

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.

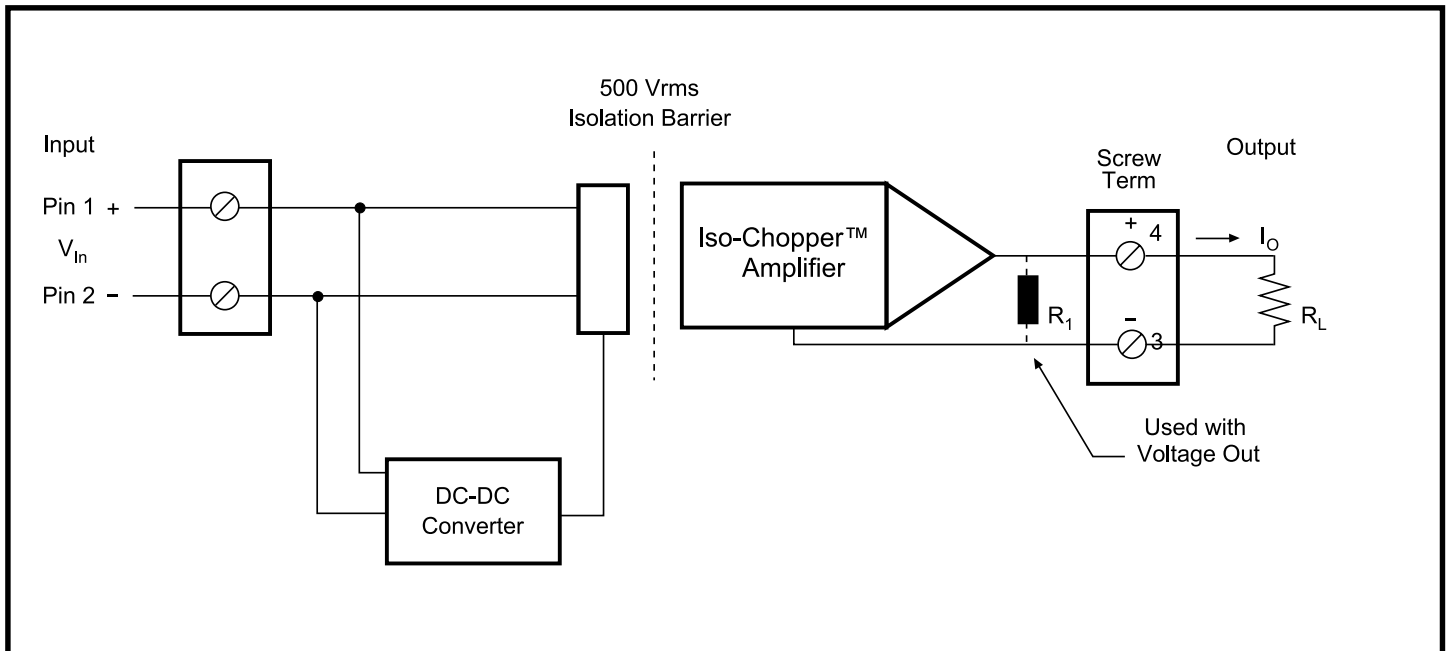


Figure 1: DSCL21 Block Diagram

Specifications Typical at $T_A = +25^\circ\text{C}$; Load $R = 100\Omega$ ($I_{out} \geq 5\text{mA}$ (V_{out}))

Module	DSCL21-01	DSCL21-02
Input Range	0/4-20mA	*
Input Current	50mA max at 18V max	*
CMV Input to Output	500Vrms, 1 Minute	*
Accuracy	$\pm 0.1\%$ Span Typical $\pm 0.2\%$ Span Max (at 100Ω Load) ⁽¹⁾	* (at 10V Out) ⁽²⁾
Non-linearity	Included in Accuracy	*
Stability	<50ppm/ $^\circ\text{C}$	*
Overshoot	<20 μA (Typical 5 μA)	<10mV (Typical 2.5mV)
Compliance Voltage ⁽³⁾ (V_{in})	17V max	*
Voltage drop	<2V (for 500Ω Load)	*
Output Range	0-20mA (4-20mA)	0-10V (2-10V) ⁽⁴⁾
Limit Upper Range	30mA	15V
Bandwidth, -3dB	750Hz	*
CMR (50Hz or 60Hz)	90dB	*
NMR	20dB per Decade Above 750Hz	*
Response Time	1ms, to 90% Span	*
Load Resistance Range	0-600 Ω	>5M Ω
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 $^\circ\text{C}$ to +65 $^\circ\text{C}$	*
Storage Temp Range	-40 $^\circ\text{C}$ to +85 $^\circ\text{C}$	*
Relative Humidity	0 to 75% Noncondensing	*
Emissions	EN50081-2 (Radiated, Conducted)	*
Immunity	EN50082-2 (ESD, RF, EFT)	*

Ordering Information

Model	Input Range	Output Range
DSCL21-01	0-20mA (4-20mA)	0-20mA (4-20mA)
DSCL21-02	0-20mA (4-20mA)	0-10V (2-10V)

NOTES:

* Same spec as DSCL21-01

(1) Additional error <0.2% at 500Ω Load (I_{out})

(2) Calculate error due to impedance of output instrument = $500\Omega \times 100/R$ inst.

(3) $V_{in} = I_{out} R_{in} + <2V$

(4) Internal $R = 500\Omega$

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 effecting input or output signals.

Screw terminals with wire protection clamps sized for 0.2 to 4mm² solid or 0.2 to 2.5mm² stranded wires. The DSCL21 may be mounted in any position. The DSCL21 requires no maintenance.

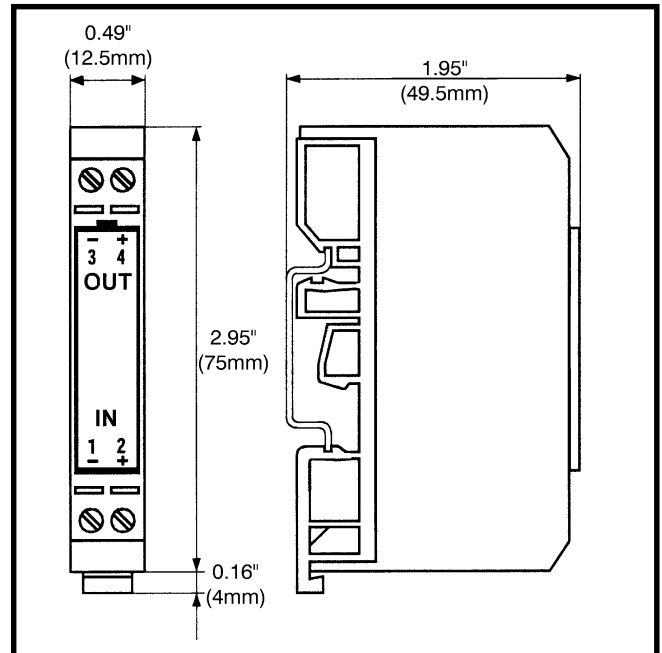


Figure 2: DSCL21 Dimensions