

# Universal Transmitter BSL340

The BSL340 is a field configurable isolating transmitter/converter providing true 3-way galvanic isolation up to 2500Vrms for use with industrial probes and millivolt signals. Input and output are set using the BSL300 programmer connected to a PC USB via the BSL303 interface. The connection socket is accessed under a door flap on the front of the module. Key features of the BSL340 are;

- Small case style.
- Wide range AC/DC power supply.
- Input linearisation.
- User engineering units and scaling.
- Differential and single ended input.
- Switch-able input loading
- Reverse and direct acting
- Signal limiting.
- Programmable sensor supply.
- Input filter for fast or slow response time.



## Ordering Detail

Order Code	Supply Voltage
BSL340-10	80-300Vdc / 80-280Vac 50/60Hz
BSL340-20	10V-60Vdc / 16-42Vac 50/60Hz

## General Specifications

Size:	12.4W x 113H x 108D (mm).
Mounting:	Clip for 35mm DIN-Rail.
Housing material:	ABS / Polycarbonate blend
Connection:	Pluggable screw terminals.
Weight:	85g (including packaging).
Protection class:	IP40.
Input accuracy:	< 0.1%.
Output accuracy:	< 0.1%.
Linearity:	< 0.1%.
Operating temperature:	-5...+65 °C. For >50mA AUX de-rate by 5 °C.
Temperature drift:	0.01% per °C.
Auto input ranges:	Up to ±250mV or 500mV
Overload continuous:	20 x times input range MAX.
Noise immunity:	130dB CMRR.
Input/output isolation:	>2.5kVrms.
EMC:	AS/NZS 4251.1 CE EN 50081.1

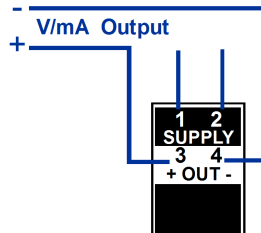
## Process Output

Output calibration is entered as minimum and maximum of input engineering range. Output can be set as direct or reverse acting. Signal limits can be entered and enabled or disabled as required.

Ranges: 1mA, 10mA, 20mA, 1V, 2V, 5V, 10V, 20V

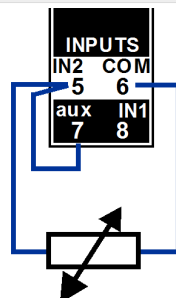
Output drive: 10mA into 0 - 1.8kΩ  
20mA into 0 - 800Ω.

Load change effect: < 0.05% (current limited to 22mA)



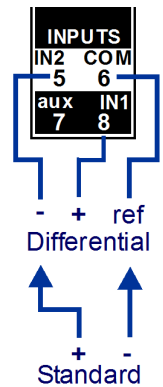
## Resistance Transmitter

Minimum span: 1Ω  
Maximum span: 50kΩ  
Measurement unit: Ω, kΩ  
Measurement type: 2 wire connection.  
Engineering Scale: minimum, maximum and unit  
Shape: Linear or 101 user points  
Response time: 50mS fast  
500mS slow



## Millivolt Input

Minimum input: -250mV  
Maximum input: 624mV  
Maximum input range: 500mV  
Maximum input offset: 50% of range  
Measurement unit: mV  
Measurement ranges: 2, 5, 10, 20, 50, 100, 200, 500  
Measurement type: Standard or differential.  
Common mode range: -3V to +6V  
Engineering Scale: minimum, maximum and unit.  
Shape: Linear or 101 user points.  
Input impedance: > 1MΩ.  
Response time: 50mS fast  
500mS slow.  
AUX supply output: 0.01mA to 10.8mA (3.5V@10mA)  
0.1V to 16V 110mA@10V).



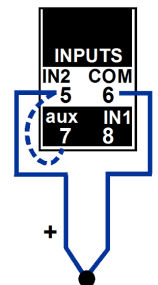
## Thermocouple Input

Enter required maximum and minimum in measurement unit, 101 point linearisation is automatically calculated loaded for required range.

Types: B, E, J, K, N, R, S  
Measurement unit: °C, °F, °K  
Input impedance: switch-able 30k shunt.

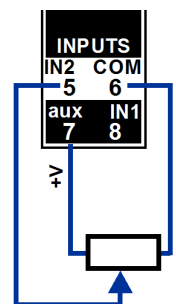
Burn out: Upscale, Downscale, None.  
Link 5 and 7 for burnout options.

Response time: 50mS fast / 500mS slow



## Potentiometer Transmitter

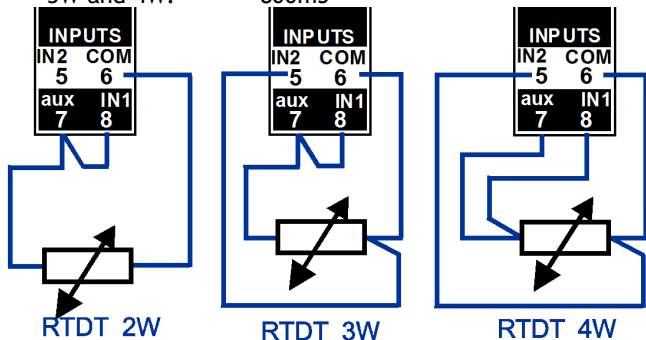
Minimum input: 0%  
Maximum input: 100%  
Measurement unit: %Pot  
Measurement type: 3 wire connection.  
Engineering Scale: minimum, maximum and unit  
Shape: Linear or 101 user points  
Input impedance: > 1MΩ  
Response time: 50mS fast  
500mS slow  
AUX supply output: 0.5V



## RTD Input

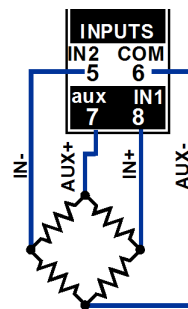
Enter required maximum and minimum in measurement unit, 101 point linearisation is automatically calculated and loaded for required range.

Types: pt100, pt1000  
 Measurement unit: °C, °F, °K  
 Response time 2W: 50mS fast / 500mS slow  
 3W and 4W: 800mS



## Strain Gauge Transmitter

Measurement unit: mV  
 Measurement type: Differential.  
 Common mode range: -3V to +6V  
 Tare Function: Button under lid.  
 Engineering Scale: minimum, maximum and unit.  
 Shape: Linear or 101 user points  
 Input impedance: > 1MΩ switchable 30k shunt.  
 Response time: 50mS fast / 500mS slow  
 AUX supply output: 0.01mA to 10.8mA (3.5V@10mA) / 0.1V to 16V (110mA@10V)

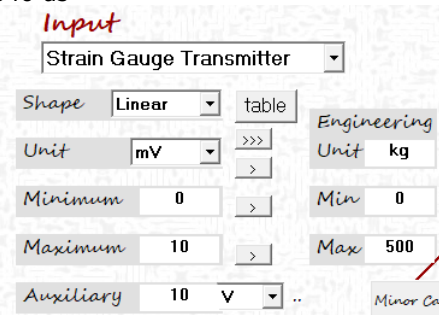


$$Range = \frac{Actual\ Load}{Capacity} \times Sensitivity \times Excitation$$

A load cell of 1000 kg capacity, with 2mV/V sensitivity and 10Vdc excitation has an "actual load" is 500 kg

$$max.,\ then\ Range = \frac{500\ kg}{1000\ kg} \times 2\ mV/V \times 10\ V = 10\ mV$$

Program the BSL340 as shown; After programming the BSL340 the top mounted tare button MUST be pressed and released while measurement system is unloaded.



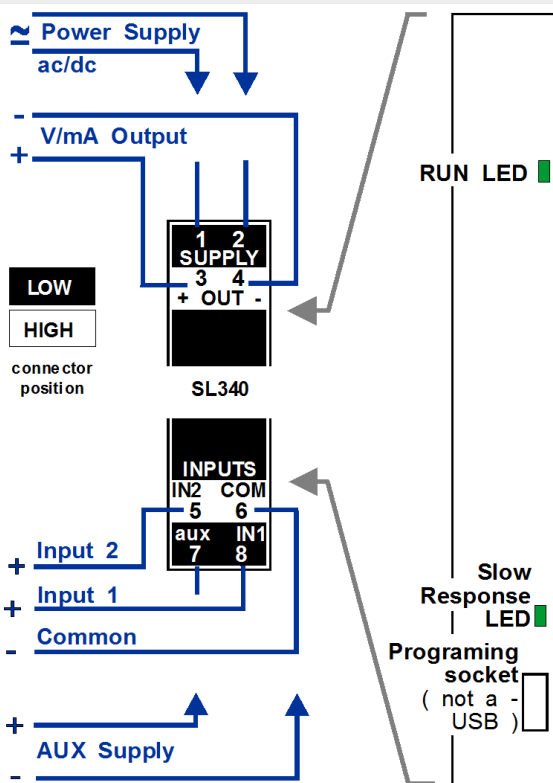
After 1 to 2 seconds the tare will calculate and the LED will flash to indicate that setting are updated.

For strain gauge function without using the top mounted tare button use mV Transmitter in differential mode.

## Universal Input

The mV input range can solve measurement problems such as the following 4 wire resistance example below.

## Common Connection and Controls



## Four Wire Resistance example

I wish to measure 0 to 10Ω but the resistance input is only a 2 wire connection. This means the measurement is affected by the lead resistance.

If I connect the input using the RTDT 4W connection, set the auxiliary output to 10mA and measurement to 100mV differential the output will be directly proportional to the resistance measured.

