

# DSCL20

## Loop Powered Isolators - "Component Module"

### Description

Each DSCL20 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 DSCL20 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.

### ► Features

- No Power Supply Required, Signal Powered From 0-20mA (or 4-20mA) Input
- Simplified Wiring, Easy to Install Plug-In Accessories
- Small OEM Modular Package Ideal for PCB Mounting
- I/O Packaging for Vertical or Horizontal Mounting
- 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.

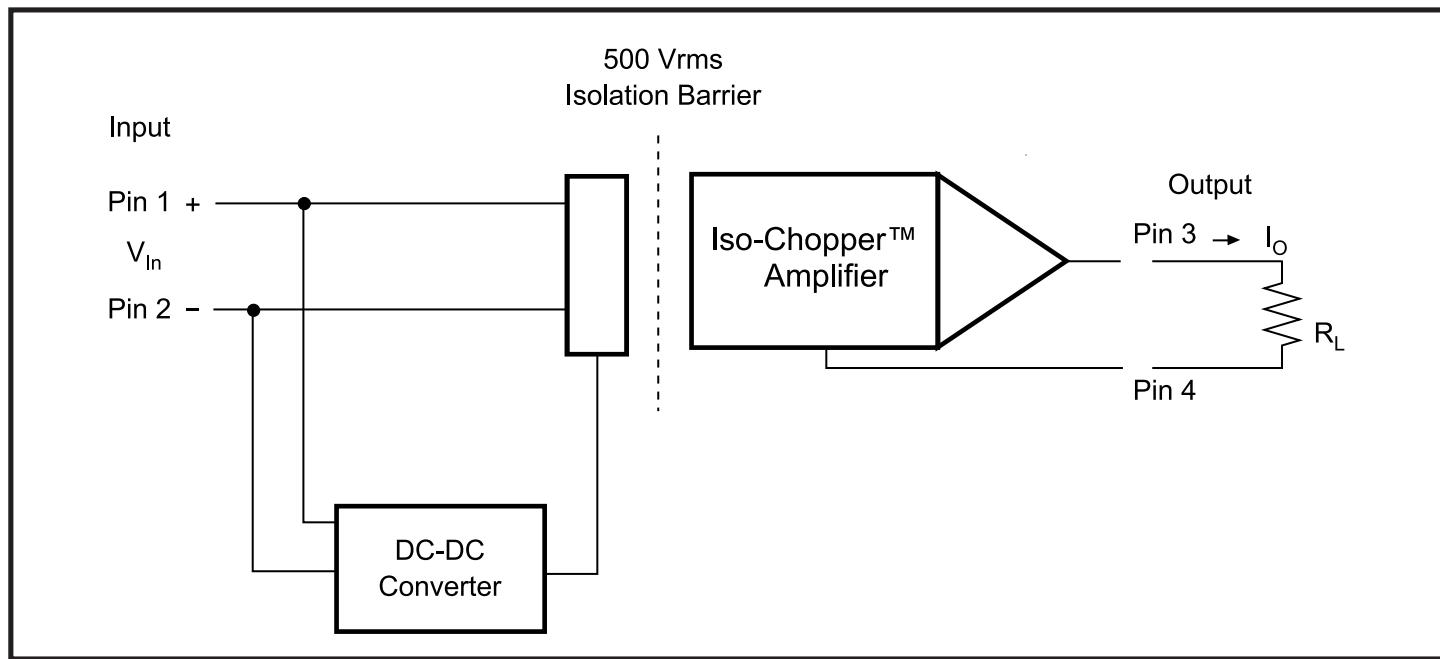


Figure 1: DSCL20 Block Diagram

Specifications      Typical\* at  $T_A=+25^\circ\text{C}$ 

Module	DSCL20
Input Range Input Current CMV Input to Output Accuracy <sup>(1)</sup> (at $100\Omega$ Load)	0/4-20mA 50mA max at 18V max 500VRms, 1 Minute $\pm 0.05\%$ Span Typical $\pm 0.1\%$ Span Max Included in Accuracy $<50\text{ppm}^\circ\text{C}$ $<20\mu\text{A}$ (Typical 5 $\mu\text{A}$ ) 17V max $<2\text{V}$ (for $500\Omega$ Load)
Linearity Stability Overshoot Compliance Voltage <sup>(2)</sup> ( $V_{in}$ ) Voltage drop	$<50\text{ppm}^\circ\text{C}$ $<20\mu\text{A}$ (Typical 5 $\mu\text{A}$ ) 17V max $<2\text{V}$ (for $500\Omega$ Load)
Output Range Limit Upper Range Bandwidth, -3dB CMR (50Hz or 60Hz) NMR Response Time Load Resistance Range Output Noise	0/4-20mA 30mA 750Hz 90dB 20dB per Decade Above 750Hz 1ms, to 90% Span 0-600 $\Omega$ $<20\text{mV}$ Peak-to-Peak (Typical $<5\text{mV}$ )
Environmental Housing Material Shock Test Operating Temp. Range Storage Temp. Range Relative Humidity Emissions Immunity	Weight Approximately 1.5g Lexan 940 (UL 94 V-0) 50g (10 Shocks, 3 Axis) $-20^\circ\text{C}$ to $+65^\circ\text{C}$ $-40^\circ\text{C}$ to $+85^\circ\text{C}$ 0 to 75% Noncondensing EN50081-2 (Radiated, Conducted) EN50082-2 (ESD, RF, EFT)

## NOTES:

\* Contact factory or your local Dataforth sales office for maximum values.

(1) Additional error  $<0.2\%$  at  $500\Omega$  load(2)  $V_{in} = I_o R_L + <2\text{V}$ 

## Ordering Information

Model	Input Range	Output Range	Package
DSCL20-01	0-20mA (4-20mA)	0-20mA (4-20mA)	Bent Pins
DSCL20-02	0-20mA (4-20mA)	0-20mA (4-20mA)	Straight Pins

## Accessory

Model	Description
DSCX-01	Socket for DSCL20-02

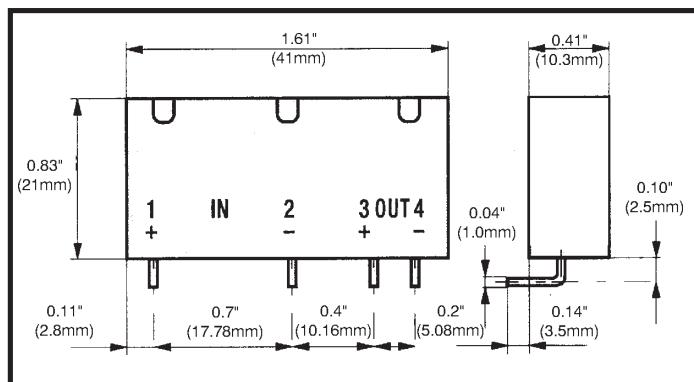


Figure 2: DSCL20-01 (Bent Pins)

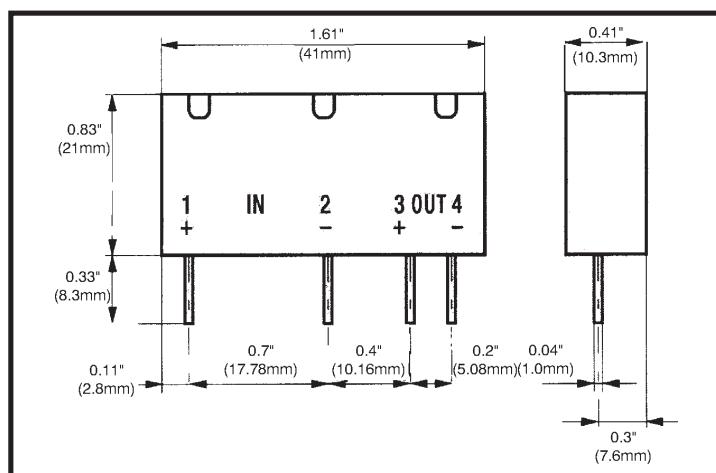


Figure 3: DSCL20-02 (Straight Pins)

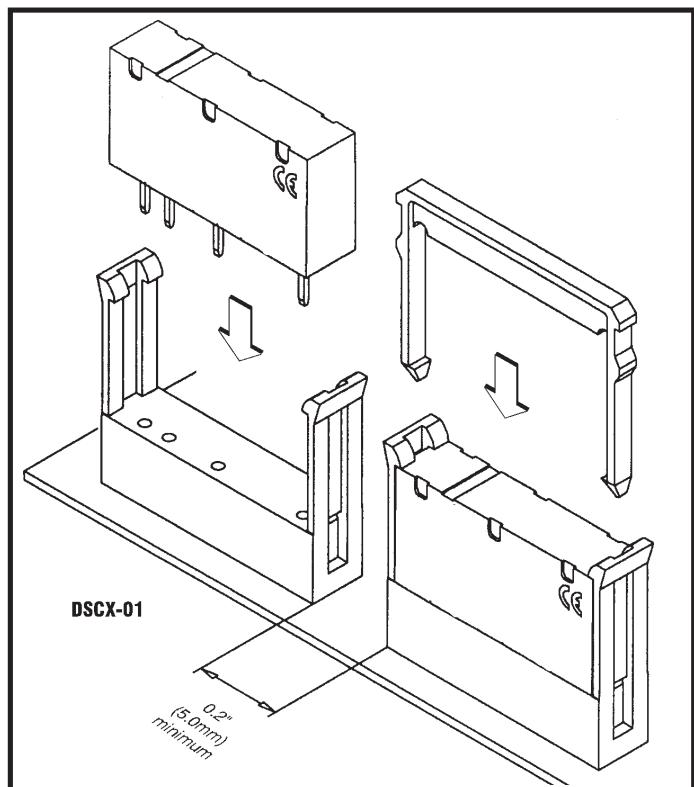


Figure 4: DSCX-01 Socket and Hold-down Accessory for DSCL20-02 (Straight Pin Modules)