

# London Electronics Limited

Thorncote Road, Near Sandy, Bedfordshire SG19 1PU  
Tel +44(0)1767 626444 Fax +44(0)1767 626446  
www.london-electronics.com help@london-electronics.com

---

Panel or wall mounting process bargraph / controller

## PRO-BAR-IP65

**Connection details, scaling and general information**

---

# ***TABLE OF CONTENTS***

- 1) Introduction
- 2) Warnings
- 3) Specifications
- 4) Mounting Requirements + Connections
- 5) Adjustments + Calibration
- 6) Declaration of Conformity

# ***IMPORTANT INTRODUCTORY NOTES***

Thank you for choosing to use a London Electronics Ltd. product. We hope that you will be entirely satisfied with your purchase, and welcome any comments you may have which will help us to improve the ease of use, clarity of this manual, etc. for future shipments.

We invite you to write to us, free of charge, if posted in the United Kingdom, to:-

**London Electronics Ltd.  
Customer Services Department  
Thorncote Road  
Near Sandy  
Bedfordshire SG19 1PU  
England**

Alternatively you may send us a fax on **01767-626444** (international code +44)  
Or, telephone us on **01767-626446** (international code +44)

Or, send us an E-Mail to **sales@london-electronics.com**

To enable us to provide a swift and accurate service, please be sure to provide the following information :-

- 1) Full Model Number , including all options fitted.
- 2) Serial Number
- 3) DETAILED description of your difficulties, suggestions etc.
- 4) Input Range and Display range

This product is covered by a 2 year warranty, during which period we will put right or replace any meter found to be faulty through bad workmanship or materials. This warranty does not cover damage caused by misuse or accident.

***IMPORTANT*** If the meter is a vital component in your process, you may wish to consider the purchase of a spare to cover the possible eventuality of a failure or accident, as we cannot guarantee instant repair or replacement.

We are constantly striving to improve our products and services, and as a result, changes to instruments do occur. Please ensure that this manual is kept safely for future reference, as future manuals, covering revised designs may no longer describe your product accurately.

We believe these instructions to be accurate, and the product to be competently designed and manufactured. We do not make any claims as to the suitability of this product for any particular application. The choice of product and responsibility for the choice lies with the User.

# VERY IMPORTANT WARNINGS



**You should carefully read all warnings and commence installation ONLY when you are satisfied that all warnings are adequately covered.**



! Connections to this equipment shall be carried out in accordance with current IEE regulations, and all wiring shall be separated in accordance with IEC1010

Notes:

! Power supplies to this equipment must be anti-surge fused at 125mA for 230V supply, 250mA for 110V supply

Notes:

! Before installation, check that model number and supply voltage suit your application

Notes:

! Lethal voltages may be present on the circuit board. Do not touch any circuitry when power is applied.

Notes:

! This product is designed for Installation class II service

Notes:

! This product is designed for use in Pollution-Degree 2 environments

Notes:

! Use an insulated screwdriver when adjusting potentiometers and do not touch any circuitry

Notes:

! Replace front cover when meter is unattended

Notes:

! All adjustments to jumper settings or terminations must be made with power removed

Notes:

! Ensure all screw terminals are tight before applying power.

Notes:

***Safety First ..... Don't make assumptions..... Always double check. If in doubt, ask someone who is QUALIFIED to help you in the subject.***

# EQUIPMENT SPECIFICATIONS

<b>Input Signal</b> .....	4-20mA or 0-10V DC
Input Resistance.....	22 Ohms
Resolution.....	1 in 50
CMRR.....	70 dB DC to 450 Hz.
NMRR.....	56 dB 45 to 10000 Hz.
Open Circuit Input Response...	Downscale Drive
Speed of Response.....	Display = 100 mS
Accuracy.....	+/- 2% of reading
Temperature stability.....	100 ppm of range/C span and zero
A/D Technique.....	Microprocessor controlled A/D
Conversion Rate.....	Continuous
<b>Excitation Supply</b> .....	24V nominal
Max. Load current.....	25mA
Regulation.....	not regulated
<b>Display</b> .....	High brightness LED
Scale Height.....	50 segments, total length 251 mm
Scale colour.....	Red
<b>Power Supply</b>	
AC Supply.....	110 or 230 VAC , specified at time of ordering
DC Supply.....	Optional 24V DC +/- 15%
Current Consumption.....	Allow 8VA
<b>Mechanical</b>	
Bezel Size.....	315mm high by 100mm wide in horizontal format. May be mounted vertically also
Depth .....	90 mm excluding cables. Allow for 105 mm including cables
Weight.....	1950 grammes typically
Case Material.....	Heavy duty bonded uPVC
<b>Environmental</b>	
Operating Temperature.....	-20 to +50 degrees C
Storage Temperature.....	-40 to +85 degrees C
Humidity.....	90% rh max. at 40 C, non condensing.

# PANEL REQUIREMENTS



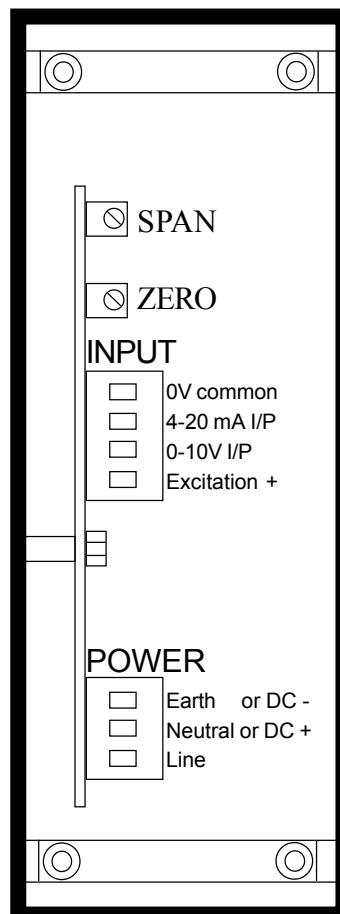
All wiring to this meter must be carried out in accordance with current IEC regulations  
Separation of all power carrying cables must be ensured in accordance with IEC 1010

Installation Class II  
Pollution degree 2

## Connections

**Connector Specifications :-** [VDE Rated Voltage, group B insulation VAC = 380]-[VDE Rated Current = 8 Amperes.]  
[Vibration Immunity per VDE0611 <10g]-[Rated Number of mating cycles <100]-[Screw Clamp material/plating Steel/ZnCc]  
[Contact Spring material/plating CuSN/gal SnPb]-[Plug-in force, per pole is from 3 to 6 Newtons]-[Disconnect force per pole is from 4 to 7 Newtons]-[Screw clamp tightening torque recommended 0.5Nm]-[Solid wire csa between 0.13 to 1.5mm<sup>2</sup>] [Multistrand wire csa from 0.5 to 1.5mm<sup>2</sup>]-[AWG conductor range from 22 to 16]-[Gauge to DIN/EN50027 Size A1]

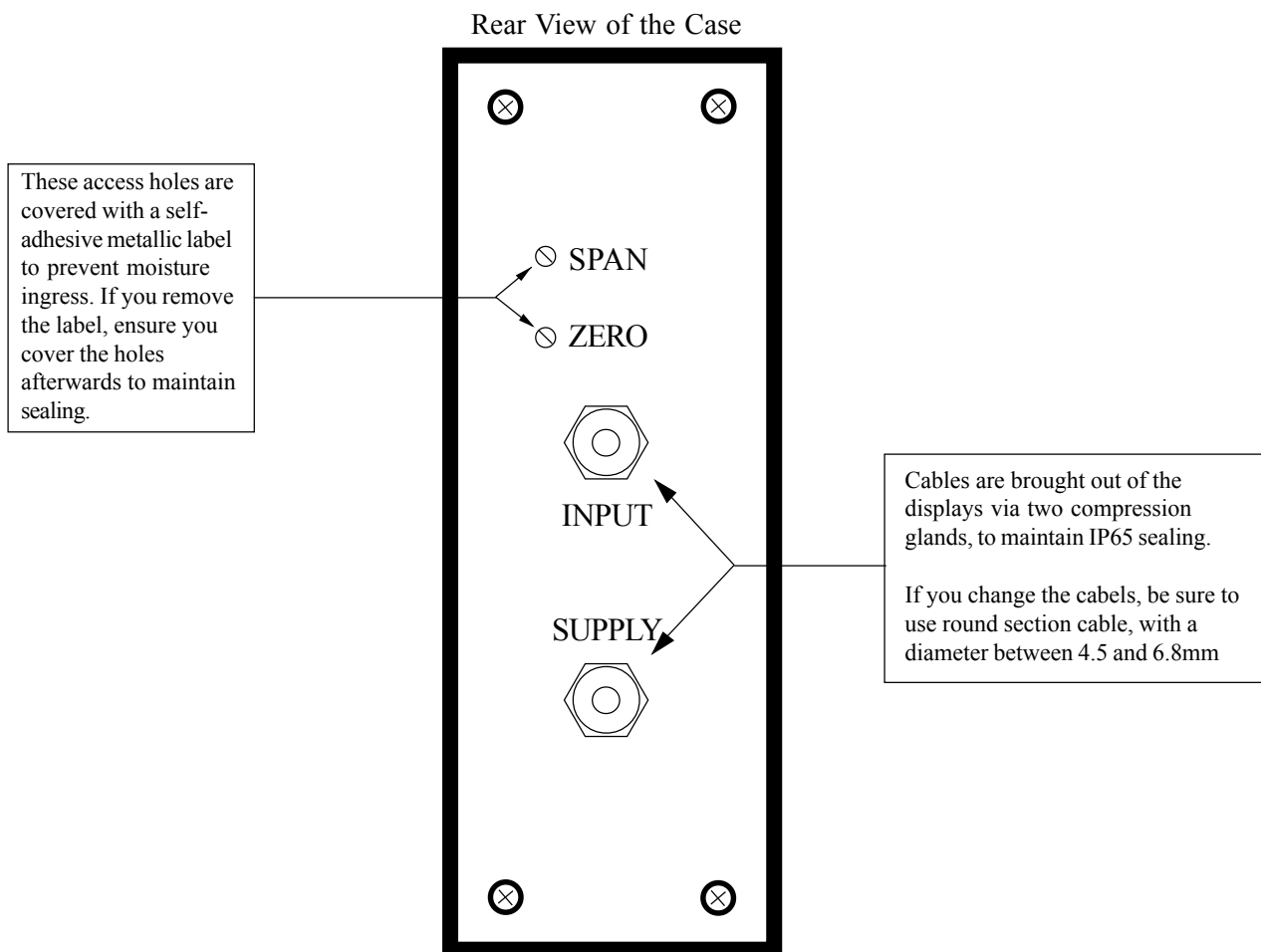
View Inside the Enclosure



**IMPORTANT:** Do not run signal wires near any power-carrying cables. Power-carrying cables will almost certainly radiate appreciable amounts of electro-magnetic energy, which could interfere with the small signals you are trying to measure. Use screened cable, in its own separate conduit or tray. Connect the screen at one end only, to a clean earth point as near to the meter as possible.

# ADJUSTMENTS & CALIBRATION

- 1) Ensure that the device's power voltage settings are correct.
- 2) If calibration details were given at the time of ordering, you should not need to make any alterations to the device's settings, apart from applying input signals and checking the calibration.
- 3) If you wish to check the display's calibration you will need to inject 10% and 90% signals to each display and adjust the zero and span potentiometers to obtain 5 and 45 lit segments respectively. Remove the The zero and span potentiometers are located on the rear panel of the bargraph.



- 4) Apply 10 % of input and adjust the ZERO pot to obtain 10% of display range.
- 5) Apply 90 % of input and adjust the FULL SCALE pot for 90 % of display range.
- 6) Repeat steps 4) and 5) until no further adjustment is necessary
- 7) Apply 25%, 50% and 75% of input signal in turn, and check to ensure that the display responds accurately

The display will flash if the input exceeds 20mA or 10V, and will flash only the lowest segment if the input falls below 4mA or 0V.

# Declaration of Conformity

Declaration Number : PRO-BAR Iss. 2  
Issue Date : 19 September 1997  
Products Covered : PRO-BAR  
Title : 50 seg. bargraph

This is to confirm that the Products covered by this declaration have been designed and manufactured to meet the following specifications :

EN55022:1987 Conducted Emissions: Class B  
EN55022:1987 Radiated Emissions : Class B  
IEC801-2:1984 Electro-Static Discharge Immunity: 8kV Air  
IEC801-3:1984 Radiated ElectroMagnetic field Immunity: 3V/m  
IEC801-4:1988 Fast Transient Immunity : AC 1kV, cable 0.5kV

Thus the products conform with the applicable sections of the following standards:

EN50081-1:1992 (normative)  
EN50082-1:1992 (normative)

and comply with the requirements of Council Directive 89/336/EEC relating to Electro-Magnetic Compatibility, & are designed to meet 72/23/EEC safety directive.

## Conditions

The meters are permitted a worst case error of 4% of A/D range during electro-magnetic disturbance, and must recover automatically when disturbance ceases without the need for human intervention, such as resetting, power-down etc.

The meters covered by this certificate must be installed in adherence to the following conditions :-

Signal cabling shall be routed separately to power carrying cabling (includes relay output wiring)  
All signal cabling shall be screened. The screen shall only be terminated to the power earth terminal

This certificate applies only to meters carrying Serial Numbers 701001 or higher.

Declared true and correct, for and on behalf of London Electronics Ltd.

J.R.Lees

Director