DSCIA40/41

Analog Voltage Input Signal Conditioners

Description

DSCIA40 and DSCIA41 voltage input module is single channel analog input, which is filtered, isolated, amplified & converted to standard level output. A Five-pole filter is provided with signal filtering. And 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.

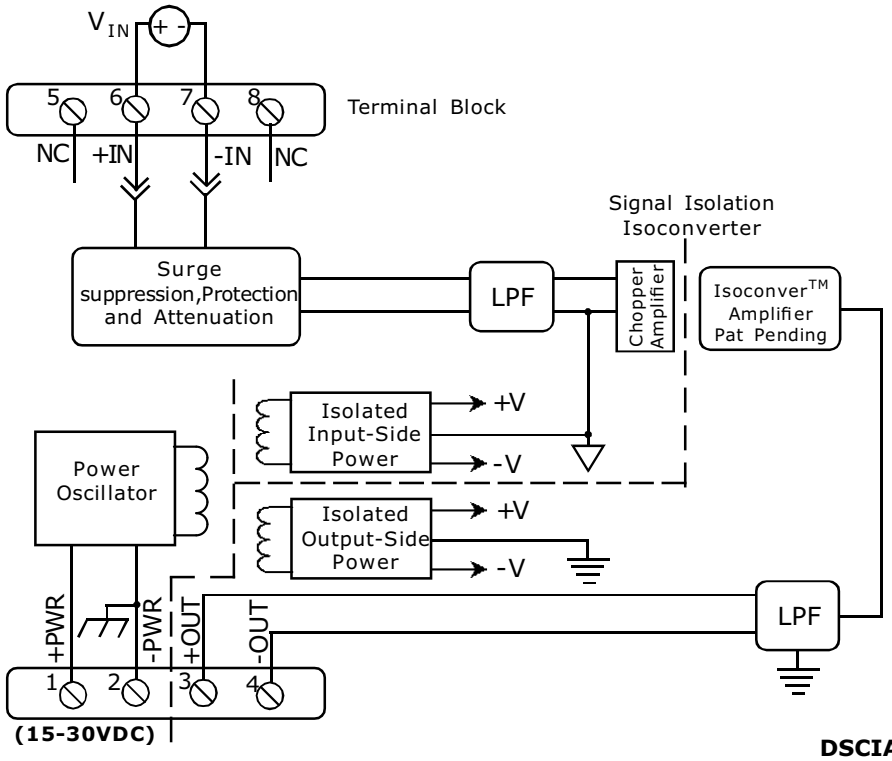
The output of this module is either voltage or current. In the case of current output module a dedicated loop supply is provided at the output side. The output signal is isolated from power and input signal, hence it can be either floating or grounded.

Signal input has a input 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 directly 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 ±5% zero & span adjustment provides flexibility where fine tuning is warranted.

Features

- Wide range of Millivolt and Voltage input Signals
- Standard Output of either 0 to 10V/±10V, 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)
- 100dB CMR
- 3 kHz Signal Bandwidth
- ±0.03% Accuracy
- ±0.01%NonLinearity
- Standard DIN Rail Mountable
- CSA , FM , CE and ATEX Compliant



DSCIA40/41 Block Diagram

Specifications

Typical at T_A=+25°C and +24V supply voltage

Module	DSCIA40	DSCIA41
Input Range	+10mV to +100mV	±1V to ±40V
Input Bias Current	±0.5nA	±0.05nA
Input Resistance		
Normal	50MΩ	500KΩ min
Power off	65KΩ	500KΩ min
Overload	65KΩ	500KΩ min
Signal Input Protection		
Continuous	250Vrms max	*
Transient	ANSI/IEEE C37.90.1	*
Output Range	See Ordering Information	
Load Resistance (I_{OUT})	600Ω 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	*
Accuracy(1)	±0.03% Span	*
Nonlinearity	±0.01% Span	*
Adjustability	±5% Zero and Span	*
Stability		
Input offset	±0.5µV/°C	±5µV/°C
Output offset	±6ppm/°C (V_{OUT}), ±20ppm/°C (I_{OUT})	*
Zero Suppression	±50ppm(V_Z)(2)/°C	*
Gain	±35ppm/°C	±55pp/°C
Output Noise, 100KHz bandwidth	750µVrms(V_{OUT}), 3µArms (I_{OUT})	*
Bandwidth, -3dB	3KHz	*
NMR	100dB/Decade above 3KHz	*
Response Time, 90% span	170µs	*
Power Supply Typical voltage	24V DC(15 to 30VDC)	*
Power Supply Current	25mA (V_{OUT}), 55mA (I_{OUT})	*
Power Supply Sensitivity	±0.0001%/%	*
Power Supply Protection		
Reverse Polarity	Continuous	*
Transient	ANSI/IEEE C37.90.1	*
Environmental		
Operating Temp. Range	-40°C to +80°C	*
Storage Temp. Range	-40°C to +80°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 ±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	*

NOTES:
* Same specification as DSCIA40
(1) Includes non-linearity, hysteresis and repeatability.
(2) Vz is the nominal input voltage that results in 0V or 0mA output.

Ordering Information

Model	Input Range	Output Range
DSCIA40-01	-10mV to +10mV	1
DSCIA40-02	-50mV to +50mV	1
DSCIA40-03	-100mV to +100mV	1
DSCIA40-04	-10mV to +10mV	2,3,4,5,7
DSCIA40-05	-50mV to +50mV	2,3,4,5,7
DSCIA40-06	-100mV to +100mV	2,3,4,5,7
DSCIA40-07	0 to +10mV	2,3,4,5,7
DSCIA40-08	0 to +50mV	2,3,4,5,7
DSCIA40-09	0 to +100mV	2,3,4,5,7
DSCIA41-01	-1V to +1V	1
DSCIA41-02	-5V to +5V	1
DSCIA41-03	-10V to +10V	1
DSCIA41-04	-1V to +1V	2,3,4,5,7
DSCIA41-05	-5V to +5V	2,3,4,5,7
DSCIA41-06	-10V to +10V	2,3,4,5,7
DSCIA41-07	-20V to +20V	1
DSCIA41-08	-20V to +20V	2,3,4,5,7
DSCIA41-09	-40V to +40V	1
DSCIA41-10	-40V to +40V	2,3,4,5,7
DSCIA41-11	0 to +1V	2,3,4,5,7
DSCIA41-12	0 to +5V	2,3,4,5,7
DSCIA41-13	0 to +10V	2,3,4,5,7
DSCIA41-14	0 to +20V	2,3,4,5,7
DSCIA41-15	0 to +40V	2,3,4,5,7

Output Ranges Available

Output Range	Part No. Suffix	Example
1. -10V to +10V	NONE	DSCIA40-01
2. 0V to +10V	NONE	DSCIA40-04
3. 4 to 20mA	C	DSCIA40-04C
4. 0 to 20mA	E	DSCIA40-04E
5. 0 to 5V	A	DSCIA40-04A
7. 1 to 5V	F	DSCIA40-04F

Dimensional drawing