

Load Cell Active Junction Box

Features

- The Strain Gauge Junction Box is used to sum the outputs from up to 4 Strain Gauges to allow them to be connected to the LCA15/ADW15 Strain Gauge Indicator/Controller
- The individual channel gains can be set up via DIL switches and preset potentiometers to allow for 2, 3, or 4 Strain Gauges
- Gain is not interactive and offset is preset, to speed up matching of Strain Gauge gain



Introduction

The function of this Strain Gauge active junction box is to enable easy adjustment of Strain Gauge (output) manufacturing tolerances without any channel interaction to give a summated output.

Specifications

Powering:	from 10v nominal excitation.	Maximum input voltage:	90 day accuracy stability±0.06%gain
Maximum current:	20mA	Effect of temperature:	±0.02% per degree C typical at 2.5mV/V
Connection:	6 wire from instrument to JBA. 4 wire from JBA to each Strain Gauge	Field terminals:	35 degree screw operated cage clamp type.
	Dimensions:	Maximum cable:	size 2.5mm square
Gain setting per channel.	Variable from 0.2 to 1.0 by use of switch and potentiometer, see table. In setting up Instructions	Dimensions:	200 x 120 x 75mm
Note:	Each Strain Gauge signal is added, therefore the output is the summation of all the Strain Gauges connected e.g. 4 x 2mV/V Strain Gauges will give an output of 8mV/V when set to x 1	Environmental:	Sealed to IP65 with cable entries via 5 x IP67 glands supplied fitted
	20mV/V (nominally 200mV)	Enclosure material	ABS

Options

Supply of Eurocard (100 x 160mm) PCB only excluding case

Case alternatives, die cast, aluminum or stainless steel sealed to IP65

Setting Up Instructions

Note: The offset adjustment per input is factory preset to 0 mV and this must not be adjusted. Any offset output errors from Strain Gauges due to standing loads and initial accuracy, will be added. The result of this summated offset will be passed to LCA15/ADW15/SMW for cancellation during normal auto calibration.

are connected. (e.g. when 2 Strain Gauges are used each channel has a gain of 0.5).

The switch setting diagram inside the JBA assumes that the Strain Gauge channels are filled starting from No1 through to No4 as required. Unused channels should be linked out (+IN to -IN).

The individual channel gains can be set up via DIL switches and preset potentiometers to give an overall gain of unity when 1, 2, 3 or 4 Strain Gauges,

Number of
Strain Gauges

Connected	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	SW1-6	SW1-7	SW1-8	Gain Range (via preset)
1	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	x 1 - 0.5
2	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	x 0.33 - x 0.5
3	ON	OFF	ON	OFF	ON	OFF	OFF	OFF	x 0.25 - 0.33
4	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	x 0.20 - 0.25

The unit is designed for 4 wire Strain Gauges, should 6 wire Strain Gauges be used, their excitation and sense wires should be both connected to the appropriate 'E' terminals.

The 4 channels can be matched by adjusting the 'Channel Gain' potentiometers having first set the DIL switches for the number of Strain Gauges used. If access to individual Strain Gauges is possible eg before the platform or hopper is in position, then calibration can be carried out by placing a weight on one of the cells, and noting the change in display reading on the ADW15. Repeat this for each

Remaining Strain Gauge, and adjust the 'Channel Gain' potentiometers, to give the same change in display reading for each cell used.

Should the platform already be in position it will be necessary to use a millivolt source to carry out the calibration. Apply a voltage of 10 times the millivolt/volt figure given for the appropriate Strain Gauge, to each channel in turn, adjusting the 'Channel Gains' to give equal changes in display readings for each cell used.

Physical

PCB Case Dimensions
Case

120 x 200 x 75mm
ABS



Designed, Manufactured
& Supported in the UK



CE In the interest of continued product development, Mantracourt Electronics Limited reserves the right to alter product specifications without prior notice.