LOAD CELL INSTRUMENTATION

SMW/HR Surface Mount - High Resolution Intelligent Load Cell Amplifier

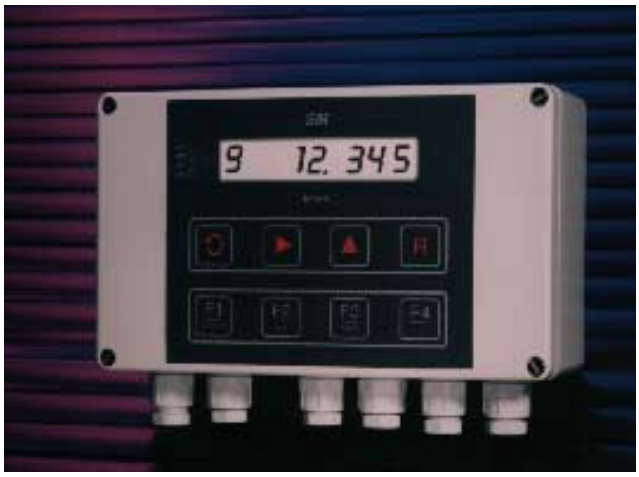
PRODUCT SHEET

features

- Large 6 Digit LCD display, with optional back lighting
- 1:500,000 Internal Resolution
- Variable gain load cell sensitivity from 1.25 to 30mV/V
- Simple one pass Auto Calibration
- 4 Point Linearization
- Gross, Net, Tare and Print function keys
- 4-20mA and 0-10V outputs
- 9.6 V @ 150mA excitation for up to 6/350 ohm load cells
- High accuracy
- Low drift
- Wide range of power supplies
- IP65 surface mounting case
- Isolated analogue outputs
- 10 years data retention
- Digital programming, calibration & display
- Selectable Modbus RTU communications protocol

introduction

The SMW/HR intelligent load cell amplifier offers both 4 to 20mA and 0 to 10 volt analogue outputs, from any standard load cell input. Ease of calibration and setting of the analogue output range, make the unit extremely user friendly; being set up from the front panel keypad.



'plug in' output options include

relay set point module

Programmed in engineering units, with In Flight compensation and Hysterisis Settings available for control or alarm purposes.

communications modules

To read any value, change set points or any other parameter via:
20mA Current loop
RS485
RS232

protocols

Modbus RTU @ 9600 Baud, Mantrabus

printer module

Activated by a function key will allow a printer, if connected to display the current live value, with header message, engineering units, auto incrementing batch number and a real time / date signature if required.

power supply options

110/240V AC
9 - 32V DC

others

Remote display module
LCD display back lighting
DIN rail mounting for the CPU
Programmable function key disabling

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specifications & order codes

The SMW /HR Intelligent Load Cell Amplifier

The High resolution Load cell amplifier is offered in a surface mounted form, housed in a light grey ABS enclosure, sealed to IP65, with external dimensions of 200 x 120 x 75mm

The unit comprises a surface mounted 12.7mm LCD display, giving an internal resolution of 1:500,000 on an intelligent base unit with user configurable 4-20mA and 0-10volt analogue outputs.

'Plug-in' module positions are available for power supply, relay and communications options.

The relay module provides for two set points, together with In Flight compensation. Relays can be inverted and latched, all of these facilities being set in engineering terms. Both relay and analogue outputs have a high level of isolation.

A facility is available to alter the default display for Gross or Net values.

The optional communications provide for 20mA noise immune current loop, RS232 and multi drop RS485 connections to a PC, PLC or main frame. This allows for the input variable to be viewed and the set up parameters changed.

Communications protocol options include MODBUS RTU and MANTRABUS.

Additionally, multiple 20mA SMW/HRs can be connected via an IF25 current loop to RS232 interface which when included, allows for up to 250 SMW/HRs to be connected.

The RS232 port is also available for a Time/Date or Data only printer to be connected, to log all the desired activities

Baud speeds of 300 to 19200 are programmable.

Power supplies options of 110/120 or 220/240VAC and 9 to 32VDC are available.

The unit offers:

Two passwords - user and calibrator, 4 point linearisations with multiple load cell calibrations stored if required.

Calibration

A simple input Auto Calibration is achieved by entering the values of the lowest and highest weights used. Analogue output is precalibrated and can be ranged over any part of the displayed range.

Both input and output are calibrated via the front panel keypad.

Gross, Net and Tare are activated by front panel function keys. Peak Hold is actioned by volt free contacts.

Load Cell Input

The input is of the load cell/strain gauge type.

A transducer excitation voltage of 9.6 volts @ 150mA

Compensation by ± sense wires for cable connection, voltage drops and any variation in the excitation supply.

Load cell sensitivity is preset via DIL switches to 1.25, 2.5, 5, 7.5, 15, or 30mV/V.

Initial offset is no greater than +/- 0.15mV (15uV/V) which is cancelled during auto calibration.

Zero Temperature Coefficient	<0.0005% FSO/ºC typical with 2.5 mV/V sensitivity selected
Span Temperature Coefficient	<0.0017% reading /ºC
Excitation	9.6V DC nominal, 150mA maximum
Compensation	By ± sense wires to compensate for cable, connection
Drift	0.002% /C typical @ 2.5mV/V
Repeatability	<±0.002% reading over 90 days
Display Update Rate	Programmer keypad selectable between 0.1 and 25.5 seconds
Display Average	Set by programmer keypad, up to 64 standard up dates
Display resolution	1:500,000

Analogue Outputs

The analogue outputs are isolated, 4-20mA up to 1Kohm and 0-10 volts up to 2mA.

Accuracy 4-20mA + 0.15% of range, typical.

Resolution as for display up to 13 bits/4.5 digits. Settling time 0.25 secs to 1% of step change.

Isolation ±130V RMS or DC max to analogue input or any other port

Data retention is 10 years for set up values, with a minimum of 10,000 write cycles.

Protection of data and functions is via watchdog timer giving repeat auto resets, impending power failure detection and shut down, low power detection and hold off.

Environmental conditions are as follows:

Storage temperature	-20 to + 70 degrees C
Operating temperature	-10 to + 50 degrees C
Relative himidity	95% max non condensing
Product standards	To IEC 1010-1
Environmental Approvals	
EMC Emissions:	EN 50 081 - 1 : 1992
EMC Immunity:	EN 50 082 - 1 : 1992 (RF Field Test : 0.05% FS except 0.2% @ 50 -120 MHz) pr EN 50 093 : 1991
Low Voltage Directive:	IEC 1010 - 1 : 1990 EN 61010 : 1993
SMW-HR Complies with	IEC 1010-1:1990 Part 1 for:- Rated for Basic Insulation Normal Condition Pollution Degree 2 Permanently Connected Insulation Category III

Options available are:

2 Set Points	Output through 5A, 240V AC SPCO relays, with a latching option
Communications Port	For data transfer or print via :-
20mA loop	Enabling up to 254 units to be multidropped to 1 x RS232 via IF25interface(s)
RS485	Enabling up to 25 units to be multidropped.
RS232	For 1 to 1 connection and standard printer drive.
Printer Operation	By front panel function key.
Baud Rates	300, 600, 1200, 2400, 4800, 9600 (19200 Mantrabus only) 9600 for MODBUS
Back lighting	For the LCD display
DIN Rail mounting	For the CPU, PSU and output option modules
DC Powering	9-32V DC
Remote Mounting	Display module, for panel mounting

In the interests of continued product development, we reserve the right to alter product specifications without prior notice.

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