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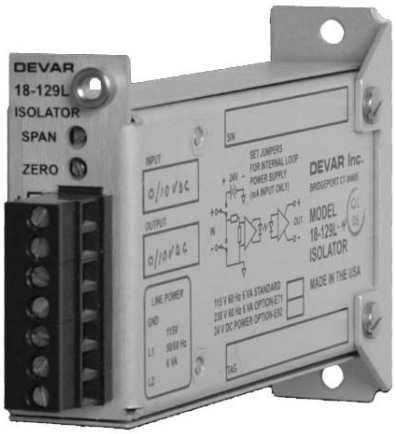
Model 18-129L

ISOLATOR



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1.0 General Description

1.1 The Model 18-129L Isolator provides electrical isolation between a high level signal transmitter and a receiving device. The 18-129L accepts a variety of voltage or current inputs and provides a variety of isolated voltage or current outputs. Because the input and output signals do not have to be the same, the 18-129L can be used as a signal converter as well as a signal isolator. The 18-129L is also useful as a signal repeater or as a signal booster in 4 to 20 mA loops which have become over loaded.

1.2 Standard input/output signals for the 18-129L include 0 to 1 mA, 4 to 20 mA, 0 to 20 mA, 0 to 1 V, 0 to 5 V, 1 to 5 V and 0 to 10 V. The milliamp input versions of the 18-129L feature a low input voltage drop of 0.4 volts for a full scale input. The milliamp input versions also provide an unregulated 23 volt output to power a 2-wire, 4 to 20 mA transmitter. This voltage is optional and can be enabled or disabled by the positioning of plug-in jumpers on the PC board. See figures 2 and 3 for more information on input wiring. The voltage input versions of the 18-129L have a voltage divider at the input, providing an input resistance of approximately 45,000 ohms of per volt.

1.3 The 18-129L uses optical isolation to separate the input from the output. The input signal is transferred to the output circuitry through the use of a precision optical coupler with an isolation rating of 2500 volts RMS. Optical feedback is provided to assure high accuracy and excellent linearity. The AC powered units utilize a split bobbin, power transformer to guarantee maximum isolation between the input and output power supply circuitry.

1.4 Three power supply options, 115 VAC, 220 VAC and 24 VDC, are available for the 18-129L. The AC powered versions of the 18-129L have approximately 32 volts available to power a current output loop. This voltage can drive a 20 mA output into a 1600 ohm load. In the 24 VDC versions the milliamp outputs receive their power from the external 24 V supply. The DC powered 18-129L can drive a 20 mA output into an 850 ohm load. Note that the negative output terminal and the negative power supply terminal are internally connected in the DC powered units.

1.5 The compact MINI-PACK design provides high-packing density for wall, rack, snap track or DIN rail mounting. Field wiring connections are made to a compression type terminal block, which can be unplugged from the isolator for ease of wiring. Span and zero potentiometers are accessible at the front of the 18-129L for fine calibration adjustments.

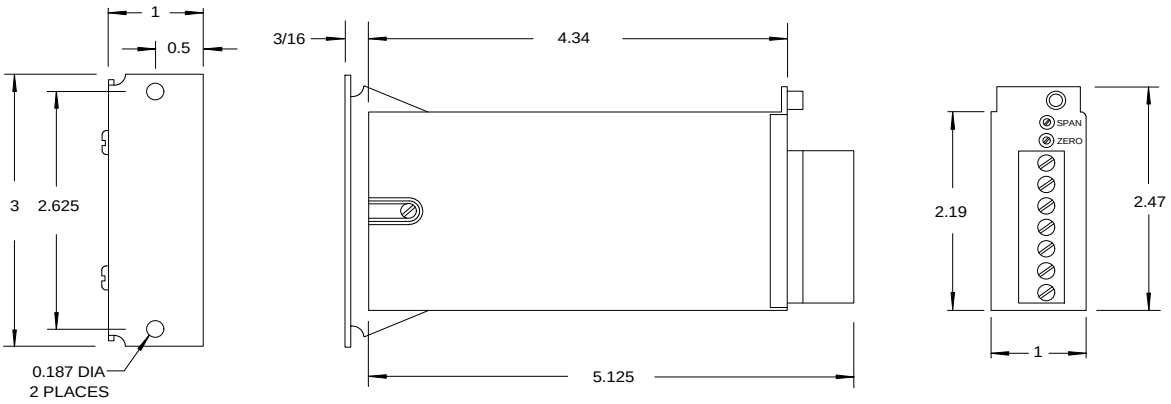
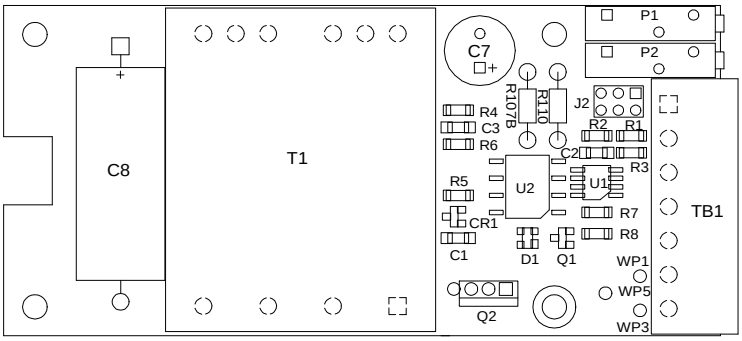


Figure 1: General dimensions



J2 ENABLE +23 V

J2 DISABLE +23 V

Positioning jumpers as shown above enables or disables the 23 volt output provided to power a 4 to 20 mA, 2-wire field transmitter. If the transmitter is self powered or an external 24 volt power supply is being used, the internal supply should be disabled.

Figure 2: Internal 23 volt loop supply option

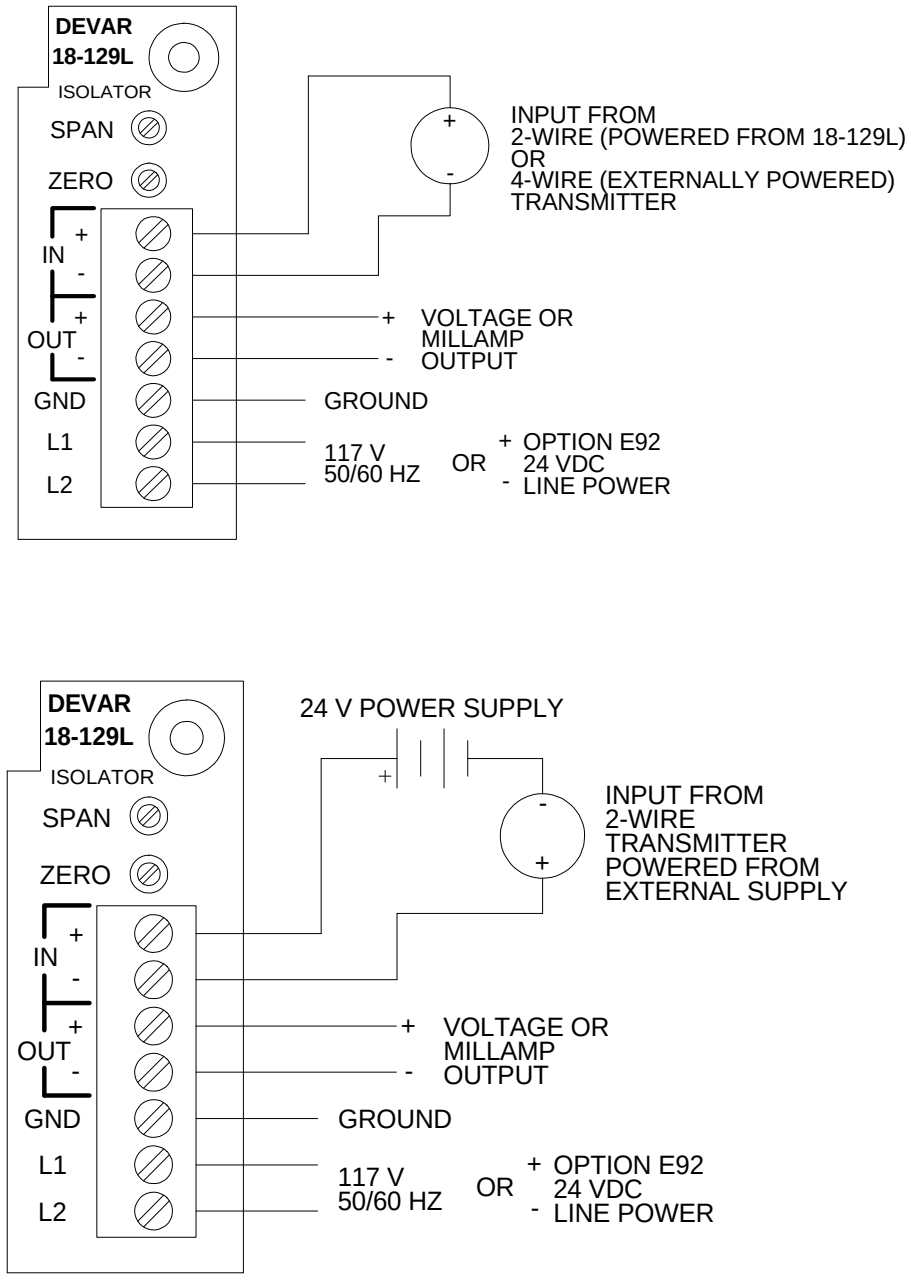


Figure 3: Field wiring connections

2.0 Product Coding

2.1 To order the 18-129L specify the model number plus any options.

Standard input/output ranges:

	Model	Input	Output	Power
1)	18-129L-1	4/20 mA	4/20 ma	117 VAC
2)	18-129L-2	4/20 mA	0/10 VDC	117 VAC
3)	18-129L-3	0/10 VDC	4/20 ma	117 VAC
4)	18-129L-4	0/10 VDC	0/10 VDC	117 VAC
5)	18-129L-5	0/10 VDC	0/10 VDC	24 VDC
6)	18-129L-6	0/10 VDC	4/20 ma	24 VDC
7)	18-129L-7	4/20 mA	0/10 VDC	24 VDC
8)	18-129L-8	4/20 mA	4/20 ma	24 VDC

2.3 For nonstandard ranges specify 18-129L-SC + options + input + output.

Allowable input/output ranges include any combination of the following ranges:

0 to 1 mA; 4 to 20 mA; 0 to 20 mA; 0 to 1 V; 0 to 5 V; 1 to 5 V; 0 to 10 V

2.4 Options:

1)	E71	Substitute 220 VAC line power
2)	M31D	Add DIN rail mounting bracket
3)	M37A	Add explosion proof housing
4)	M37I	Add explosion proof housing with indication
5)	NE4	Add 7" x 5" x 6" NEMA 4X enclosure (holds 1, 2 or 3 units)
6)	M36	Add 2" pipe mount bracket for explosion proof housing
7)	SC	Add nonstandard input/output range

3.0 SPECIFICATIONS

3.1 General:

a. Calibration accuracy	±0.1% of span, @ 25^{O} C
b. Power requirements	115 V, ± 10 V, 50/60 Hz, 5 VA or 24 VDC (20 - 30 V), 1.5 watt (see product coding) (230 VAC, Option E71)
c. Line regulation	0.3 µA per 1 volt change in supply (4 to 20 mA output)
d. Load regulation	0.006 µA per 1 ohm change in load (4 to 20 mA output)
e. Operating temperature	0 to 60 ^{O}C

f. Temperature effect	±0.01 % of span per ^{O}C typ. ±0.025 % of span per ^{O}C max.
g. Frequency response	-3 dB at 1000 Hz
h. Common mode rejection	-70 dB at 60 Hz, -100 dB at DC

3.2 Inputs:

a. 4 to 20 mA DC	
Input resistance	20 ohms ± 1%
Voltage drop	0.4 @ 20 mA, typical
b. 0 to 20 mA DC	
Input resistance	20 ohms ± 1%
Voltage drop	0.4 @ 20 mA, typical
c. 0 to 1 mA DC	
Input resistance	402 ohms ± 1%
Voltage drop	0.4 @ 1 mA, typical
d. 0 to 10 V DC	
Input resistance	450 kilohms ± 2%
e. 0 to 5 V DC	
Input resistance	223 kilohms ± 2%
f. 1 to 5 V DC	
Input resistance	223 kilohms ± 2%
g. 0 to 1 V DC	
Input resistance	58 kilohms ± 2%

3.3 Outputs:

a. Current (AC Powered)	4 to 20 mA into 1600 ohms max. 0 to 20 mA into 1600 ohms max. 0 to 1 mA into 32 kilohms max. Current limit = 32 mA
b. Current (DC Powered)	4 to 20 mA into 850 ohms max. 0 to 20 mA into 850 ohms max. 0 to 1 mA into 17 kilohms max. Current limit = 24V / (250 + load)
c. Voltage (AC or DC Powered)	0 to 1 V, 0 to 5 V, 1 to 5 V and 0 to 10 V; short circuit = 22 mA (min. output voltage -50 mV)
d. Field transmitter excitation voltage (AC Powered, See figure 2)	20 to 30 VDC Depending on the Input current and the line voltage current limited to 40 mA
e. Field transmitter excitation voltage (DC Powered, See figure 2)	23 VDC ± 2 V current limited to 60 mA

3.4	Isolation:	
	a. Input/Output/Case	2000 V RMS
3.5	Housing:	
	a. Indoor type	Anodized aluminum
	b. Plug-in terminal block	Compression type Wire range: AWG 14 - 26 Strip length: 0.31 inches Torque: 7 in-lbs
	c. Mounting bracket	Surface mount or 3" Snap Track