DSCIA42

2-Wire Transmitter interface Signal Conditioners with Loop Power

Description

DSCIA42 2-Wire Transmitter Interface module provides a single channel of 4-20mA process current input, which is filtered, isolated, amplified & converted to standard level output. An Isolated 24V DC Power supply is provided to power the 2-Wire Transmitter. 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.

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*

- Suitable & Accepts Process Loop Signals.
- Standard Output of 0 to 10V, 2 to 10V, 0-20mA , or 4-20mA.
- Provides isolated loop excitation
- 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)
- 105dB CMR
- 5 poles of filtering
- ±0.03% Accuracy
- ±0.01%NonLinearity
- Standard DIN Rail Mountable
- CSA , FM , CE and ATEX Compliant

DSCIA42 Block Diagram
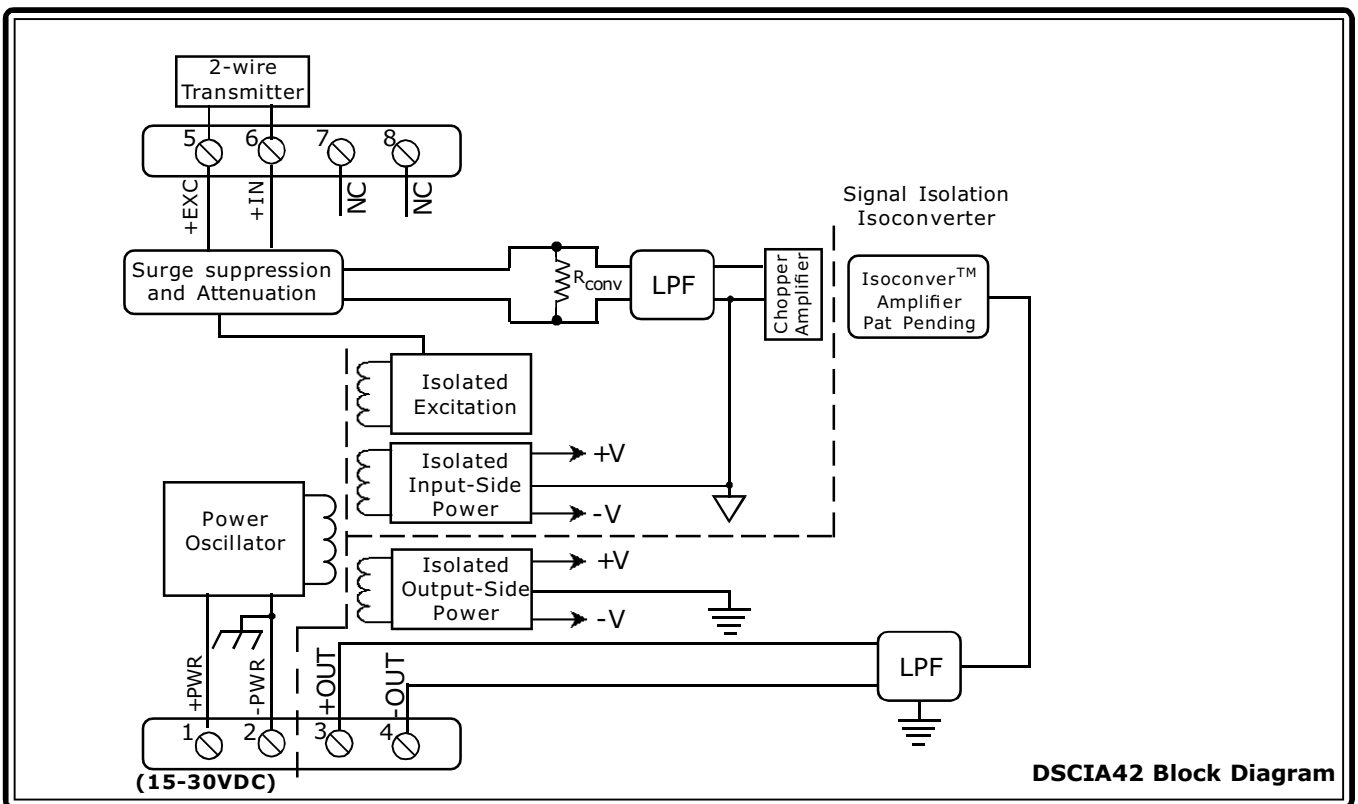
Specifications
Typical at T_A=+25°C and +24V supply voltage

Module	DSCIA42
Input Range	4-20mA
Input Resistance	
Normal	<100Ω
Power off	<100Ω
Overload	65KΩ
Signal Input Protection	
Continuous	250V rms 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)	105dB
Loop Supply Voltage	+20V DC
Isolated Excitation protection	
Continuous	250V rms max
Transient	ANSI/IEEE C37.90.1
Accuracy[1]	±0.03% Span
Nonlinearity	±0.01% Span
Adjustability	±5% Zero and Span
Stability	
offset	±6ppm/^{O}C (V_{OUT}), +20ppm/^{O}C (I_{OUT})
Gain	±40ppm/^{O}C
Output Noise, 100KHz bandwidth	500µVrms(V_{OUT}),2µA(I_{OUT})
Bandwidth, -3dB	100Hz
NMR(-3dB at 100Hz)	100dB/Decade above 100Hz
Response Time, 90% span	5ms
Power Supply Typical	
Voltage	24V DC(15 to 30VDC)
Power Supply Current	60mA (V_{OUT}), 80mA (I_{OUT})
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 Range	Output Range
DSCIA42-01	4mA to 20mA	0V to +10V
DSCIA42-02	4mA to 20mA	2V to +10V
DSCIA42-01C	4mA to 20mA	4 to 20mA
DSCIA42-01E	4mA to 20mA	0 to 20mA
DSCIA42-01F	4mA to 20mA	0V to +5V
DSCIA42-01G	4mA to 20mA	1V to +5V

Dimensioned drawing