SIGNAL ISOLATOR (v2) BSI239

DESCRIPTION

The BSI239 is loop powered isolator used to measure DC voltages and process currents plus a range of optional inputs. Input/output isolation of 2kV rms is achieved by transformer coupling of power supply and signal. The BSI239 accepts a wide range of dc voltage and current input signals as well a supporting reverse and direct action mode at no extra cost. Standard output is 4-20mA with a minimum supply voltage of 8V. This enables the BSI239 to be used in 12V battery supply systems or in automotive applications. Other factory set output configurations are 10 - 50mA loop powered and 0 - 10mA, 0 -20mA or voltage output in 3-wire connection. Double surge protection is standard with all Series 200 loop powered transmitters to prevent failure due to spikes induced by DC switched inductive loads. Final calibration is trimmed using the front accessible zero and span 15-turn trim adjustments. A front mounted L.E.D. and a test socket verify module function and assist in calibration checks without disconnection of output wires.

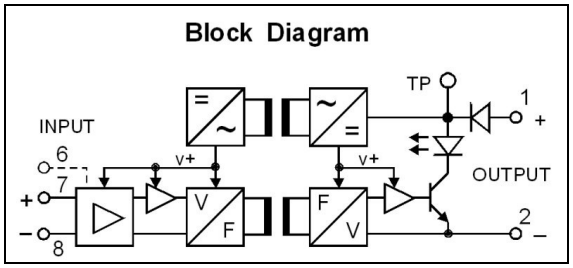
General Specifications

Size:	23.5W x 71.5H x 109D (mm).
Mounting:	Clip for 35mm DIN-Rail.
Housing material:	ABS.
Connection:	Screw terminals.
Weight:	120 g.
Protection class:	IP40.
Accuracy error:	<0.1%.
Linearity error:	<0.1%.
Long term drift:	<0.10%.
Ambient operating range:	-10...+65°C.
Temperature drift error:	0.02% per °C.
Supply voltage:	8 - 40V continuous (50V 30 seconds).
Load for 4 - 20mA output:	RL max. = $\frac{\text{supply·voltage}-8\text{V}}{0.02\text{A}}$ [Ω]
Load change effect:	0.1% up to RL max.
Response time:	500ms. (custom filtering on request).
Input impedance:	>500k Ω up to 10M Ω voltage inputs.
Overload continuous:	500% of rated input.
(Zero suppression/elevation)	
Front Zero adjust:	+20/ -10% typical.
Front Span adjust:	±25% typical.
Internal Offset Adjust:	±50%.
Noise immunity:	130dB CMRR.
Input/output isolation:	>2kV r.m.s.
Electromagnetic compatibility:	Complies with EN 50081-1, EN 50082-2, EN 61010-1

CE

For link selectable process signal inputs refer to BSI231.
For input / output combinations refer to TYPE NO. DESIGNATION overleaf.

Block Diagram



BSI239 - X XX X X

TYPE NO. DESIGNATION

Power Supply:

2-Wire
- 1 = 4 - 20mA.
- 2 = 10 - 50mA.

3-Wire
- *) 3 = 0 - 1mA.
- *) 4 = 0 - 10mA.
- *) 5 = 0 - 20mA.
- *) 6 = 0 - 1V.
- *) 7 = 0 - 5 V, min supply 10.5Vdc.
- *) 8 = 0 - 10V, min supply 15.5Vdc.
- *) 9 = Other (Specify).

Input:

- 01 = 0 - 100mV.
- 02 = 0 - 200mV.
- 03 = 0 - 500mV.
- 04 = 0 - 1V.
- 05 = 0 - 2V.
- 06 = 0 - 5V.
- 07 = 0 - 10V.
- 08 = 0 - 100V.
- 09 = 1 - 5V.
- 11 = 0 - 1mA.
- 12 = 0 - 5mA.
- 13 = 0 - 10mA.
- 14 = 0 - 20mA.
- 15 = 0 - 50mA.
- 16 = 4 - 20mA.
- 17 = 10 - 50mA.
- *) 19 = Other. (Specify 100Vdc or 100mA max).

• **Input Opt:** (Inputs continued)

- *) 21 = DC voltage up to 2000Vdc.
- *) 22 = DC millivolt, <100mVdc.
- *) 23 = DC voltage, bipolar 10mV to ±2kV.
- *) 24 = DC current input 10A max.
- *) 32 = True rms., other than sine wave
- *) 43 = Watermark Soil Moisture BSMS009.
- *) 61 = Adder, 2 inputs 4 - 20mA floating.
- *) 62 = Subtracter, 2 inputs 4 - 20mA floating.
- *) 64 = MIN selector, 2 inputs 4-20mA signal.
- *) 65 = MAX selector, 2 inputs 4-20mA signal.
- *) 66 = Triple input adder (3x 4-20mA floating).
- *) 67 = Quad input adder (4x 4-20mA floating).
- *) 99 = Other.

• Specify calibration details for all optional inputs.

Action:

- 1 = Direct.
- 2 = Reverse.

Options:

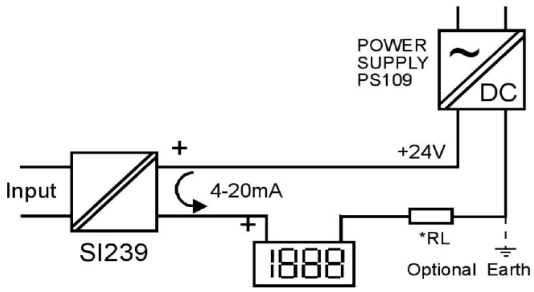
- 0 = None.
- *) 1 = Output ramp (ext. capacitor).
- *) 2 = Customised response time.
- *) 9 = Other (Specify).

*) = Price Extra.

Front Control Explanation

1) Test socket - output signal access with reference to terminal (1) loop integrity is maintained when digital multimeter Rin < 30Ω is used.
2) Loop indicator - dim at 4mA, bright at 20mA.
3) SPAN (full scale) adjust 15 turn.
4) ZERO (start scale) adjust 15 turn.

Wiring Example



* RL is input load of a process instrument.

Connection Diagrams