

London Electronics Limited

Warren Court, Chicksands, Shefford, SG17 5QB, England

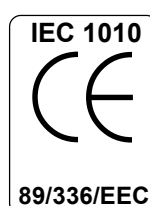
Tel: 01462 850967 Fax: 01462-850968 International prefix +44

E-Mail help@london-electronics.com

Web site <http://www.london-electronics.com>

Models RTD3 & RTD4 series

3 1/2 and 4 1/2 digit 3 wire PT100 RTD panel meters with optional outputs
BS1904 curve



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 or 630mA for DC supplies in the range 12-30VDC

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 FirstDon't make assumptions..... Always double check.
If in doubt, ask someone who is QUALIFIED to assist you in the subject.**

TABLE OF CONTENTS

- 1) Introduction
- 2) Specifications
- 3) Panel Requirements + Connections
- 4) Alarm + Retransmission Option
- 5) Adjustments + Calibration
- 6) BCD O/P option
- 7) 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
FREEPOST SG334
SHEFFORD
Bedfordshire SG17 5BR

Alternatively you may send us a fax on **01462-850968** (international code +44)

Or, telephone us on **01462-850967** (international code +44)

Or, send us an E-Mail to **meters@dial.pipex.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.

EQUIPMENT SPECIFICATIONS

Input Signal	3 wire PT100. Excitation current less than 1mA
Input Cable limitations.....	all 3 cables to be of same type and length , up to 75 Ohms max., each
Resolution.....	1 in 2000 for TC3 meters, 1 in 20000 for TC4 meters
CMRR.....	70 dB DC to 450 Hz.
NMRR.....	56 dB 45 to 10000 Hz.
Open Circuit Input Response.....	Upscale Drive if sensor fails open circuit
Speed of Response.....	Display = 2.5/sec. <i>See sections below for analogue & alarm speeds</i>
Decimal Point Selection.....	Push-on Jumpers
Accuracy.....	0.05% of reading
Temperature stability.....	50 ppm of range/C span and zero for meter
A/D Technique.....	Dual Slope integration
Conversion Rate.....	2 1/2 conversions per second (every 400 mS)
Integration Time.....	100 mS
 Display	 High brightness LED
Digit Height.....	14.2mm 0.56"
Digit Colour.....	Red as standard, optionally green
 Excitation Supply	 Not applicable to this model
Accuracy.....	
Current Capacity.....	
 Power Supply	 110 or 230 VAC as standard. 24VAC optional Others possible on request
AC Supply.....	10 to 30 VDC as an option. Also 5V +/-5%.
DC Supply.....	Allow 8VA if all options fitted & excitation supply fully loaded.
Current Consumption.....	
 Mechanical	 48mm high by 96mm wide
Bezel Size.....	45 mm high by 92 mm wide
Cutout Size.....	125 mm
Depth behind Panel.....	550 grammes typically
Weight.....	UL 94V0 rated black ABS
Case Material.....	
 Environmental	 -20 to +50 degrees C
Operating Temperature.....	-40 to +85 degrees C
Storage Temperature.....	90% rh max. at 40 C, non condensing.
Humidity.....	
 Analogue O/P Option	 4-20mA into loads 0 - 500 Ohms. 0-10 V into loads from 500 Ohms to Infinity
Drive Capacity.....	380V safety rated from power & earth, but not isolated from input stage
Isolation.....	Standard = 500 milliseconds. Optionally 2 millisecond (option = FAST)
Speed of Response.....	0.05% of range
Accuracy.....	0.01% of range
Linearity.....	
 Alarm O/P Option	 Changeover relay, 2 off, HIGH or LOW. De-energise on alarm - failsafe
Format.....	7 amperes, resistive. For inductive loads, MOV varistors are recommended
Current Rating.....	250VAC, 24VDC
Voltage Rating.....	Standard = 15mS. Optionally with 5mS response speed.
Speed of Response.....	Typically 4 counts
Hysteresis.....	Red LED illuminates when relay de-energises
Annunciation.....	Pushbutton allows alarm point to be viewed. Coarse & fine potentiometers
Setting Method.....	
 BCD O/P Option	 Multiparallel, isolated, addressable tri-state. 50 way male IDC header
Format.....	12VDC up to 24VDC. Level is derived from power applied to BCD port
Data Levels.....	Data available 5 milliSeconds after request. Data updated every 400mS
Response speed.....	
 Serial Data O/P Option	 Selectable 300, 600, 1200, 2400, 4800 or 9600
Baud Rate.....	32 addresses available
Addressing.....	1 start bit, 8 data bits, 1 or more stop bits. ASCII data with a carriage return
Format.....	4 way detachable screw terminal connector
Connections.....	

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



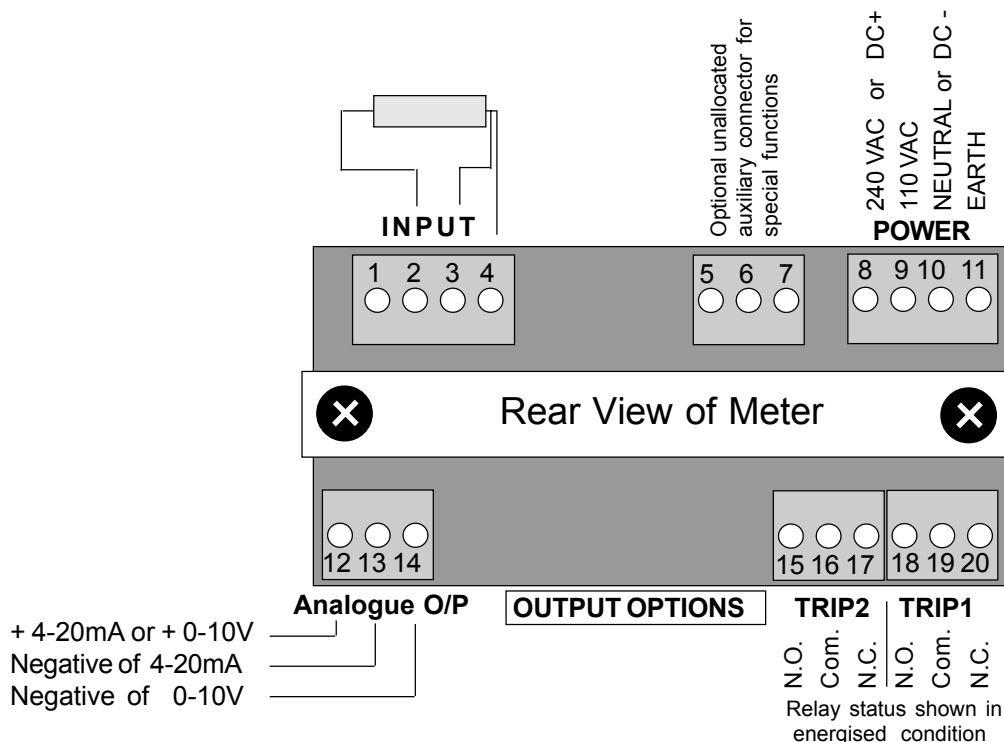
This meter is to be installed within a secure enclosure, to prevent accidental access by persons to the powered connections present on the meter's rear terminals.

CUTOUT DIMENSIONS

A hole 45 mm high and 92 mm wide, with minimal radius is required

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 1.5mm²]
[Multistrand wire csa from 0.5 to 1.5mm²]-[AWG conductor range from 22 to 16]-[Gauge to DIN/EN50027 Size A1]



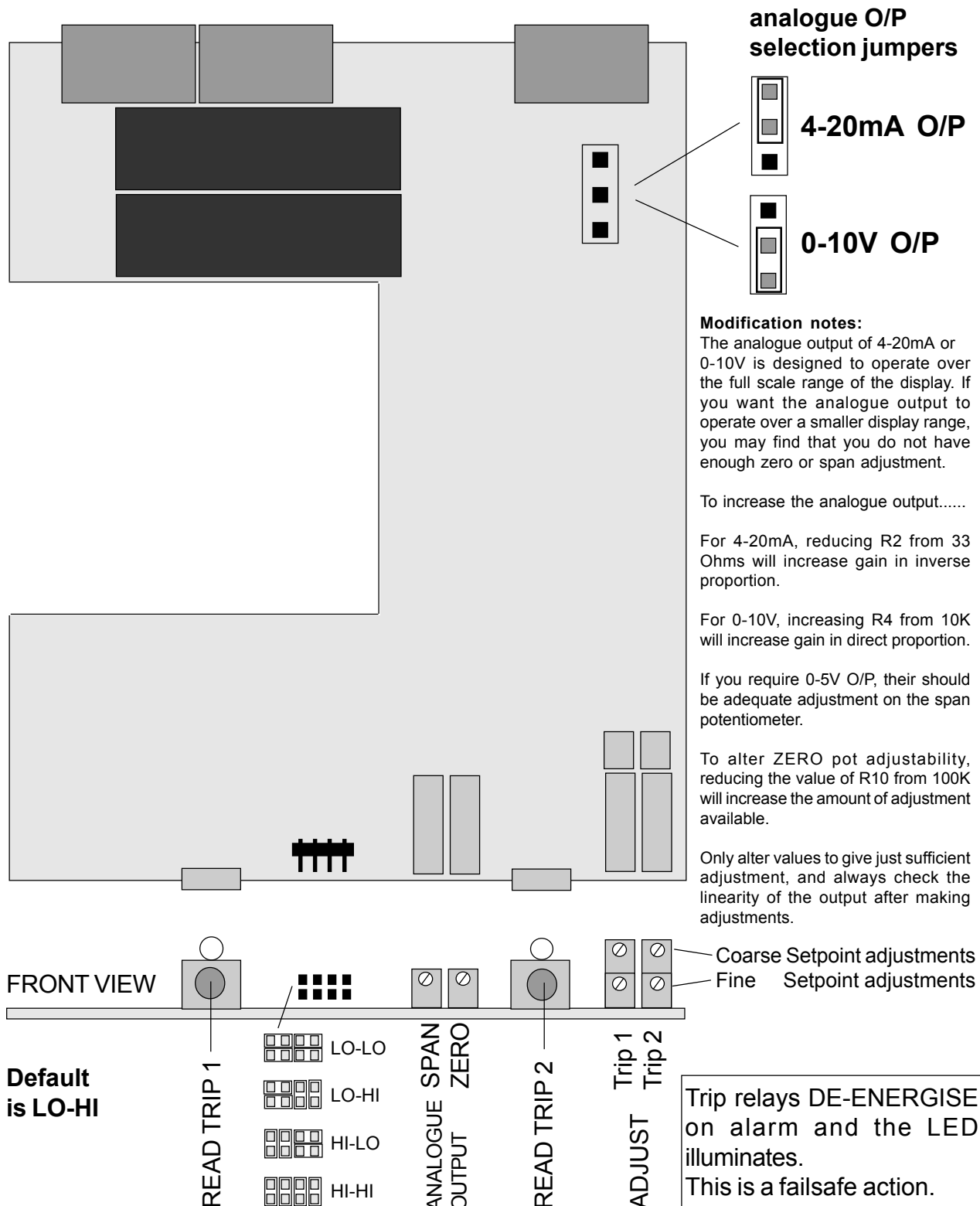
Please see appropriate section in this manual for connection details of BCD option or SERIAL output options. These options are mutually exclusive, and are not available with Analogue output or Trip output options.

AVOID DISAPPOINTMENT! Route **all** signals via individually screened cables. Do **not** mix input and output signals in the same screened cable. Earth the screens at a point as near to the meter as possible and do not earth the screen at the other end. Route all signal cables well away from power cables, relay switching cables and other sources of electrical noise.

ALARM & ANALOGUE O/P SETTINGS

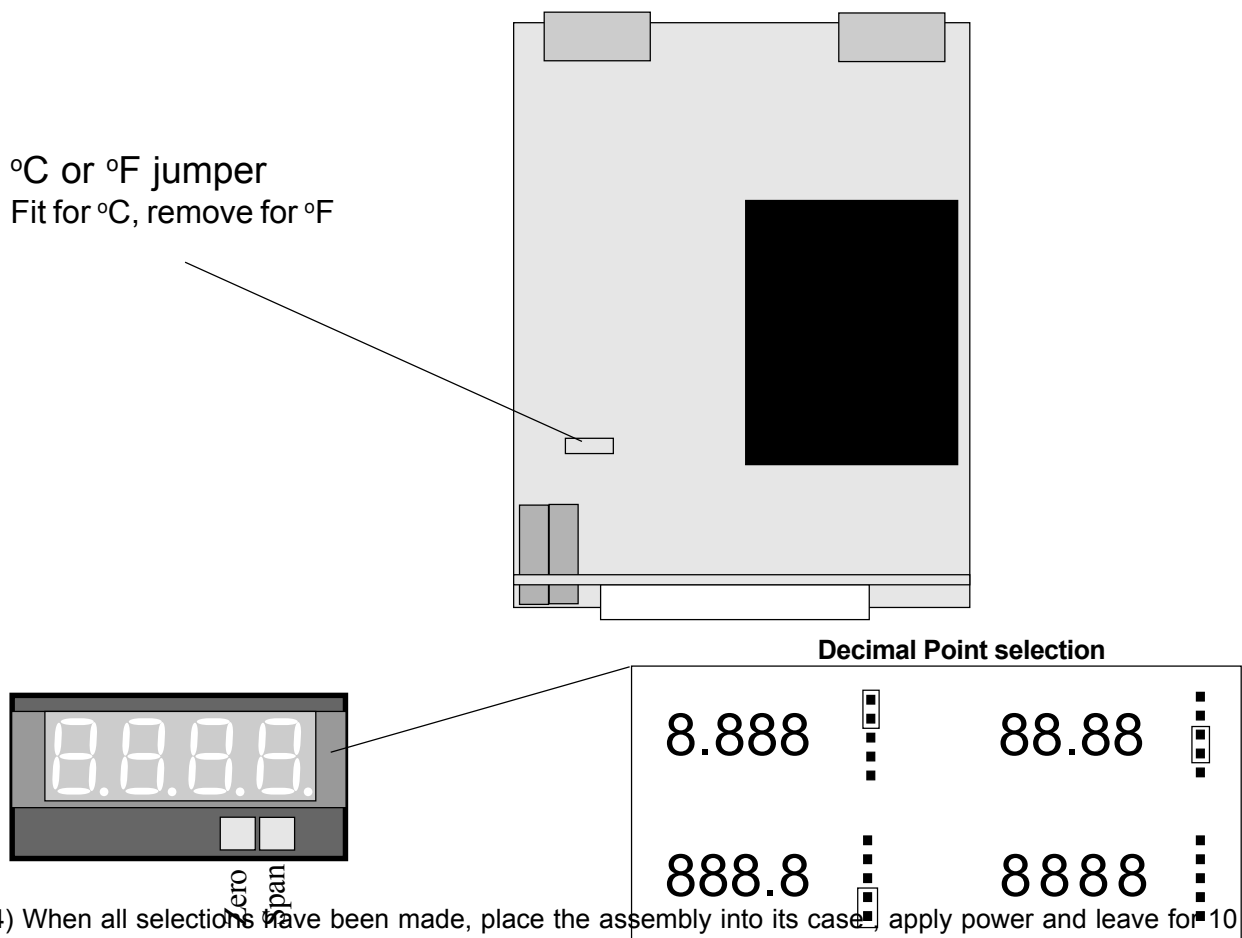
This board is located below the display. You will only need to remove the board from the case if you wish to change the analogue output from 4-20mA to 0-10V. The board is supplied as 4-20mA default, unless you specifically ordered the unit to have 0-10V output.

To change trip action or adjust trip points, simply unclip the lens from the display, which will allow access to the jumpers and potentiometers.



ADJUSTMENTS & CALIBRATION

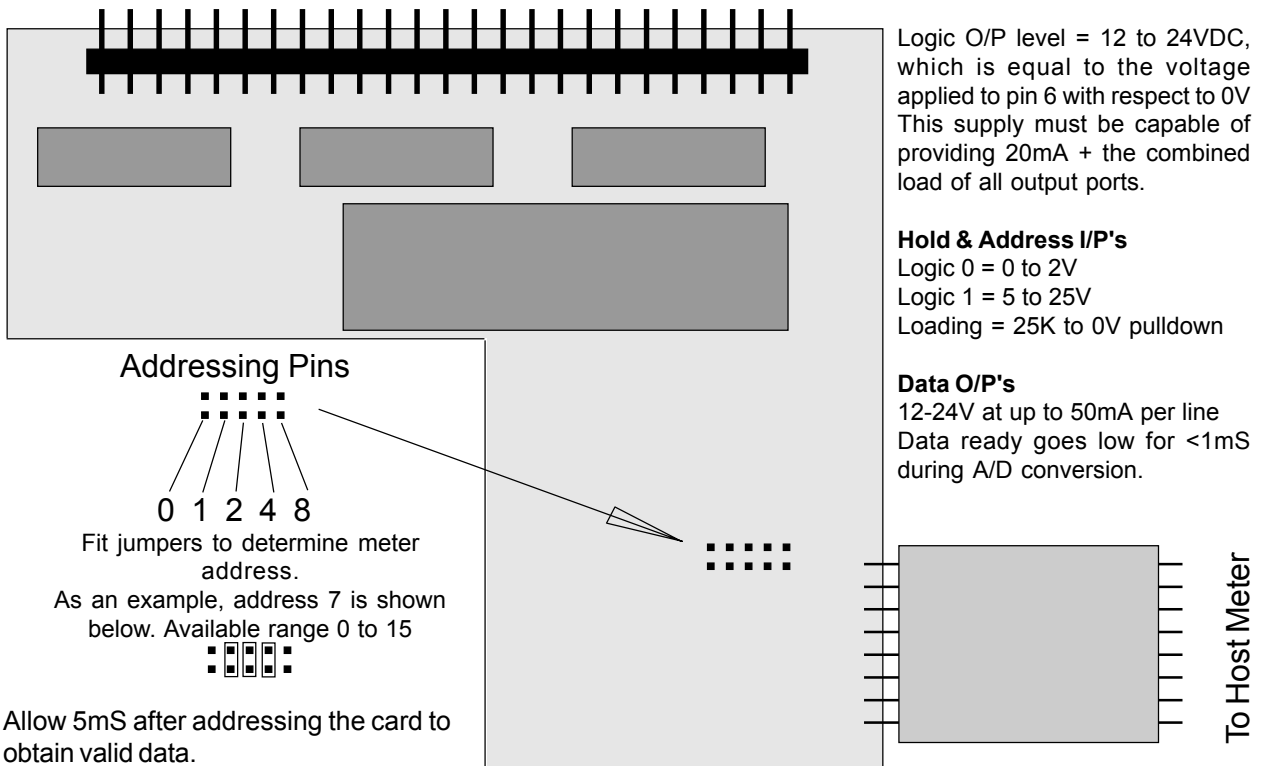
- 1) Ensure that the meter's power voltage settings are correct.
- 2) If the unit was ordered from us and calibration details were given at the time of ordering, you should not need to make any alterations to the meter's settings apart from applying input signals and checking the calibration.
- 3) You may alter the display type between degrees C or degrees F using a jumper switch, as described below.



- 4) When all selections have been made, place the assembly into its case, apply power and leave for 10 minutes to thermally stabilise.
- 5) Apply 0 % of input and adjust the ZERO pot to obtain 0% of display range.
- 6) Apply 100 % of input and adjust the SPAN pot for 100 % of display range.
- 7) Repeat steps 5) and 6) until no further adjustment is necessary
- 8) Apply 25%, 50% and 75% of input signal in turn, and check to ensure that the display responds accurately
- 9) Note your calibration settings on the meter's rating label for future reference

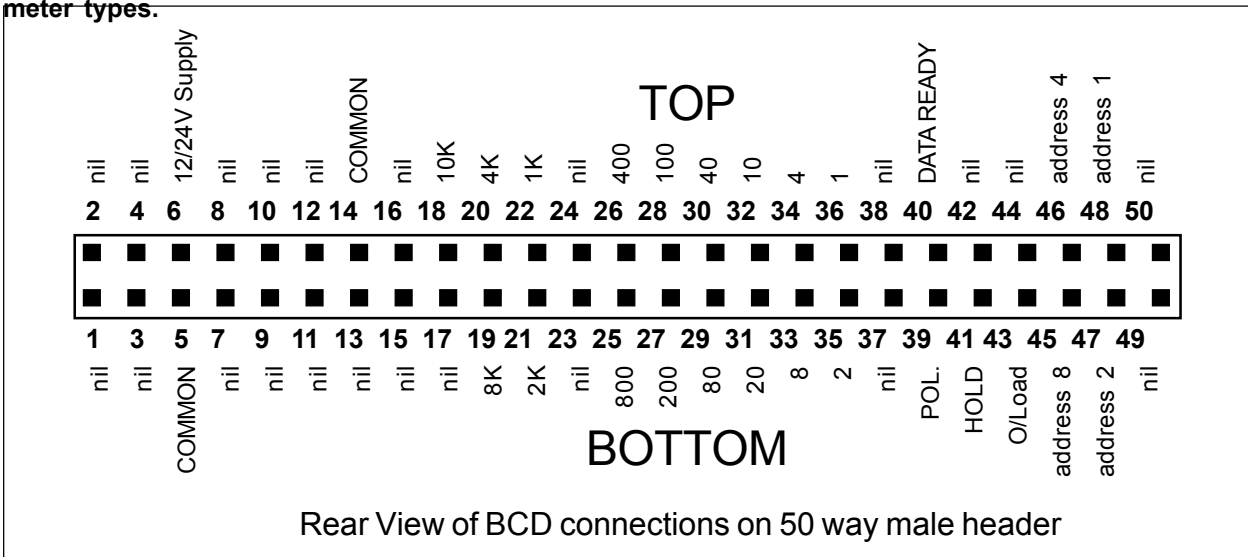
BCD-OUTPUT OPTION SETTINGS

This output option board is located below the display. You will only need to remove the board from the case if you wish to change the board's address. The board is supplied set to address 01 as default.



This option derives its data directly from the meter's A/D convertor. This data is updated every 400 milliseconds, but can be accessed within 5 milliseconds. The outputs and handshake lines are fully isolated from the meter to a level of 380 VAC. The option must be powered externally, typically from your PLC accessory supply.

The data output weighting of 1,2,4,8, ...10K corresponds to 4 1/2 digit meters. For 3 1.2 digit meters, divide the given values by 10. The addressing weighting will be identical for 3 1/2 and 4 1/2 digit meter types.



NOTES

Declaration of Conformity

Declaration Number : RTD3/4 Iss 1.
Issue Date : 2 January 1997
Products Covered : RTD-3 & 4 series
Title : RTD meters / alarms

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.

To confirm EMC compliance, representative models within the range have been independently tested and certified by MARCONI INSTRUMENTS EMC Department.

MARCONI CERTIFICATE # : TC95/0074B
MARCONI CERTIFICATE Issue # : 1
MARCONI Certificate Issue Date : 3 July 1995

Conditions

The meters are permitted a worst case error of 1% 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 a clean power earth terminal as near to the meter as is possible.

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

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

Warren Court, Chicksands, Beds.

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J.R. Lees Director