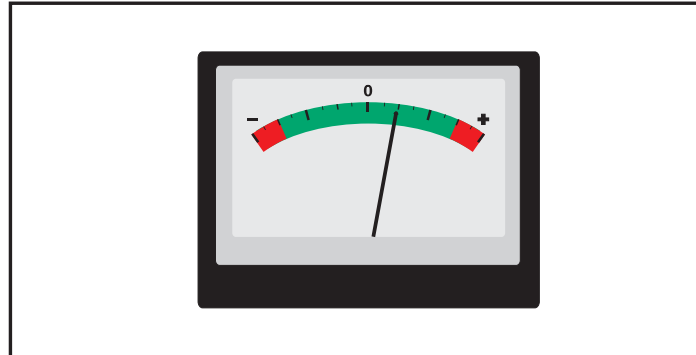


This low cost, compact indicator is ideally suited for low or high volume applications. The meter features a 17 segment LCD to display 0-1V or -1V-0-1V d.c. full scale reading. Other voltages and currents can be indicated via the addition of 2 external scaling resistors. The meter can be used in applications where the order of magnitude of the reading is more important than the value of the reading itself. It allows the operator to scan the display and receive a quick visual feedback. The module is mounted into the panel, using the supplied clip. A rubber seal is included, providing splashproof protection for the unit when fitted to the meter during installation.

- 🔊 17 Segment LCD
- 🔊 LED Backlighting
- 🔊 Colour Scale
- 🔊 0-1V and -1V-0-1V d.c. Ranges
- 🔊 No Calibration Required
- 🔊 Screw Terminal Connection
- 🔊 Splashproof



### ORDERING INFORMATION

Standard Indicator	Stock Number SP 5-1710-BL
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### ELECTRICAL SPECIFICATIONS

Specification	Min.	Typ.	Max.	Unit
Accuracy (overall error)*		1		Segment ( $\pm 1$ )
Full scale reading	(left/right hand zero position)	0	1	V d.c.
	(centre zero position)	-1	1	V d.c.
Resolution	(left/right hand zero position)	62.5		mV d.c.
	(centre zero position)	125		mV d.c.
Sample rate		4		samples/sec
Operating temperature range	0		50	$^{\circ}\text{C}$
Supply voltage (meter only, not LED backlighting)	5	9	12	V d.c.
Supply current (meter only, not LED backlighting)		6	10	mA
Supply voltage for LED backlighting**	4.5	5	5.5	V d.c.
Supply current for LED backlighting @5V d.c.**		50		mA

\* At voltages above 1V d.c. or below -1V d.c., the display flashes.

\*\* For backlighting supply voltages in excess of 5Vd.c., consult Various Operating Modes on page 4.

### SAFETY

To comply with the Low Voltage Directive (LVD 93/68/EEC), input voltages to the module's pins must not exceed 60Vdc. The user must ensure that the incorporation of the panel meter into the user's equipment conforms to the relevant sections of BS EN 61010 (Safety Requirements for Electrical Equipment for Measuring, Control and Laboratory Use).

LASCAR ELECTRONICS LTD.  
MODULE HOUSE  
WHITEPARISH  
WILTSHIRE SP5 2SJ  
UK  
TEL: +44 (1794) 884567  
FAX: +44 (1794) 884616  
E-mail: sales@lascar.co.uk

LASCAR ELECTRONICS INC.  
3750 WEST 26th STREET  
ERIE  
PA 16506  
USA  
TEL: +1 (814) 835 0621  
FAX: +1 (814) 838 8141  
E-mail: us-sales@lascarelectronics.com

LASCAR ELECTRONICS (HK) LIMITED  
FLAT C, 5/FL., LUCKY FTY. BLDG.  
63-65 HUNG TO ROAD  
KWUN TONG KOWLOON  
HONG KONG  
TEL: +852 2797 3219  
FAX: +852 2343 6187  
E-mail: b4lascar@samsongroup.com.hk

Specifications liable to change without prior warning

SP 5-1710-BL

Issue 1

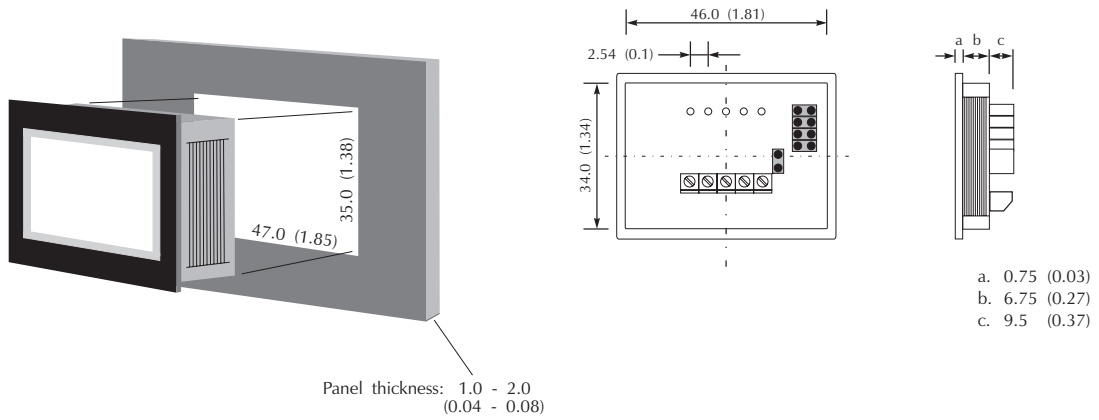
January/2004

M.C. Applies to SP 5-1710/2

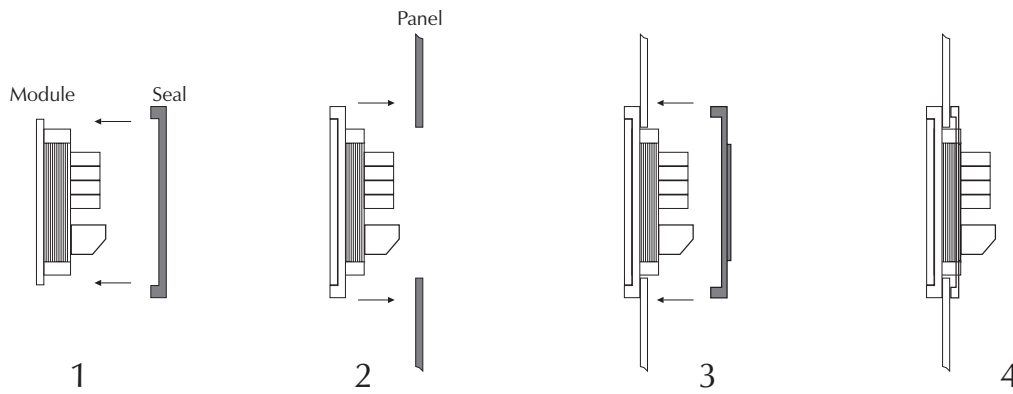


## DIMENSIONS

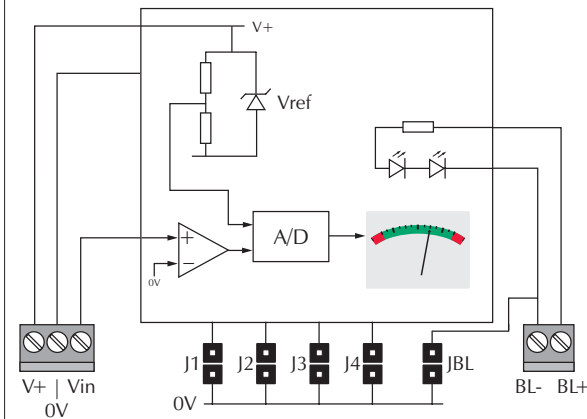
All dimensions in mm (inches)



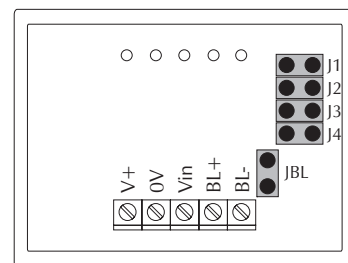
## PANEL FITTING



## FUNCTIONAL BLOCK DIAGRAM



## CONNECTIONS (rear view)



Specifications liable to change without prior warning SP 5-1710-BL

Issue 1 January/2004 M.C. Applies to SP 5-1710/2

**SCREW TERMINAL FUNCTIONS**

V+	Positive power supply to the meter.
0V	0V power supply to the meter.
Vin	Positive measuring input, with reference to 0V.
BL+	Positive power supply to the LED backlighting.
BL-	Negative power supply to the LED backlighting.

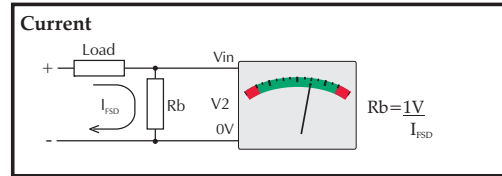
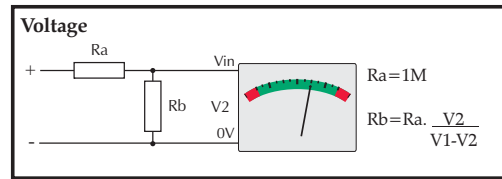
**JUMPER LINK FUNCTIONS**

J1.	Not fitted:	The module has a 0 to 1V d.c. full scale range (default setting).
	Fitted:	The module has a -1V to +1V d.c. full scale range. The scale annunciators (-, 0, +) are visible. This overrides links J3 and J4.
J2.	Not fitted:	The input voltage is not inverted (default setting).
	Fitted:	The input voltage is inverted inside the meter.
J3.	Not fitted:	The scale annunciators (-, 0, +) are not displayed.
	Fitted:	The scale annunciators (-, 0, +) are displayed. This overrides link J4.
J4.	Not fitted:	The scale annunciator (0) is not displayed.
	Fitted:	The scale annunciator (0) is displayed.
JBL.	Not fitted:	LED backlighting is not required or V+ exceeds 5V.
	Fitted:	To switch on the LED backlighting when V+ = 5V, fit JBL to connect BL- to 0V. If V+ exceeds 5V, then a series resistor must be fitted in the backlighting circuit. See the application diagrams on this datasheet for details.

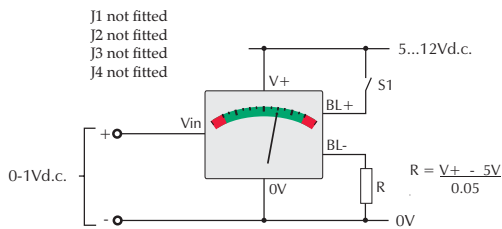
## SCALING

Two external resistors may be used to alter the full scale reading of the meter - see table for sample values. Alternatively, use the following formulae to calculate Ra and Rb. Select the nearest available standard resistor. To achieve optimum accuracy, use 1% metal film resistors. Ensure solder link La is cut when fitting Ra.

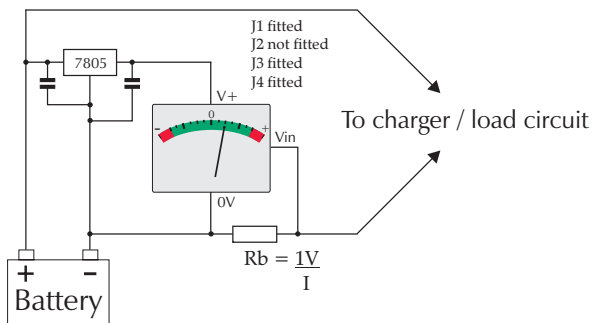
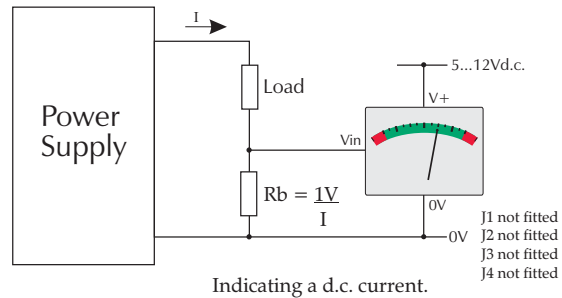
Required F.S.R.	Ra	Rb
10V	910k	100k
100V	1M	10k
1mA	0R	1000R
10mA	0R	100R
100mA	0R	10R
1A	0R	1R



## VARIOUS OPERATING MODES



Indicating a voltage in the range 0 to 1V d.c.  
 Close switch S1 to turn on the backlighting.  
 Jumper link JBL must NOT be fitted.



Indicating battery charge/discharge current.  
 Ensure jumper link LK1 is fitted.

