

DSCL22

Loop Powered Isolator - DIN or Panel Mount



Description

Each DSCL22 loop powered isolator provides 1, 2, or 3 channels 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 DSCL22 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, and the output signal from the secondary of the transformer is reconstructed to the original input signal.

If one input to two isolated outputs is desired, multiple channel units may be configured as a splitter (see Figure 2).

► Features

- No Power Supply Required, Signal Powered from 0-20mA (or 4-20mA) Input
- Simplified Wiring For Fast Installation
- DIN Rail or Panel Mountable
- Narrow DIN Package, Mounts up to 27 Devices into a 19" Rack Space
- No Recalibration or Maintenance Required
- Up to 4000Vrms Transformer Isolation
- Prevents Ground-Loop Problems
- Prevents the Transfer of Interference Voltages and Currents
- High Accuracy Over Full Span
- CE Compliant

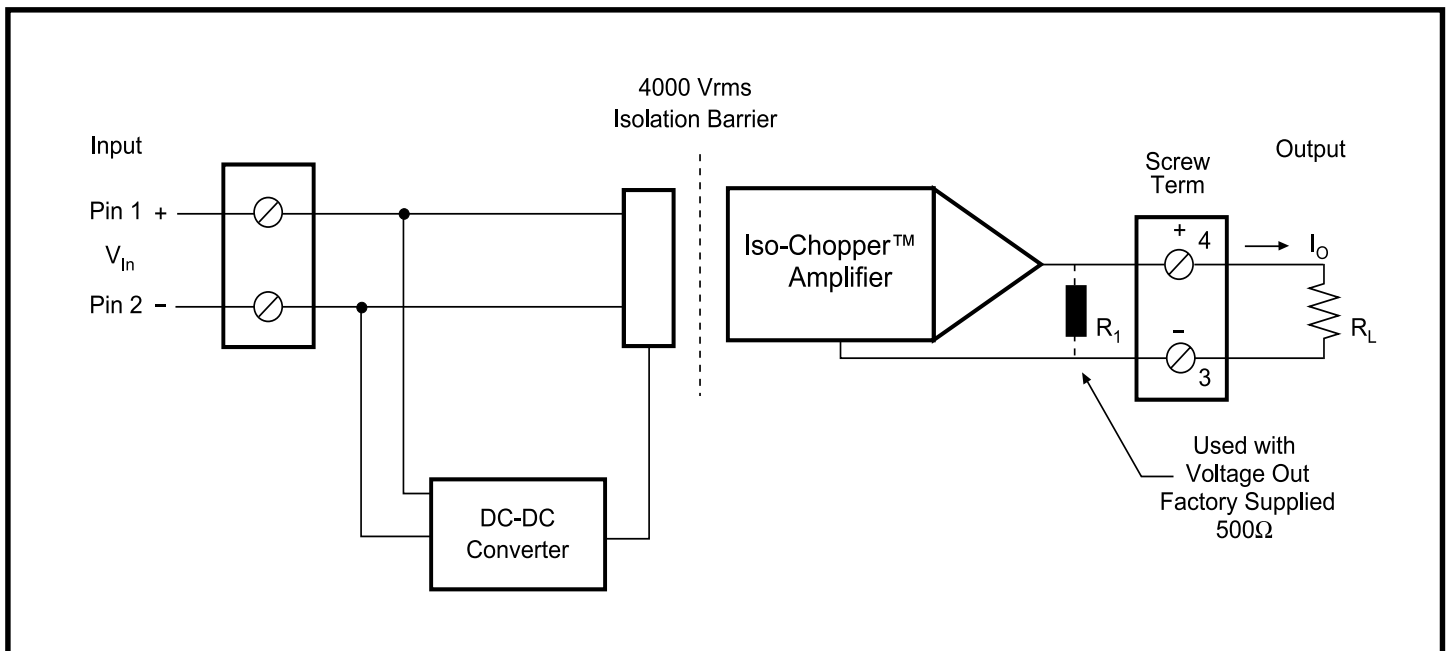


Figure 1: DSCL22 Block Diagram, Single Channel Model

Specifications

 Typical at $T_A = +25^\circ\text{C}$, Load $R = 250\Omega$ (current out), $\geq 5M\Omega$ (voltage out)

Module	DSCL22-01,-11,-21	DSCL22-02,-12,-22
Input Range	0/4-20mA	*
Input Current	50mA max at 27V max	*
CMV Input to Output	4000Vrms (1ch) or 2300Vrms (2 & 3ch), 1 Minute	*
Accuracy	$\pm 0.05\%$ Span Typical $\pm 0.1\%$ Span Max (at 250Ω Load) ⁽¹⁾	* (at $>5M\Omega$) ⁽²⁾
Non-linearity	Included in Accuracy	*
Stability	$<50\text{ppm}/^\circ\text{C}$	*
Input Overshoot	$<20\mu\text{A}$ (Typical $5\mu\text{A}$)	$<10\text{mV}$ (Typical 2.5mV)
Compliance Voltage	$27\text{V} \pm 5\%$ (with Zener Diode)	*
Voltage Drop ⁽³⁾	$<2.6\text{V}$ (for 500Ω Load)	*
Output Range	0/4-20mA	0-10V (2-10V) ⁽⁴⁾
Limit Upper Range	40mA	26V
Bandwidth, -3dB	500Hz	50Hz
CMR (50Hz or 60Hz)	112dB	*
NMR	20dB per Decade Above 500Hz	20dB per Decade Above 50Hz
Response Time	1ms, to 90% Span	10ms, to 90% Span
Load Resistance Range	0-1000 Ω	$>5M\Omega$
Output Noise	$<20\text{mV}$ (Typical $<5\text{mV}$)	*
Environmental	Weight Approximately 100g.	Weight Approx. 200g
Housing Material	Lexan 940 (UL 94 V-O)	*
Shock Test	50g (10 Shocks, 3 Axis)	*
Operating Temp Range	-25°C to $+55^\circ\text{C}$	*
Storage Temp Range	-40°C to $+70^\circ\text{C}$	*
Relative Humidity	0 to 75% Noncondensing	*
Emissions	EN50081-2 (Radiated, Conducted)	*
Immunity	EN50082-2 (ESD, RF, EFT)	*

NOTES:

* Same spec as DSCL22-01

 (1) Additional error $<0.05\%$ per 100Ω above 250Ω

 (2) Calculate error due to impedance of output instrument = $500\Omega \times 100 / R_{\text{Inst}}$

 (3) $V_{\text{in}} = I_o R_i + <2.6\text{V}$

 (4) Internal $R = 500\Omega$

Ordering Information

Model	Channels	Input Range	Output Range	Figure
DSCL22-01	1	0-20mA (4-20mA)	0-20mA (4-20mA)	3
DSCL22-02	1	0-20mA (4-20mA)	0-10V (2-10V)	3
DSCL22-11	2	0-20mA (4-20mA)	0-20mA (4-20mA)	4
DSCL22-12	2	0-20mA (4-20mA)	0-10V (2-10V)	4
DSCL22-21	3	0-20mA (4-20mA)	0-20mA (4-20mA)	4
DSCL22-22	3	0-20mA (4-20mA)	0-10V (2-10V)	4

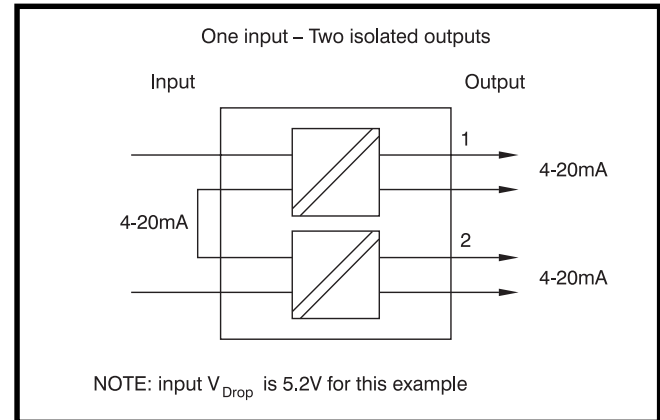


Figure 2: Multi-Channel Versions may be used as a Splitter

Dimensional and Wiring Information

The DSCL22 DIN mount package accepts EN50022 (35 x 7.5) type rails; Dataforth PN SCMXRAIL1-xx. Multiple DSCL22 modules may be mounted next to each other without effecting input or output signals. The DSCL22 may be mounted in any position.

Screw terminals with wire protection clamps sized for $2 \times 0.75\text{mm}^2$ or $1 \times 2.5\text{mm}^2$ wires. The DSCL22 requires no maintenance.

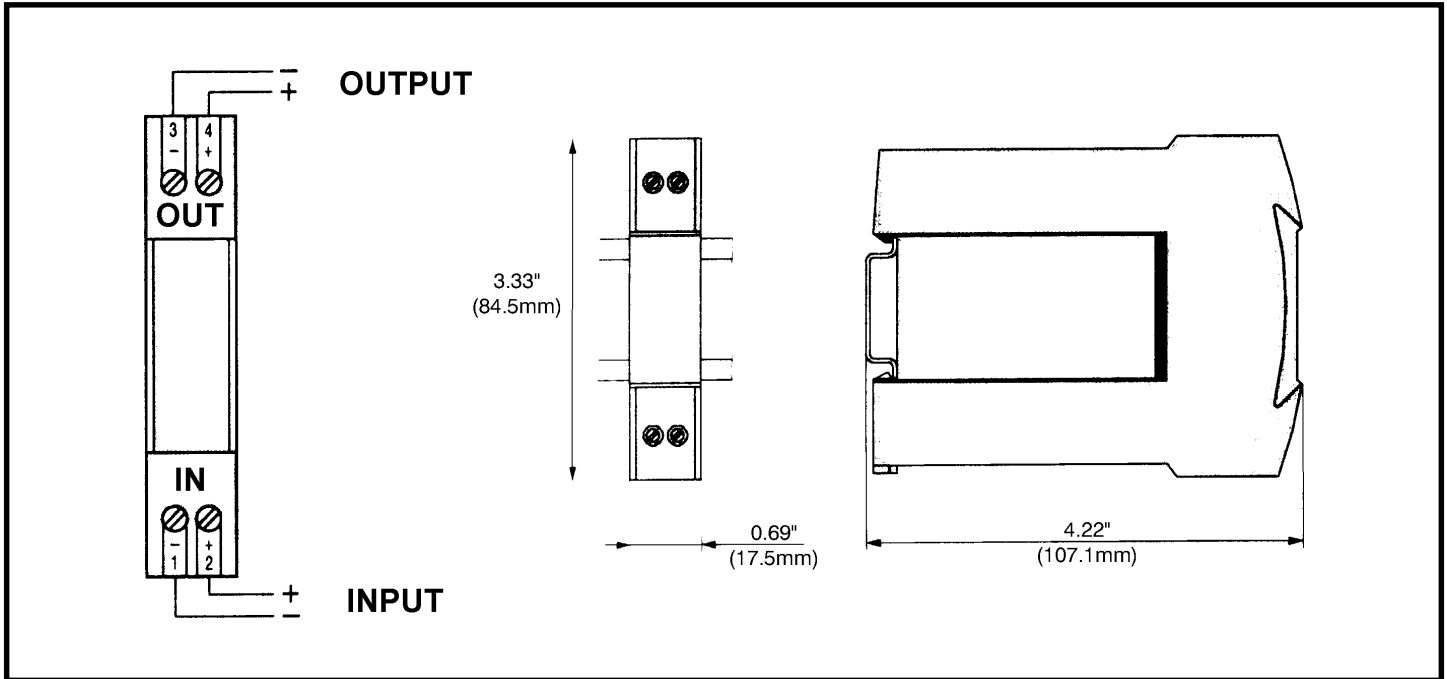


Figure 3: DSCL22-01,-02 Wiring and Dimensions

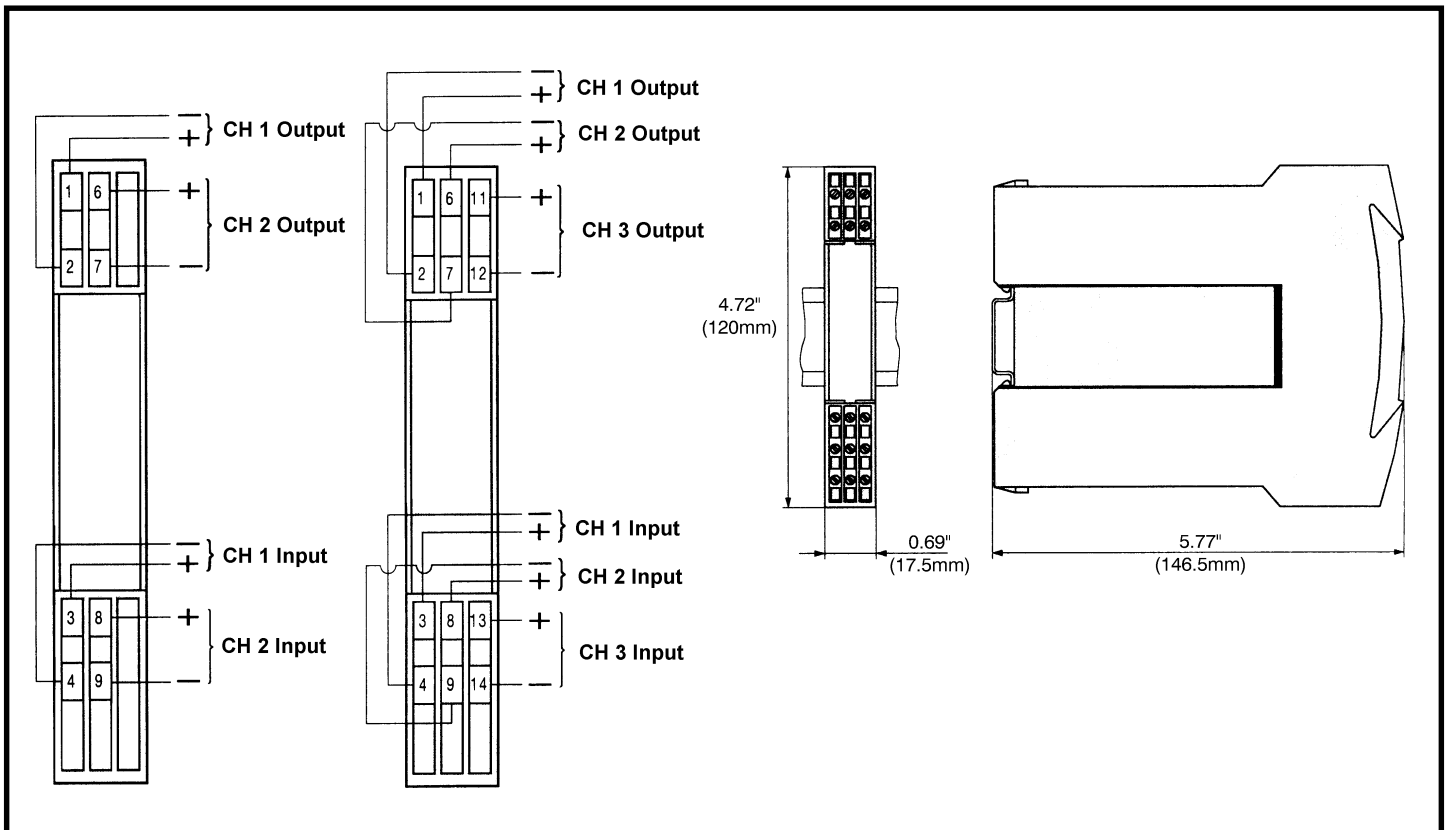


Figure 4: DSCL22-11,-12,-21,-22 Wiring and Dimensions