

# 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.

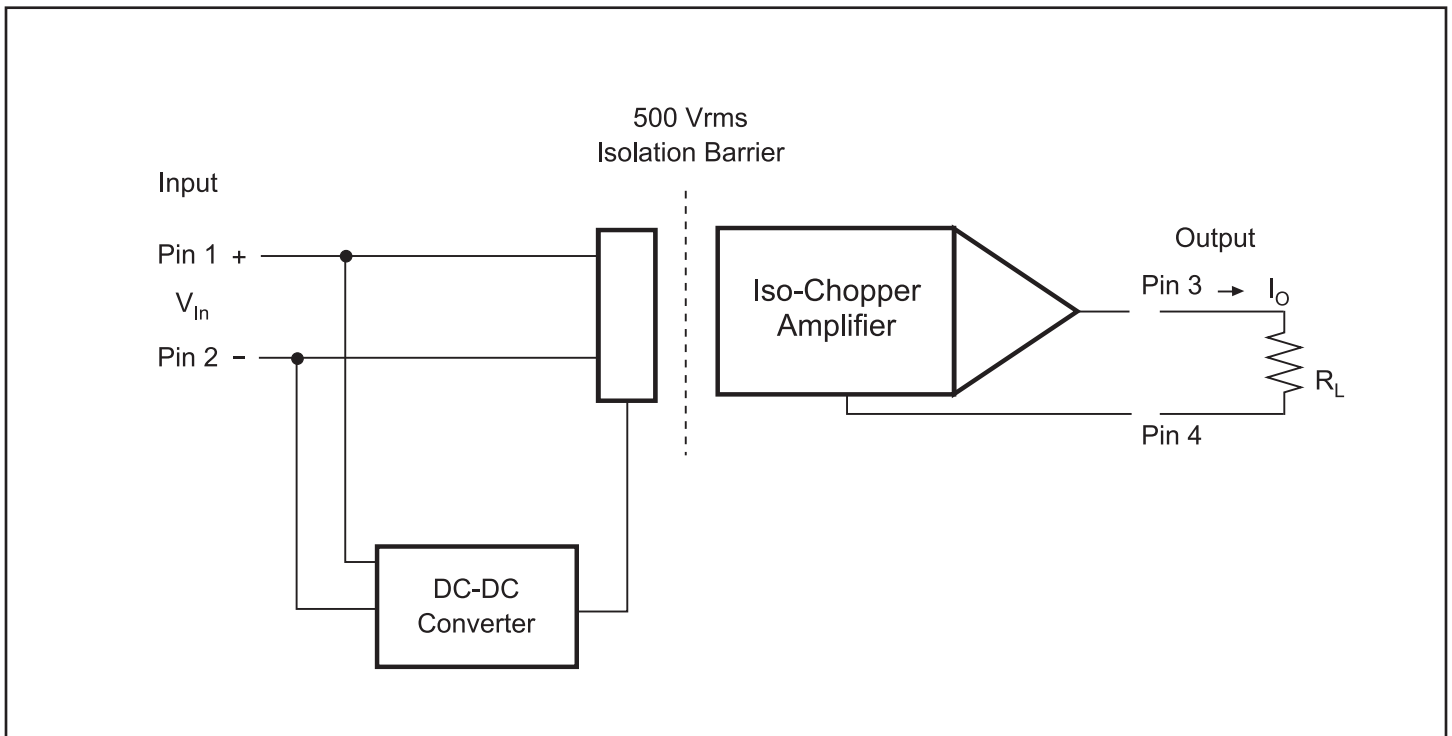


Figure 1: DSCL20 Block Diagram

**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	500Vrms, 1 Minute
Accuracy (at 100Ω Load) <sup>(1)</sup>	±0.05% Span Typical ±0.1% Span Max
Linearity	Included in Accuracy
Stability	<50ppm/°C
Overshoot	<20μA (Typical 5μA)
Compliance Voltage <sup>(2)</sup> ( $V_{in}$ )	17V max
Voltage drop	<2V (for 500Ω 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	0-600Ω
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°C to +65°C
Storage Temp. Range	-40°C to +85°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 500Ω load

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

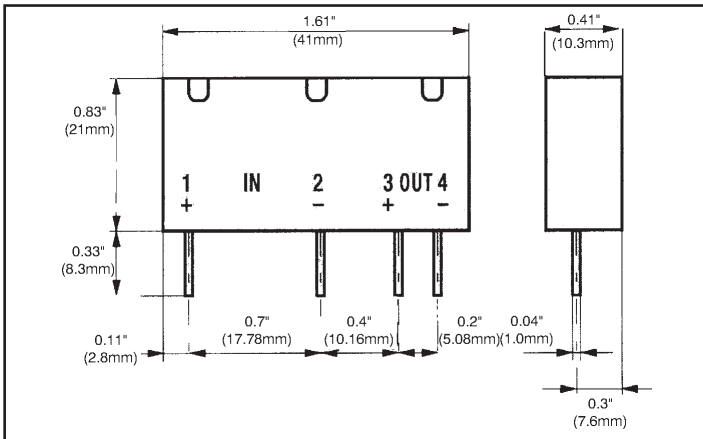


Figure 3: DSCL20-02 (Straight Pins)

**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

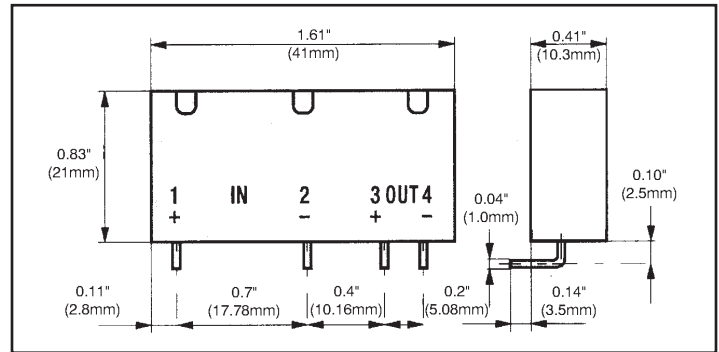


Figure 2: DSCL20-01 (Bent Pins)

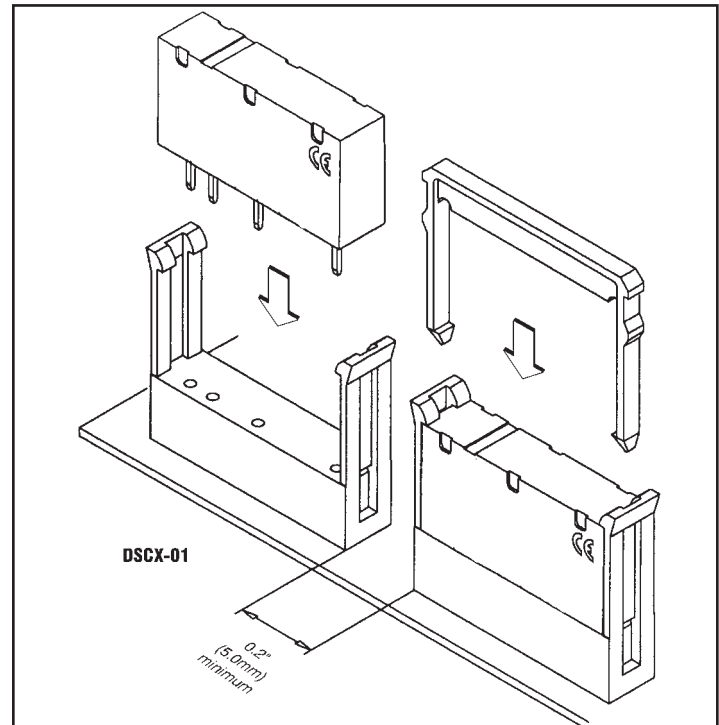


Figure 4: DSCX-01 Socket and Hold-down Accessory for DSCL20-02 (Straight Pin Modules)