

DSCIA34

Linearised 2 or 3Wire RTD Input Signal Conditioners

Description

DSCIA34 Linearized 2 or 3 wire RTD input module is single channel analog input, which is filtered, isolated, amplified & converted to standard level output. A six 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.

RTD excitation is from stable current source. The excitation current is (approx. 0.25mA) which minimises self-heating. Lead compensation is provided by matching two current paths which lead to cancellation of lead resistance effect.

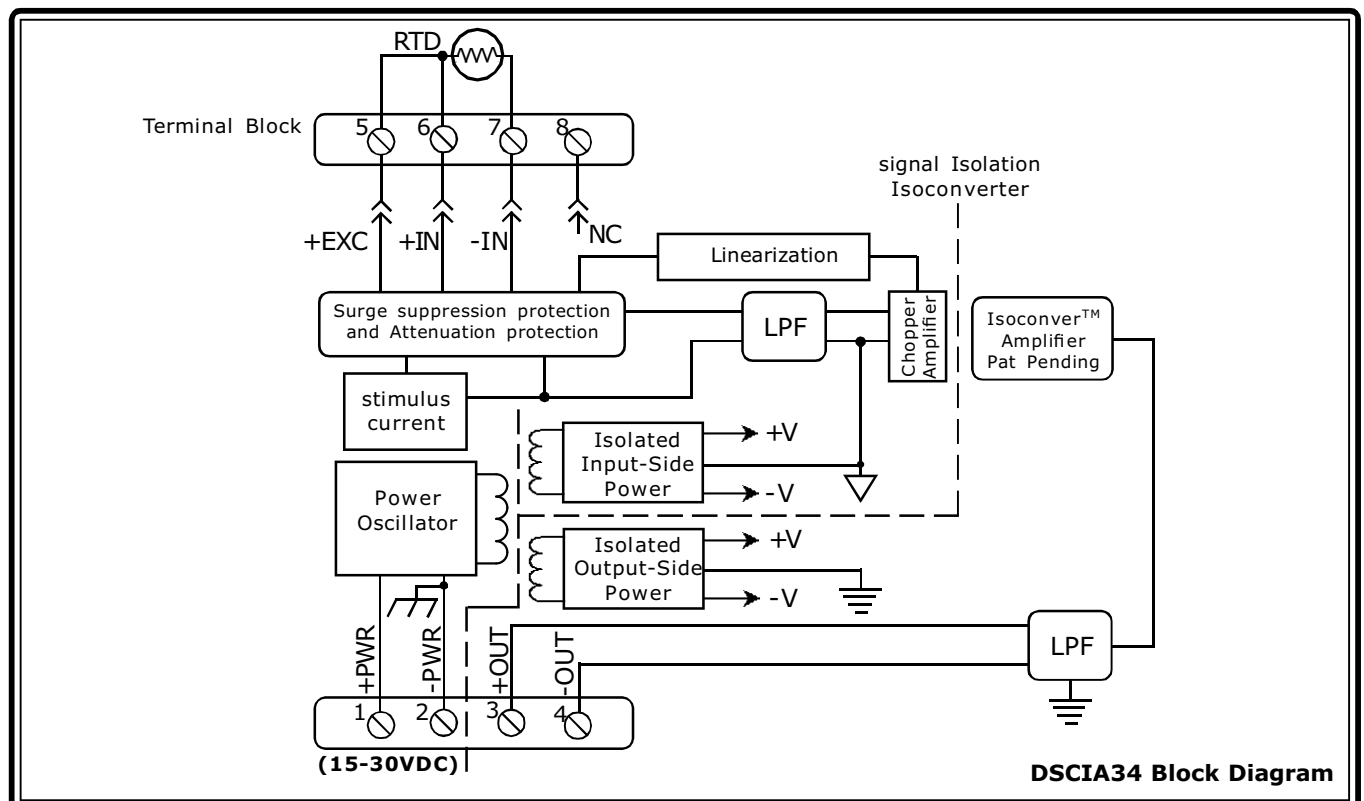
The output of this module is either voltage or current. In the case of current module a dedicated loop supply is provided at the output side. The output signal is isolated from power and input signal, hence it can be either floating or grounded.

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 $\pm 5\%$ zero & span adjustment provides flexibility where fine tuning is warranted.

Features

- 100Ω Platinum or 120Ω Nickel RTDs input.
- Linearization of RTD Signal
- Standard Output of either 0 - 10V, 0-20mA, 4-20mA, 0 -5V, 1 - 5V.
- 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)
- 160dB CMR
- 85dB NMR at 60Hz, 80dB at 50Hz
- $\pm 0.1\%$ Accuracy
- $\pm 0.025\%$ NonLinearity
- Standard DIN Rail mountable
- CSA , FM , CE and ATEX Compliant



Specifications

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

Ordering Information

Module	DSCIA34
Input Range Limits	-200°C to +850°C (100Ω Pt) -80°C to +320°C (120Ω Ni)
Input Protection Continuous Transient	250V AC max ANSI/IEEE C37.90.1
Sensor Excitation Current	≈250μA
Lead Resistance effect	+0.02°C/Ω
Output Range	See Ordering Information
Load Resistance (I _{OUT})	600Ω max
Current Limit	8mA (V _{OUT}), 30mA (I _{OUT})
Output Protection Short to Ground Transient	Continuous ANSI/IEEE C37.90.1
CMV, Input to O/p, I/p to power	1500V rms max ANSI/IEEE C37.90.1
Continuous Transient	
CMV, Output to Power	50V DC max
Continuous	160dB
CMR (50Hz or 60Hz)	
Accuracy	See ordering information
Nonlinearity	±0.025% (100Ω Pt) ±0.07% (120Ω Ni)
Adjustability	±5% Zero and Span
Stability	
Input offset	±1μV/°C
Output offset	±6ppm/°C (V _{OUT}), ±20ppm/°C (I _{OUT})
Gain	±60ppm/°C
Output Noise, 100KHz bandwidth	500μV rms (V _{OUT}), 2μA rms (I _{OUT})
Bandwidth, -3dB	3Hz
NMR	85dB at 60Hz, 80dB at 50Hz
Response Time, 90% span	250ms
Open Input response	
'+' Lead	Upscale
'-' Lead	Non-deterministic
'x' Lead	Down-scale
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

Model	Input Range	Output Range	Accuracy ⁽¹⁾
100Ω Pt ** DSCIA34-01	-100°C to +100°C (-148°F to +212°F)	2,3,4, 5,7	±0.08% ±0.16°C
DSCIA34-02	0°C to +100°C (+32°F to +212°F)	2,3,4, 5,7	±0.10% ±0.10°C
DSCIA34-03	0°C to +200°C (+32°F to +392°F)	2,3,4, 5,7	±0.08% ±0.16°C
DSCIA34-04	0°C to +600°C (+32°F to +1112°F)	2,3,4, 5,7	±0.05%, ±0.30°C
DSCIA34-05	-50°C to +350°C (-58°F to +662°F)	2,3,4, 5,7	±0.05% ±0.20°C
120Ω Ni ** DSCIA34N-01	0°C to +300°C (-32°F to +572°F)	2,3,4, 5,7	±0.15% ±0.45°C

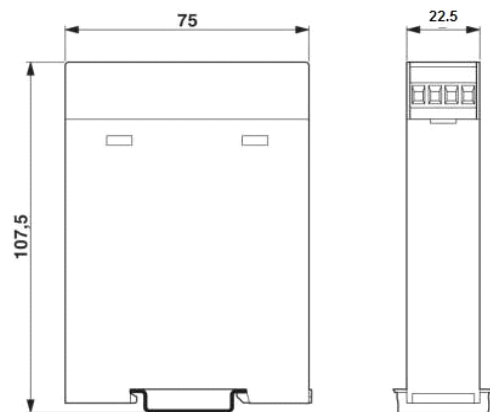
Output Ranges Available

Output Range	Part No. Suffix	Example
2. 0 to +10V	NONE	DSCIA34-01
3. 4 to 20mA	C	DSCIA34-01C
4. 0 to 20mA	E	DSCIA34-01E
5. 0 to 5V	A	DSCIA34-01A
7. 1 to 5V	F	DSCIA34-01F

**** RTD Standards**

Type	Alpha Co-efficient	DIN	JIS
100W Pt	0.00385	DIN43760	JIS C 1604-1989
120W Ni	0.00672		

Dimensioned drawing



NOTES:

(1) Includes conformity, hysteresis and repeatability.