

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

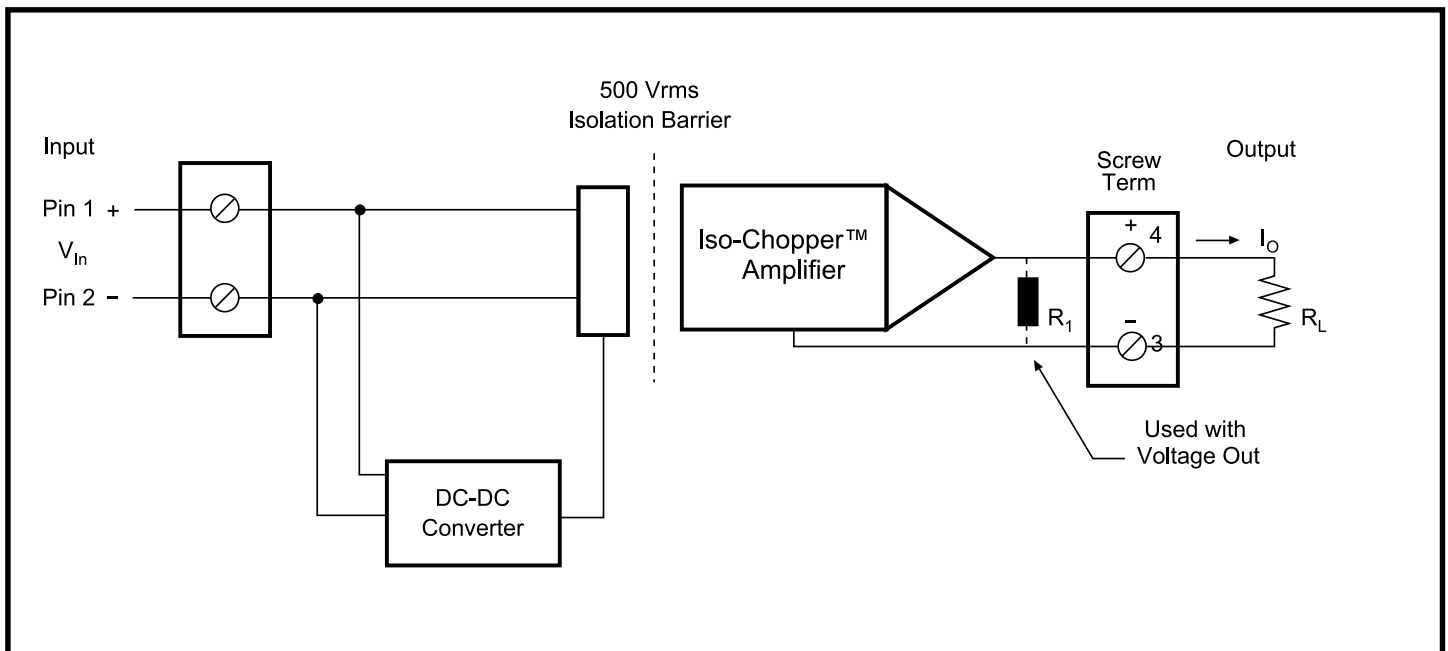


Figure 1: DSCL21 Block Diagram

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	$< 50\text{ppm}/^\circ\text{C}$	*
Overshoot	$< 20\mu\text{A}$ (Typical $5\mu\text{A}$)	$< 10\text{mV}$ (Typical 2.5mV)
Compliance Voltage	$18\text{V} \pm 5\%$ (with Zener Diode)	*
Voltage drop ⁽³⁾	$< 2\text{V}$ (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	$> 5\text{M}\Omega$
Output Noise	$< 20\text{mV}$ (Typical $< 5\text{mV}$)	*
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 $+65^\circ\text{C}$	*
Storage Temp Range	-40°C to $+85^\circ\text{C}$	*
Relative Humidity	0 to 75% Noncondensing	*
Emissions	EN50081-2 (Radiated, Conducted)	*
Immunity	EN50082-2 (ESD, RF, EFT)	*

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) $V_{in} = I_{out} R_L + < 2\text{V}$

 (4) Internal $R = 500\Omega$

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)

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.

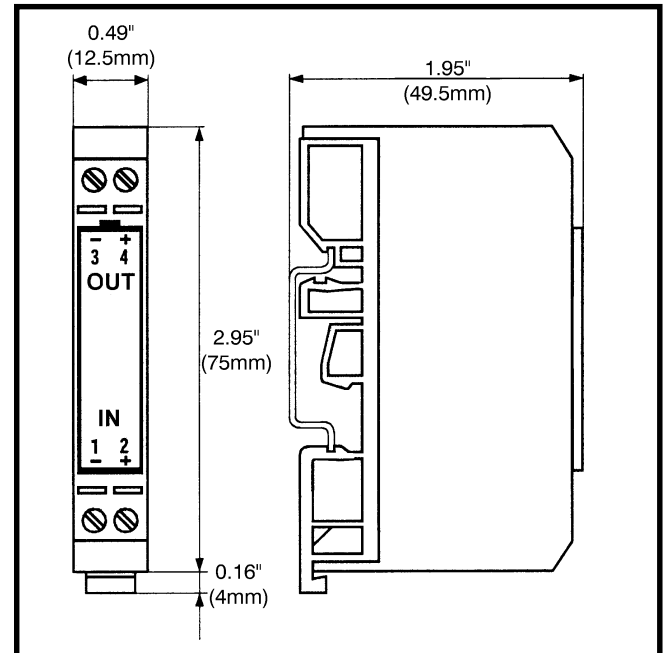


Figure 2: DSCL21 Dimensions