DSCL20

Loop-powered Isolators —"Component Module"

DESCRIPTION

The 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

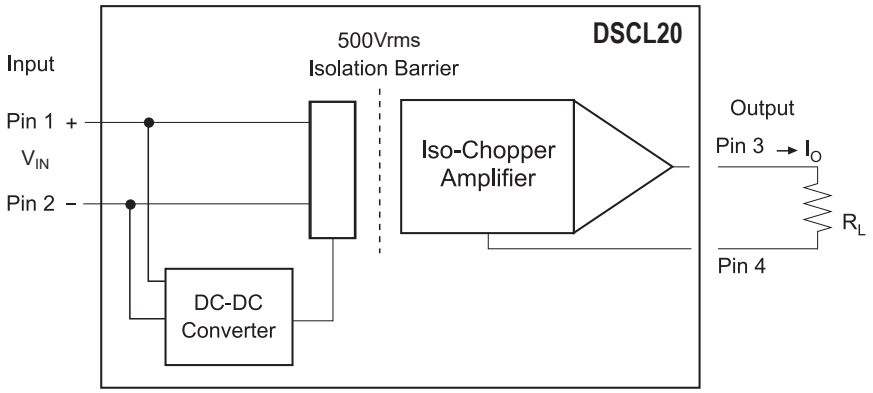
- No Power Supply Required, Signal Powered from 0-20mA (or 4-20mA) Input
- Simplified Wiring, Easy-to-Install Plug-In Accessories
- Small OEM Modular Package Ideal for PCB Mounting
- I/O Packaging for Vertical or Horizontal Mounting
- 500Vrms Transformer Isolation
- Prevents Ground-loop Problems
- Prevents the Transfer of Interference Voltages and Currents
- High Accuracy Over Full Span
- CE Compliant

BENEFITS

- No Recalibration or Maintenance Required
- Multiple Mounting Options
- No Extra Power Supply Required, Powered From 0-20mA or 4-20mA Signal

APPLICATIONS

- Data Acquisition
- Test and Measurement
- Control Systems
- Current Repeater
- Resistive Load Drives
- Medical, Industrial, etc. Needing Electrical Isolation for Safety



The compliance voltage or loop voltage must not exceed 17V, as this may damage the module.

DSCL20 Block Diagram - For Module Dimensions and Pinouts, See Page 7-7

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Specifications

Typical* at T_A = +25°C

Module	DSCL20
Input Range	0-20mA, 4-20mA
Input Current	50mA (max) at 18V (max)
CMV Input to Output	500Vrms, 1 Minute
Accuracy (at 100Ω Load)(1)	±0.05% Span (typ)
	±0.1% Span (max)
Linearity	Included in Accuracy
Stability	<50ppm/°C
Overshoot	<20µA ((typ) 5µA)
Compliance Voltage(2) (V_{IN})	17V (max)
Voltage Drop	<2V (for 500Ω Load)
Output Range	0-20mA, 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 (typ <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

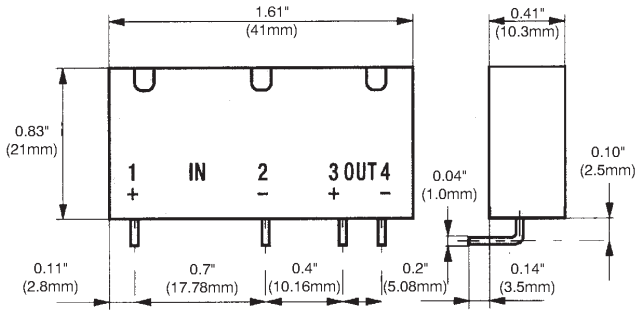


Figure 1: DSCL20-01 (Bent Pins)

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

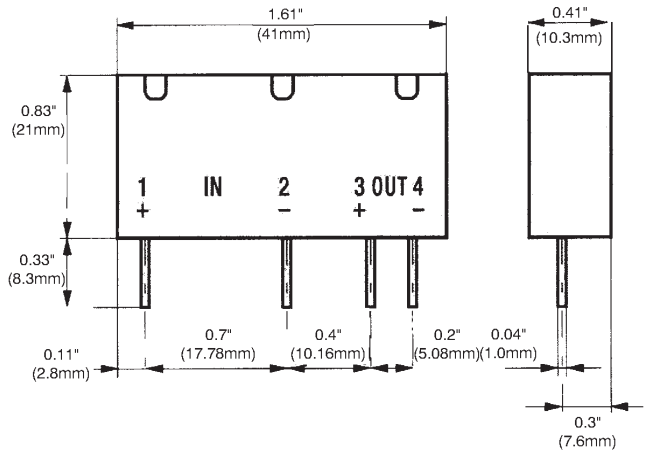


Figure 2: DSCL20-02 (Straight Pins)

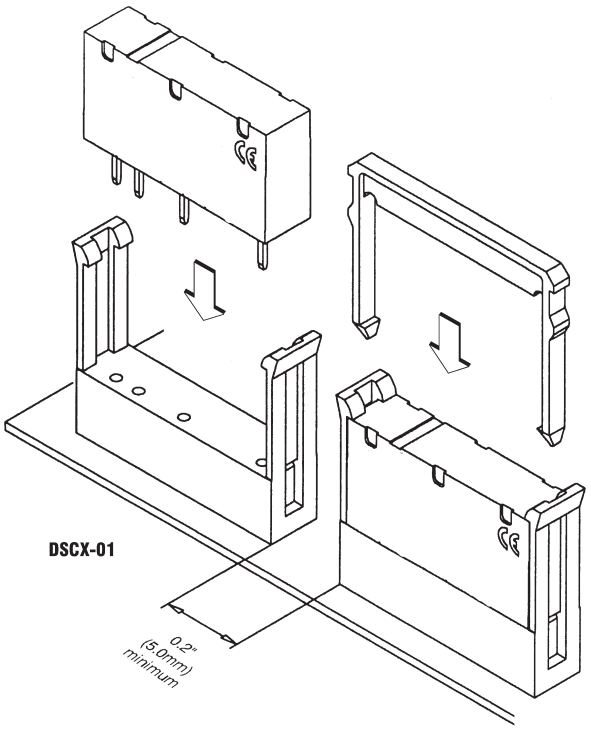


Figure 3: DSCX-01 Socket and Hold-down Accessory for DSCL20-02 (Straight Pin Modules)

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