

SI-540 Isolating Signal Converter

1. **Description.** The SI-540 is an isolating signal converter capable of accepting a range of inputs, including a standard 4-20mA and voltage signals. The unit produces a high level DC output of either voltage or current. Full 3 port isolation is standard on the product range. The SI-540 can be factory configured to accept a current or voltage input and provides a current or voltage output. The input and output of the unit can also be reconfigured using the built in switches together with the zero and span adjustment potentiometers. The unit is powered from 24VDC nominal.

2. a) Terminal Connections – Voltage Output

1	-	Power Supply 0V
2	-	Power Supply +24V
4	-	Input –ve
5	-	Input +ve
10	-	Output –ve
12	-	Output +ve

b) Terminal Connections – Current Source Output

1	-	Power Supply 0V
2	-	Power Supply +24V
4	-	Input –ve
5	-	Input +ve
10	-	Output –ve
12	-	Output +ve

c) Terminal Connections – Current Sink Output

1	-	Power Supply 0V
2	-	Power Supply +24V
4	-	Input –ve
5	-	Input +ve
8	-	Output –ve (current sensing)
10	-	Output +ve (+24V)

3. Specification

Parameter	Min	Typical	Max	Comments
Supply Voltage	18V	24V	30V	22Vdc required to drive 500 Ohms
Supply Current (mA)		25	30	Based on 24VDC supply into 500Ohms
Input Impedance (V)		500k Ω		
Input Impedance (mA)		5 Ω	10 Ω	Dependant on range
Volt Drop (mA Input)		0.1	0.15	At 20mA Input
Output Linearity Error		$\pm 0.03\%$	$\pm 0.1\%$	
Temperature Coefficient			$\pm 100\text{ppm}/^\circ\text{C}$	
Load Resistance Error			$\pm 5\text{ppm}/\Omega$	$0 < R_L < 500\Omega$
Time Constant (10-90%)		25mS	30mS	Faster response available upon request
Operating Ambient	0 $^\circ\text{C}$		55 $^\circ\text{C}$	
Relative Humidity	0%		90%	
Isolation Voltage	1kV			
Surge Voltage	2.5kV for 50 μS			Transient of 10kV/ μS
Notes	<p>Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur.</p> <p>Accuracy figures based on 24VDC supply, 4-20mA output with 250Ω load and 20$^\circ\text{C}$ ambient.</p> <p>Device is protected against reverse polarity connection. External 100mA fuse required. The SI-540 does not provide safety isolation when the input is connected to the mains.</p>			