

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.

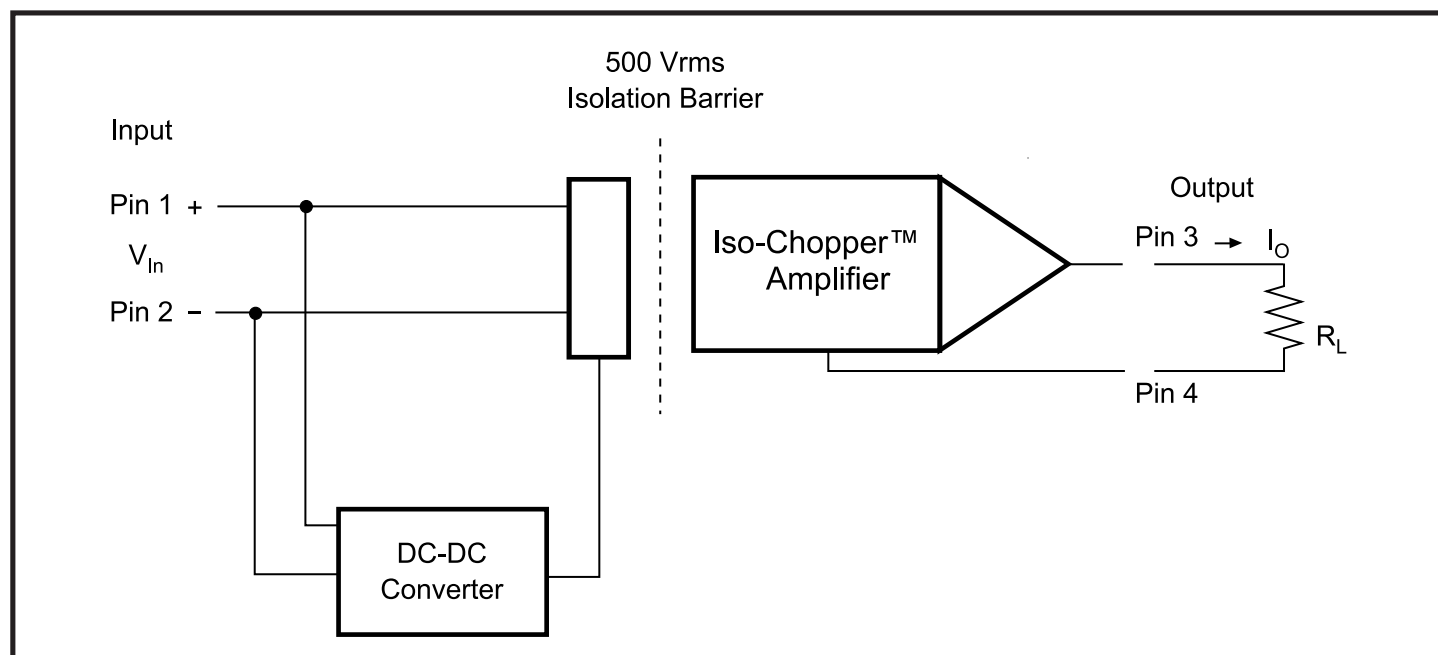


Figure 1: DSCL20 Block Diagram

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

Module	DSCL20
Input Range	0/4-20mA
Input Current	50mA max at 18V max
CMV Input to Output Accuracy ⁽¹⁾ (at 100 Ω Load)	500Vrms, 1 Minute $\pm 0.05\%$ Span Typical $\pm 0.1\%$ Span Max
Linearity	Included in Accuracy
Stability	<50ppm/ $^\circ\text{C}$
Overshoot	<20 μA (Typical 5 μA)
Compliance Voltage ⁽²⁾ (V_{in})	17V max
Voltage drop	<2V (for 500 Ω Load)
Output Range	0/4-20mA
Limit Upper Range	30mA
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
Output Noise	<20mV Peak-to-Peak (Typical <5mV)
Environmental	Weight Approximately 1.5g
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)

NOTES:

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

(1) Additional error <0.2% at 500 Ω load

(2) $V_{in} = I_o R_L + <2V$

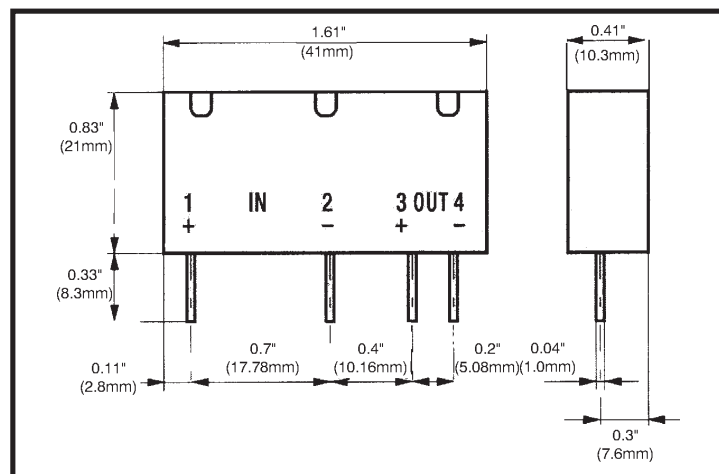


Figure 3: DSCL20-02 (Straight Pins)

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

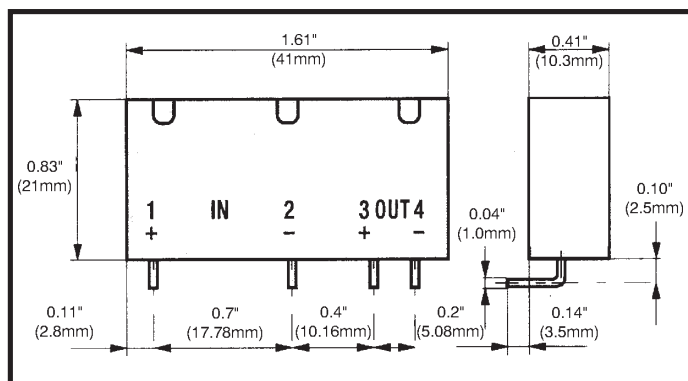


Figure 2: DSCL20-01 (Bent Pins)

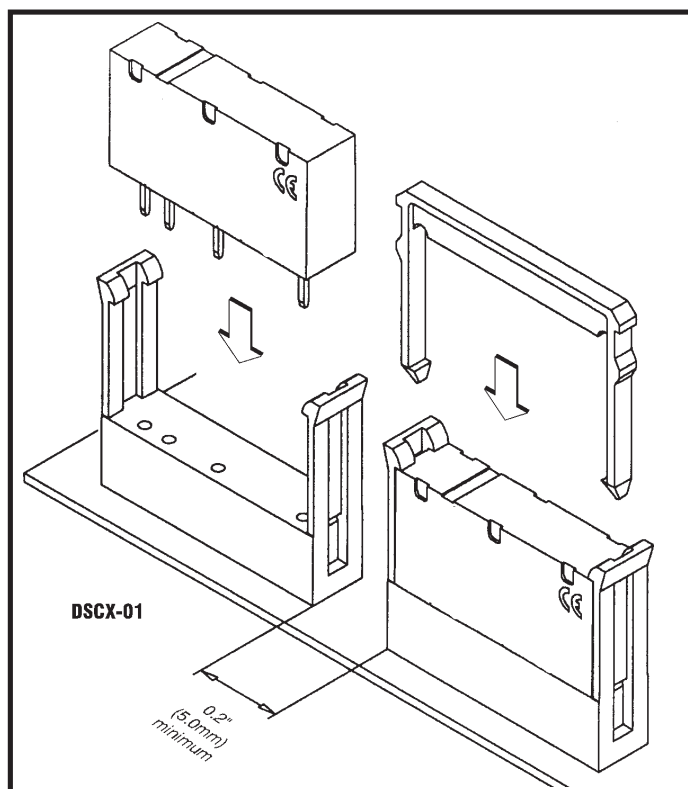


Figure 4: DSCX-01 Socket and Hold-down Accessory for DSCL20-02 (Straight Pin Modules)