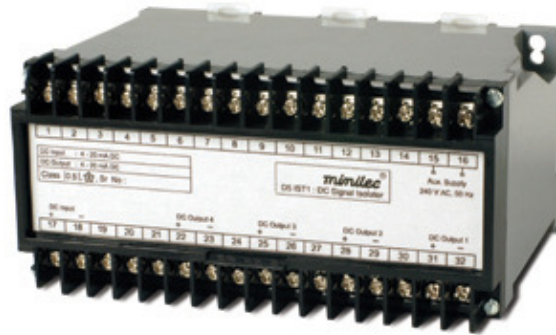


Technical Data Sheet DC Signal Isolator

minilec[®]



DC Signal Isolator



Loop Powered DC Signal Isolator



DC Signal Isolator to provide galvanic isolation between field DC signal and control room equipment, which utilises reliable optical isolation technique. Use of latest circuit techniques and quality components ensure reliable operation over long periods

Loop Powered DC Signal Isolator to provide galvanically isolated 4 – 20 mA DC output current proportional 4 – 20 mA DC input current. The isolator utilises high frequency transformer isolation technique. The power required for internal circuitry is derived from input current. Use of latest circuit techniques and quality components ensure reliable operation over long periods.

Salient Features

- ✦ State of art circuit techniques
- ✦ Rugged to withstand harsh environments
- ✦ Wide choice of input and output ranges
- ✦ Complete 3 port galvanic isolation between Input, output and auxiliary supply .
- ✦ Isolators with output to output galvanic isolation available optionally.
- ✦ Eliminate ground loop problems
- ✦ High long term stability and reliability
- ✦ DIN Rail, Panel Wall mounting

Applications

- ✦ Isolation of Control Room Equipment (PLC, SCADA, DCS etc) from Field Equipment
- ✦ Process Monitoring and Control
- ✦ Feedback Control Elements

Operation :

The input signal is filtered and processed to convert into a standard dc voltage. This voltage is fed to a linear optocoupler which provides the required galvanic isolation. An optical feedback is used for improved linearity, response time and temperature effects. The output from the linear optocoupler is further processed to provide dc voltage / current output.

The isolator with fast response time (10 mSec) are typically used in feedback control system.

Salient Features

- ✦ Self Powered, High Accuracy
- ✦ State of art circuit techniques
- ✦ Rugged to withstand harsh environments
- ✦ Complete input / output galvanic isolation
- ✦ Eliminates ground loop problems
- ✦ Reduces noise and protects against transients
- ✦ High long term stability and reliability
- ✦ DIN Rail, Panel Wall mounting

Applications

- ✦ Isolation of Control Room Equipment (PLC, SCADA, DCS etc) from Field Transmitters providing 4 – 20 mA DC signal

Operation :

The input dc current is chopped by the chopper to convert it into high frequency ac signal. This signal is fed to an isolating high frequency transformer. The ac output current from the transformer is rectified and filtered to obtain load independent dc output current. As the transformation ratio is 1:1, the output current is identical in value to the dc input current.

DC Signal Isolator

Specifications :

Input Range	: 0 – 1 mA DC	0 – 50 mV DC	0 – 5 V DC
(Unipolar /	0 – 5 mA DC	0 – 60 mV DC	0 – 10 V DC
Bipolar)	0 – 10 mA DC	0 – 75 mV DC	0 – 150 V DC
	0 – 20 mA DC	0 – 100 mV DC	0 – 300 V DC
	4 – 20 mA DC	0 – 1 V DC	0 – 600 V DC
No. of Outputs	: One, Two, Three, Four		
Output Range	: 0 – 1 mA DC	0 – 20 mA DC	0 – 5 V DC
(Unipolar /	0 – 10 mA DC	4 – 20 mA DC	0 – 10 V DC
Bipolar)			
Response Time	: Less than 500 mSec, 10 mSec		
Accuracy	: ± 0.5% of Span		
Auxiliary Supply	: 110, 240 V AC ± 20%, 50 Hz		
	24, 48, 110, 220 V DC ± 20%		

Continuous Overload Capacity	: 2 times Upper limit of Input Current
	1.2 times Upper limit of Input Voltage
Operating Temp.	: 0 – 55 Deg C,
	95% RH Non-Condensing
Effect of Ambient Temp.	: Less than 0.03% of Span per Deg C
Isolation Test Voltage between	: 2 KV AC, 50 Hz / 2 KV DC for 1 min
Input, Output and Aux. Supply	
Insulation Resistance	: More than 100 Mohm at 500 V DC
Output Load Resistance	
For Current Output	: Max. 10V/ Iout (Optional 15 V/ Iout)
For Voltage Output	: 10 Kohm (min.)
Output Ripple	: Less than 0.5% of Span
	(peak to peak)
Normal Mode Rejection	: Negligible effect for input of
	100% of span rms @ 50 Hz
Common Mode Rejection	: Negligible effect for input of
	250 Vrms @ 50 Hz
Zero, Span Adjustment	: Optionally provided,
Potentiometers	Accessible externally.
Terminals	: Suitable for 2.5 sq mm wires
Mounting	: 35 mm DIN Rail, Panel Wall
Enclosure	: ABS Plastic Enclosure, IP40

Note : Consult Factory for Isolator accepting input from temperature sensors like PT-100, Thermocouples etc.

Loop Powered DC Signal Isolator

Specifications :

Input Range	: 4 – 20 mA DC
Output Range	: 4 – 20 mA DC
Response Time	: Less than 100 mSec
Accuracy	: ± 0.2% of Span

Continuous Overload	: 50 mA DC
Capacity	
Maximum Input Voltage	: 15 V DC
Voltage Drop Across Isolator	: 4 V DC (approx.)
Operating Temp.	: 0 – 55 Deg C,
	95% RH Non Condensing
Effect of Ambient Temp.	: Less than 0.01% of Span
	per Deg C
Isolation Test Voltage	: 2 KV AC, 50 Hz for 1 min.
between input and output	
Insulation Resistance	: More than 100 Mohm
	at 500 V DC
Output Load Resistance (R _L)	: 550 Ohms Max.
Effect of Load Resistance	: Less than (+) 0.2% per
on Accuracy	100 Ohm If R _L < 250 Ohm
	: Less than (–) 0.2% per
	100 Ohm If R _L > 250 Ohm
Output Ripple	: Less than 0.5% of Span
	(peak to peak)
Terminals	: Suitable for 2.5 sq.mm wires
Mounting	: 35 mm DIN Rail, Panel Wall
Enclosure	: ABS Plastic Enclosure, IP40

Wiring and Dimensional Drawing :

