London Electronics Limited

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

Tel: 01462 850967 Fax: 01462-850968 International prefix +44
E-Mail help4u@london-electronics.com
Web site with news, distribution details, product descriptions http://www.london-electronics.com

Operating Instructions

MICRO-LITE-T

Miniature Programmable Thermocouple & RTD meter with alarm and retransmission options

EMC
89/336/EEC
CE
IEC1010

These instructions cover product with serial numbers from 701001

Document Ref:MICLITE-T Revision:1 Dated:3/12/97

TABLE OF CONTENTS

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 assist you in the subject.

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 **help4u@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.

EQUIPMENT SPECIFICATIONS

The MICRO-LITE has been designed to provide you with an extremely compact, precise, low cost indicator/controller family, ideal for almost any measurement or control requirement within a modern plant environment.

Offering ***exactly the same digit size*** as on our 1/8 DIN meters, yet ***only 38%*** of the panel area, the MICRO-LITE provides fanatastic space saving opportunities.

Three versions are available, covering temperature, weighing and general process measurements. The process model has square root law capability and TC linearisation.

All settings are performed through a simple menu system, using the two pushbuttons on the meter facia, or via an infra-red pen driven via a pc. This technique provides remarkable savings in time especially when a number of displays are to be configured with similar information.

And, if you need to recover the facory settings which the unit was shipped with, there is a simple reset function to allow you to revert to initial configuration level.

As standard , the instrument comes with peak and valley memories, universal AC supply acceptance built in excitation for transmitters or transducers, autocalibration routine and IP65 ingress protection. A pulse output may be enabled whenever a peak or valley is detected, ideal for triggering a printer or datalogger to record the reading.

Options such as dual alarms, analogue output and serial communications add to the versatility of this remarkable instrument. A multi-level password system provides a useful degree of security to your settings.

- ***Standard digits, 38% bezel area*** ✓
- ***Broad digital scaling capability*** ✓
- ***IP65 front protection standard*** ✓
- ***Extremely competitive pricing*** ✓
- ***Off-the-shelf, next day Deliveries*** ✓
- ***Password protection of settings*** ✓
- ***Transducer excitation Output*** ✓
- ***Square root and TC curves included*** ✓
- ***Analogue & Alarm & Data O/P*** ✓
- ***InfraRed programming ability*** ✓

GENERAL SPECIFICATIONS

Digit Height	14.2mm, 4 digits
Display type	High Brightness LED
Conversion	Continuous integration type
A/D resolution	1 part in 20 000
Display update of	0.2 or 0.4 or 0.8 Second
except on MICRO-WISE-T,	which is 0.4 S.
Digital Filter	settable slow, medium or fast
Step response	1 sec to within +/- 0.05%
NMRR	>60dB @ 50 and 60 Hz., no filtering
CMRR	>135dB from I/P to Supply
Warmup time	1 minute

Power Supply 90-264 VAC, 4 Watts typical

OUTPUT OPTIONS

ISOLATED ANALOGUE O/P

0/4-20mA into 0-550 Ohms scaleable
0-10V 10 Ohm source impedance,scaleable
Accuracy +/- 0.1% of range

DUAL ALARM RELAYS

Relay ratings 250VAC @ 5A, 24VDC @ 1A
Format SPCO, resistive loads only
ON/OFF Delay settable 0.1 to 20 Seconds
Hysteresis settable from 0 to 8000 counts
Selectable latching or non latching operation

RS232 Printer O/P

Voltage Level V.24 Compatible
Baud Rates 300,600,1200,2400,4800,9600
Isolation Level 200 VRMS

INPUT RANGES

MICRO-LITE-P (Process Version)

0-22mA (+/-1mA to +/-22mA) 20 Ohms
0-10.5V(+/-1V to +/-10.5V) >1 Megohm
Excitation 24VDC at 30mA
Accuracy +/- 0.03%
Zero drift +/-20ppm/C of full scale
Gain drift +/-50ppm of range

MICRO-LITE-L (LoadCell version)

Input Range +/-30mV to +/-100mV
Excitation 10VDC at 30mA max
Zero drift +/-1uV/C +/-20ppm/C of fullscale
Gain drift +/-50ppm/C of range
Input impedance >1000 Megohms
Input bias current <10nA

MICRO-LITE-T (Temperature Version)

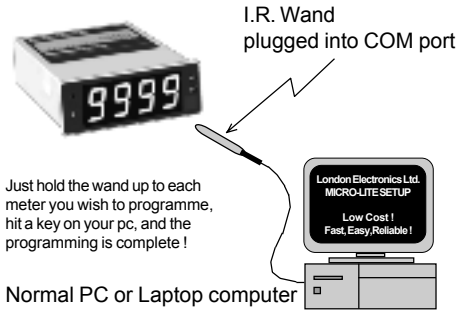
J	-200 to +750C	+/- 0.2C	Accuracy
K	-200 to +1300C	+/- 0.2C	Accuracy
T	-200 to +400 C	+/- 0.2C	Accuracy
R	-50 to +1750C	+/- 1.0C	Accuracy
S	-50 to +1750C	+/- 1.0C	Accuracy

Max. available resolution 0.1C for J, K & T over 0-999.9C ranges (4 digit display). Max. resolution for types R or S limited to 1.0C
CJ Comp. Error < 0.02C/C ambient
All upscale drive on open circuit input

PT100	-200 to +850C	+/- 0.2C	Accuracy
NI100	-60 to +180C	+/- 0.2C	Accuracy

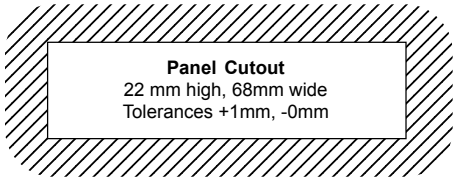
Excitation Current <500 uA, 3 wire scheme
10 Ohm max. lead resistance compensation
Span Error <50ppm/range/C

INFRARED WAND Programmer



MECHANICAL SPECIFICATIONS

Front protection	IP65 / NEMA-4
Bezel = 3/64 DIN	(24mm high x 72mm wide)
Depth behind panel	125mm
Weight	200 grammes
Operating Temperature	-10 to +60 C
Storage Temperature	-40 to +85 C
0-90% r.h.,	non condensing, behind panel
Case Material	Polycarbonate rated UL94V.2



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

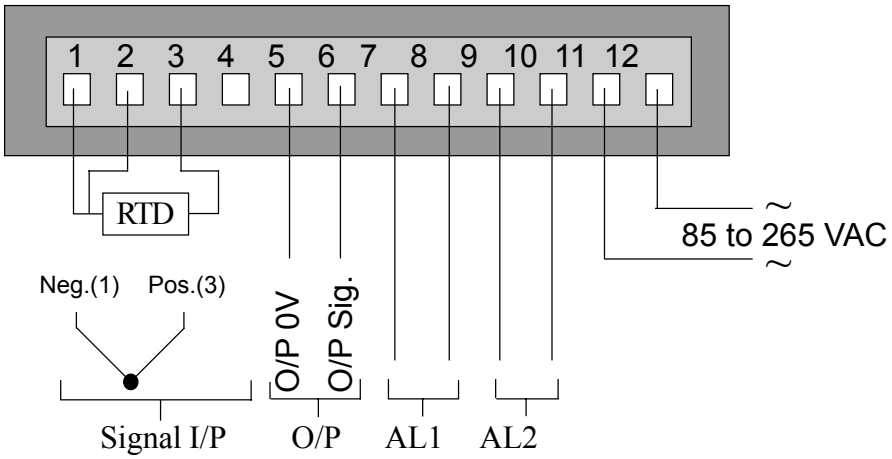
This meter is to be installed within a secure enclosure, to prevent accidental access by persons to the powered connections present on the meter's rear terminals.

CUTOUT DIMENSIONS A hole 22 mm high and 68 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 1.5mm^2] [Multistrand wire csa from 0.5 to 1.5mm^2]- [AWG conductor range from 22 to 16]-[Gauge to DIN/EN50027 Size A1]

Rear View of Meter



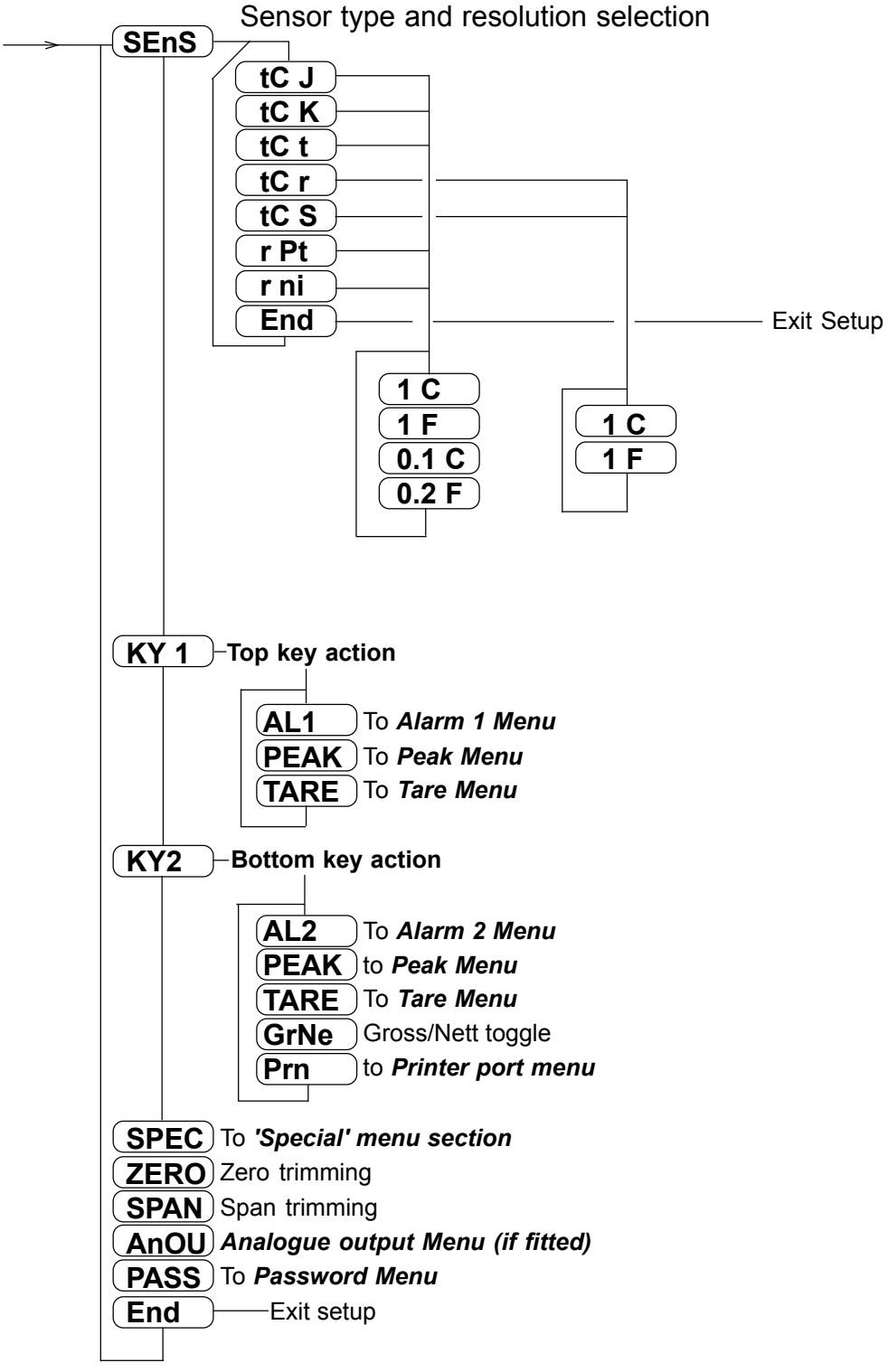
The output signals on terminals 5 & 6 will either be analogue output or RS232 output, depending on which option has been fitted.

The alarm outputs are rated at 5 Amperes, 240 VAC or 1 Ampere 24VDC. They are designed to switch resistive loads only. If you wish to switch inductive loads, you should fit MOV type suppressors across the inductive load to clamp the high back EMF which will occur when the contacts open, and which would otherwise result in premature contact failure.

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 to a clean earth point as near to the meter as possible.

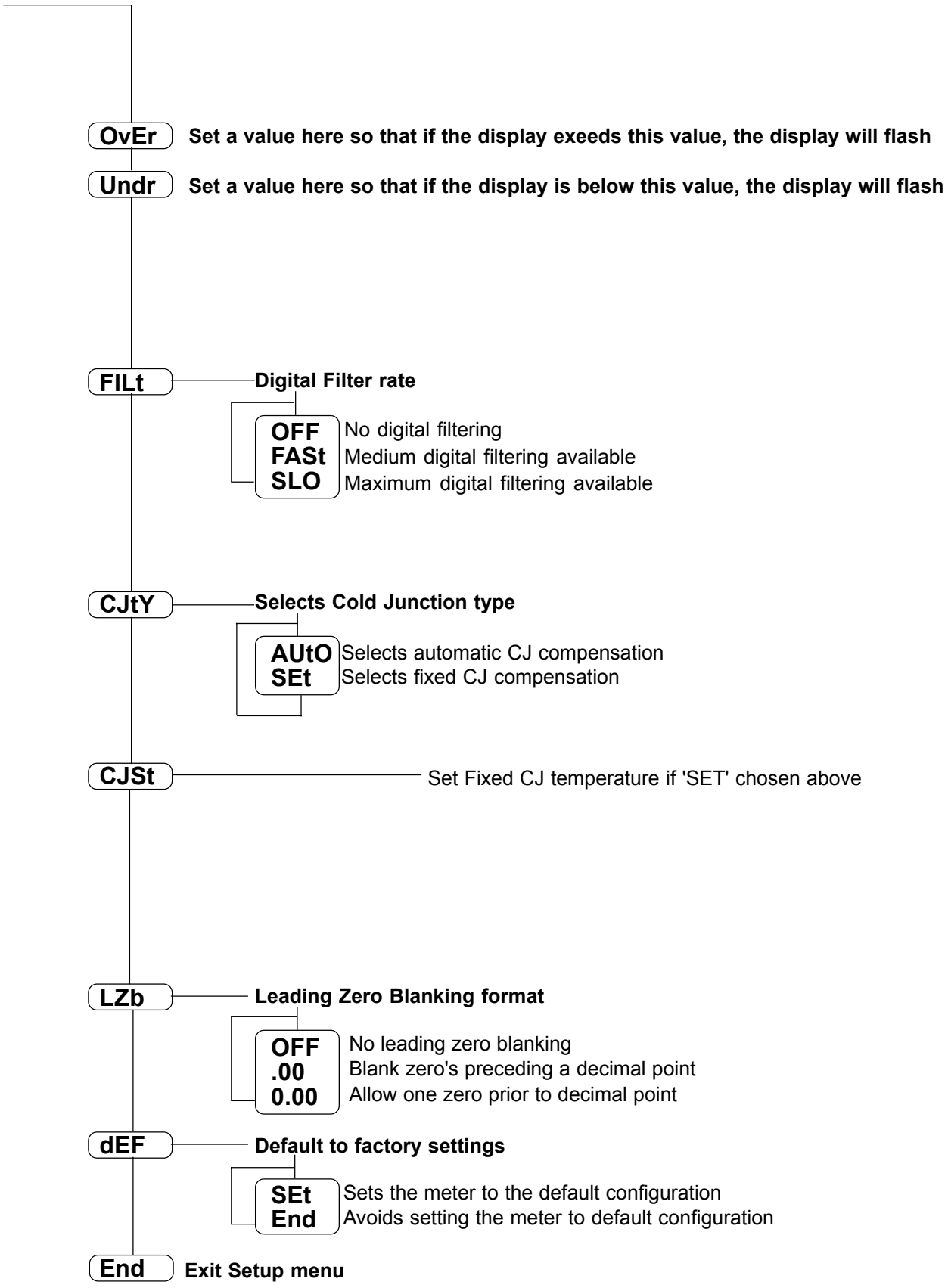
ADJUSTMENTS & CALIBRATION

Press both buttons together to enter the SETUP menu. (Use the side of your thumb to press both buttons)
To move down the menu stack, press the lower button, to move to the right, press the upper button



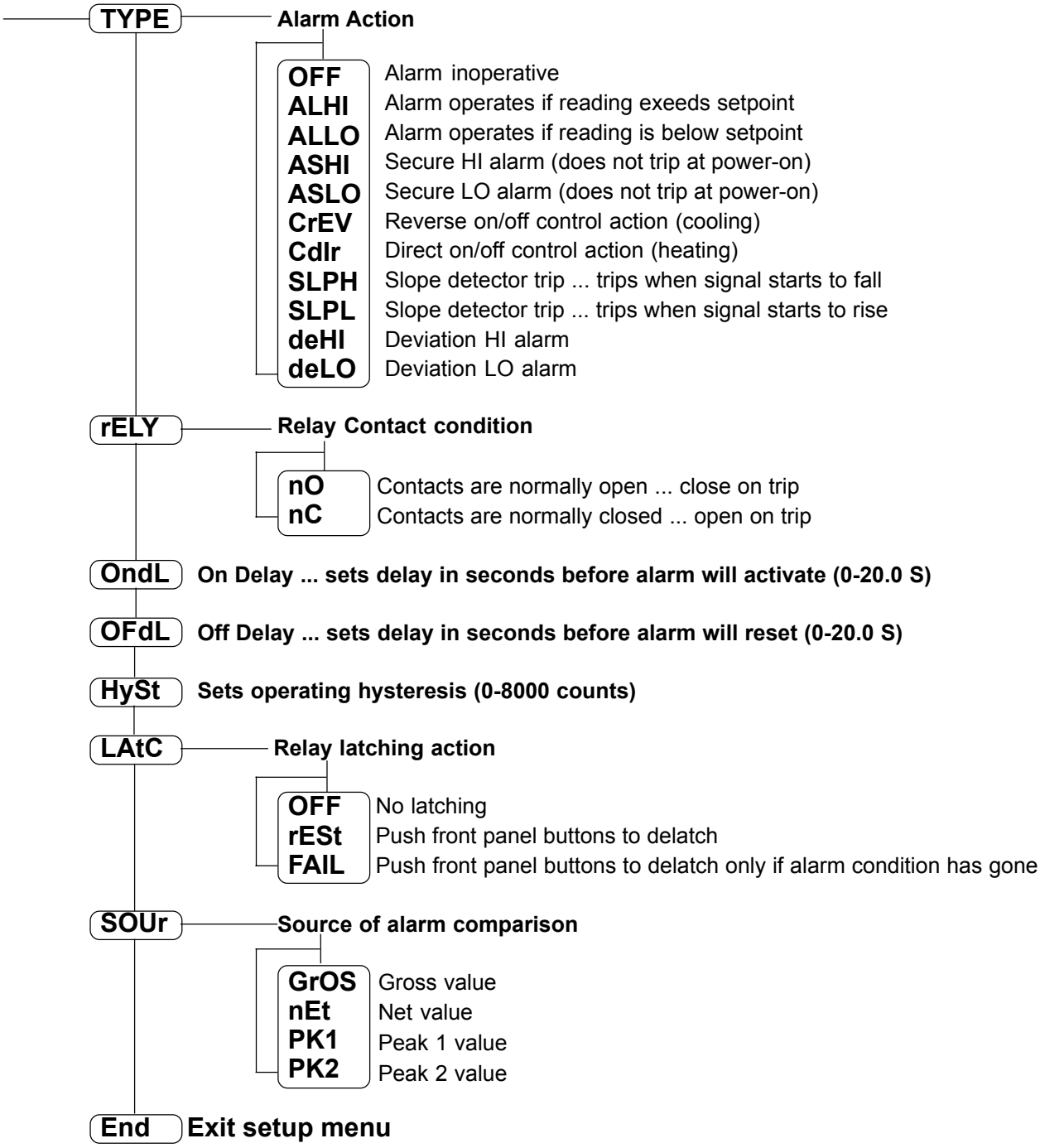
'SPECIAL' MENU SECTION

From Main Menu on p5...



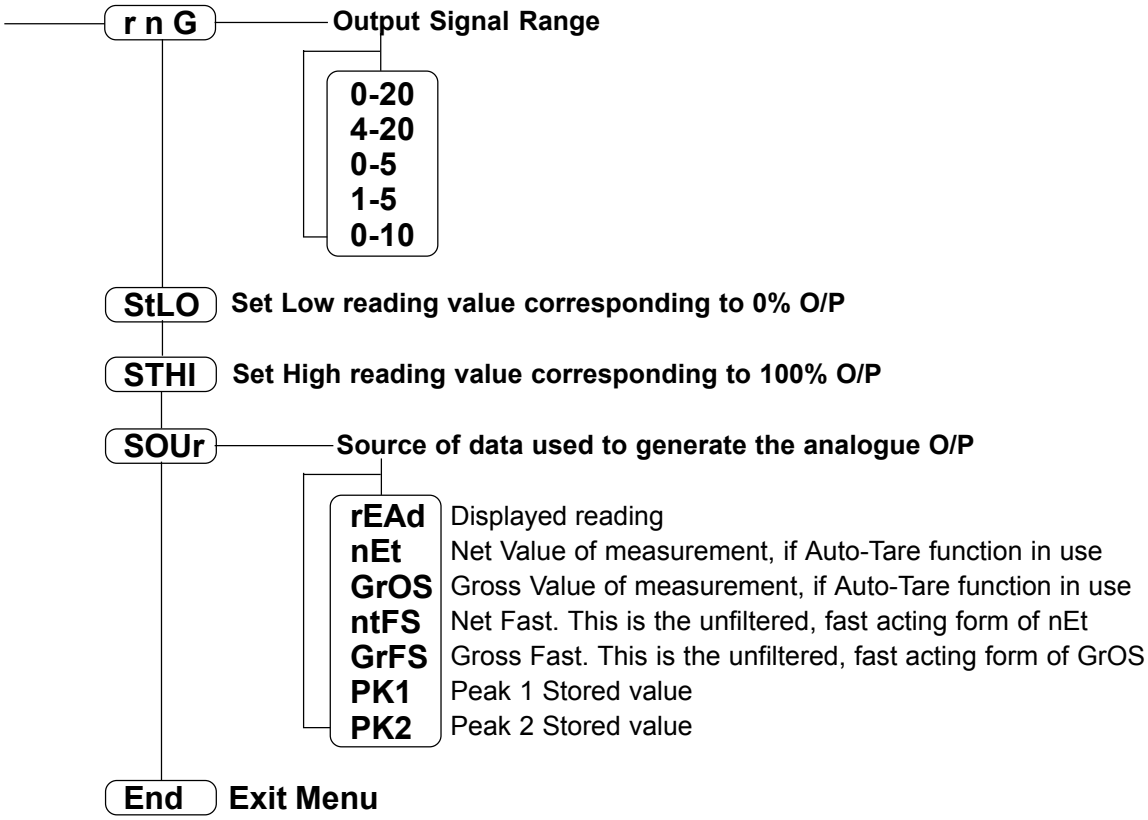
ALARM 1 & 2 SETUP MENU

From Main Menu on p5...



ANALOGUE O/P MENU

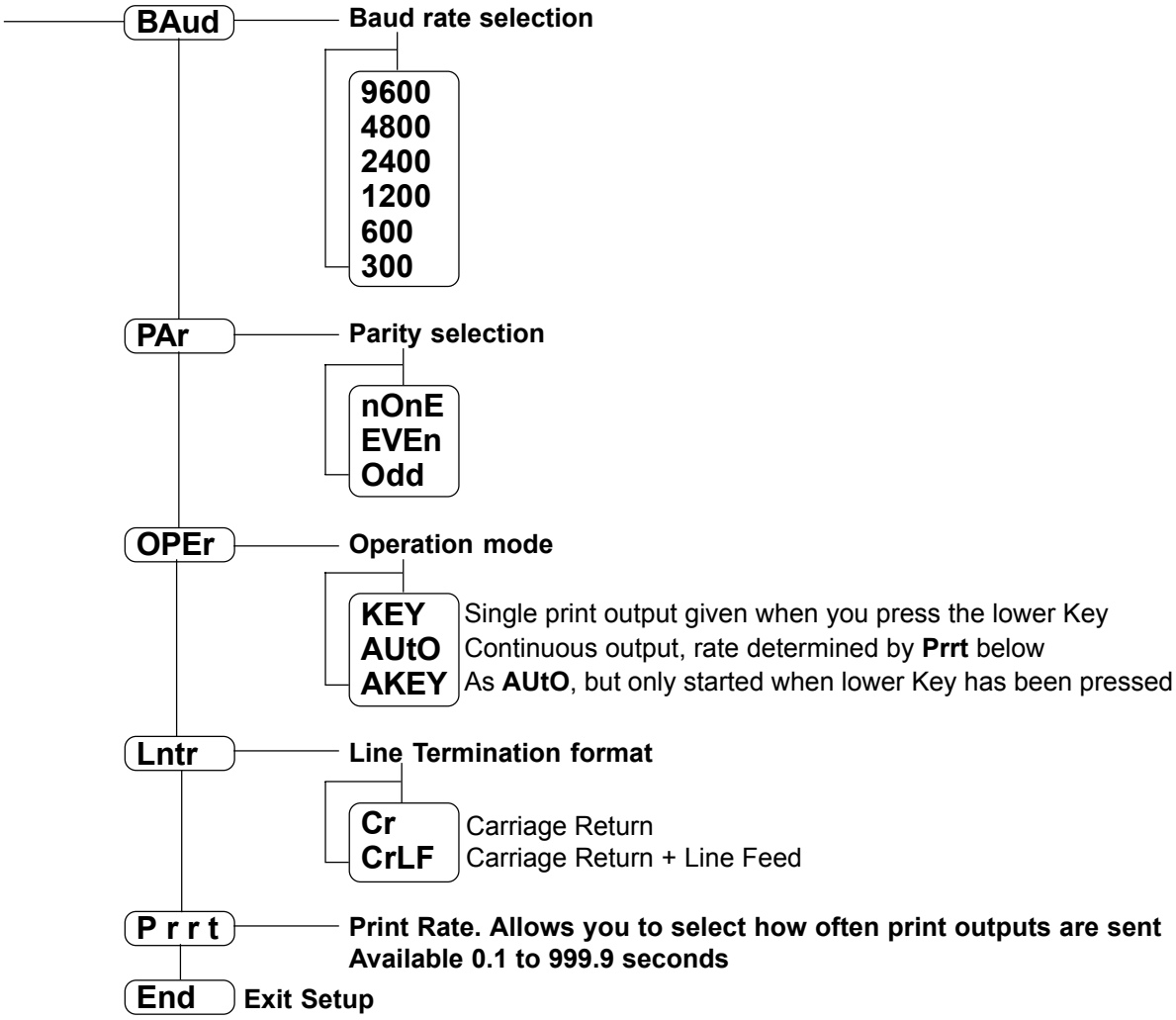
From Main Menu on P5...



For example , if you have a measurement range of 0-500°C , and you require 4-20mA output to correspond to this range, set **rnG** to 4-20 , set **StLO** to 0, set **StHI** to 500

PRINTER PORT MENU

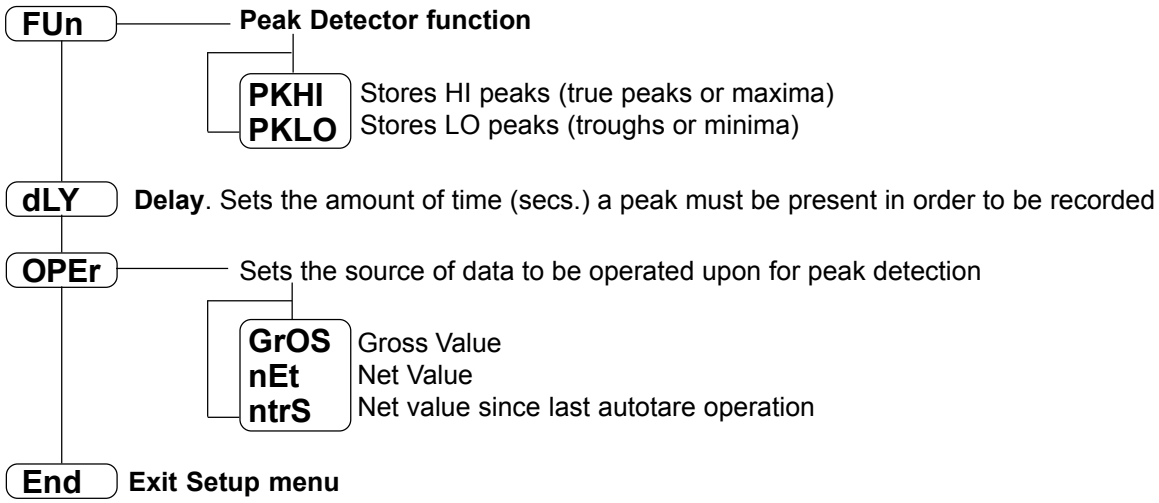
From Main Menu on P5...



PEAK, TARE & PASSWORD MENUS

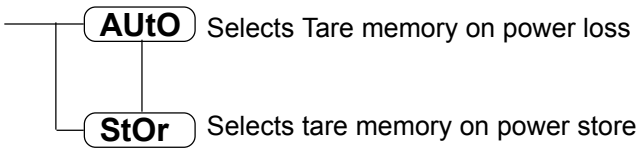
PEAK 1&2 MENU

From Main Menu on P5...



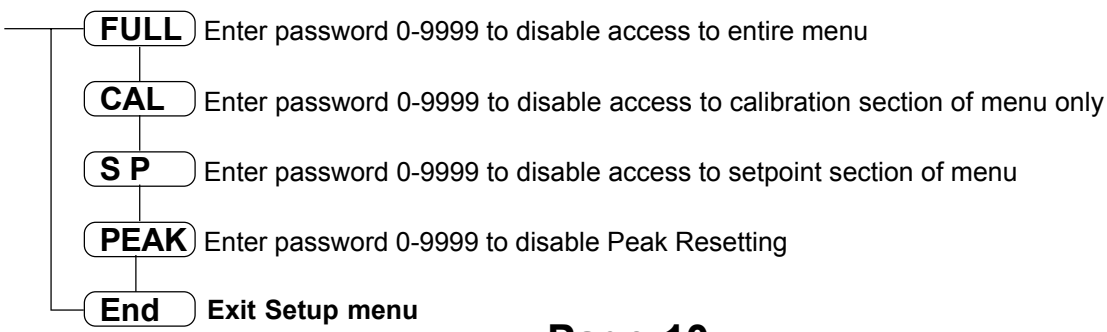
TARE MENU

From Main Menu on P5...

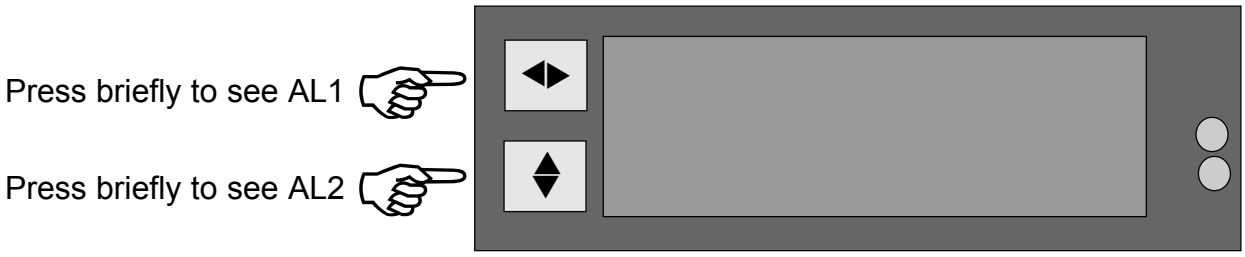


PASSWORD MENU

From Main Menu on P5...



SETTING ALARM LEVELS (if fitted)



By momentarily pressing either of the pushbuttons, you may view the existing value of the setpoint trip point.

If you wish to alter the value of either trip point, press the appropriate button for more than 2 seconds. You will see the least-significant digit will brighten. You may alter its value by pressing the ▲▼ key.

If you want to select other digits to alter, press the ◀▶ key and alter with ▲▼ key.

Declaration of Conformity

Declaration Number : MICRO-LITE Iss. 1
Issue Date : 2 Jan 1997
Products Covered : MICRO-LITE - T,P & L
Title : Miniature Smart Indicator

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

IEC 1010
EN50081-1:1992 (normative)
EN50082-1:1992 (normative)

and comply with the requirements of Council Directive 89/336/EEC relating to Electro-Magnetic Compatibility and 72/23/EEC relating to safety.

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 close to the meter as 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, Shefford, Bedfordshire SG17 5QB

J.R. Lees
Director