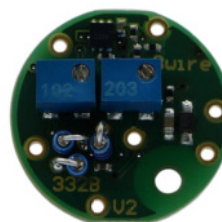


Ultra Small 18mm 3-Wire Load Cell Amplifier / Strain Gauge Amplifier AS1332B

The AS1332B is a miniature circular board for **3-wire** systems providing a 4mA - 20mA current output, designed to fit inside a load cell or other transducer. The unit has individual multi-turn potentiometers for the precise setting of Zero and Span and is also available with **mid. zero output** (12mA for example) for compression / tension transducers. The inputs provide EMI-/RF-suppression. Transducer wires can be easily soldered onto the board.

Features

- Wide range power supply 10V-30V
- 5V stabilised bridge excitation
- Bridge resistance 350 Ohm (or greater)
- Bridge sensitivity 0.3mV/V – 3mV/V
- Size **18mm** diameter, 8.8mm height
- Fast calibration procedure
- Reverse-polarity protection



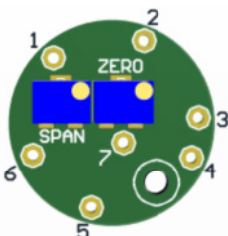
Applications

- Industrial Weighing
- Load Testing & Monitoring
- Overload Protection Systems

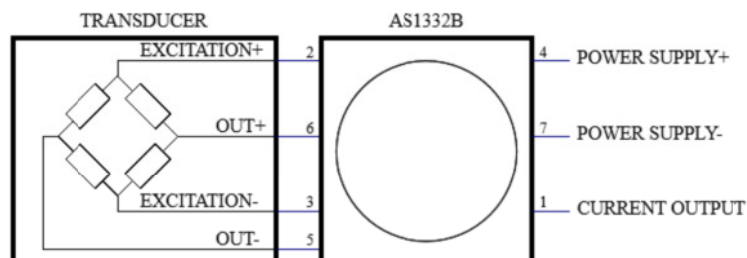
Ordering

Part number:	AS1332B-*
*Please specify required input range, between 0.3mV/V – 3mV/V Default 2.0mV/V: AS1332B-2.0MV	
Customer specific electrical / mechanical changes are possible – please contact us with your individual requirements.	

Board Connections



Schematic Diagram



Specifications

Parameter	Min	Typical	Max	Unit
Supply Voltage	10	24	30	V
Current Output – Zero (adjustable control)	3.6	4.0	4.6	mA
Current Output – Span (adjustable control)		20.0		mA
Current Output – Fault condition ¹		>32		mA
Bridge Sensitivity	0.3		3	mV/V
Bridge Resistance	350			Ohms
Bridge Excitation Voltage		5.0		V
Current Output Temp. Coefficient – Zero		0.15		uV/°C
Current Output Temp. Coefficient – Span		0.1		%/°C
Step Input Response (2mV/V, 4-20mA, 10%-90%)		400		us
Frequency Bandwidth (-3dB)		875		Hz
Operating Temperature	-40		+85	°C



Installation, Calibration, Sensitivity, Low-Pass Filter:

1. Connections:

The unit is provided with 7 pads around its periphery for the soldering of external wires. The holes in the pads are 1mm diameter (Pad size 1.8mm). The mounting hole has a diameter of 2.1mm (Pad size 4mm).

The connecting pads and wire colours, where wire tails are provided, are identified as follows -

Pad Number	Function	Typical Wire Colour
2	Bridge Excitation +ve	Red
3	Bridge Excitation -ve	Blue
6	Bridge Output +ve	Green
5	Bridge Output -ve	Yellow
4	Supply +ve (10V-30V)	Red
7	Supply -ve (0V)	Black
1	4-20mA Output.	White/Black

¹Fault condition: if there is an input overload or a disconnected transducer, the output current will go beyond 20mA (typically >32mA). This characteristic can be utilized to identify a faulty transducer. However, it is important to ensure that any connected devices can tolerate this current.

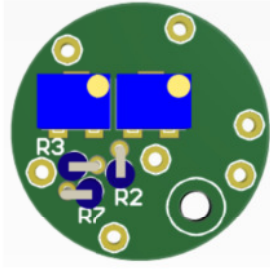
2. Calibration:

At zero load use ZERO potentiometer to set 4.00mA

At full load use SPAN potentiometer to set 20.00mA

Repeat above procedure several times until both settings are reached.

3. Sensitivity (4mA - 20mA output):

Input mV/V	R2 and R3 ohms	R7 ohms	Range mV/V	Resistors
0.3	33	120	0.25-0.37	
0.4	43	150	0.32-0.47	
0.5	56	180	0.41-0.60	
0.6	68	180	0.46-0.72	
0.7	75	270	0.57-0.79	
0.8	91	300	0.67-0.94	
0.9	100	330	0.73-1.02	
1.0	110	430	0.86-1.12	
1.1	120	560	0.99-1.22	
1.2	130	560	1.04-1.31	
1.4	160	560	1.20-1.56	
1.6	200	560	1.37-1.87	
2.0	270	560	1.62-2.35	
2.5	330	820	2.15-2.83	
3.0	390	1100	2.67-3.32	

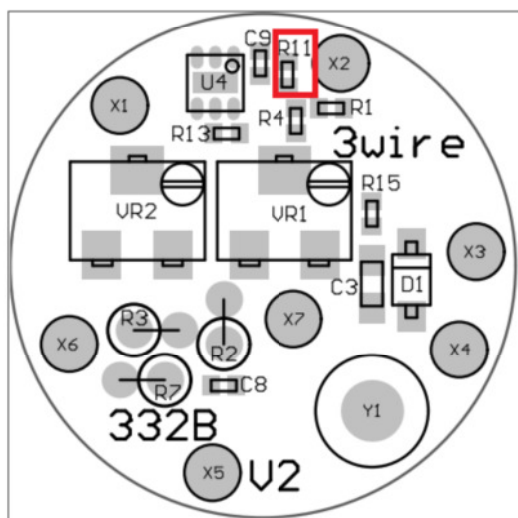
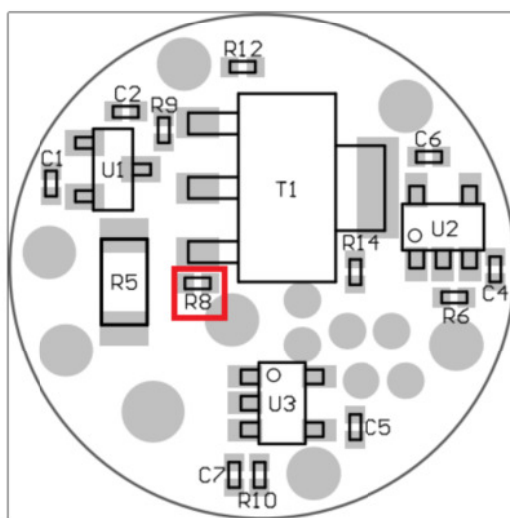
R2 and R3 are always equal. All resistors should be 1% 100ppm/C 1/8 watt grade or better.
For example: MF12 series from Farnell Electronics: 100R, Part MF 12 100R, Order code: 9342397.

3. Sensitivity (mid. zero Output 12mA):

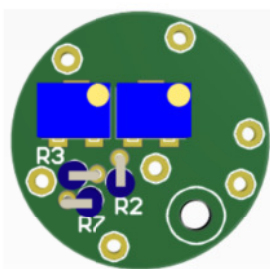
This configuration is used in combination with a compression / tension strain-gauge. The output moves from 12mA ie. down to 4mA or up to 20mA.

Resistor R8 must be changed from 27K to 22K3 0402 (or 130K in parallel with existing 27K)

Resistor R11 must be changed from 390K to 100K 0402 (or 130K in parallel with existing 390K)



The gain resistors should be changed as shown below.

Input mV/V	R2 and R3 ohms	R7 ohms	Range mV/V	Resistors
0.3	56	220	0.26-0.37	
0.4	56	330	0.34-0.44	
0.5	68	330	0.44-0.62	
0.6	130	330	0.52-0.77	
0.7	150	330	0.56-0.87	
0.8	180	470	0.72-1.02	
0.9	200	470	0.77-1.11	
1.0	220	470	0.81-1.20	
1.2	240	750	1.04-1.33	
1.4	300	750	1.18-1.58	
1.6	330	1000	1.41-1.75	
1.8	390	1000	1.55-1.98	
2.0	470	1000	1.71-2.25	
2.2	560	1000	1.86-2.52	
2.5	620	1200	2.15-2.78	

4. Low-Pass Input Filter:

The amplifier has a low-pass input filter, consisting of resistors R6, R10 and capacitors C4, C7 which can be used as a general purpose EMI/RFI filter in order to reduce noise.

Default values are R6=R10=100R 0402, C4=C7=100nF 0402



The low-pass frequency can be set using the following formula:

$$F_{-3dB} \text{ (Hz)} = \frac{1}{(2 \cdot \pi \cdot R6 \cdot C4)}, \text{ where } R6=R10 \text{ and } C4=C7$$