$\frac{1}{16}$-DIN INDICATOR
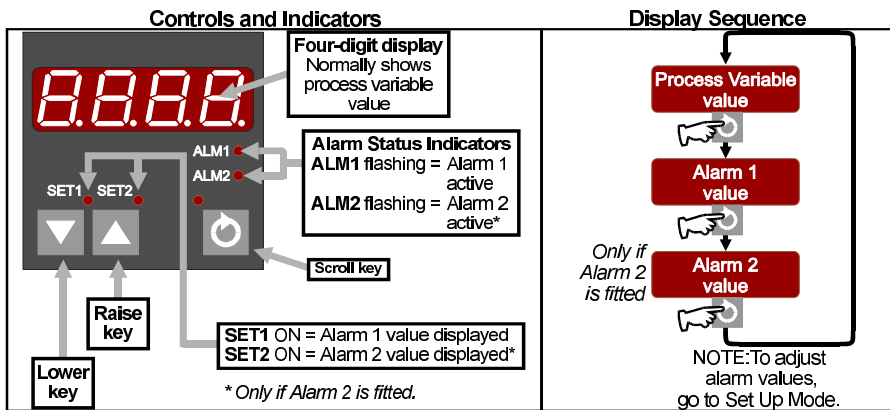# CONCISE PRODUCT MANUAL (59234-2)

OPERATING MODE

NOTE: Set all Configration Mode and Setup Mode parameters as desired before starting normal operations.

Front Panel

Controls and Indicators

Four-digit display — Normally shows process variable value

Alarm Status Indicators
ALM1 flashing = Alarm 1 active
ALM2 flashing = Alarm 2 active*

Scroll key

Raise key

Lower key

SET1 ON = Alarm 1 value displayed
SET2 ON = Alarm 2 value displayed*

* Only if Alarm 2 is fitted.

Display Sequence

Process Variable value

Alarm 1 value

Only if Alarm 2 is fitted → Alarm 2 value

NOTE:To adjust alarm values, go to Set Up Mode.

Error/Fault Indication

cHHɔ — Input over-range
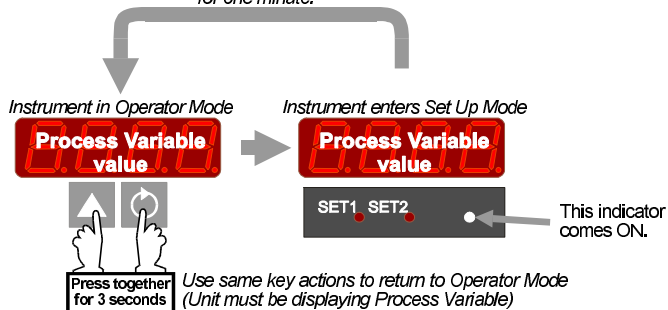cLLɔ — Input under-range
OPEN — Break in input sensor circuit

SET UP MODE

Entry/Exit

NOTE: Access to Set Up Mode via the front panel is possible only if the Remote Lock Option is not fitted or has been set OFF (see **CONFIGURATION MODE - Hardware Option**).

Automatic return if no key activity for one minute.

Instrument in Operator Mode — Process Variable value

Instrument enters Set Up Mode — Process Variable value

This indicator comes ON.

Press together for 3 seconds — Use same key actions to return to Operator Mode (Unit must be displaying Process Variable)

NOTE: If, in Operator Mode, the four-digit display shows all decimal points ON (see right), the Set Up Mode Parameters have been automatically set to their default values (probably because one or more of the CONFIGURATION MODE parameters have been changed. To clear this display, alter the value/setting of any Set Up Mode parameter.

Parameter Selection/Adjustment

To select parameter | To decrease displayed value | To increase displayed value

Set Up Mode Parameter Sequence

Parameter	Display	Adjustment Range
Process Variable value	-	Read Only
Alarm 1 value	SET1 ON	Range Minimum to Range Maximum
Alarm 2 value [1]	SET2 ON	Range Minimum to Range Maximum
Decimal Point Position [2]	rPnt	0 (XXXX), 1 (XXX.X). 2 (XX.XX) or 3 (X.XXX)
Scale Range Maximum [2]	rhi	-1999 to 9999
Scale Range Minimum [2]	rLo	-1999 to 9999
Recorder Output Scale Maximum [3]	roPH	-1999 to 9999
Recorder Output Scale Minimum [3]	roPL	-1999 to 9999

1. Applicable only if Alarm 2 is fitted.
2. Applicable only to DC linear input, if fitted.
3. Applicable only to Recorder Output Option, if fitted.

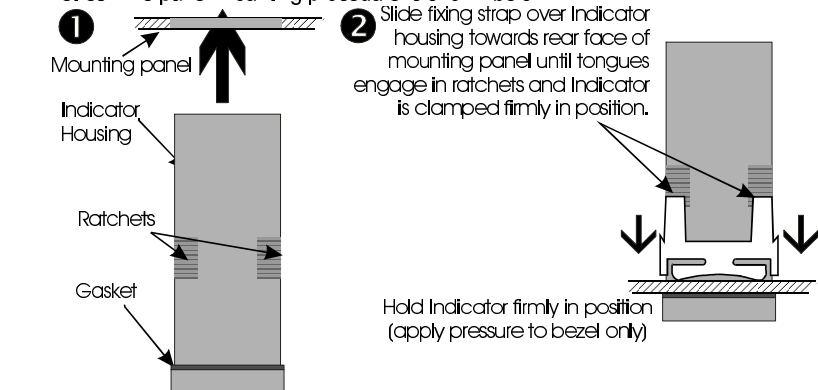Note: Alarm Hysteresis is 1 Least Significant Digit (LSD) of range.
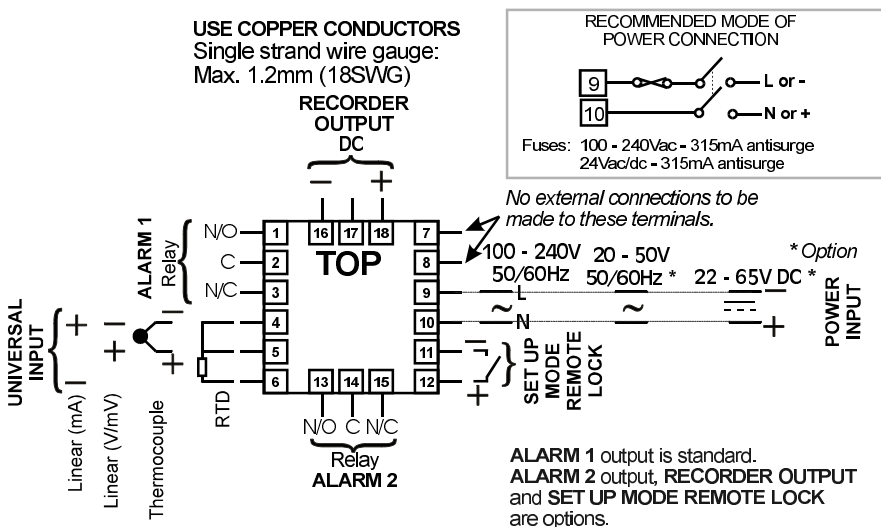
INSTALLATION

⚠ All installation work should be performed only by personnel who are technically competent and authorised to do so. Local Regulations regarding electrical installation & safety must be observed.

Panel-Mounting

The mounting panel must be rigid and may be up to 6mm (0.25 inches) thick. The cut-out required for the Indicator is shown on the right. Several Indicators may be mounted side-by-side in a multiple installation for which the cut-out width (for n Indicators) is (48n - 4) millimetres. The panel-mounting procedure is shown below.

45.00 mm +0.5 -0.0
45.00 mm +0.5 -0.0

❶ Mounting panel — Indicator Housing — Ratchets — Gasket

❷ Slide fixing strap over Indicator housing towards rear face of mounting panel until tongues engage in ratchets and Indicator is clamped firmly in position.

Hold Indicator firmly in position (apply pressure to bezel only)

Rear Terminals

USE COPPER CONDUCTORS Single strand wire gauge: Max. 1.2mm (18SWG)

RECOMMENDED MODE OF POWER CONNECTION
9 — L or -
10 — N or +
Fuses: 100 - 240Vac - 315mA antisurge
24Vac/dc - 315mA antisurge

RECORDER OUTPUT DC
UNIVERSAL INPUT
Linear (mA) +/-
Linear (V/mV) +/-
RTD
Thermocouple
ALARM 1 Relay — N/O / C / N/C — 1 2 3 4 5 6
TOP — 16 17 18 — 7 8 9 10 11 12 — 13 14 15
N/O C N/C Relay ALARM 2

100 - 240V 50/60Hz
20 - 50V 50/60Hz
*Option 22 - 65V DC *
SET UP MODE REMOTE LOCK
POWER INPUT
~ L ~ N ~ +/-

No external connections to be made to these terminals.

ALARM 1 output is standard.
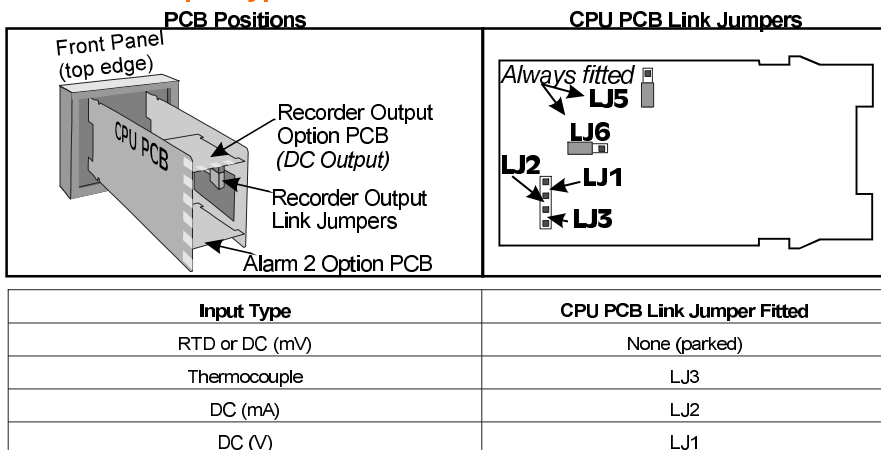**ALARM 2** output, **RECORDER OUTPUT** and **SET UP MODE REMOTE LOCK** are options.

Set Up Remote Lock: May be connected to either (a) the voltage-free contacts of an external relay/switch, or (b) a TTL-compatible voltage.
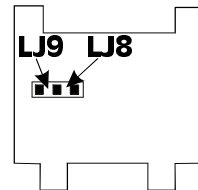
Voltage-Free Operation: Contacts open - out of Set Up Mode / Contacts closed - In Set Up Mode

TTL-Compatible Operation: >2.0V - Out of Set Up Mode / <0.8V - In Set Up Mode

Selection of Input Type

PCB Positions

Front Panel (top edge)
CPU PCB
Recorder Output Option PCB (DC Output)
Recorder Output Link Jumpers
Alarm 2 Option PCB

CPU PCB Link Jumpers

Always fitted → LJ5
LJ6
LJ2 — LJ1
LJ3

Input Type	CPU PCB Link Jumper Fitted
RTD or DC (mV)	None (parked)
Thermocouple	LJ3
DC (mA)	LJ2
DC (V)	LJ1

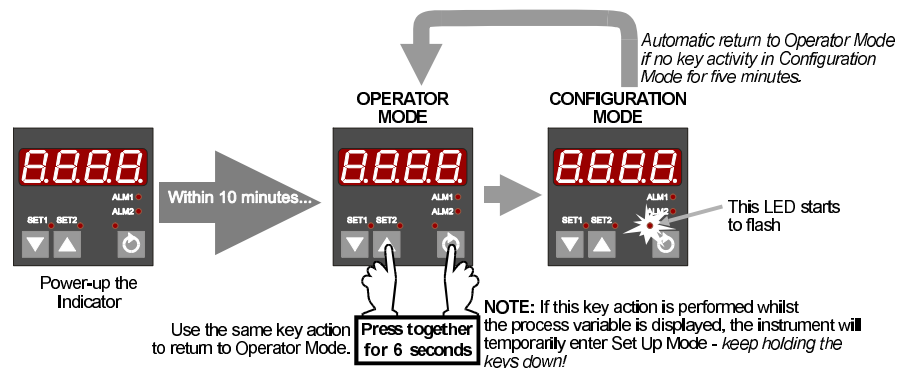## Selection of Recorder Output Range

LJ9 LJ8

Link Jumpers on the Recorder Output Option PCB (see **PCB Positions** illustration previously) are used to determine the Recorder Output Range:

Output Range	Link Jumper Fitted
0 - 10V	LJ8
0 - 20mA	LJ9
0 - 5V	LJ8
4 - 20mA	LJ9

CONFIGURATION MODE

Entry/Exit

Automatic return to Operator Mode if no key activity in Configuration Mode for five minutes.

Power-up the Indicator — OPERATOR MODE — Within 10 minutes... — CONFIGURATION MODE

This LED starts to flash

Use the same key action to return to Operator Mode

Press together for 6 seconds

NOTE: If this key action is performed whilst the process variable is displayed, the instrument will temporarily enter Set Up Mode - *keep holding the keys down!*

Parameter Selection and Editing

① Use to select parameter
② Use to adjust parameter value (display will flash)
③ Press to confirm new value — to display: SurE
④ Press to confirm (display becomes static)

NOTE: In Step 4, if any key other than the Raise key is pressed, the original parameter value is retained.
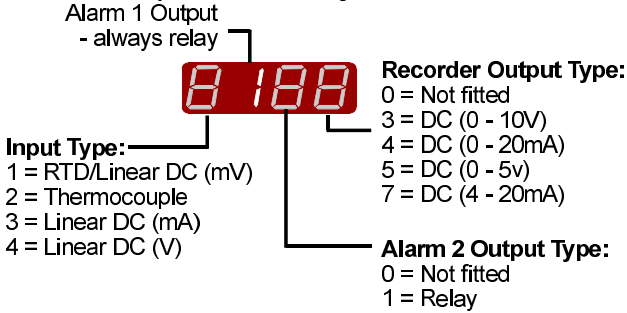
Configuration Mode Parameter Sequence

Parameter	Indicators ON	Adjustment Range
Input Range	SET1 and SET2	Defined by input code (see table below)
Alarm 1 Type	SET1 only	Ph_d Process High, direct-acting
		Ph_r Process High, reverse-acting
		PL_d Process Low, direct-acting
		PL_r Process Low, reverse-acting
Alarm 2 Type	SET2 only	nonE Not in use
		Ph_d Process High, direct-acting
		Ph_r Process High, reverse-acting
		PL_d Process Low, direct-acting
		PL_r Process Low, reverse-acting

Input Codes

Thermocouple Inputs								
Type	Range	Code	Type	Range	Code	Type	Range	Code
R	0 - 1650°C	1127	T	-200 - 262°C	1525	L	0 - 450°C	1817
R	32 - 3002°F	1128	T	-328 - 503°F	1526	L	32 - 841°F	1818
S	0 - 1649°C	1227	T	0.0 - 260.6°C	1541	L	0 - 762°C	1819
S	32 - 3000°F	1228	T	32.0 - 501.0°F	1542	L	32 - 1403°F	1820
J	0.0 - 205.4°C	1415	K	-200 - 760°C	6726	B	211 - 3315°F	1934
J	32.0 - 401.7°F	1416	K	-328 - 1399°F	6727	B	100 - 1824°C	1938
J	0 - 450°C	1417	K	-200 - 1373°C	6709	N	0 - 1399°C	5371
J	32 - 842°F	1418	K	-328 - 2503°F	6710	N	32 - 2550°F	5324
J	0 - 761°C	1419	L	0.0 - 205.7°C	1815			
J	32 - 1401°F	1420	L	32.0 - 402.2°F	1816			

RTD Inputs							
Range	Code	Range	Code	Range	Code	Range	Code
0 - 800°C	7220	-100.9 - 100.0°C	2230	0.0 - 100.9°C	2295	-328 - 402°F	2298
32 - 1471°F	7221	-149.7 - 211.9°F	2231	32.0 - 213.6°F	2296	-100.9 - 5373.3°C	7222
32 - 571°F	2229	0 - 300°C	2251	-200 - 206°C	2297	-149.7 - 999.1°F	7223

DC Linear Inputs							
Range	Code	Range	Code	Range	Code	Range	Code
0 - 20mA	3413	0 - 50mV	4443	0 - 5V	4445	0 - 10V	4446
4 - 20mA	3414	10 - 50mV	4499	1 - 5V	4434	2 - 10V	4450

Hardware Definition Code

With the Indicator in Configuration Mode, press the Scroll and Lower keys simultaneously to display this code (use same keys to return to Configuration Mode):

Alarm 1 Output
- always relay

Recorder Output Type:
0 = Not fitted
3 = DC (0 - 10V)
4 = DC (0 - 20mA)
5 = DC (0 - 5v)
7 = DC (4 - 20mA)

Input Type:
1 = RTD/Linear DC (mV)
2 = Thermocouple
3 = Linear DC (mA)
4 = Linear DC (V)

Alarm 2 Output Type:
0 = Not fitted
1 = Relay

While this code is displayed, the indicator next to the Scroll key flashes at double rate and **SET1** is ON. The code can be adjusted using the Raise and Lower keys. Ensure that this code matches the hardware fitted/configured at all times. Use the same keys to return to Configuration Mode.

Hardware Option

Whilst the Hardware Definition Code is displayed, press the Scroll key to show the Hardware Option currently configured (i.e. whether the Set Up Mode Remote Lock is ON or OFF):

r_oՈ   Access to Set Up Mode via external contacts/TTL signal

roFF   Access to Set Up Mode via front panel

While the option code is displayed, the indicator next to the Scroll key flashes at double rate and **SET2** is ON. The code can be adjusted using the Raise and Lower keys. Use the Scroll key to return to the Hardware Definition Code display.

SPECIFICATION

UNIVERSAL INPUT

Type:	Thermocouple, RTD or DC Linear
Input Impedance:	Greater than 100MΩ resistive, except for DC mA (4.7Ω) and V (47kΩ) inputs.
Isolation:	Isolated from all outputs at 240V AC.
	Accuracy: ±0.25% of span ±1 LSD. CJC better than ±0.7°C.

OUTPUTS

Relay

Contact Type/Rating:	Single pole double throw (SPDT); 2A resistive at 120/240V AC.
Lifetime:	>500,000 operations at rated voltage/current.
Isolation:	Isolated from all other inputs/outputs.

DC

Resolution:	8 bits in 250mS (10 bits in 1s typical, >10 bits in >1s typical).
Isolation:	Isolated from all other inputs and outputs.

OPERATING CONDITIONS FOR INDOOR USE

Ambient Temperature (Operating):	0°C to 55°C
Ambient Temperature (Storage):	−20°C to 80°C
Relative Humidity:	20% - 95% non-condensing
Supply Voltage:	100 - 240V AC 50/60Hz (standard) 7.5VA
	20 - 50V AC 50/60Hz (option) 7.5VA or
	22 - 65V DC (option) 5W

ENVIRONMENTAL.

Approvals:	CE, UL, ULC
EMC:	Certified to EN61326.
Safety Considerations:	Complies with EN61010-1.
Front Panel Sealing:	To IP66.

PHYSICAL

Dimensions:	Depth - 110mm (behind panel)	
	Front Panel:	Width - 48mm
		Height - 48mm
Weight:	0.21kg maximum	