

# 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

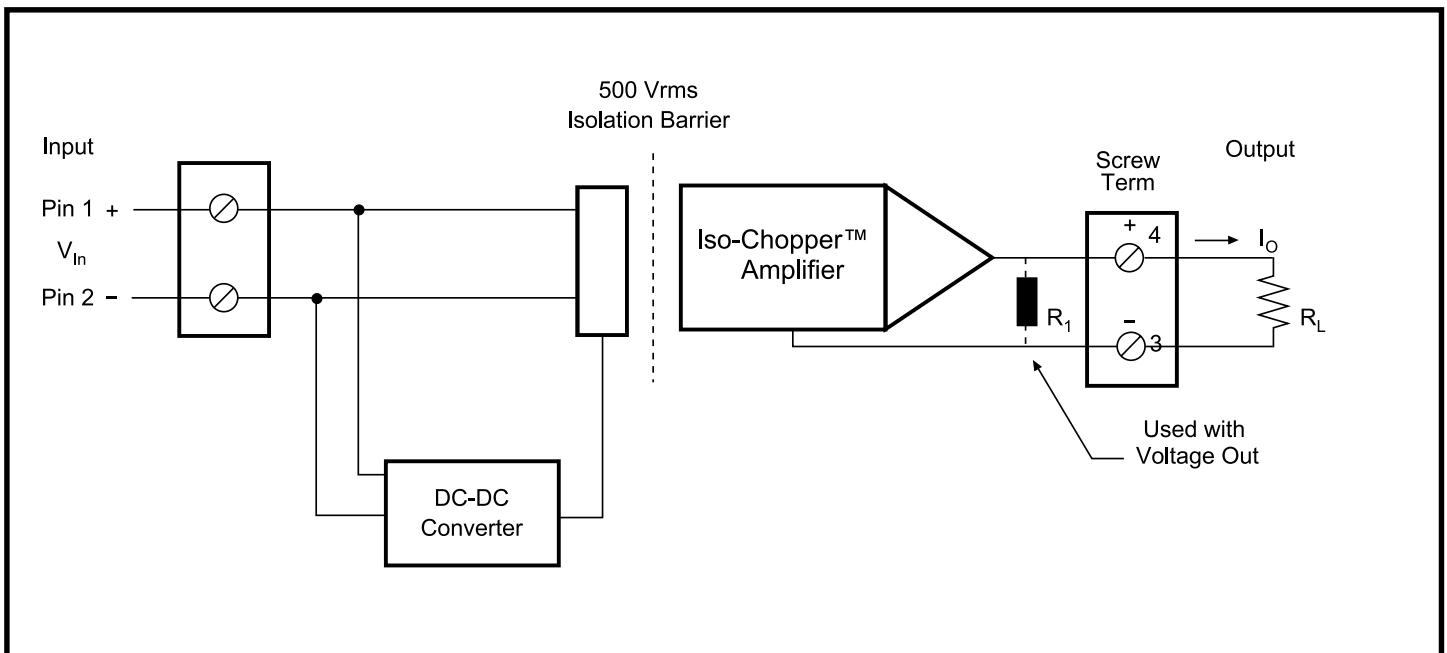


Figure 1: DSCL21 Block Diagram

**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 $100\Omega$ Load) <sup>(1)</sup>	  (at $10\text{V}$ Out) <sup>(2)</sup>
Non-linearity	Included in Accuracy	*
Stability	<50ppm/ $^\circ\text{C}$	*
Overshoot	<20 $\mu\text{A}$ (Typical 5 $\mu\text{A}$ )	<10mV (Typical 2.5mV)
Compliance Voltage	18V $\pm 5\%$ (with Zener Diode)	*
Voltage drop <sup>(3)</sup>	<2V (for $500\Omega$ Load)	*
Output Range	0-20mA (4-20mA)	0-10V (2-10V) <sup>(4)</sup>
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 $\Omega$	>5M $\Omega$
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  $500\Omega$  Load ( $I_{out}$ )

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

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

(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 4mm<sup>2</sup> solid or 0.2 to 2.5mm<sup>2</sup> stranded wires. The DSCL21 may be mounted in any position. The DSCL21 requires no maintenance.

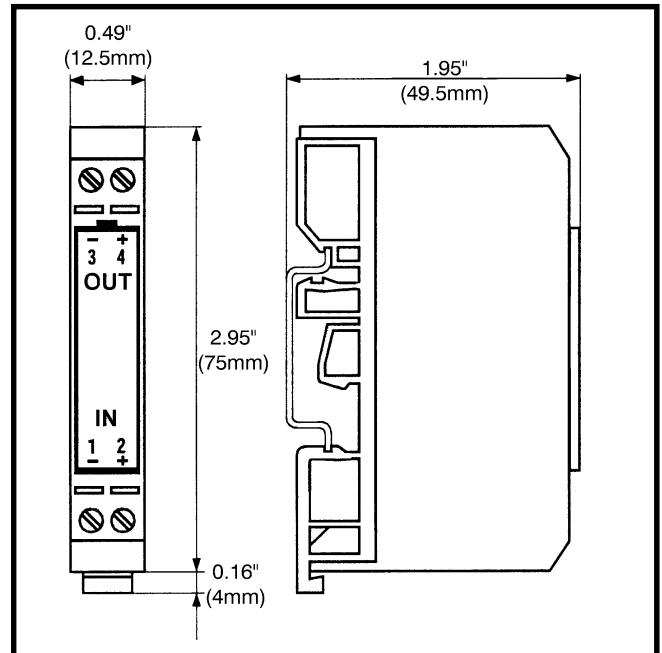


Figure 2: DSCL21 Dimensions