Signal Isolator v3 SI236

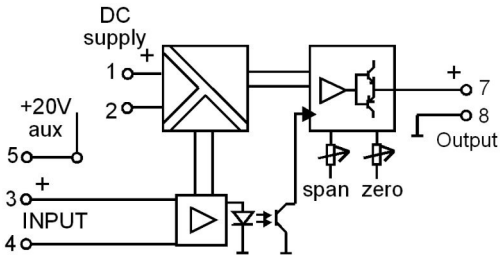
DESCRIPTION

The SI236 is an isolating converter providing true 3-way galvanic isolation up to 2kV rms. The SI236 produces an isolated unipolar output signal from an input signal. The SI236 comes in three, coding plug select-able models to accept either: Process, mV or Bipolar input signals. No special tools or components are required for range changing in the field. A 20Vdc/22mA sensor supply is available at the input section, this can be useful for loop powered field transmitters. Final calibration is trimmed using the front accessible zero and span 15-turn trim adjustments. Maximum current drive is 20mA and maximum voltage drive is 20V. The wide swing DC-power supply (8-60V) covers all popular DC sources. All units are fitted with a 500mS filter that can be link changed to 5mS for fast response. Surge protection for power supply and input is standard with all APCS modules.

General Specifications

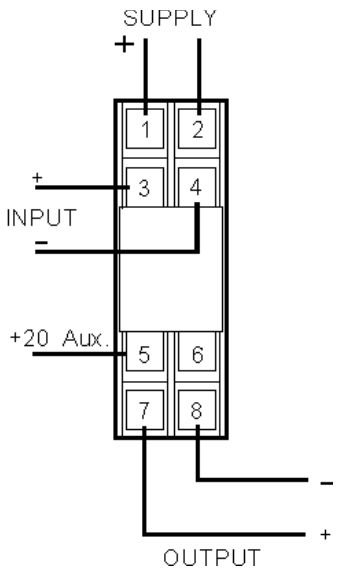
Size:	23.5W x 71.5H x 109D (mm).
Mounting:	Clip for 35mm DIN-Rail.
Housing material:	ABS.
Termination:	Top mounted screw terminals.
Protection class:	IP40 (IP55 Enclosure Opt).
Weight:	0.120 kg.
Protection class:	IP40.
Calibration accuracy:	<0.2%.
Front 'SPAN' adjust:	±25% typical.
Front 'ZERO' adjust:	+20/ -10% typical.
Linearity:	<0.1%.
Long term drift:	<0.1%.
Temperature effect:	Typically 0.025% of span per °C.
Operating temperature:	-10...+60°C.
Output drive:	10mA into 0 - 2kΩ, 20mA into 0 - 1kΩ.
Input impedance:	Current 51Ω. Voltage 2M7Ω (10V/5V range). 560kΩ (2V/1V range). mV 140kΩ (250-1000mV ranges). 30kΩ (40-200mV ranges).
Supply/Input/Output Isolation:	2kV rms.
Auxiliary Output:	20Vdc with 22mA drive (Suitable for 2-wire transmitter supply).
Electromagnetic compatibility:	Complies with AS/NZS 4251.1 (EN 50081.1)

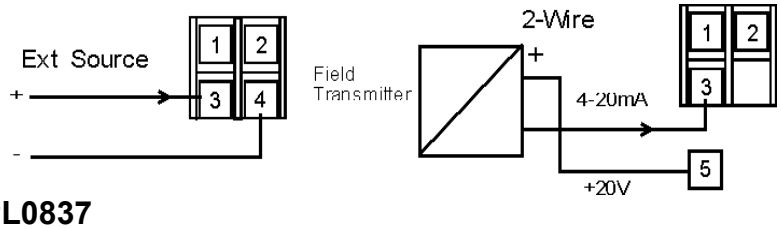
Block Diagram



Connections

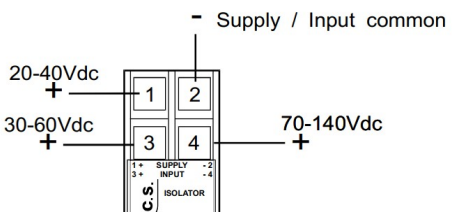
When externally sourced signals are used terminal 3 is the positive input.
When a 2-wire field transmitter is used, terminal 5 is a 20V power supply used to supply the loop current.





SPL0837

There is also a signal powered version of the SI236 called SPL0837. The SPL0837 has three signal powered input ranges. When used with one input at a time the output will have correct calibration for each range. The front adjustments ZERO and SPAN affect all three ranges.



For input / output combinations on the standard SI236 refer to TYPE NO. DESIGNATION overleaf.

A.P.C.S.

SI236 – X X X 0 X X

TYPE NO. DESIGNATION

Power Supply:

3 = 8 – 60Vdc.
*) 5 = 20 - 48Vac.
*) 6 = 60 – 160Vdc / 48 – 150Vac.

Input (Specify required range from selected table):

1 = Process Signals, Table 2 (# 4-20mA).
2 = Millivolt Signals, Table 4 (# 75mV).
3 = Bipolar Signals, Table 5 (# +10V).
*) A = Potentiometer 3W voltage excitation.
*) B = Adder, 2 inputs 4 - 20mA floating.
*) C = Subtracter, 2 inputs 4 - 20mA floating.
*) D = MIN selector, 2 inputs 4-20mA signal.
*) E = MAX selector, 2 inputs 4-20mA signal.
*) 9 = Other. (Specify).

Refer to DS23632 for additional connection information when using inputs B to E.

Output (Specify required range):

1 = Process Signals Table 7 4-20mA default.
*) L = 4-20mA loop powered signal.
*) 9 = Other. (Specify, disable links).

Action:

1 = Direct.
2 = Reverse.

Options:

0 = None.
*) 1 = Customised response time (Specify).
3 = Bipolar Millivolt Input Signals, Table 6.
*) 9 = Other.

Response time

Table 1	SW1/1
5mS	
500mS	X

Process Signal input

Table 2	SW1					
Input	2	3	4	5	6	7
4-20mA	X	X	X			X
0-20mA	X	X	X		X	
0-10mA	X	X	X	X	X	
0-1V		X	X		X	
0-2V		X			X	
0-5V			X		X	
1-5V			X			X
0-10V					X	
Other non-standard						
0-0.5V		X	X	X	X	
0-2.5V			X	X	X	
0-4V			X			
0-6V				X		
0-7.5V				X	X	

Millivolt Signal input

Table 4	SW1					
Input	2	3	4	5	6	7
0-40mV		X	X	X		
0-50mV		X	X	X	X	
0-75mV		X	X			
0-100mV		X	X		X	
0-150mV		X		X	X	
0-200mV		X			X	
0-250mV			X	X	X	
0-400mV			X			
0-500mV			X		X	
0-600mV				X		
0-750mV				X	X	
0-1000mV					X	

Bipolar Signal input

Table 5	SW1					
Input	2	3	4	5	6	7
±20mA	X	X	X		X	
±10mA	X	X	X	X	X	
±1V		X	X		X	
±2V		X			X	
±5V			X		X	
±10V					X	

Bipolar Millivolt input

Table 6	SW1					
Input	2	3	4	5	6	7
+/-20mV		X	X	X		
+/-25mV		X	X	X	X	
+/-40mV		X	X			
+/-50mV		X	X		X	
+/-60mV		X		X		
+/-75mV		X		X	X	
+/-100mV		X			X	
+/-125mV			X	X	X	
+/-200mV			X			
+/-250mV			X		X	
+/-300mV				X		
+/-500mV					X	

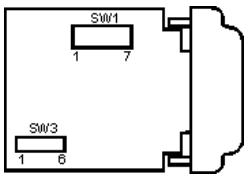
Output Range

Table 7	SW3					
Output	1	2	3	4	5	6
4-20mA	X		X			
0-20mA		X				
0-10mA				X		
0-5V		X				X
1-5V	X		X			X
0-10V		X			X	

To change ranges

1. Disconnect power nu-clip housing lid and withdraw unit from housing.
2. Set coding plugs as required.
3. Reassemble unit and connect power.
4. Adjust “Span and “Offs” pots to re-calibrate.
5. Change the label information to the new input/output values.

Coding Plug Location Diagram



*) = Price Extra. All extra price inputs disable future use of the program links.
= Factory default calibration unless specified otherwise.