

LCA15 Intelligent Strain Gauge Load Cell Amplifier

Features

- Variable gain Strain Gauge sensitivity from 0.5 to 200mV/V
- Simple one pass Auto Calibration
- Auto Tare
- 4-20mA and 0-10V outputs
- 10V @ 160mA excitation to drive up to 6/350 ohm Strain Gauges
- High accuracy
- Low drift
- Wide range of power supplies
- IP65 surface mounting case
- Isolated analogue outputs
- 10 years data retention
- Digital programming, calibration & display

Typical Applications

- Vessel weighing
- Silo weighing
- Batch control
- Crane overload protection/weighing
- Force measurement

Description

The LCA15 intelligent Strain Gauge amplifier offers both 4 to 20mA and 0 to 10 volt analogue outputs, from any standard Strain Gauge input. 1 pass calibration and setting of the analogue output range, make the unit extremely user friendly; being set up by a simple hand held or on board programmer/display. Auto Tare and Peak Hold (if set) on the analogue output are operated via volt free contact closures.

Output options include:

Relay Set Points Programmed in engineering units, with In Flight compensation and Hysteresis settings are available for control or alarm purposes.

Communications:

To read any value, change set points or another parameter via:

RS232/RS485 (RC3)

Formats include MANTRABUS, ASCII, MODBUS RTU

Printing can be actioned by a contact closure. Printer can print the current live value, with header message, engineering units, auto incrementing batch number and a real time if required.

Other Options

9-32V DC power supply (LS3)
Stainless Steel case sealed to IP65 (LSS)
Available without its case as a separate Eurocard PCB assembly (LCB)



Specification

Input Details

The LCA15 accepts the input from any wheatstone bridge based sensor. The transducer excitation voltage of 9.6 volts will power up to six 350 ohm bridges connected in parallel.

Compensation by \pm sense wires for cable and safety barrier losses down to 3V excitation.

Load cell sensitivity is preset via DIL switches to 0.5, 0.8, 1.0, 1.25, 1.5, 2.0, 2.5, 3.5, 5, 10, 20, 50, 100 or 200mV/V.

Initial offset is no greater than $\pm 0.15\text{mV}$ (15 $\mu\text{V/V}$) which is cancelled during auto calibration.

Inputs

Speed	10 readings per second with a digital filter to damp dynamic effects
Accuracy/Repeatability	Up to 90 days $\pm 0.08\%$ of reading, $\pm 0.05\%$ FSD typical
Drift	Up to 0.002% per degree C @ 2.5mV/V typical
Resolution	15 bit (4.5 digits)
Contact inputs	Available for auto tare, print and peak hold reset (volt free).

Analogue Outputs

Drive	4-20mA up to 1Kohm and 0-10 volts up to 2mA.
Accuracy	4-20mA $\pm 0.15\%$ of range (typically) 0-10V $\pm 2\%$ before calibration
Resolution	13 bit (Settling time 0.25 secs to 1% of step change)
Isolation	$\pm 130\text{V}$ RMS or DC max to analogue input or any other port

Options Available

2 set points	Output through 5A, 230V ac SPCO relays (volt free contacts with latching and inversion options)	
Communications Port	RS485 RS232	enabling up to 32 units to be multi dropped (isolated) for 1 to 1 connection and standard printer drive (isolated)
	Baud Rates	300, 600, 1200, 2400, 4800, 9600 (19200 MANTRABUS only)
Die Cast Case	Sealed to IP65 with external dimensions of 220 x 120 x 80mm max	
Stainless Steel Case	Sealed to IP65, with external dimensions of 224 x 160 x 90mm	
PCB Only (Eurocard) (LCB)	100 x 160 X 57mm for rack or customers enclosure	
DC Powering	9-32V dc	

Data Retention/Protection

Retention:	10 years for set up values, minimum of 100,000 write cycle
	Protection of data and function(s) Watchdog timer giving repeat auto resets. Impending power detection and hold off. Keypad security and time out.

CE & Environmental

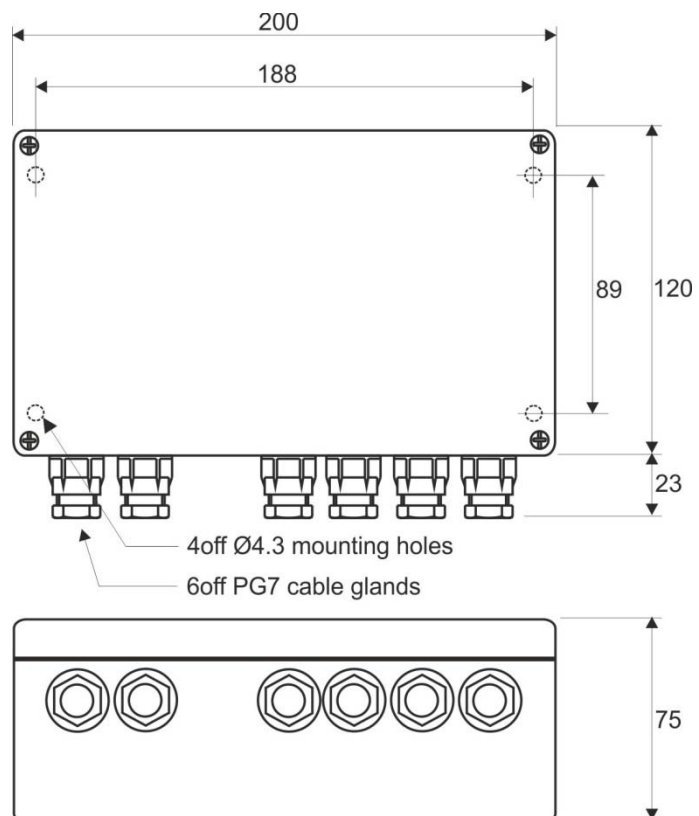
Storage temperature	-20 to +70°C
Operating temperature	-10 to 50°C
Relative humidity	95% maximum non condensing
Low Voltage Directive	2006/95/EC
EMC Directive	2004/108/EC

Physical

PCB Case Dimensions	120 x 200 x 75mm (without glands, see diagram below)
Case Material	ABS

Mechanical Dimensions

All dimensions in millimeters



LCB Clearance Dimensions

Clearance above the top of LS1 ac power supply 52mm
 Clearance above the top of keypad 50mm
 Clearance above the LS3 dc power supply 42mm
 Clearance below the LCB 3mm. but needs

Unit 15,
 Newport Business Park
 Barry Way, Newport,
 Isle of Wight,
 PO30 5GY
 United Kingdom
 Tel: +44 (0) 1983 249264
 Fax: +44 (0) 1983 249266
 sales@lcmsystems.com

Due to continual product development, LCM Systems Ltd. reserves the right to alter product specifications without prior notice.

Issue date: 23/7/2012