

# DSCIA38

## Strain Gauge Input Signal Conditioners

### Description

DSCIA38 Strain Gauge Input module is single channel strain gauge 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 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.

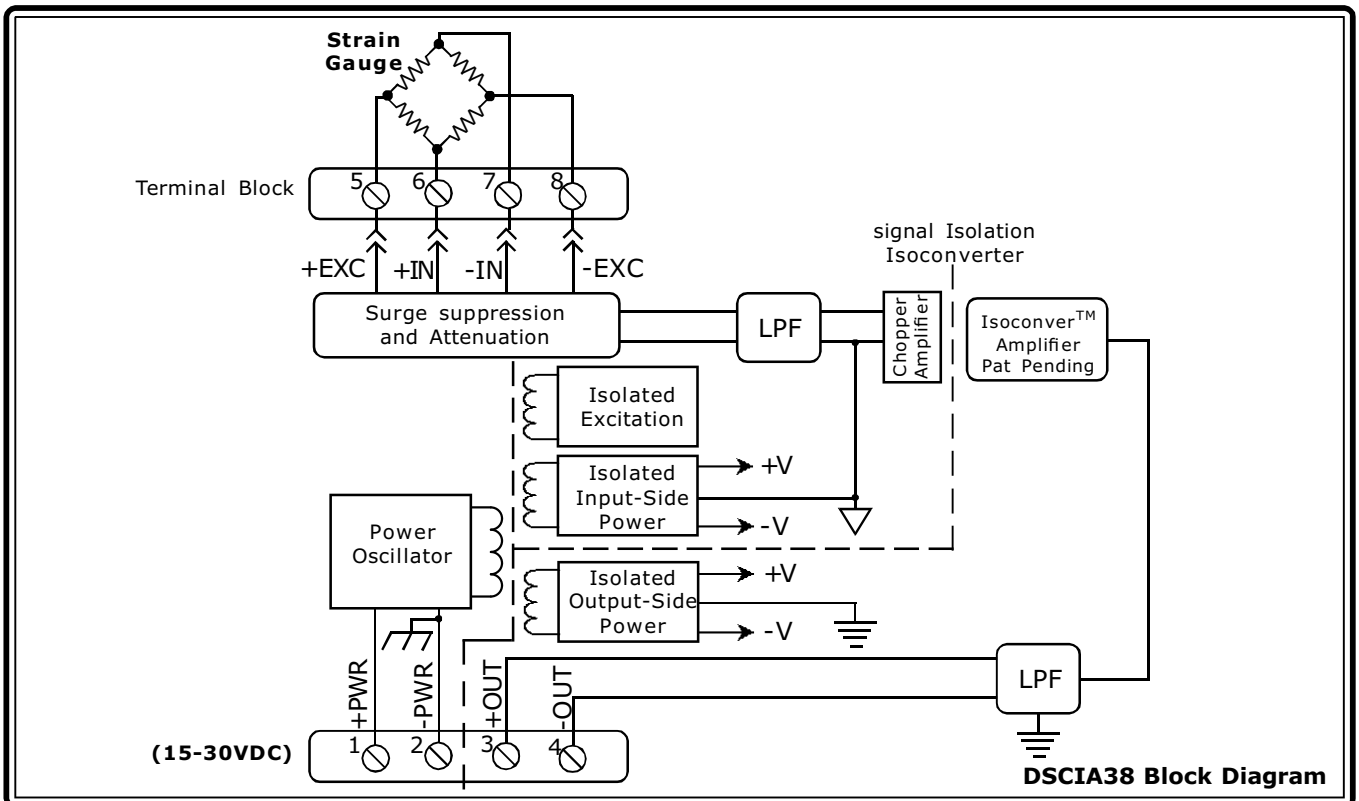
DSCIA38 Strain gauge input module can be connected to transducers with gauge resistance of 1kΩ to 10kΩ. The excitation is provided from a stable and isolated 10V or 3.333V source. This allows the input amplifiers thru full range of the excitation voltage. This excitation Voltage can be interfaced to other devices which require the same range of excitation also.

The output of this module 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 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 Strain Gauges in the range of 1kohms to 10kohms
- 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)
- 85dB NMR at 60Hz, 80dB at 50Hz
- 160dB CMR
- ±0.03% Accuracy
- ±0.01% NonLinearity
- Standard DIN Rail Mountable
- CSA , FM , CE and ATEX Compliant



**Specifications** Typical at T<sub>A</sub> = +25°C and +24V supply voltage

Module	DSCIA38
Input Range	±10mV to ±100mV
Input Bias Current	±0.5nA
Input Resistance	
Normal	50MΩ
Power off	65KΩ
Overload	65KΩ
Signal Input Protection	
Continuous	250Vrms max (Full Bridge) 120Vrms max (Half Bridge)
Transient	ANSI/IEEE C37.90.1
Output Range	See Ordering Information
Load Resistance (I <sub>OUT</sub> )	600Ω max
Current Limit	8mA (V <sub>OUT</sub> ), 30mA (I <sub>OUT</sub> )
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, O/p to Power	
Continuous	50V DC max
CMR (50Hz or 60Hz)	100dB
Excitation	
Output	0V ±0.03% or 3.33V ±0.03%
Load Resistance(10V)	300Ω to 10KΩ
Load Resistance(3.33V)	100Ω to 10KΩ
Load Regulation	±5ppm/mA
Stability	±15ppm/°C
Protection	
Continuous	250Vrms max
Transient	ANSI/IEEE C37.90.1
Accuracy <sup>(1)</sup>	±0.03% Span
Nonlinearity	±0.01% Span
Adjustability	±5% Zero and Span
Stability	
Input offset	±1μV/°C
Output offset	±6ppm/°C (V <sub>OUT</sub> ), ±20ppm/°C (I <sub>OUT</sub> )
Gain	±55ppm/°C
Output Noise, 100KHz bandwidth	750μVrms(V <sub>OUT</sub> ), 3μArms (I <sub>OUT</sub> )
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	60mA (V <sub>OUT</sub> ), 80mA (I <sub>OUT</sub> )
Power Supply Sensitivity	±0.0002%/%
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:**

(1) Includes non-linearity, hysteresis and repeatability.

**Ordering Information**

Model	Input Bridge Type	Input Range	Excitation	Sens.	Output Range
DSCIA38-01	Full	-10mV to +10mV	+3.333V	3mV/V	1
DSCIA38-02	Full	-30mV to +30mV	+10.0V	3mV/V	1
DSCIA38-03	Half	-10mV to +10mV	+3.333V	3mV/V	1
DSCIA38-04	Half	-30mV to +30mV	+10.0V	3mV/V	1
DSCIA38-05	Full	-20mV to +20mV	+10.0V	2mV/V	1
DSCIA38-06	Full	-33.3mV to +33.3mV	+3.333V	10mV/V	1
DSCIA38-07	Full	-100mV to +100mV	+10.0V	10mV/V	1
DSCIA38-08	Full	-10mV to +10mV	+3.333V	3mV/V	2,3,4,5,7
DSCIA38-09	Full	-30mV to +30mV	+10.0V	3mV/V	2,3,4,5,7
DSCIA38-10	Half	-10mV to +10mV	+3.333V	3mV/V	2,3,4,5,7
DSCIA38-11	Half	-30mV to +30mV	+10.0V	3mV/V	2,3,4,5,7
DSCIA38-12	Full	-20mV to +20mV	+10.0V	2mV/V	2,3,4,5,7
DSCIA38-13	Full	-33.3mV to +33.3mV	+3.333V	10mV/V	2,3,4,5,7
DSCIA38-14	Full	-100mV to +100mV	+10.0V	10mV/V	2,3,4,5,7
DSCIA38-15	Full	0 to +10mV	+3.333V	3mV/V	2,3,4,5,7
DSCIA38-16	Full	0 to +30mV	+10.0V	3mV/V	2,3,4,5,7
DSCIA38-17	Half	0 to +10mV	+3.333V	3mV/V	2,3,4,5,7
DSCIA38-18	Half	0 to +30mV	+10.0V	3mV/V	2,3,4,5,7
DSCIA38-19	Full	0 to +20mV	+10.0V	2mV/V	2,3,4,5,7
DSCIA38-20	Full	0 to +33.3mV	+3.333V	10mV/V	2,3,4,5,7
DSCIA38-21	Full	0 to +100mV	+10.0V	10mV/V	2,3,4,5,7

**Output Ranges Available**

Output Range	Part No. Suffix	Example
1. -10V to +10V	NONE	DSCIA38-01
2. 0V to +10V	NONE	DSCIA38-04
3. 4 to 20mA	C	DSCIA38-04C
4. 0 to 20mA	E	DSCIA38-04E
5. 0 to 5V	A	DSCIA38-04A
7. 1 to 5V	F	DSCIA38-04F

