DSCL21

Loop Powered Isolator - DIN Mount

Description

Each DSCL21 loop powered isolator provides a single channel of analog signal protection by electrically isolating its input from output for any DC process signal in the range of 0-20mA (or 4-20mA). The DSCL21 operates passively, obtaining its power from the transmitted signal (see Figure 1).

The input signal is chopped by a proprietary DC chopper circuit, isolation is provided by transformer coupling, a proprietary technique is used to suppress transmission of common mode spikes or surges, the output signal from the secondary of the transformer is reconstructed to the original input signal.

▶ Features

- No Power Supply Required, Signal Powered from 0-20mA (or 4-20mA) Input
- Simplified Wiring for Fast Installation
- Narrow 12.5mm DIN Package for High-Density Mounting
- No Recalibration or Maintenance Required
- 500Vrms Transformer Isolation
- Prevents Ground-Loop Problems
- Prevents the Transfer of Interference Voltages and Currents
- High Accuracy Over Full Span
- CE Compliant

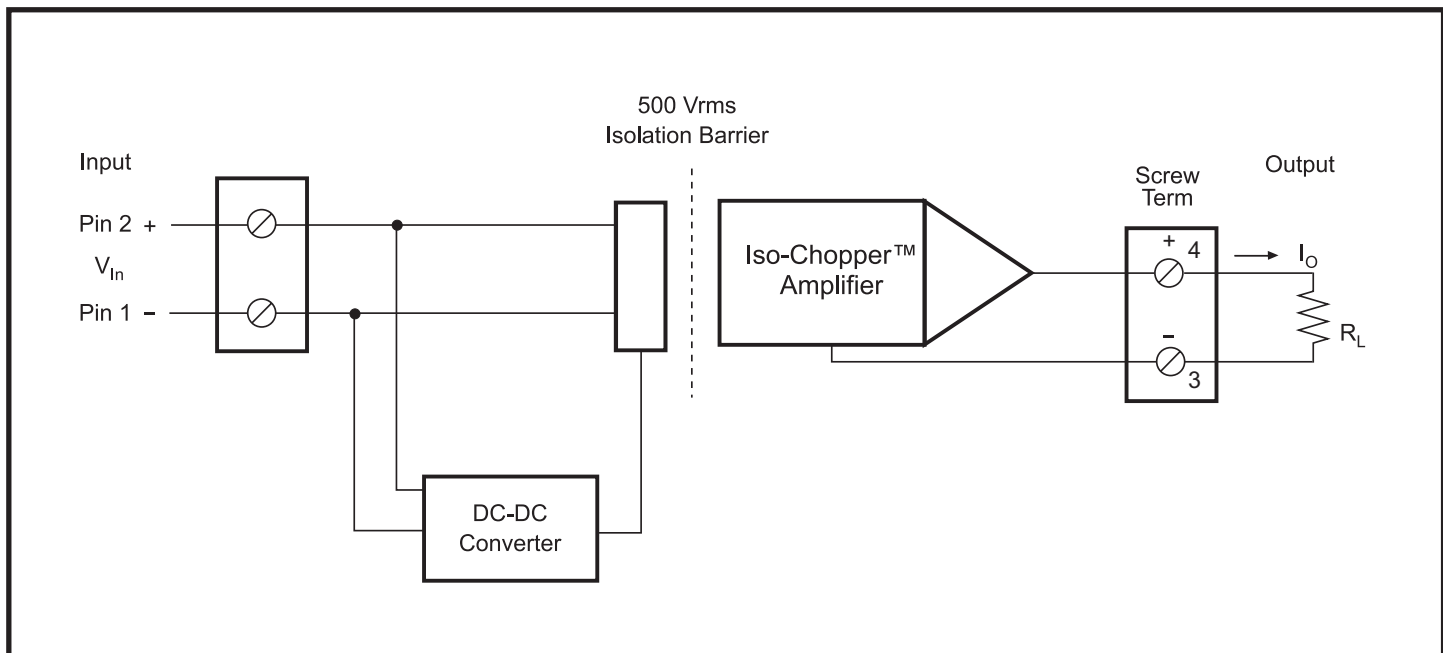⚠ **The compliance voltage or loop voltage must not exceed 17V, as this may damage the module.**

Figure 1: DSCL21 Block Diagram

Specifications

Typical at T_A=+25°C; Load R=100Ω (I_{out}), ≥5MΩ(V_{out})

Module	DSCL21-01
Input Range	0/4-20mA
Input Current	50mA max at 18V max
CMV Input to Output	500Vrms, 1 Minute
Accuracy	±0.1% Span Typical
	±0.2% Span Max
	(at 100Ω Load)[1]
Linearity	Included in Accuracy
Stability	<50ppm/°C
Overshoot	<20μA (Typical 5μA)
Compliance Voltage[2] (V_{in})	17V max
Voltage drop	<2V (for 500Ω Load)
Output Range	0-20mA (4-20mA)
Limit Upper Range	30mA
Bandwidth, −3dB	750Hz
CMR (50Hz or 60Hz)	90dB
NMR	20dB per Decade Above 750Hz
Response Time	1ms, to 90% Span
Load Resistance Range	0-600Ω
Output Noise	<20mV (Typical <5mV)
Environmental	Weight Approximately 35g
Housing Material	Lexan 940 (UL 94 V-O)
Shock Test	50g (10 Shocks, 3 Axis)
Operating Temp. Range	−20°C to +65°C
Storage Temp. Range	−40°C to +85°C
Relative Humidity	0 to 75% Noncondensing
Emissions	EN50081-2 (Radiated, Conducted)
Immunity	EN50082-2 (ESD, RF, EFT)

NOTES:
(1) Additional error <0.2% at 500Ω Load (I_{out})
(2) V_{in}=$I_O R_L$ + <2V

Ordering Information

Model	Input Range	Output Range
DSCL21-01	0-20mA (4-20mA)	0-20mA (4-20mA)

The DSCL21 DIN mount package accepts EN50022 (35 x 7.5) and EN50035 (G32) type rails; Dataforth SCMXRAIL1-xx or SCMXRAIL2-xx. Multiple DSCL21 modules may be mounted next to each other without affecting input or output signals.

Screw terminals with wire protection clamps sized for 0.2 to 4mm^2 solid or 0.2 to 2.5mm^2 stranded wires. The DSCL21 may be mounted in any position. The DSCL21 requires no maintenance.
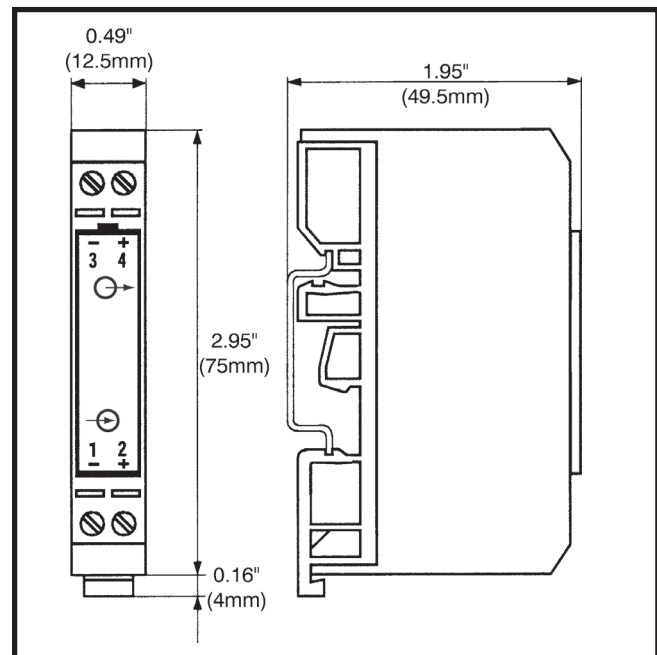

Figure 2: DSCL21 Dimensions