

DSCIA43

General Purpose Input Signal Conditioners, with DC Excitation

Description

DSCIA43 general purpose input module is single channel transducer input, which is filtered, isolated, amplified & converted to standard level output. A Five-pole filter is provided with signal filtering which provides up to 85dB NMR at 60Hz and 80dB at 50Hz. The input signal is chopped by a proprietary converter circuit. After initial filter stage isolation is provided by transformer coupling which eliminates common mode spikes and surges.

A stable 10V source provides excitation to the transducer connected at the input. This source is fully isolated, so that the amplifier inputs can operate over the full range of the excitation voltage. This feature enables variety of transducers connectivity and interfacing to this module.

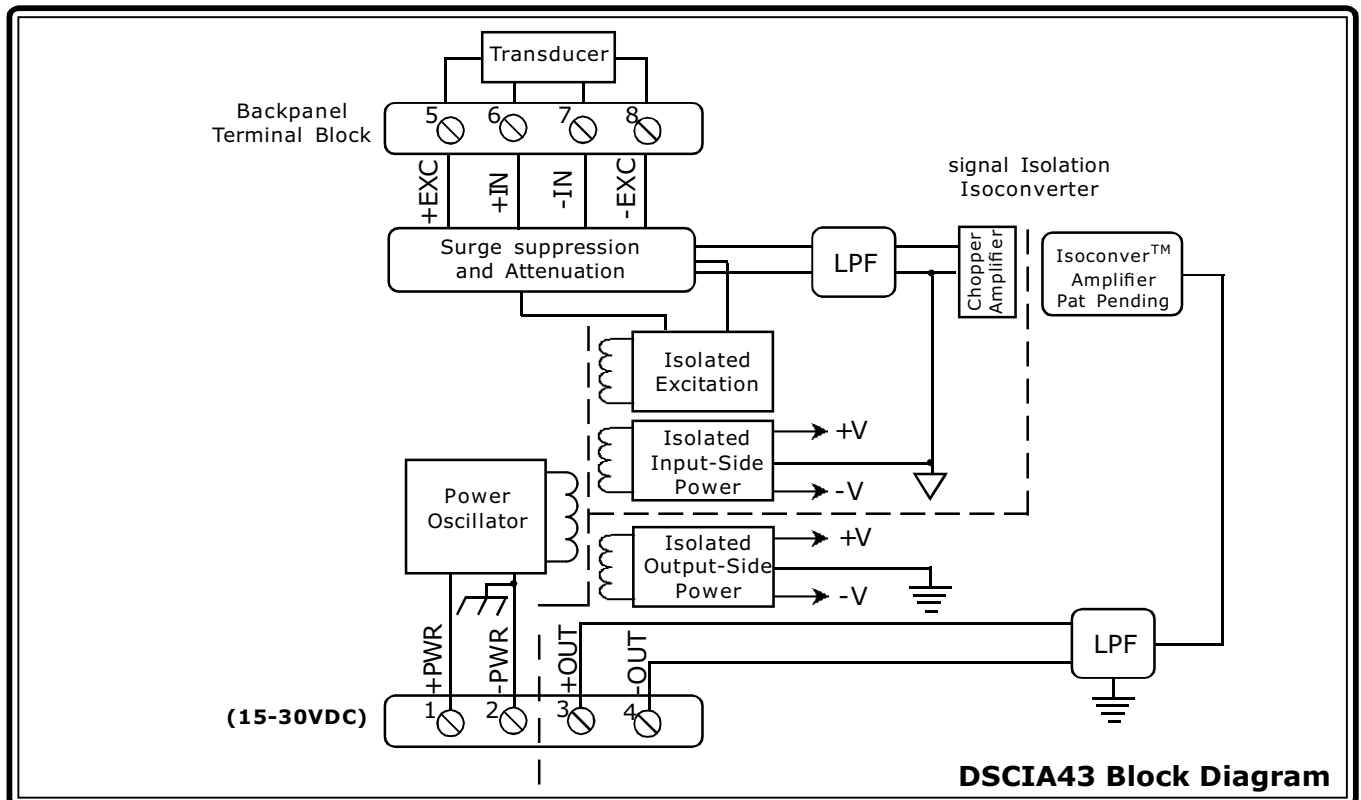
The output of this modules is either voltage or current. In the case of current module a dedicated loop supply is provided at the output side. The output signal is isolated from power and input signal, hence it can be either floating or grounded.

Signal input and excitation has a protection for 250V AC accidental connection and transient protection as per ANSI/IEEE C37.90.1. Output is also protected against short circuit, power supply input is protected against terminal reversal and transients. The signal and power wires can be connected on to heavy duty screw terminals provided.

These modules are most rugged, reliable and stable over long time and do not require frequent recalibration. However $\pm 5\%$ zero & span adjustment provides flexibility where fine tuning is warranted.

Features

- Wide range transducers can be connected, which require stable and isolated DC Supply
- Standard Output of either 0 to 10V/ ± 10 V, 0 to 5V, 1 to 5V, 0 to 20mA, or 4 to 20mA
- 1.5KV Isolation
- ANSI/IEEE C37.90.1 Transient Protection
- 250VAC Continuous Protection on Input
- True 3-Way Isolation
- Wide range of supply voltage (15 to 30V DC)
- 85dB NMR at 60Hz, 80dB at 50Hz
- 100dB CMR
- Fully Isolated Excitation Supply
- $\pm 0.03\%$ Accuracy
- $\pm 0.01\%$ NonLinearity
- Standard DIN Rail Mountable
- CSA, FM, CE and ATEX Compliant



Specifications Typical at $T_A = +25^{\circ}\text{C}$ and +24V supply voltage

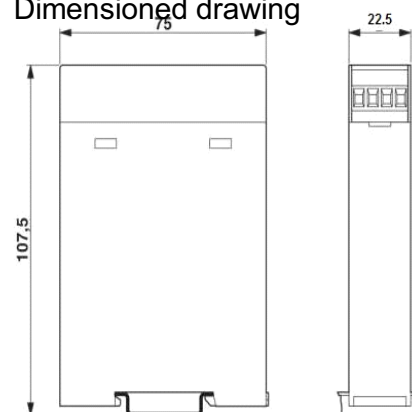
Module	DSCIA43
Input Range	$\pm 1\text{V}$ to $\pm 10\text{V}$
Input Bias Current	$\pm 0.05\text{nA}$
Input Resistance	
Normal	$> 500\text{K}\Omega$
Power off	$> 500\text{K}\Omega$
Overload	$> 500\text{K}\Omega$
Signal Input Protection	
Continuous	250Vrms max
Transient	ANSI/IEEE C37.90.1
Output Range	See Ordering Information
Load Resistance (I_{OUT})	600 Ω max
Current Limit	8mA (V_{OUT}), 30mA (I_{OUT})
Output Protection	
Short to Ground	Continuous
Transient	ANSI/IEEE C37.90.1
CMV, I/p to O/p, I/p to power	
Continuous	1500V rms max
Transient	ANSI/IEEE C37.90.1
CMV, Output to Power	
Continuous	50V DC max
CMR (50Hz or 60Hz)	100dB
Excitation	
Output Voltage(-EXC to +EXC)	10V $\pm 0.03\%$
Output Current	40mA maximum
Load Regulation	$\pm 5\text{ppm}/\text{mA}$
Stability	$\pm 15\text{ppm}/^{\circ}\text{C}$
Protection	
Continuous	250V rms max
Transient	ANSI/IEEE C37.90.1
Accuracy ⁽¹⁾	$\pm 0.03\%$ Span
Nonlinearity	$\pm 0.01\%$ Span
Adjustability	$\pm 5\%$ Zero and Span
Stability	
Input offset	$\pm 5\mu\text{V}/^{\circ}\text{C}$
Output offset	$\pm 6\text{ppm}/^{\circ}\text{C}$ (V_{OUT}), $\pm 20\text{ppm}/^{\circ}\text{C}$ (I_{OUT})
Gain	$\pm 55\text{ppm}/^{\circ}\text{C}$
Output Noise, 100KHz bandwidth	750 μVrms
Bandwidth, -3dB	3KHz
NMR	100dB/Decade above 3KHz
Response Time, 90% span	170 μs
Power Supply Typical Voltage	24V DC(15 to 30VDC)
Power Supply Current	60mA (V_{OUT}), 80mA (I_{OUT})
Power Supply Sensitivity	$\pm 0.0002\%/%$
Power Supply Protection	
Reverse Polarity	Continuous
Transient	ANSI/IEEE C37.90.1
Environmental	
Operating Temp. Range	-40°C to $+80^{\circ}\text{C}$
Storage Temp. Range	-40°C to $+80^{\circ}\text{C}$
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 $\pm 0.05\%$ Span Error
ESD,EFT, Surge, Voltage Dips	Performance B
Mechanical Dimensions	2.95" x 0.89" x 4.13"
(h) (w) (d)	(75mm x 22.5mm x 105mm)
Mounting	DIN EN 50022-35x7.5 or -35x15 rail

Ordering Information

Model	Input Range	Output Range
DSCIA43-01	-1V to +1V	1
DSCIA43-02	-2V to +2V	1
DSCIA43-03	-3V to +3V	1
DSCIA43-04	-4V to +4V	1
DSCIA43-05	-5V to +5V	1
DSCIA43-06	-6V to +6V	1
DSCIA43-07	-7V to +7V	1
DSCIA43-08	-8V to +8V	1
DSCIA43-09	-9V to +9V	1
DSCIA43-10	-10V to +10V	1
DSCIA43-11	-1V to +1V	2,3,4,5,7
DSCIA43-12	-2V to +2V	2,3,4,5,7
DSCIA43-13	-3V to +3V	2,3,4,5,7
DSCIA43-14	-4V to +4V	2,3,4,5,7
DSCIA43-15	-5V to +5V	2,3,4,5,7
DSCIA43-16	-6V to +6V	2,3,4,5,7
DSCIA43-17	-7V to +7V	2,3,4,5,7
DSCIA43-18	-8V to +8V	2,3,4,5,7
DSCIA43-19	-9V to +9V	2,3,4,5,7
DSCIA43-20	-10V to +10V	2,3,4,5,7

Output Ranges Available

Output Range	Part No. Suffix	Example
1. -10V to +10V	NONE	DSCIA43-01
2. 0V to +10V	NONE	DSCIA43-04
3. 4 to 20mA	C	DSCIA43-04C
4. 0 to 20mA	E	DSCIA43-04E
5. 0 to 5V	A	DSCIA43-04A
7. 1 to 5V	F	DSCIA43-04F

Dimensioned drawing**NOTES:**

(1) Includes non linearity, hysteresis and repeatability.