buffered, isolated, filtered and converted to a unipolar or bipolar current output (Figure 1). Signal filtering is accomplished with a fivepole filter which provides 100dB per decade of attenuation above 1kHz. An anti-aliasing pole is located on the system side of the isolation barrier, and the other four poles are on the field side. After the initial system-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.

Special output circuits provide protection against accidental connection of power-line voltages up to 240VAC and against transient events as defined by ANSI/IEEE C37.90.1. Protection circuits are also present on the signal input and power input terminals to guard against transient events and power reversal. Signal and power lines are secured to the module using screw terminals which are in pluggable terminal blocks for ease of system assembly and reconfiguration.

The modules have excellent stability over time and do not require recalibration, however, zero and span settings are adjustable up to $\pm 5\%$ to accommodate situations where fine-tuning is desired. The adjustments are made using potentiometers located under the front panel label and are non-interactive for ease of use.

Features

- · Accepts High-Level Voltage Input
- Provides 4 to 20mA, 0 to 20mA, or –20 to +20mA Output
- ANSI/IEEE C37.90.1 Transient Protection
- 1500Vrms Transformer Isolation
- ±0.03% Accuracy
- ±0.01% Linearity
- Output Protected to 240VAC Continuous
- True 3-Way Isolation
- Wide Range of Supply Voltage
- 100dB CMR
- · Easily Mounts on Standard DIN Rail
- C-UL-US Listed
- CE and ATEX Compliant

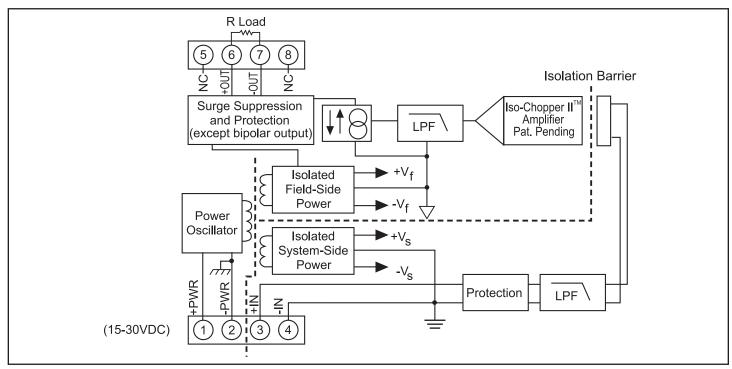


Figure 1: DSCA39 Blok Diagram

Specifications Typical** at $T_A = +25$ °C and +24VDC supply voltage

Module	DSCA39-01, -02, -03, -04	DSCA39-05	DSCA39-07
Output Range Over Range Capability Output Compliance Voltage	4 to 20mA or 0 to 20mA 10%	0 to 20mA	–20mA to +20mA 5%
(Open Circuit) Load Resistance Range Output Protection	22VDC 0 to 750Ω	*	±15VDC 0 to 500Ω
Continuous Transient	240Vrms max ANSI/IEEE C37.90.1	*	*
Input Range Input Resistance	±10V or 0V to +10V	0 to 20mA	±10V
Normal Power Off Overload Input Protection	2ΜΩ 2ΜΩ 2ΜΩ	<100Ω <100Ω 65kΩ	* * *
Continuous Transient	±35V max ANSI/IEEE C37.90.1	75mA *	*
CMV, Output to Input, Output to Power Continuous Transient	1500Vrms max ANSI/IEEE C37.90.1	*	*
CMV, Input to Power Continuous CMR (50Hz or 60Hz)	50VDC max 110dB	*	*
Accuracy ⁽¹⁾ Linearity	±0.03% Span ±0.01% Span	* *	±0.05%
Adjustability Stability Offset	±5% Zero and Span ±20ppm/°C	*	*
Gain Output Noise, 100kHz Bandwidth	±40ppm/°C 4µArms	±50ppm/°C	*
Bandwidth, –3dB NMR Response Time, 90% Span	1kHz 100dB per Decade above 1kHz 475µs	* *	* *
Power Supply Voltage Current	15 to 30VDC 65mA	*	19 to 29VDC
Sensitivity Protection	±0.0003% %	*	*
Reverse Polarity Transient	Continuous ANSI/IEEE C37.90.1	*	*
Mechanical Dimensions (h)(w)(d)	2.95" x 0.89" x 4.13" (75mm x 22.5mm x 105mm)	*	*
Mounting	DIN EN 50022 -35x7.5 or -35x15 rail	*	*
Environmental Operating Temperature Range Storage Temperature Range	-40°C to +80°C -40°C to +80°C	*	*
Relative Humidity Emissions EN61000-6-4	0 to 95% Noncondensing ISM, Group 1	* *	* *
Radiated, Conducted Immunity EN61000-6-2 RF	Class A ISM, Group 1 Performance A ±0.5% Span Error	*	*
ESD, EFT NOTES:	Performance B	*	*

NOTES:

Installation Notes:

Ordering Information

Model	Input Range	Output Range
DSCA39-01	0V to +10V	4mA to 20mA
DSCA39-02	-10V to +10V	4mA to 20mA
DSCA39-03	0V to +10V	0mA to 20mA
DSCA39-04	-10V to +10V	0mA to 20mA
DSCA39-05	0mA to 20mA	0mA to 20mA
DSCA39-07	-10V to +10V	-20mA to +20mA

^{*}Contact factory or your local Dataforth sales office for maximum values.

^{*} Same specification as DSCA39-01, -02, -03, -04

⁽¹⁾ Includes linearity, hysteresis and repeatability.

^{1.)} This Equipment is Suitable for Use in Class I, Division 2, Groups A, B, C, D, or Non-Hazardous Locations Only.
2.) WARNING - Explosion Hazard - Substitution of Components May Impair Suitability for Class I, Division 2.
3.) WARNING - Explosion Hazard - Do Not Disconnect Equipment Unless Power Has Been Switched Off or The Area is Known to be Non-Hazardous.

^{4.)} The Power to These Devices Shall Be Limited By an Over-Current Protection Device, UL Certified Fuse (JDYX/JDYX2) Rated 6A Max.