

### Rack Mounted Amplifier / Digitiser

#### Features

- Selectable Strain Gauge sensitivity from 0.5 to 200mV/V
- Simple one pass auto calibration
- Auto Tare
- Isolated analogue outputs 4-20mA and 0-10V outputs
- 10V @ 1.4A excitation for each rack
- High accuracy/low drift



#### Introduction

The intelligent Strain Gauge amplifier offers both 4 to 20mA and 0 to 10 volt analogue outputs, from any standard Strain Gauge input. Ease of calibration and setting of the analogue output range, make the modules extremely user friendly;

being set up by a simple hand held plug in programmer or an 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 (RR1)**  
Programmed in engineering units, with In Flight compensation and Hysterisis Settings available for control or alarm purposes.
- **Printers**  
Activated by a function key or contact will allow print, the current live value, with header message, engineering units, auto incrementing batch number and real time if required.
- **Communications**  
To read any value, change set points or any other parameter via:  
20mA Current loop (RC1)  
RS232/RS485 (RC3)  
Format MANTRABUS, ASCII,  
MODBUS, RTU

#### Intelligent Strain Gauge Amplifier

Each module comprises an intelligent base unit with user configurable 4-20mA and 0-10V analogue outputs, with plug in module positions for the power supply, relay and communications options.  
The power supply is selectable 110/120 or 220/230V AC, connected via an IEC plug.

Connections for input and output connected via 2.5mm screw field terminals mounted on the back panel.

#### The Modules offer: Calibration

The modules offer Calibration, A simple input Auto Calibration is achieved by entering the values of the lowest and highest weights used. Analogue output is pre calibrated and can be ranged over any part of the displayed range. Both input

and output are calibrated by use of the programmer module. The programmer defaults to weight display to ease calibration checks. Auto Tare (zero) and Peak Hold are actioned by volt free contacts.

## Specifications

### Inputs

The input is of the Strain Gauge/strain gauge type. A transducer excitation voltage 9.6 volts 1.0A (common to all channels)

Compensation	by $\pm$ sense wires for cable connection, voltage drops and any variation in the 10 volt supply
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 $\pm 0.15$ mV (15 $\mu$ V/V) which is cancelled during auto calibration.
Speed	is 100 readings per second with a digital filter to reduce speed.
Accuracy	is 90 days $\pm 0.08\%$ of reading, $\pm 0.05\%$ FSD being typical
Drift	is 0.002% per degree C @ 2.5mV/V typical
Resolution	15 bit/ 4.5 digits.
Contact inputs	are available for auto tare, print and peak hold reset and are volt free.

### Rack Mounted Load Cell Amplifiers

Two versions are available to mount in the standard 19" rack.

Version 1 (RL1)	comprises an amplifier which is programmed via a hand held, plug in programmer. This version allows for the fitting of the 12 amplifiers.
Version 2 (RL2)	comprises an amplifier which has a front panel mounted LCD display; program buttons are accessed through 2.2mm apertures in the panel. This version allows for the fitting of 8 amplifiers.

### Analogue Outputs

Drive	4-20mA up to 1Kohm and 0-10 volts up to 2mA
Accuracy	4-20mA $\pm 0.15\%$ of range, typical. 0-10V $\pm 2\%$ before calibration
Resolution	as for display up to 13 bits/4.5 digits. Settling time 350mS to within 1% of step change
Isolation	$\pm 130$ V RMS or DC max to analogue input or any other port

### Data Retention/Protection

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

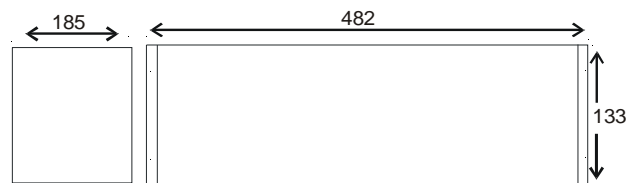
### CE & Environmental

Storage temperature	-20 to +70°C	EMC Emissions	BS EN 55011:1998
Operating temperature	-10 to 50°C	EMC Immunity	BS EN 61000-4-2:1995
Relative humidity	95% maximum non condensing		BS EN 61000-4-3:2002
Safety/Low Voltage Directive	73/23/EEC amended by 93/68/EEC		BS EN 61000-4-4:2004
	BS EN 61010-1:2001, IEC 1010-1-1990		BS EN 61000-4-11:2004
EMC Directive	89/336/EEC		
	Basic Standard BS EN 61326:1998		

### Other Options & Accessories

2 Set Points	Output through 500mA, 50V AC SPCO relays, with a latching option
Communications Port	For data transfer or print via :-
20mA loop	Enabling up to 254 units to be multi dropped to 1 x RS232 via IF25 interface(s)
RS485	Enabling up to 25 units to be multi dropped
RS232	For 1 to 1 connection and standard printer drive
Printer Operation	By closure of volt free contact
Baud Rates	300, 600, 1200, 2400, 4800, 9600 (19200 MANTRABUS only)

### Mechanical Dimensions



All dimensions in mm.

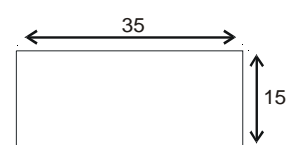
### Liquid Crystal Dimensions

#### Version 1 (RL1)

Hand Held Programmer



#### Version 2 (RI2)



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. without prior notice.

