

**YEAR
2000
COMPLIANT**



User's Guide



omega.com[®]
CEOMEGA[®]

http://www.omega.com
e-mail: info@omega.com

DP3410 & DP3411 SERIES Wall Mount Universal Temperature & Process Indicators

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of 37 months from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal three (3) year product warranty to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product. If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR WARRANTY RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to product.

FOR NON-WARRANTY REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the products, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

OMEGA is a registered trademark of OMEGA ENGINEERING, INC.

© Copyright 1998 OMEGA ENGINEERING, INC. All rights reserved. This document may not be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form, in whole or in part, without the prior written consent of OMEGA ENGINEERING, INC.

GETTING STARTED

This manual is divided into 5 sections which contain all the information needed to install, configure, set up and operate the instrument. Each section is identified clearly by a symbol as shown below.



Displays and Controls

- Displays and function keys
- LED Indication
- Error Messages



Operator Mode (Level 1)

- Operator menus for:
 - *Standard Indicator*
 - *Totalizer/Batch Controller*
 - *Maximum/Minimum/Average Indicator*



Set Up Mode (Level 2)

- Alarm trip points
- Totalizer functions



Configuration Mode (Levels 3 and 4)

- Accessing the configuration levels
- Level 3
 - Hardware assignment and input type
 - Alarm types and hysteresis
 - Operator functions and totalizer setup
 - Digital input and serial communications
- Level 4
 - Ranges and passwords



Installation

- Siting
- Mounting
- Electrical connections

Symbol Identification and Section Contents

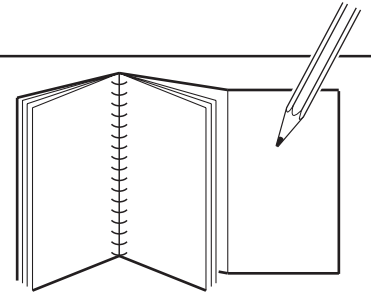
CONTENTS

1	DISPLAYS AND FUNCTION KEYS	3
1.1	Introduction	3
1.2	Use of Function Keys	4
1.3	LED Alarms and Indicators	5
1.4	Error Messages	6
2	OPERATOR MODE	7
2.1	Introduction	7
2.2	Operating Page – Standard	8
2.3	Operating Page – Totalizer	9
2.4	Operating Page – Math Functions	11
3	SET UP MODE	13
3.1	Introduction	13
3.2	Set Up Level	14
4	CONFIGURATION MODE	18
4.1	Introduction	18
4.2	Accessing the Configuration Mode	18
4.3	Basic Configuration (Level 3)	20
4.3.1	Hardware Assignment and Input Type	20
4.3.2	Alarms	22
4.3.3	Operator Functions and Totalizer Set Up	26
4.3.4	Digital Input and Serial Communications	28
4.4	Ranges and Passwords (Level 4)	30
5	INSTALLATION	33
5.1	Siting	33
5.2	Mounting	35
5.3	Cable Glands and Conduit Fixings	37
5.3.1	Cable Glands (IEC – 20mm)	37
5.3.2	Conduit Adapters (N. American – 0.5 in.)	37
5.3.3	Cable Glands (N. American – 0.5 in.)	38
5.4	Electrical Connections	39
5.4.1	Relay Contact Ratings	39
5.4.2	Arc Suppression	39
5.4.3	Logic Output	39
5.4.4	Control or Retransmission Analog Output	39

1 DISPLAYS AND FUNCTION KEYS

i Information.

The fold-out page inside on the back cover of this manual shows all the frames in the programming levels. Space is provided on the page for writing the programmed setting or selection for each frame.



1.1 Introduction – Fig. 1.1

The instrument front panel display, function keys and LED indicators are shown in Fig. 1.1.

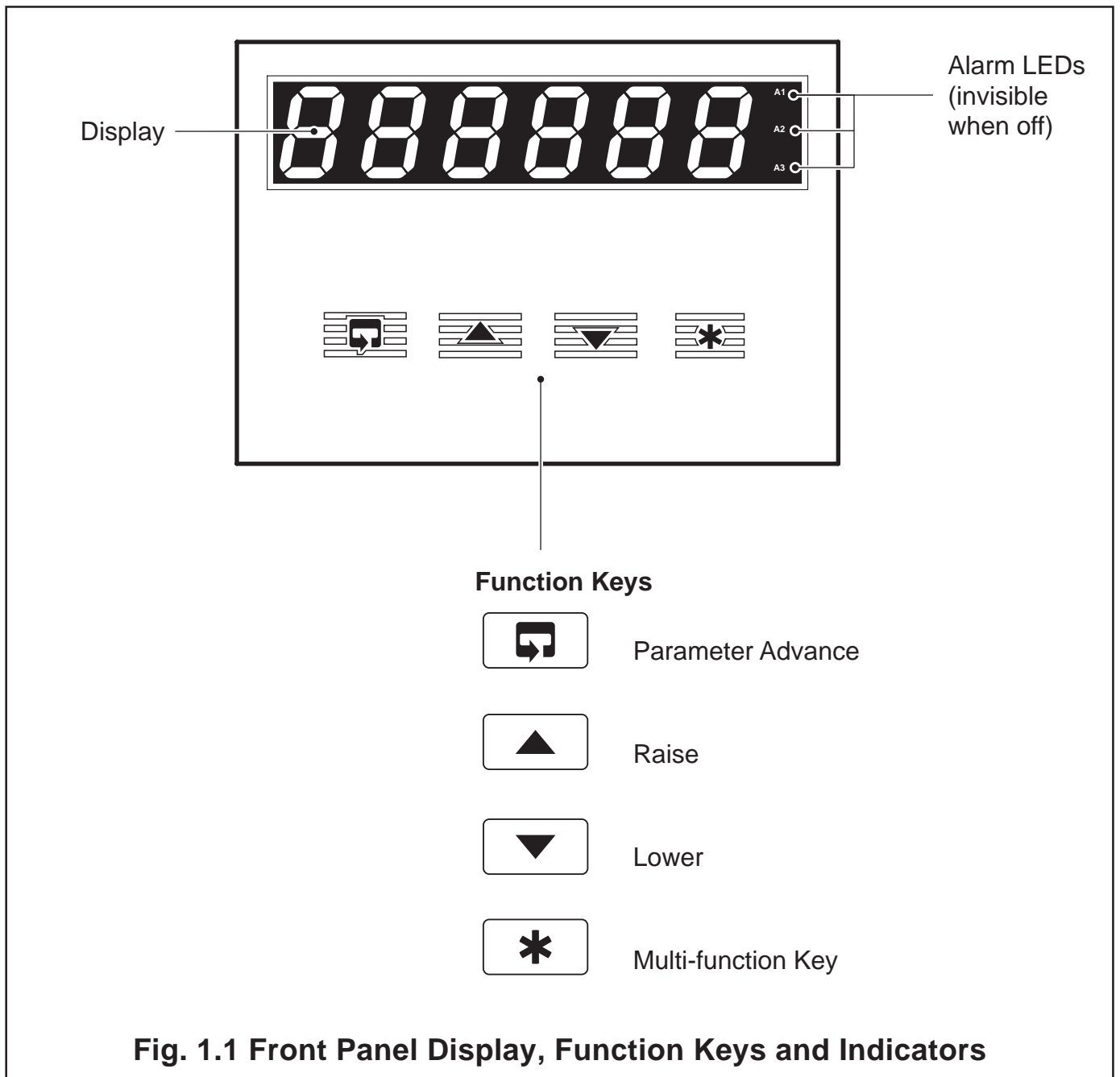
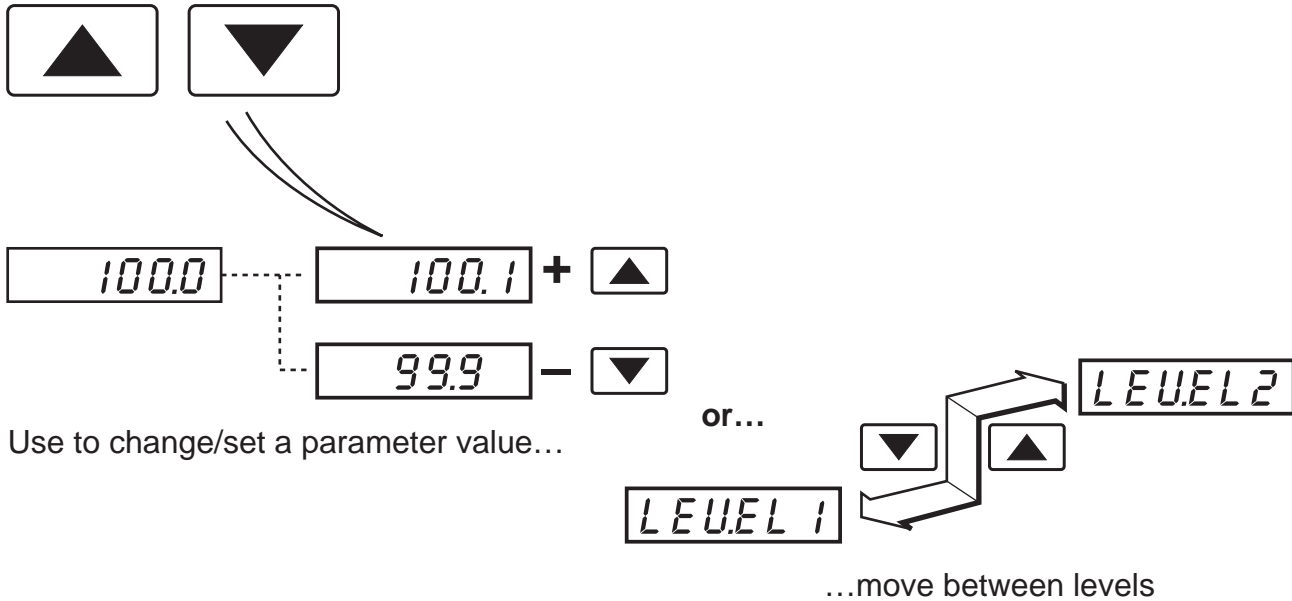


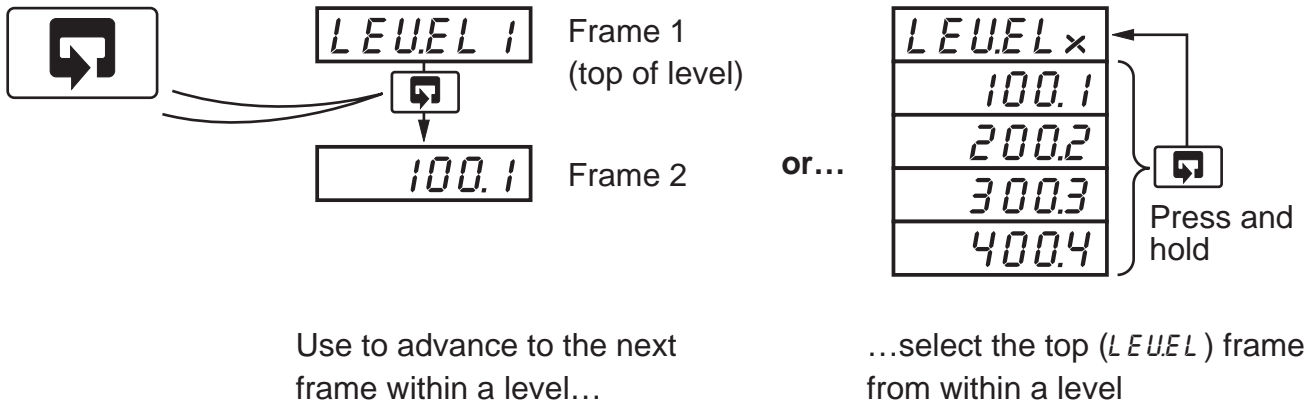
Fig. 1.1 Front Panel Display, Function Keys and Indicators

1.2 Use of Function Keys – Fig. 1.2

A – Raise and Lower Keys



B – Parameter Advance Key



Note. This key also stores any changes made in the previous frame

C – Multi-function Key

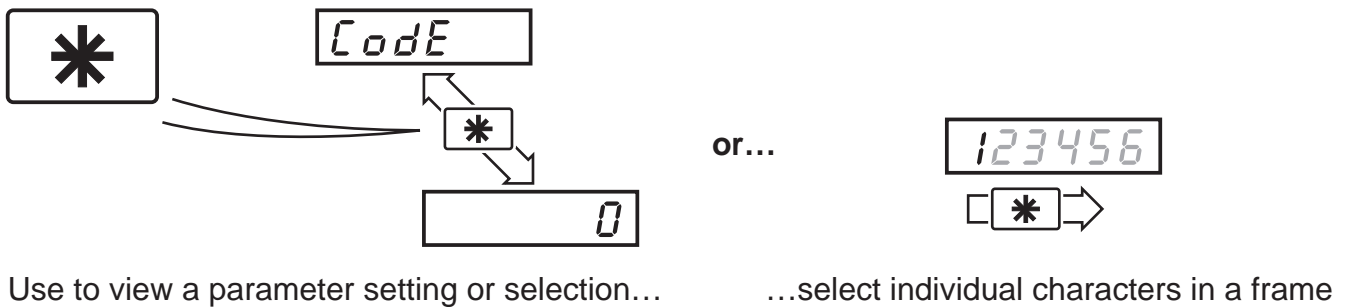
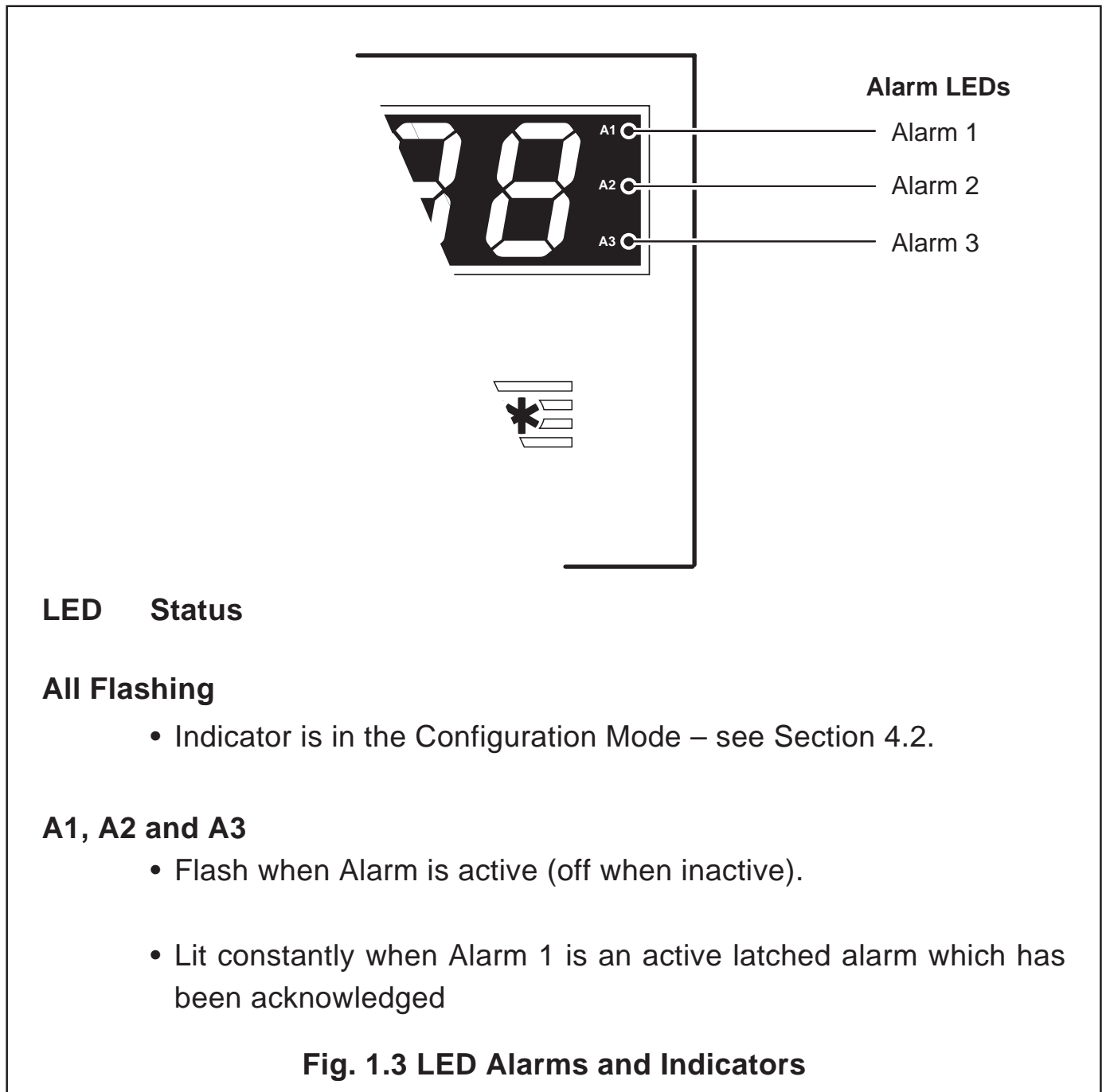









Fig. 1.2 Use of Function Keys

1.3 LED Alarms and Indicators



1.4 Error Messages

Display	Error/Action	To Clear Display
	Calibration error Turn power off and on again (if the error persists contact the Service Organization).	Press the  key
	Configuration error The configuration and/or set up data for the instrument is corrupted. Turn power off and on again (if error persists, check configuration/set up settings).	Press the  key
	A to D Converter fault The analog to digital converter is not communicating correctly.	Turn mains power off and on again. If the error persists, contact the Supplier.
	Process variable over/under range	Restore valid input
	Option board error Communications to the option board have failed.	Contact the Supplier



2 OPERATOR MODE

2.1 Introduction

Operator Mode (Level 1) is the normal day-to-day mode of the instrument.

Frames displayed in Level 1 are determined by the indicator functions which are selected during configuration of the instrument – see Section 4.



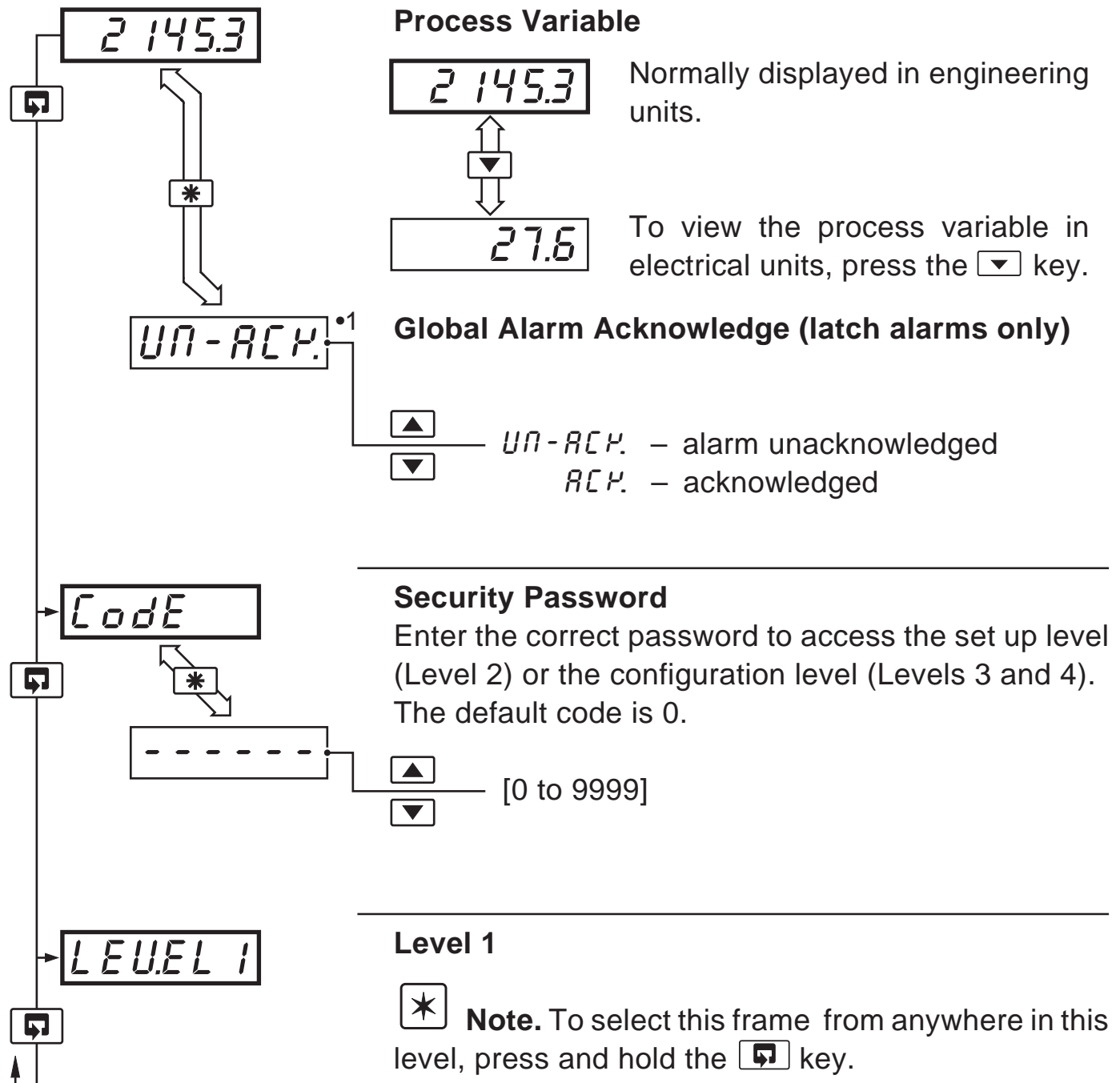
Note. Only the operating frames relevant to the configured functions are displayed in Operator Mode.

The three indicator functions are:

- **Standard Indicator** – page 8
- **Indicator with Totalization** – page 9
- **Indicator with Max./Min./Average** – page 11



2.2 Operating Page – Standard (Level 1)

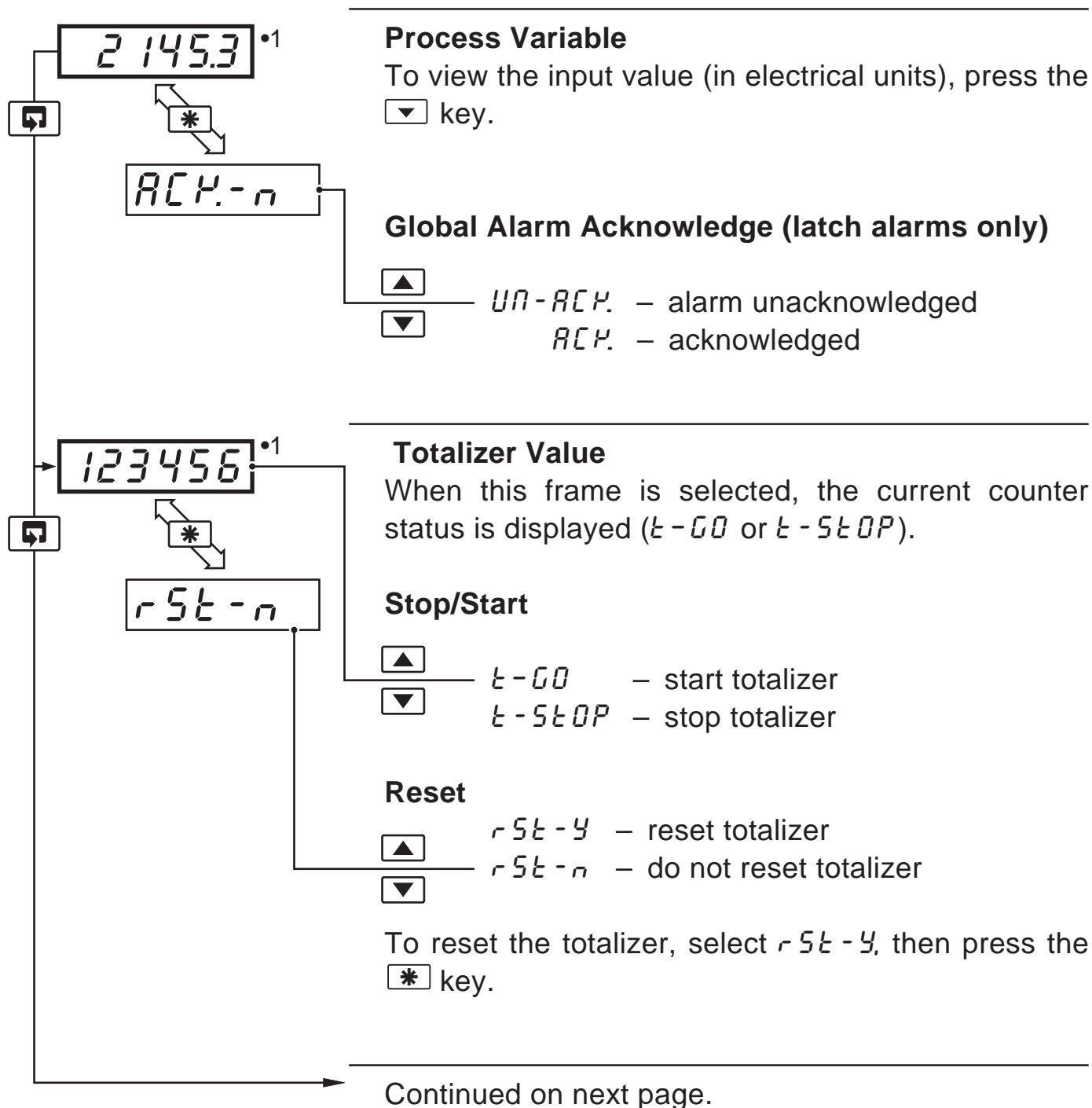


•1 Only displayed if there is an active latch alarm.



2.3 Operating Page – Totalizer (Level 1)

These frames are only displayed if the totalizer function is enabled in the configuration level – see Section 4.3.3

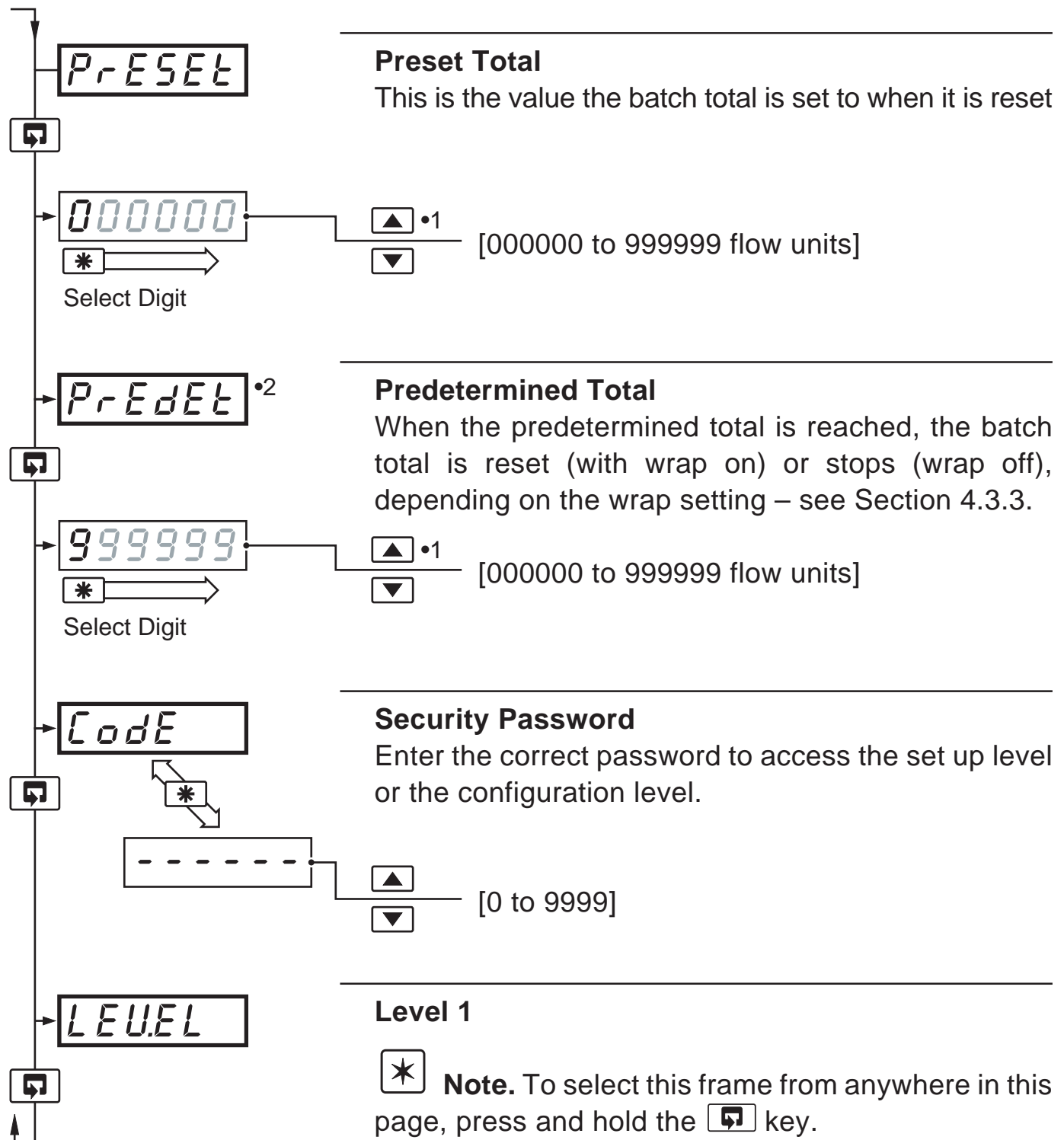


- 1 Totalizer stop/go and reset from these frames can be disabled – see Section 4.3.3.
A digital input can also be used to start/stop or reset the totalizer – see Section 4.3.4



...2 OPERATOR MODE

...2.3 Operating Page – Totalizer (Level 1)



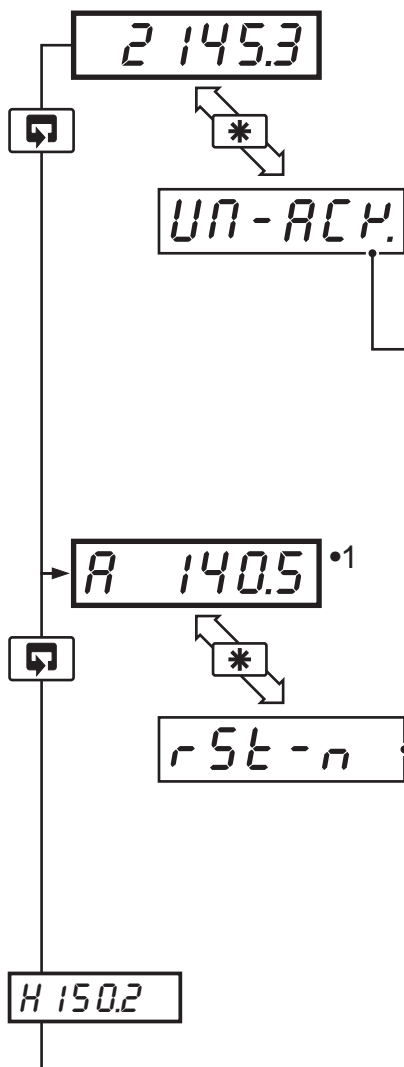
- 1 The predetermined value should be greater than the preset value when the totalizer is counting up and lower than the preset value when the totalizer is counting down.
- 2 Only displayed if enabled in the configuration level – see Section 4.3.3.




2.4 Operating Page – Max./Min./Average Functions (Level 1)



Note. It is possible to display totalizer and math functions together.



Process Variable

To view the input value (in electrical units), press the  key.

Global Alarm Acknowledge (latch alarms only)




UN-ACK. – alarm unacknowledged
ACK. – acknowledged

Average Value

This is the mean average value of the process variable input, since the average was last reset.



rst-y – reset
rst-n – do not reset

To reset the average value, select *rst-y* then press the  key.

Continued on next page.

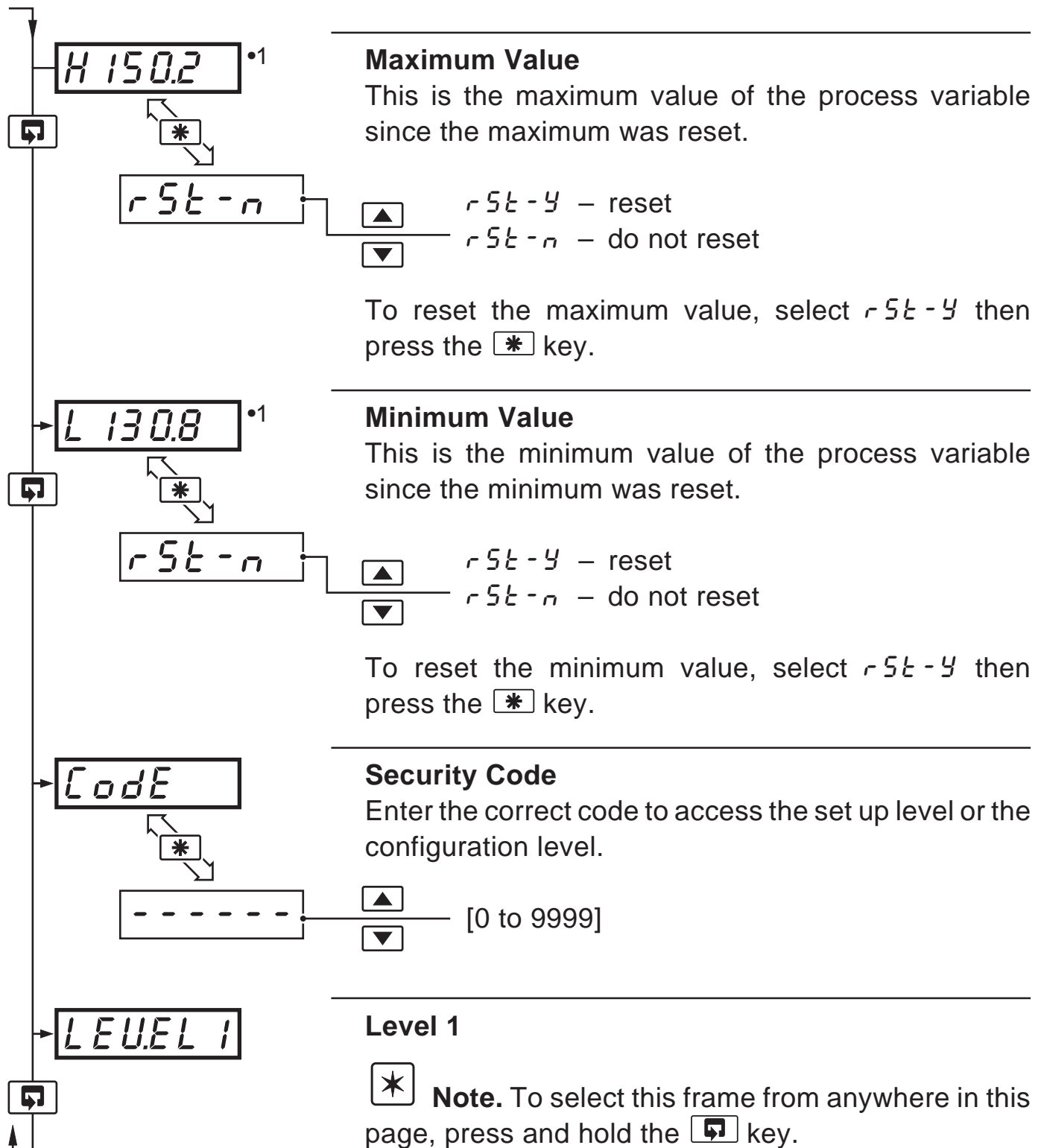
- 1 This frame can be disabled – see Section 4.3.3.

The reset function in this frame can be disabled – see Section 4.3.3.

The average value is reset automatically on power-up, and can also be reset from a digital input – see Section 4.3.4.



...2.4 Operating Page – Math Functions (Level 1)



*1 This frame can be disabled – see Section 4.3.3.

The reset function in this frame can be disabled – see Section 4.3.3.

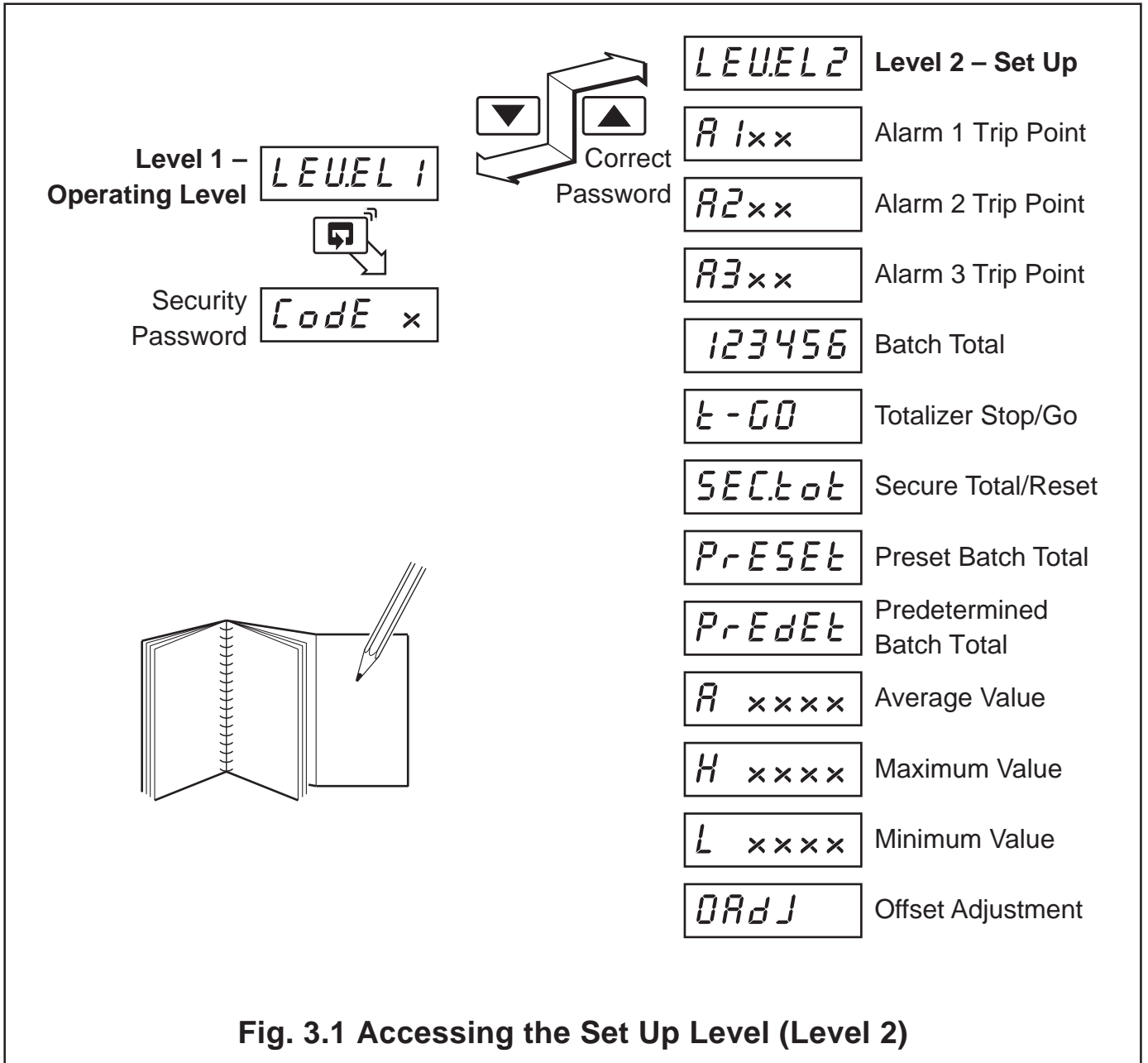
The average value is reset automatically on power-up, and can also be reset from a digital input – see Section 4.3.4.

3 SET UP MODE

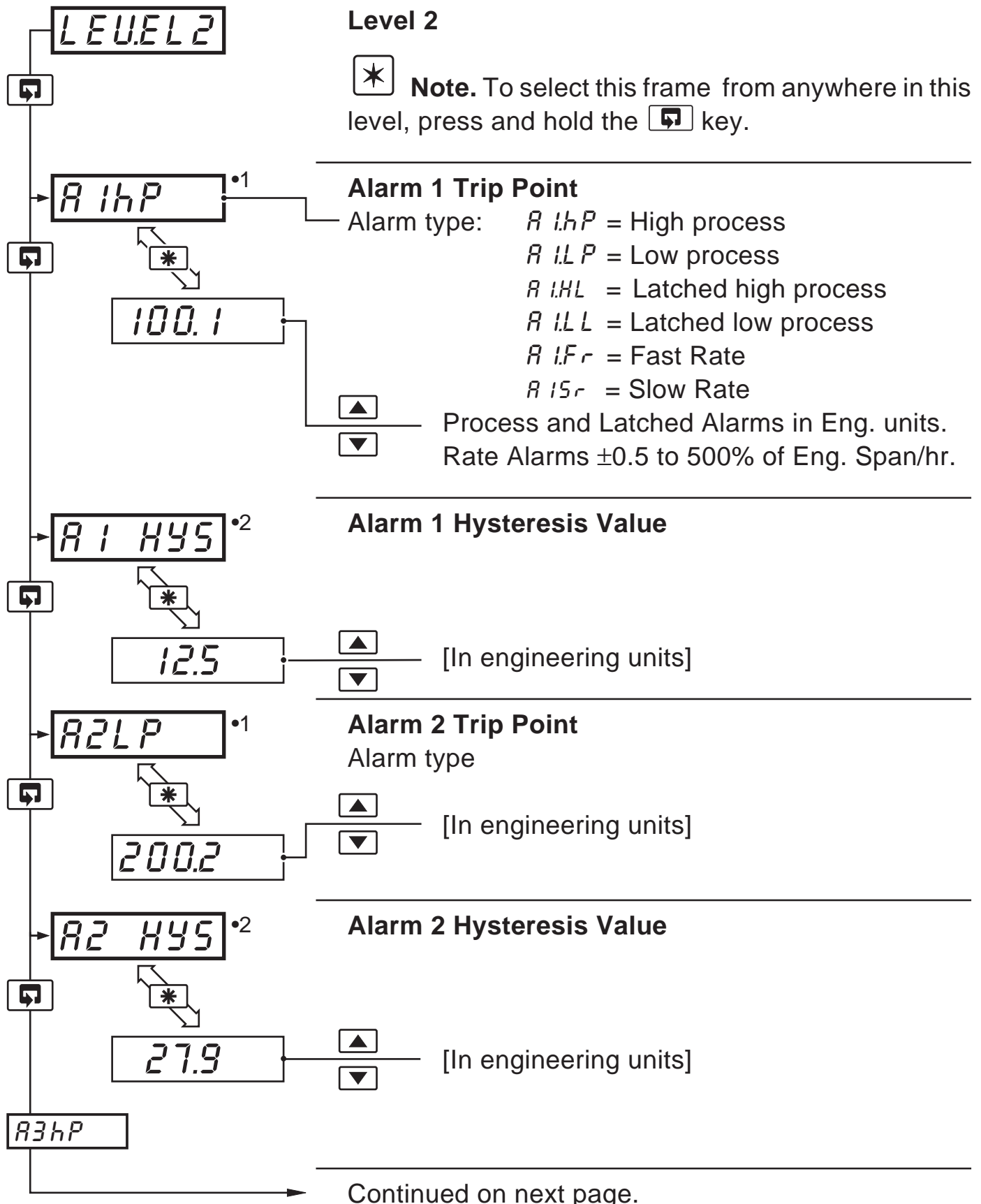


3.1 Introduction

To access the Set Up Level (Level 2) the correct set up or configuration level password must be entered in the security password frame (Code) in Level 1 – see Sections 2.2 to 2.4.



3.2 Set Up Level (Level 2)



- 1 Not displayed if the alarm is disabled ('NONE' selected) – see Section 4.3.2.
- 2 Only displayed if custom alarm hysteresis is selected – see Section 4.3.2
 Not displayed if 'Rate' Alarm type is selected.



...3.2 Set Up Level (Level 2)

A3HP •¹

↩ * ↘

300.3

Alarm 3 Trip Point
Alarm type

▲

▼ [In engineering units]

A3 HYS •²

↩ * ↘

34.6

Alarm 3 Hysteresis Value

▲

▼ [In engineering units]

123456 •³

↩ * ↘

rSt-n •⁴

Totalizer Value

▲ rSt-y – reset

▼ rSt-n – do not reset

To reset the maximum value, select rSt-y, then press the * key.

t-00 •³

↙ ▲ ↘

▼

t-STOP

Totalizer Stop/Go

▲ t-00 – start totalizer

▼ t-STOP – stop totalizer

Setting to t-00 starts the totalizer counting towards the predetermined value. Setting to t-STOP holds the totalizer at its present value.

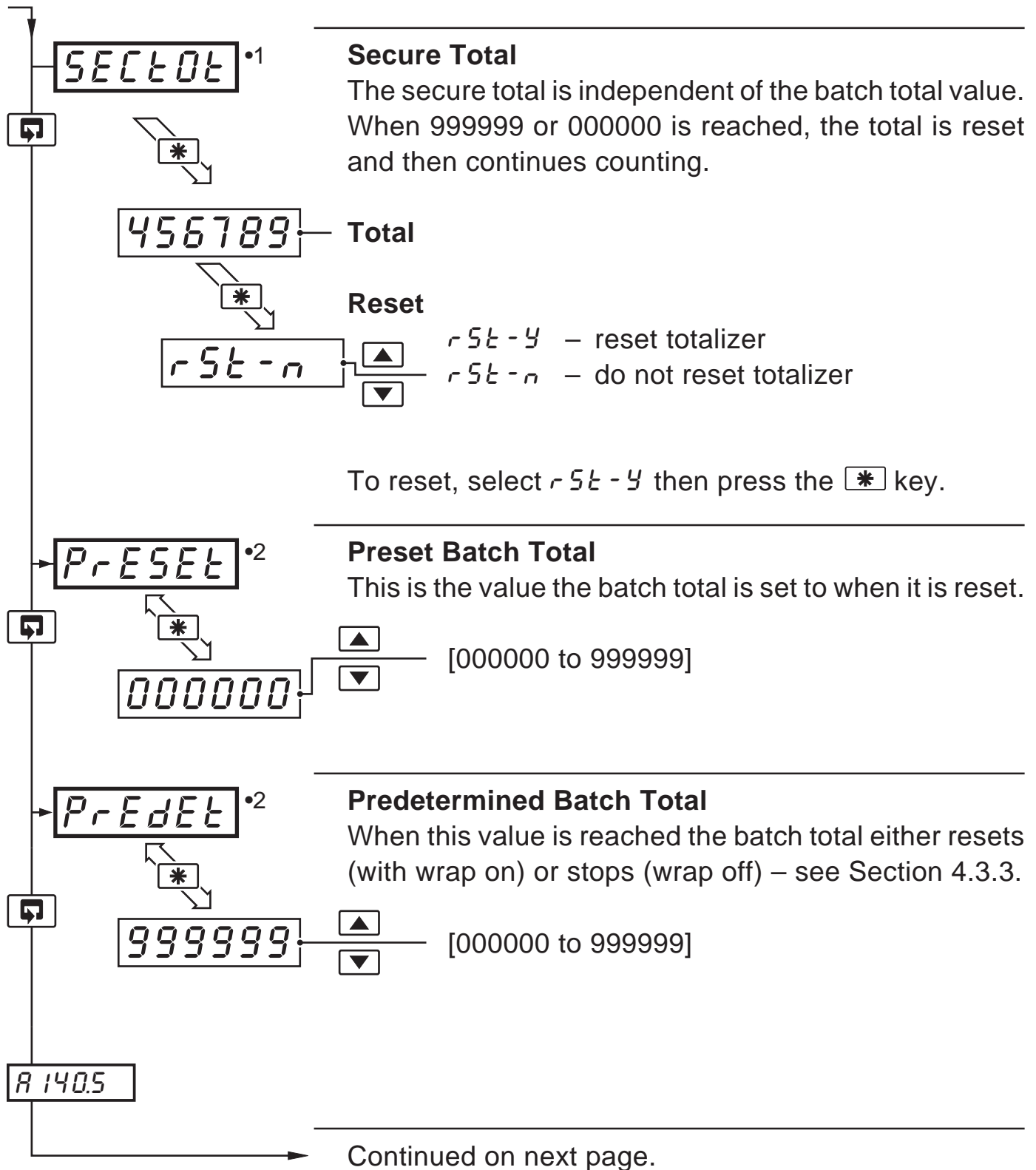
SECT01

Continued on next page

- 1 Not displayed if the alarm is disabled ('NONE' selected) – see Section 4.3.2
- 2 Only displayed if custom alarm hysteresis is selected – see Section 4.3.2
Not displayed if 'Rate' Alarm type is selected.
- 3 Only displayed if enabled in the Configuration Level – see Section 4.3.3
- 4 A digital input can also be used to reset the batch total.



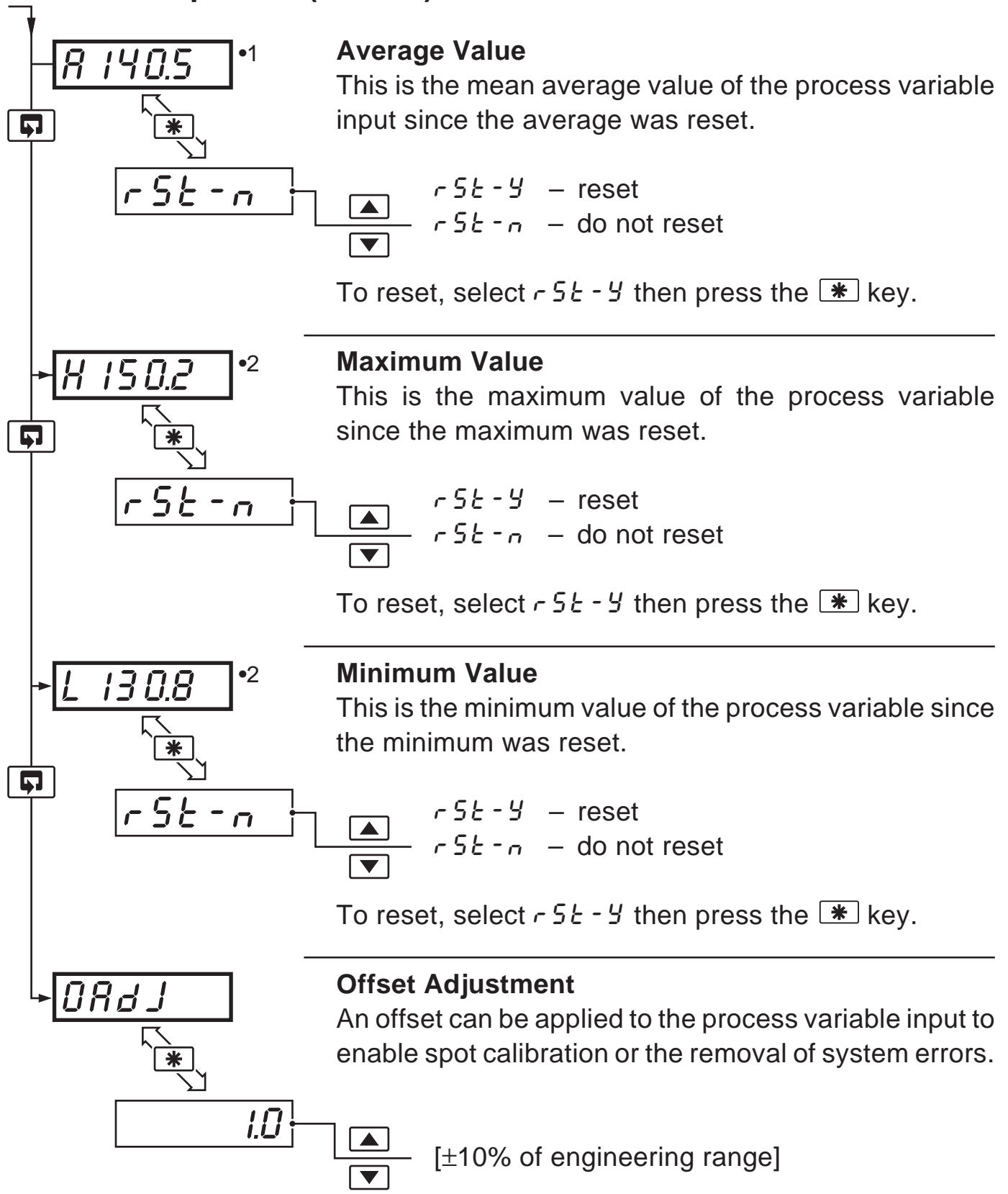
...3.2 Set Up Level (Level 2)



- 1 Only displayed if enabled in the Configuration Level – see Section 4.3.3.
- 2 The preset value must be lower than the predetermined value when counting up, and greater than the predetermined value when counting down.



...3.2 Set Up Level (Level 2)



- 1 The average value is reset automatically on power-up and can also be reset from a digital input – see Section 4.3.4.
- 2 The maximum and minimum values are reset automatically on power-up and can also be reset from a digital input – see Section 4.3.4.



4 CONFIGURATION MODE

4.1 Introduction

The Configuration Mode comprises two levels (3 and 4) as shown in Fig. 4.2.

Configuration Level 3 is divided into four frames. For most simple applications it is only necessary to set up the parameters in the first frame.

*** Note.**

When in the configuration level:

- All the LED indicators flash.
- All relays and logic outputs are turned off.
- The analog output reverts to 0% (4mA) output level.

4.2 Accessing the Configuration Mode – Fig. 4.1

The Configuration Mode is accessed by entering the correct password in Level 1 (see Sections 2.2 to 2.4). The configuration password is set up in Level 4.

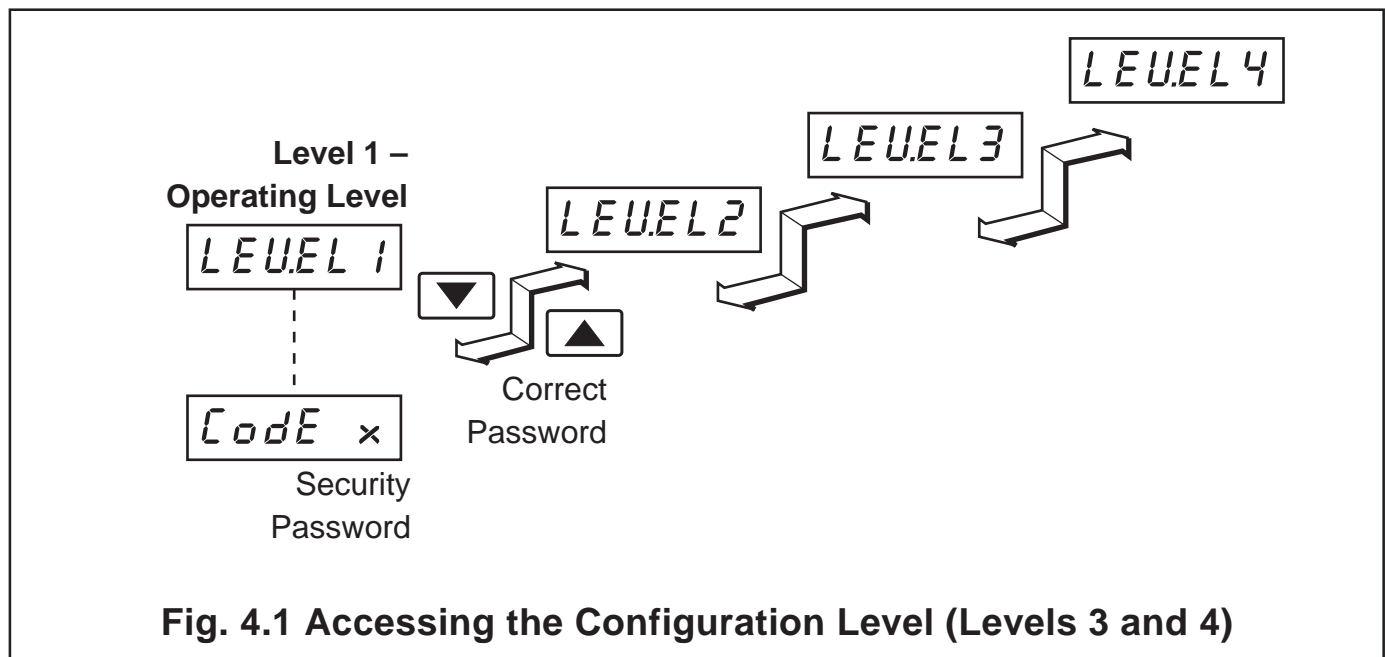


Fig. 4.1 Accessing the Configuration Level (Levels 3 and 4)

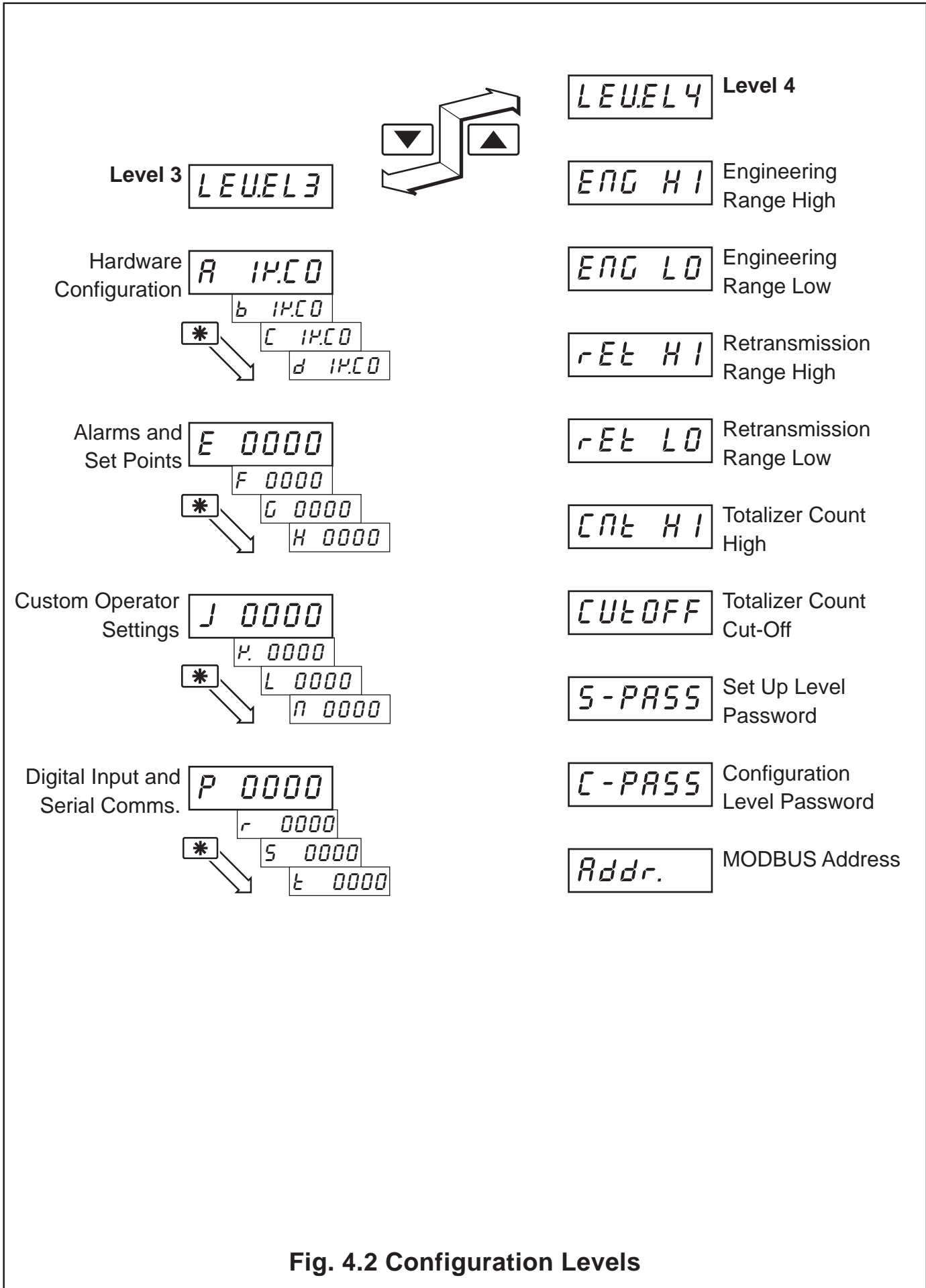


Fig. 4.2 Configuration Levels



4.3 Basic Configuration (Level 3) – Fig. 4.3

4.3.1 Hardware Assignment and Input Type

LEVEL 3



Level 3



Note. To select this frame from anywhere in this level, press and hold the  key for a few seconds.

A 14.00



B 14.00



C 14.00



d 14.00

'ABCD' Settings

The first character (A, B, C or D) identifies the parameter to be changed. The current setting is indicated by a flashing letter. Parameter options are shown in Fig. 4.3.

- A = Hardware configuration
- b = Input type and range
- C = Temperature units
- d = No. of decimal points

E 1203

Continued on page 22.

Information.

Count High Calculation

$$\text{Convert flow rate into units/sec} = \frac{\text{actual engineering flow rate}}{\text{flow range time units (in seconds)}}$$

$$\text{Count High} = \frac{\text{units/sec}}{\text{counter factor}} \quad \text{resultant must be } >0.001 \text{ and } <99.999\text{pps.}$$

Counter factor is the engineering value of the least significant digit shown on the totalizer display – see Section 4.3.3.

Totalizer Count Pulse

The totalizer count pulse is on for a preset time of 250ms and off for a minimum of 250ms.



A – Hardware Configuration

Supply Hz		Relay 1 Source	Relay 2 Source	Relay 3* Source	Logic O/P Source	Analog O/P Source
50	60					
1	A	Alarm 1	Alarm 2	Alarm 3	TCP**	PV
2	B	Alarm 1	Alarm 2	Alarm 3	TWP**	PV
3	C	TCP**	Alarm 1	Alarm 2	TWP**	PV
4	D	TWP**	Alarm 1	Alarm 2	TCP**	PV
5	E	Alarm 1	Alarm 2	Alarm 3	TCP**	PV Average
U		Custom	Custom	Custom	Custom	Custom

TCP = Totalizer Count Pulse TWP = Totalizer Wrap Pulse PV = Process Variable

* Not available if MODBUS option fitted.

** Pulse energizes assigned relay

B – Input Type and Range Configuration

Display		Display	
b	T/C Type B	1	0 to 20 mA
E	T/C Type E	2	4 to 20 mA
J	T/C Type J	3	0 to 5 V
K	T/C Type K	4	1 to 5 V
N	T/C Type N	6	0 to 50 mV
R	T/C Type R	7	4 to 20 mA (square root linearizer)
S	T/C Type S	U	Custom Configuration
T	T/C Type T		
P	PT100 RTD		

C – Temperature Units

Display	Temperature Units
C	Degrees C*
F	Degrees F*
0	No temperature units

* Temperature inputs only

D – Process Variable Display Decimal Places

Display	
0	XXXX
1	XXX . X
2	XX . XX
3	X . XXX
4	X . XXXX

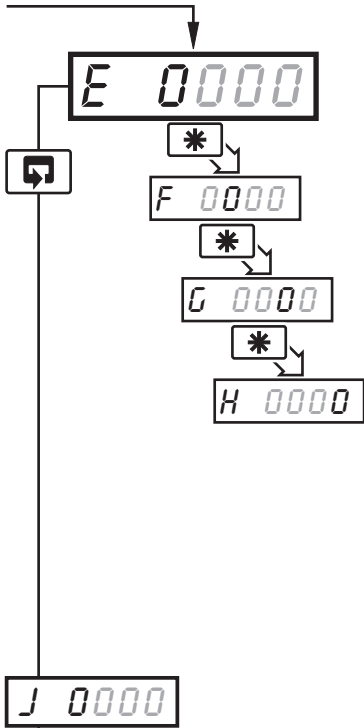
Fig. 4.3 Hardware Configuration and Input/Output Ranges



4.3.2 Alarms – Figs. 4.4, 4.5 and 4.6



Note. All relays are de-energized in the alarm state.



'EFGH' Settings

The first character (E, F, G or H) identifies the parameter to be changed. The current setting is indicated by a flashing letter. Parameter options are shown in Fig. 4.4.

- E* = Alarm 1 type
- F* = Alarm 2 type
- G* = Alarm 3 type
- H* = Alarm hysteresis

Continued on page 26.



E 0000 E – Alarm 1 Type

Display	
0	None
1	High Process
2	Low Process
3	High Latch
4	Low Latch
5	Fast Rate
6	Slow Rate

F 0000 F – Alarm 2 Type

Display	
0	None
1	High Process
2	Low Process
3	High Latch
4	Low Latch
5	Fast Rate
6	Slow Rate

G 0000 G – Alarm 3 Type

Display	
0	None
1	High Process
2	Low Process
3	High Latch
4	Low Latch
5	Fast Rate
6	Slow Rate

h 0000 H – Alarm Hysteresis

Display	
0	None
1	0.1%
2	0.2%
3	0.5%
4	1.0%
5	2.0%
6	5.0%
U	Custom

} Value in % of engineering range

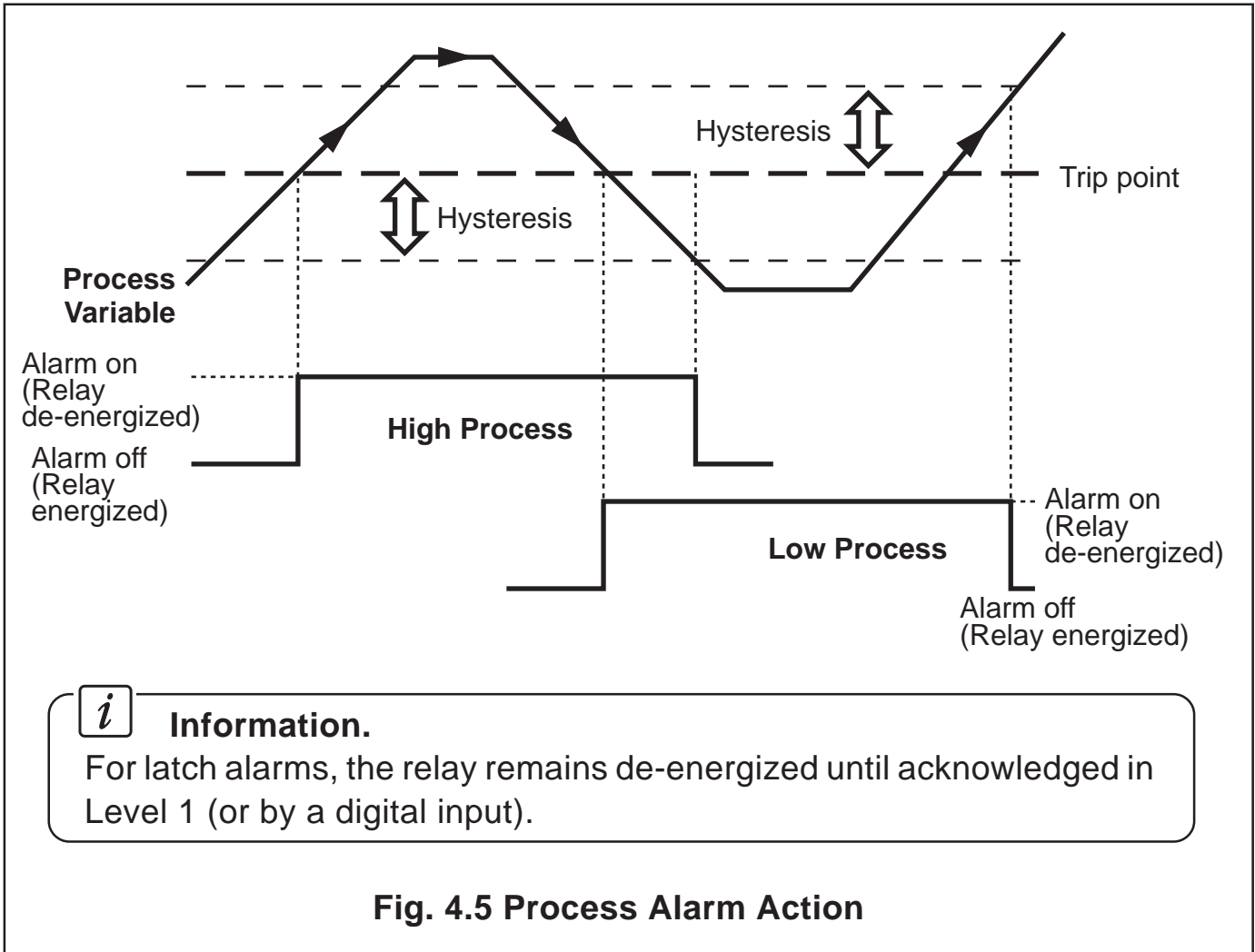
Value in engineering units *

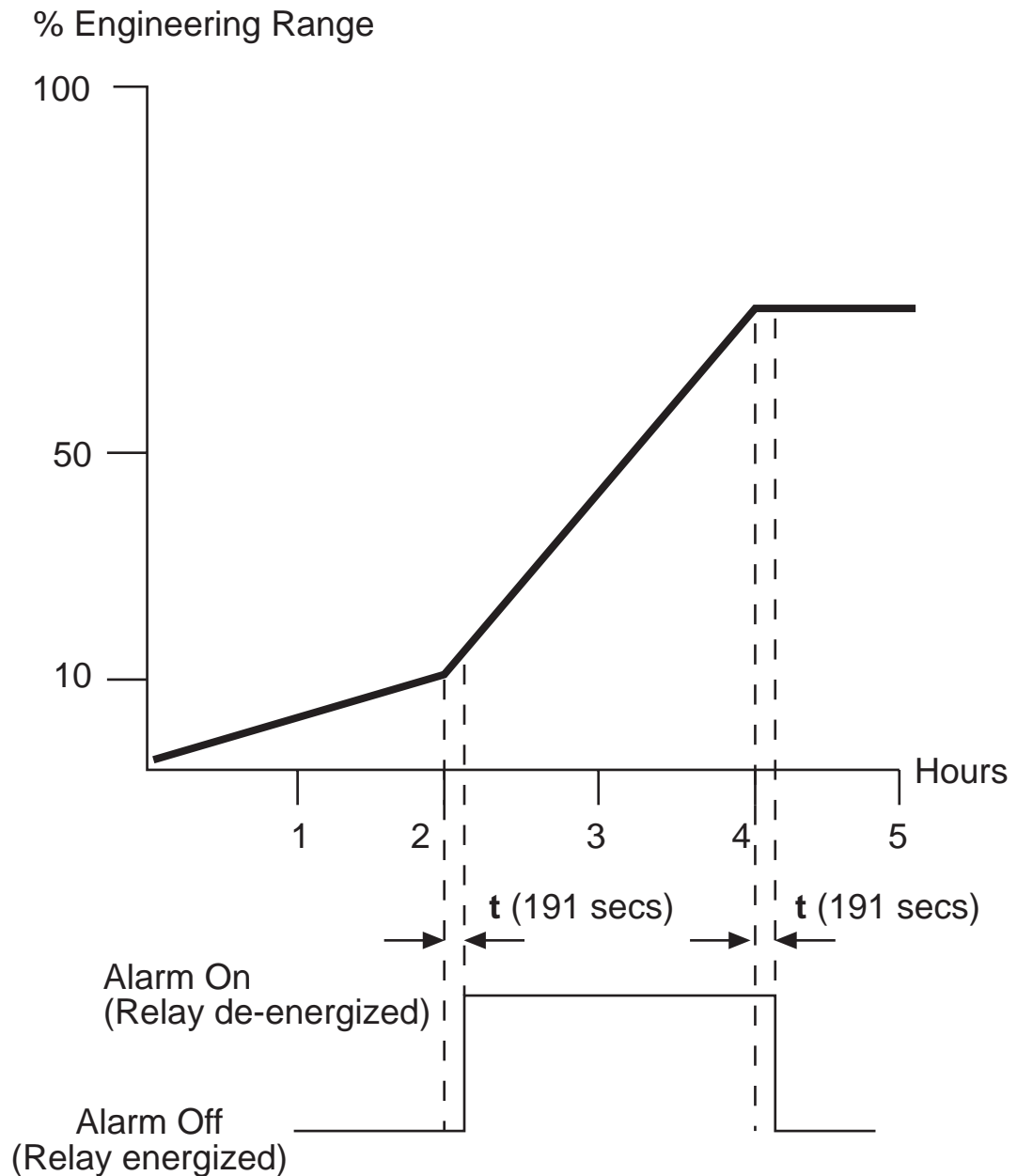
* **Note.** When custom alarm hysteresis is selected, the alarm hysteresis values are set individually in the **Set Up Level** – see Section 3.2.

Fig. 4.4 Alarm Set Up



...4.3.2 Alarms – Figs. 4.4, 4.5 and 4.6





Information. The example above shows a fast rate alarm with a trip value of 10% of the engineering span per hour on an engineering range of 0.0 to 100.0. The time taken to detect whether an alarm condition is present or has cleared is calculated as follows:

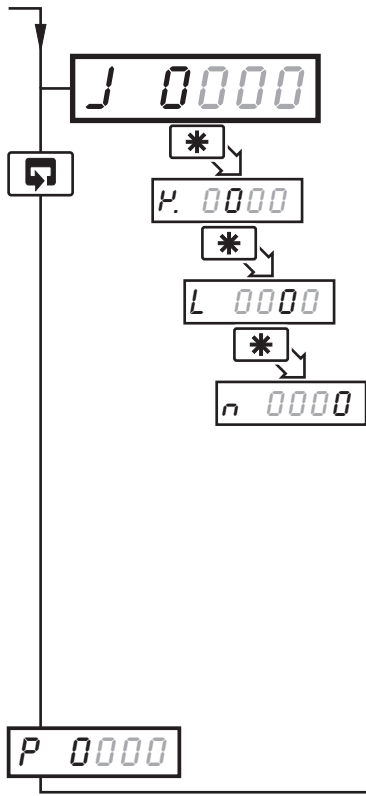
$$t = 10.81 + \frac{1800}{\text{trip value (10\% eng. span per hour)}}$$

$$t = 191 \text{ seconds}$$

Fig. 4.6 Rate Alarm Action



4.3.3 Operator Functions and Totalizer Set Up – Fig. 4.7



'JKLN' Settings

The first character (J, K, L or N) identifies the parameter to be changed. The current setting is indicated by a flashing letter. Parameter options are shown in Fig. 4.7.

- J = Totalizer set-up
- P. = No. of decimal places for totalizer
- L = Operator level frame enable
- n = Operator level functions enable/disable

Continued on page 28.



J 0000 J – Totalizer Set Up

Display	
0	Off
1	Count Up, Wrap Off
2	Count Up, Wrap On
3	Count Down, Wrap Off
4	Count Down, Wrap On

K. 0000 K – Totalizer Display Decimal Places

Display	
0	xxxxxx
1	xxxxx.x
2	xxxx.xx
3	xxx.xxx
4	xx.xxxx
5	x.xxxxx

L 0000 L – Operator Level Frame Enable

Display	Max/Min Values Displayed	Average Value Displayed	Preset/Predetermined Values Displayed
0	No	No	No
1	Yes	No	No
2	Yes	Yes	No
3	No	Yes	Yes
4	No	No	Yes
5	Yes	No	Yes
6	Yes	Yes	Yes

This frame determines which frames appear in the operating page (Level 1)

n 0000 N – Operator Level Math Function & Totalizer Control Enable

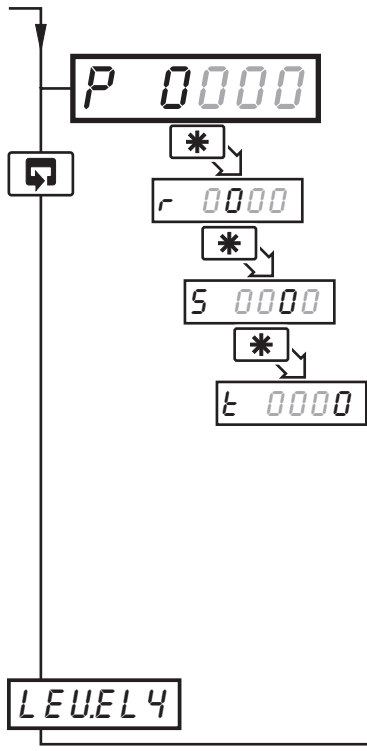
Display	Totalizer Stop/Go	Totalizer Reset	Max./Min./Average
0	No	No	No
1	Yes	No	No
2	No	Yes	No
3	Yes	No	Yes
4	No	Yes	Yes
5	Yes	Yes	Yes

This frame determines which functions the operator can control

Fig. 4.7 Totalizer Set Up and Operator Functions



4.3.4 Digital Input and Serial Communications – Figs. 4.8 and 4.9



'PRST' Settings

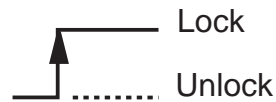
The first character (P, R, S or T) identifies the parameter to be changed and the current setting is indicated by a flashing letter. Parameter options are shown in Fig. 4.9.

- P = Digital input function
- r = Analog input filter
- S = Serial communications configuration
- t = Serial communications parity

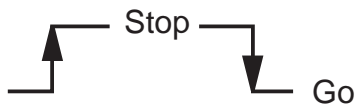
Continued on page 30.



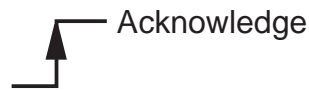
1 Totalizer Reset



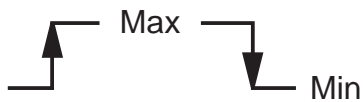
4 Front Panel Lock out



2 Totalizer Stop/Go



5 Alarm Acknowledge



3 Average Max/Min Reset



Information.

Digital input options 1, 2, 3 and 5 are edge-triggered to enable the front panel keys to change the function when the digital input is operational.

Fig. 4.8 Digital Function Configuration



P 0000 P – Digital Input Function

Display	
0	None
1	Totalizer Reset
2	Totalizer Stop/Go
3	Average, Max/Min Reset
4	Front Panel Lockout
5	Alarm Acknowledge

r 0000 R – Analog Input Filter

Display	
0	0 seconds
1	1 second
2	2 seconds
5	5 seconds
R	10 seconds
b	20 seconds
c	40 seconds
d.	60 seconds

S 0000 S – Serial Communication Configuration

Display	Baud Rate, 2/4 Wire
0	Off
1	2400, 2-Wire
2	2400, 4-Wire
3	9600, 2-Wire
4	9600, 4-Wire

t 0000 T – Serial Communication Parity

Display	
0	None
1	Odd
2	Even

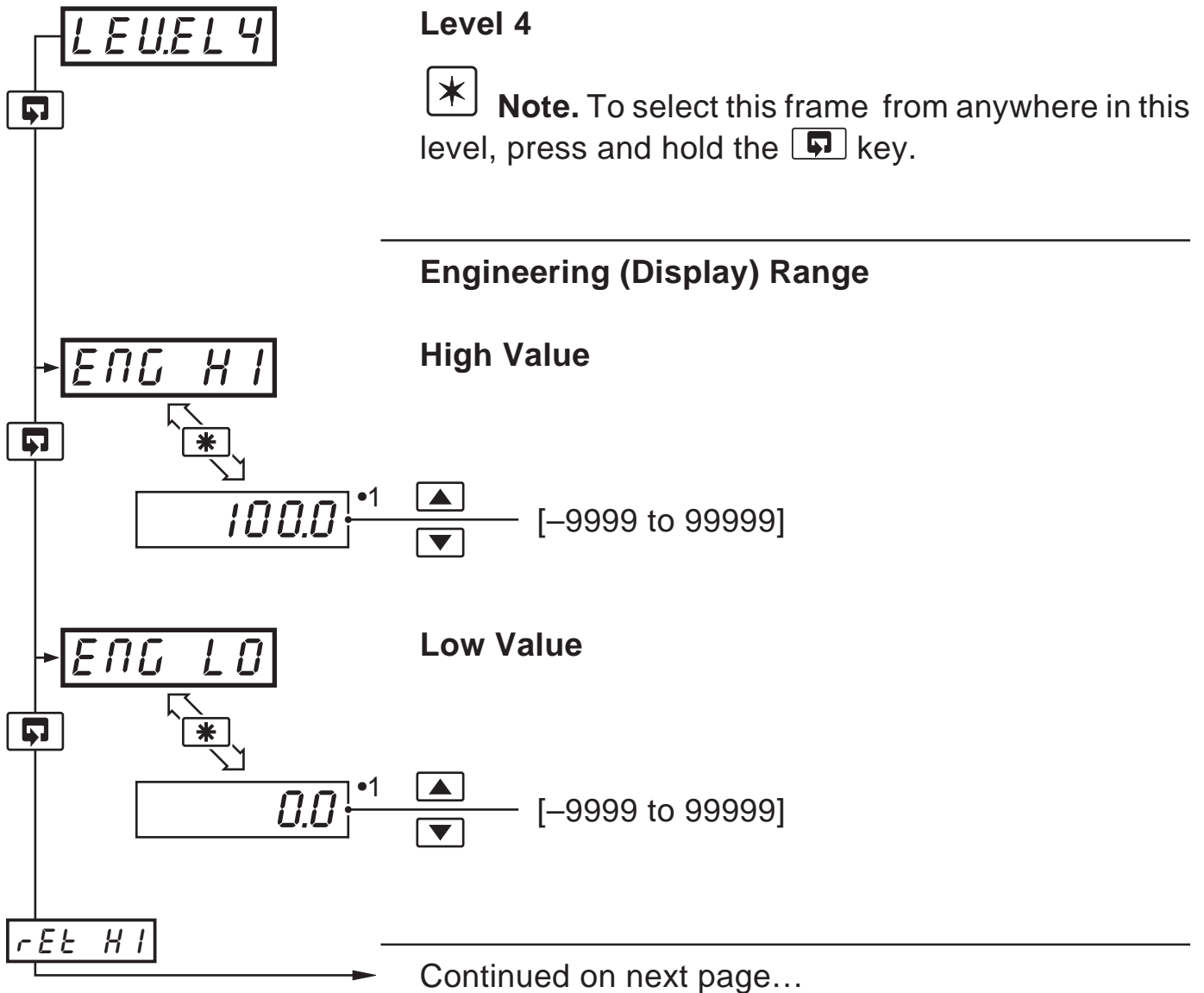


Note. Settings for options P, S and T are only available if the appropriate option board is fitted.

Fig. 4.9 Digital Function and Serial Communications Configuration



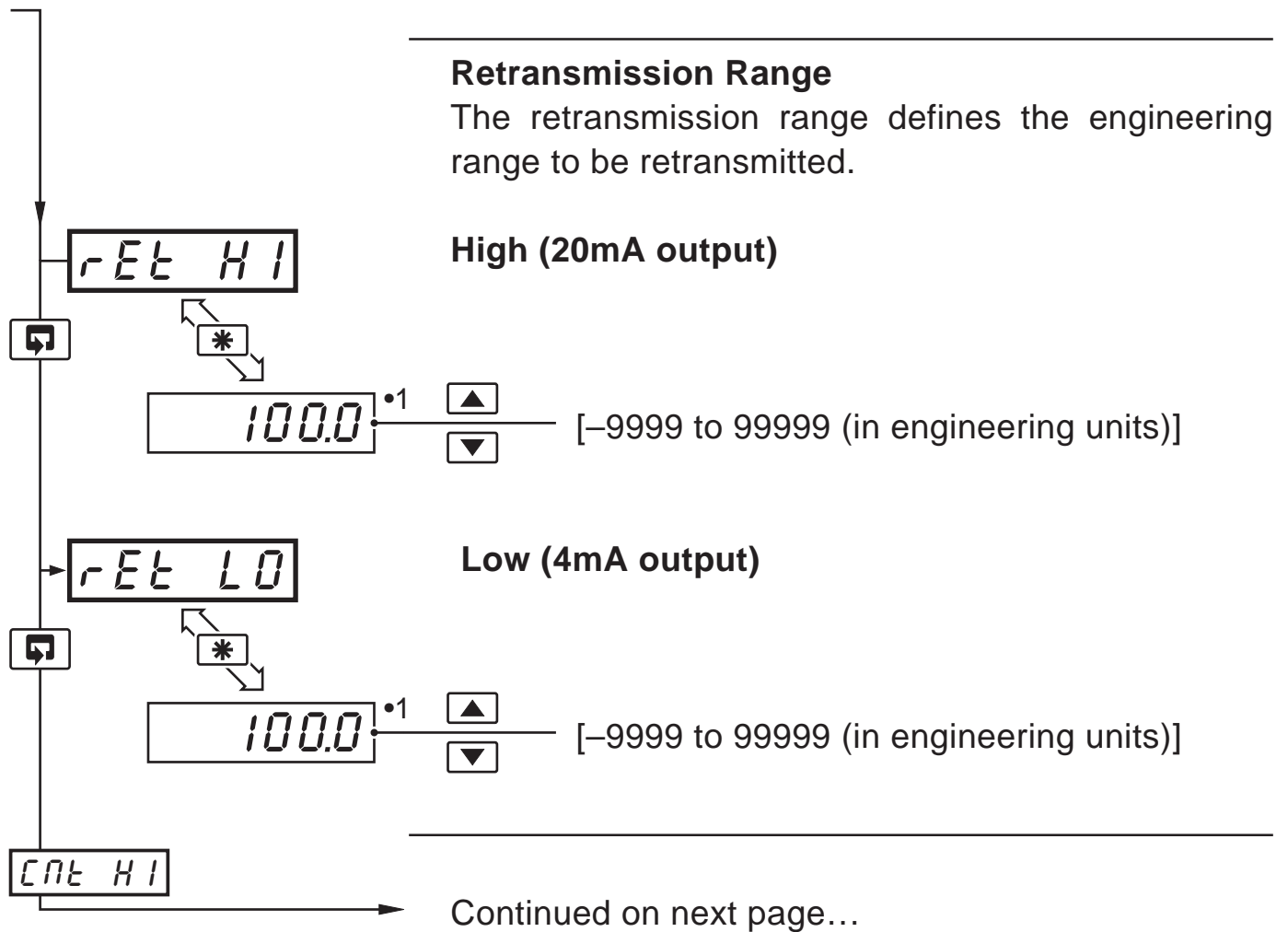
4.4 Ranges and Passwords (Level 4)



- 1 The engineering range high and low values are automatically set to the maximum allowed value when thermocouple or RTD is selected in the Configuration Level – see Section 4.3.1. This value can be modified if required.



...4.4 Ranges and Passwords (Level 4)

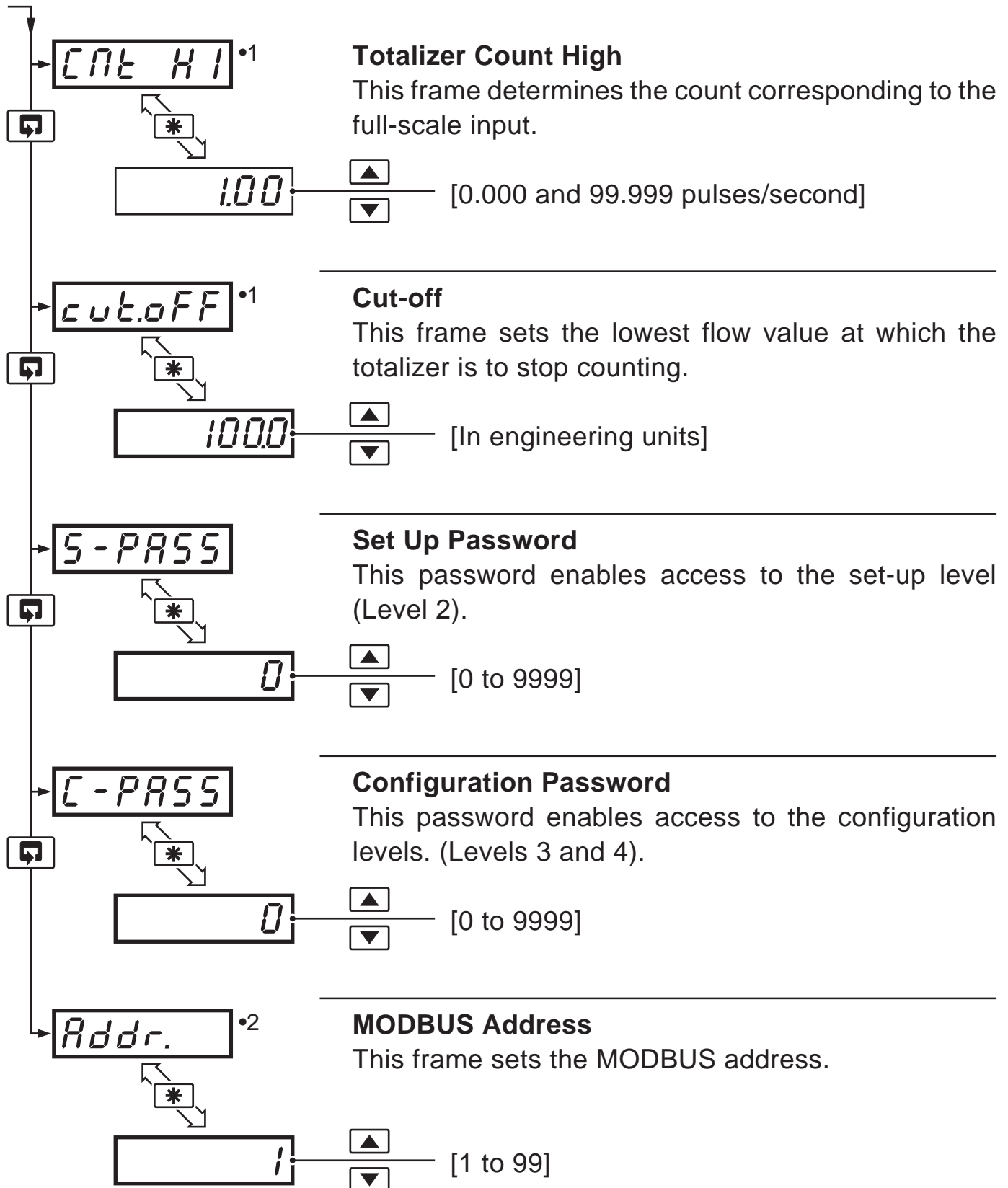


- 1 The retransmission range high and low values are automatically set to the maximum allowed value when thermocouple or RTD is selected in the configuration level – see Section 4.3.1. This value can be modified if required.



...4 CONFIGURATION MODE

...4.4 Ranges and Passwords (Level 4)



- 1 Only displayed if enabled in the configuration level – see Section 4.3.3.
- 2 Only available if the appropriate option board is fitted.



5 INSTALLATION

EC Directive 89/336/EEC

In order to meet the requirements of the EC Directive 89/336/EEC for EMC regulations, this product must not be used in a non-industrial environment.

5.1 Siting – Figs 5.1 and 5.2

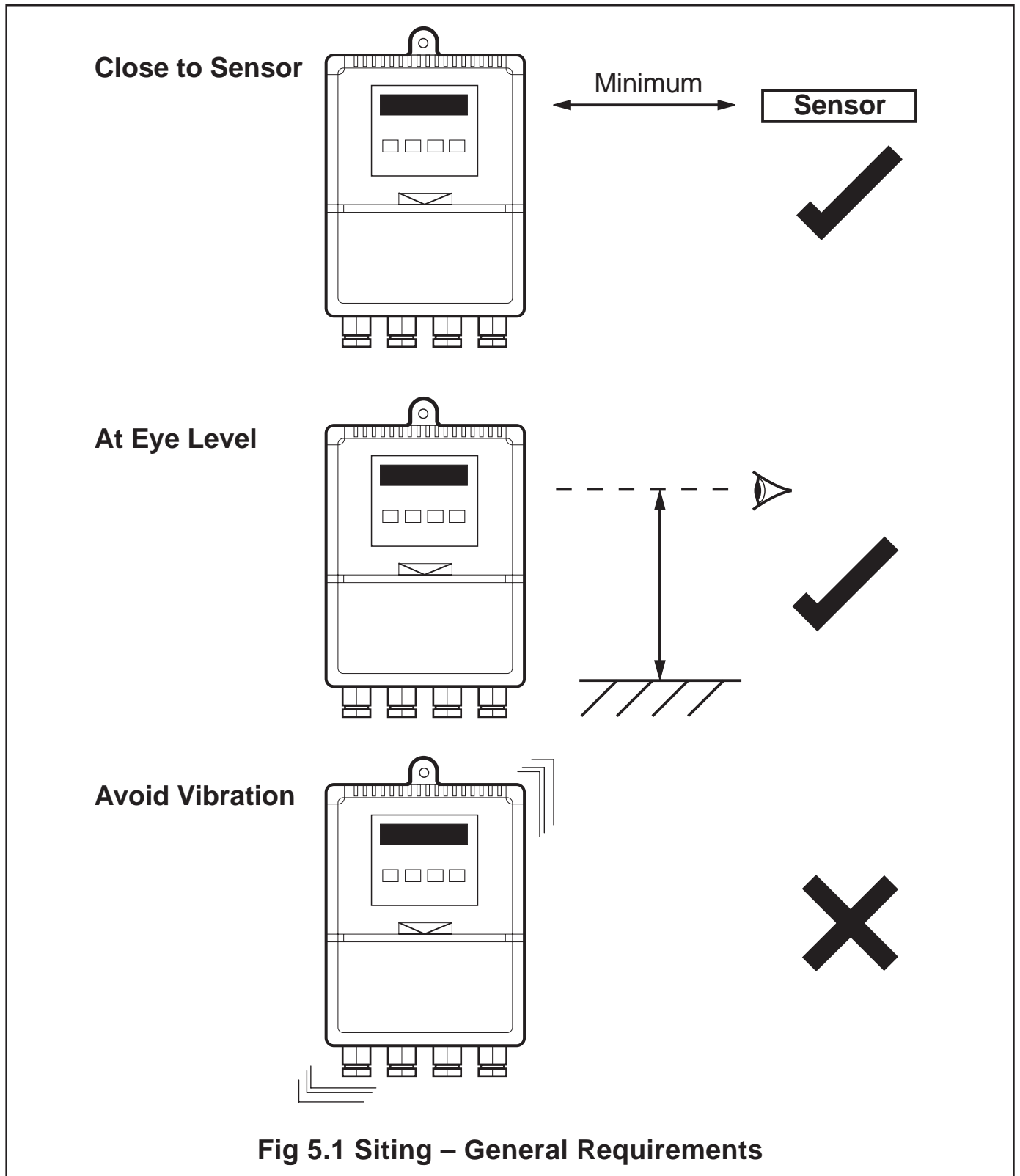


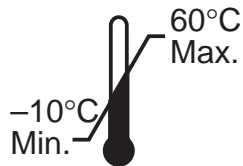
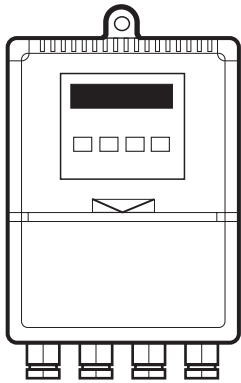
Fig 5.1 Siting – General Requirements



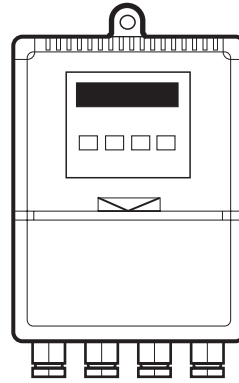
...5 INSTALLATION

...5.1 Siting – Figs 5.1 and 5.2

Temperature Limits

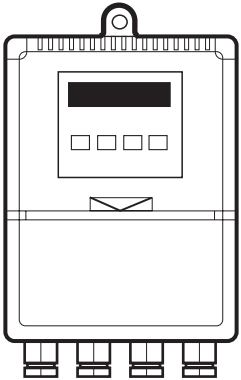


Environmental Limits



IP66/
NEMA-4X

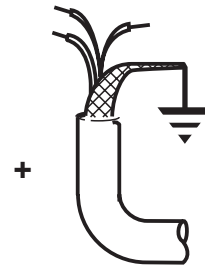
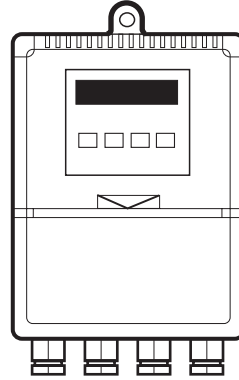
Humidity Limits



0 to 90% RH



Use Screened Cable



+



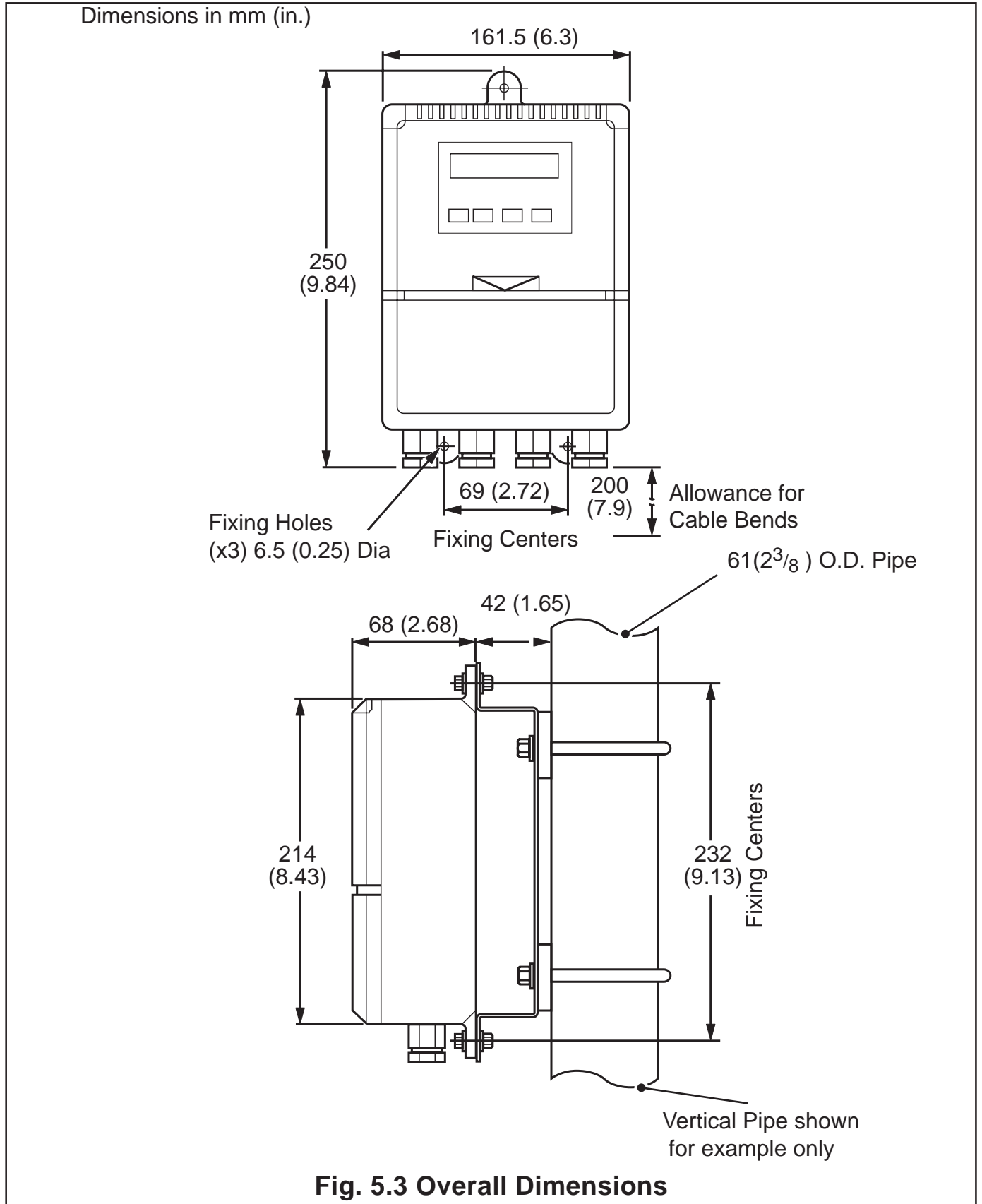
Note. If it is not possible to avoid strong electrical and magnetic fields, screened cables within earthed/grounded metal conduit must be used.

Fig 5.2 Environmental Requirements



5.2 Mounting – Figs. 5.3 and 5.4

The instrument is designed for wall-mounting or pipe-mounting (see Fig. 5.4). The pipe-mounting kit is suitable for both vertical and horizontal pipes. Overall dimensions are shown in Fig. 5.3.





...5.2 Mounting – Figs. 5.3 and 5.4

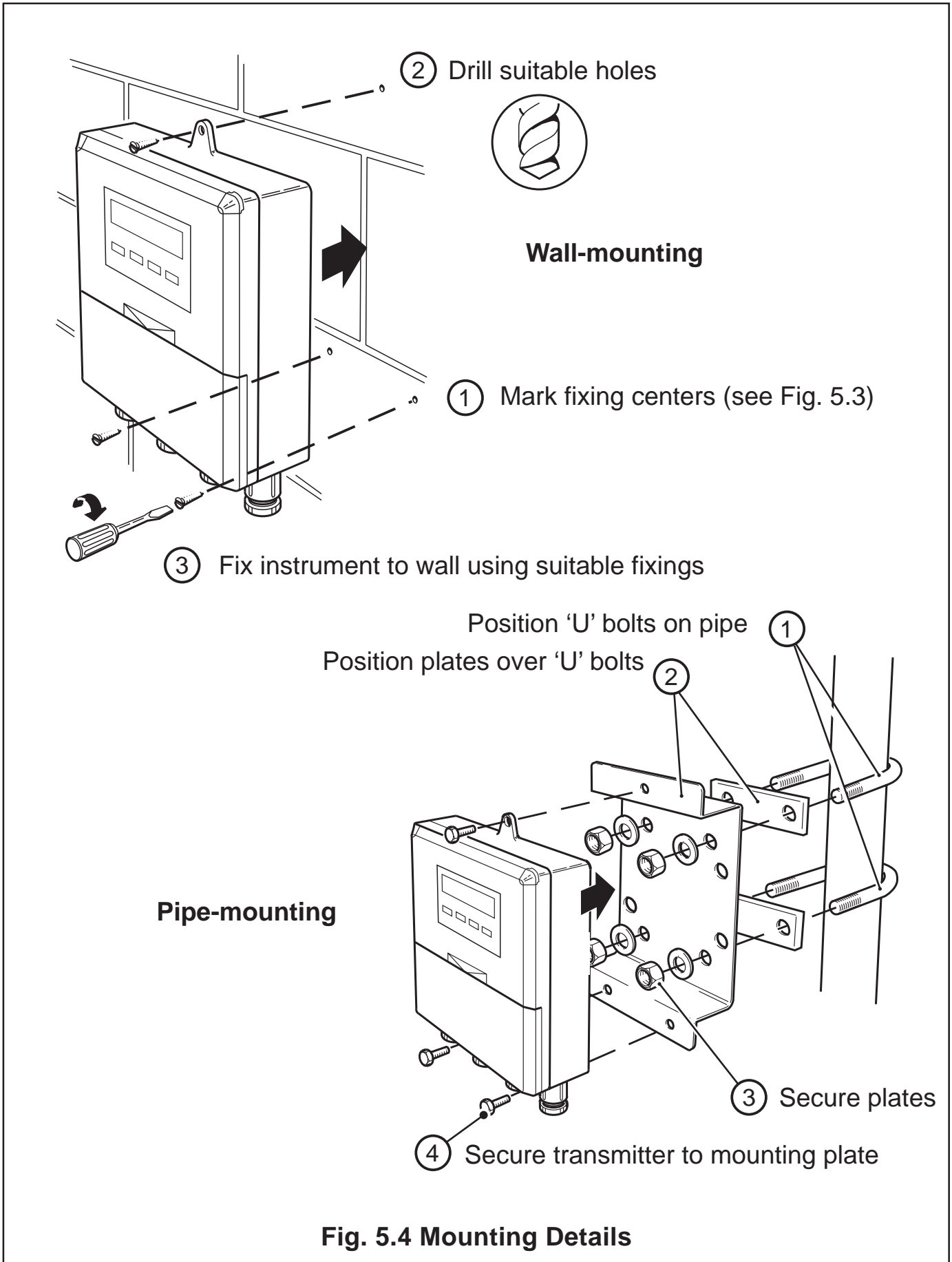


Fig. 5.4 Mounting Details



5.3 Cable Glands and Conduit Fixings

5.3.1 Cable Glands (IEC – 20mm) – Fig. 5.5

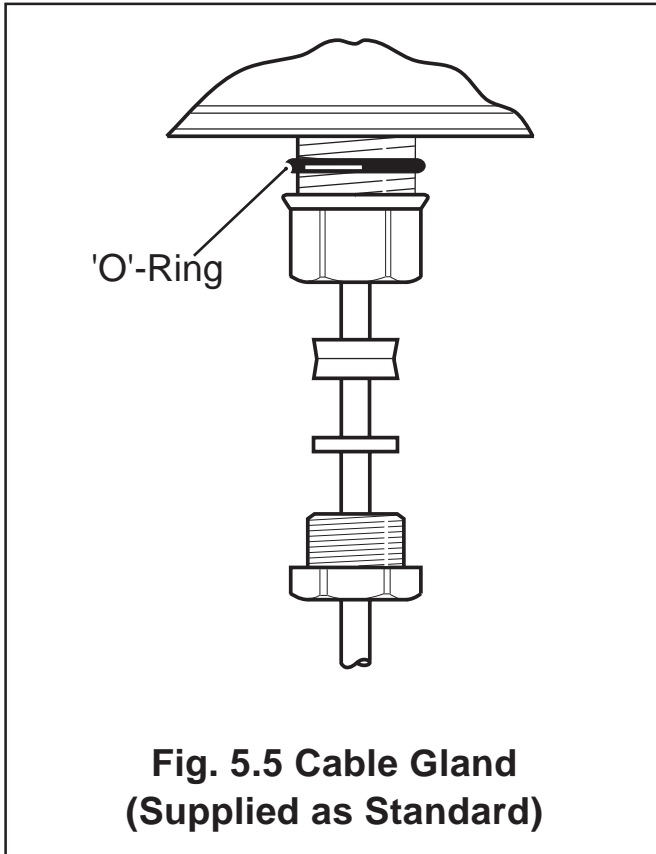


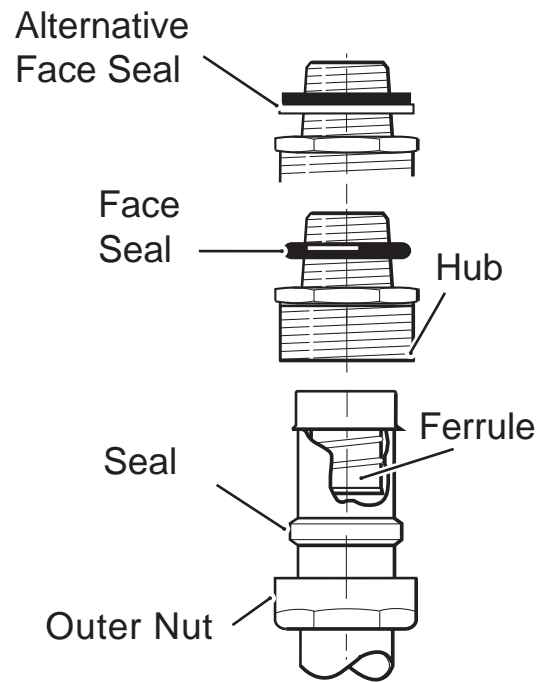
Fig. 5.5 Cable Gland (Supplied as Standard)

5.3.2 Conduit Adaptors (N. American – 0.5 in.) – Fig. 5.6



Warning.

- Rigid conduit must NOT be fitted to the Indicator.
- Indicator adaptors must incorporate a face seal.
- Torque settings for the hubs and outer nuts on the specified adaptors is 20ft.lbs minimum, 25ft.lbs. maximum.



Note. Fittings may vary for different makes.

Fig. 5.6 Conduit Adaptors (Not Supplied)



5.3.3 Cable Glands (N. American – 0.5 in.) – Fig. 5.7



Warning.

- Indicator glands must be fitted with a face seal.
- Torque settings (hubs only) – 20ft. lbs minimum, 25ft. lbs. maximum.
- Outer nuts – hand tight plus a half turn only.



Information.

When fitting cable glands to the Indicator, start with an outer gland and also temporarily fit a gland at the opposite end, to aid location of the transmitter gland plate. Fit and tighten glands consecutively from initial gland.

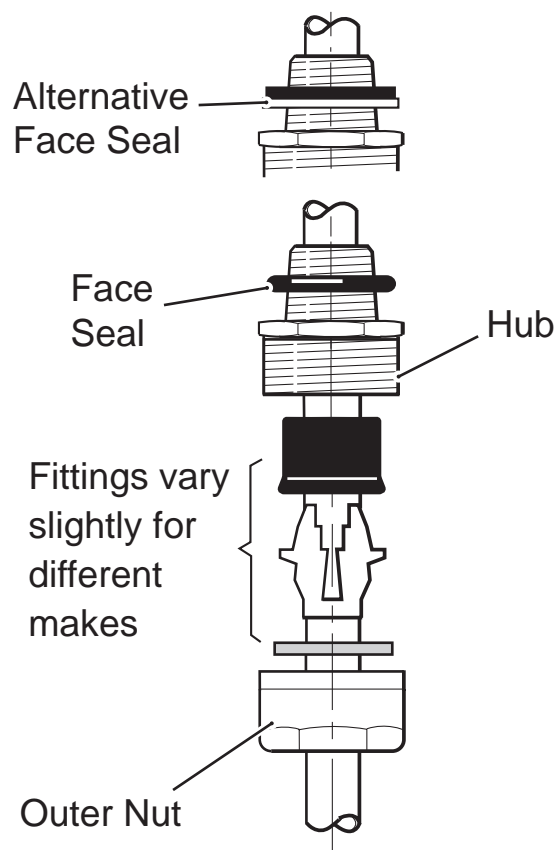


Fig. 5.7 Cable Glands (Not Supplied)



5.4 Electrical Connections – Figs. 5.8 and 5.9



Warning. Before making any connections, ensure that the instrument power supply, any powered control circuits and high common mode voltages are switched off.



Note. The analog output and the logic output share a common positive and can be used at the same time.

5.4.1 Relay Contact Ratings

Relay contacts are rated at:

115/230V a.c. at 5A (non-inductive)

250V d.c. 25W max.

5.4.2 Arc Suppression – Fig. 5.8

Arc suppression components are fitted to relays 2 and 3 only. If relay 1 is required to switch inductive loads, the arc suppression component supplied must be fitted across the contacts used.

5.4.3 Logic Output

18V d.c. at 20mA

Min. load 900Ω

Isolation 500V from input (not isolated from retransmission output)

5.4.4 Retransmission Analog Output

Max. load 15V (750Ω at 20mA)

Isolation 500V from input (not isolated from logic output)

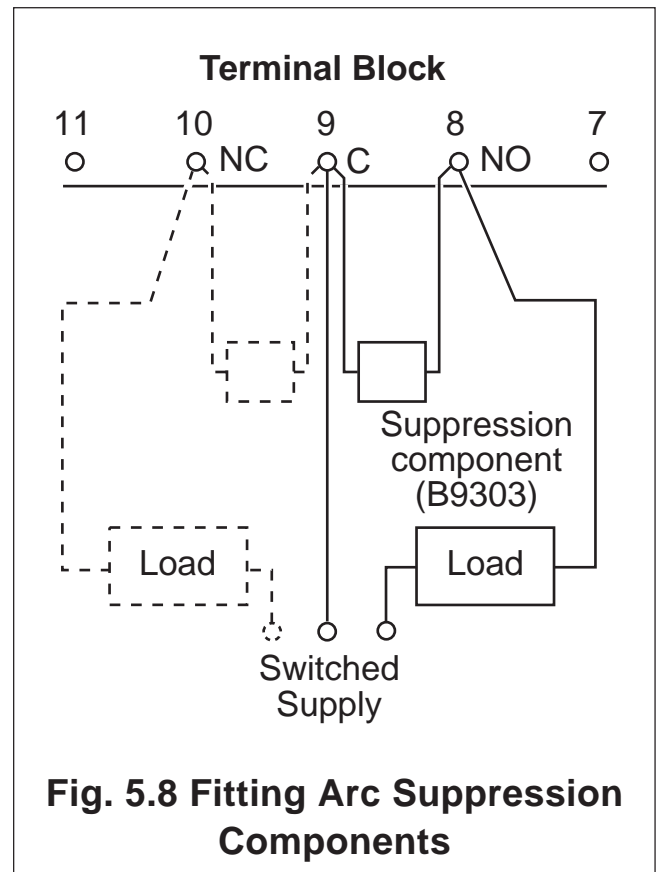
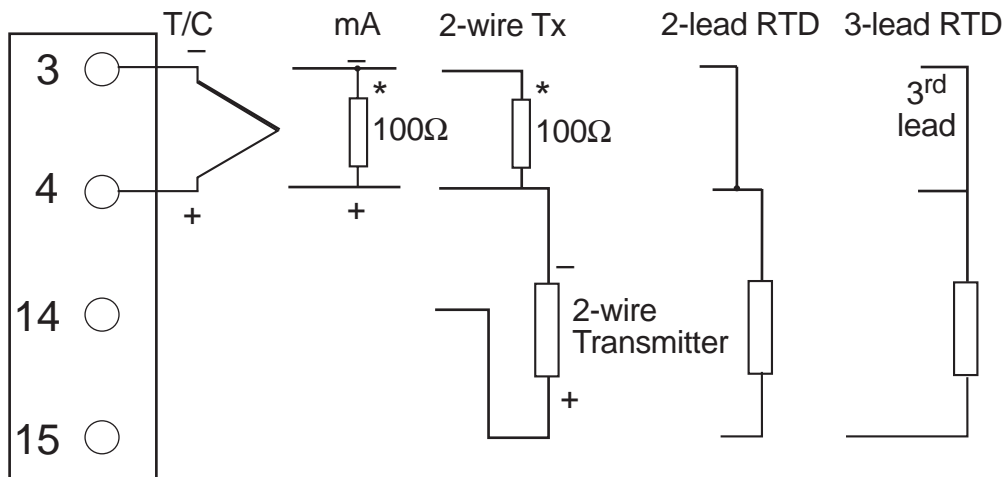
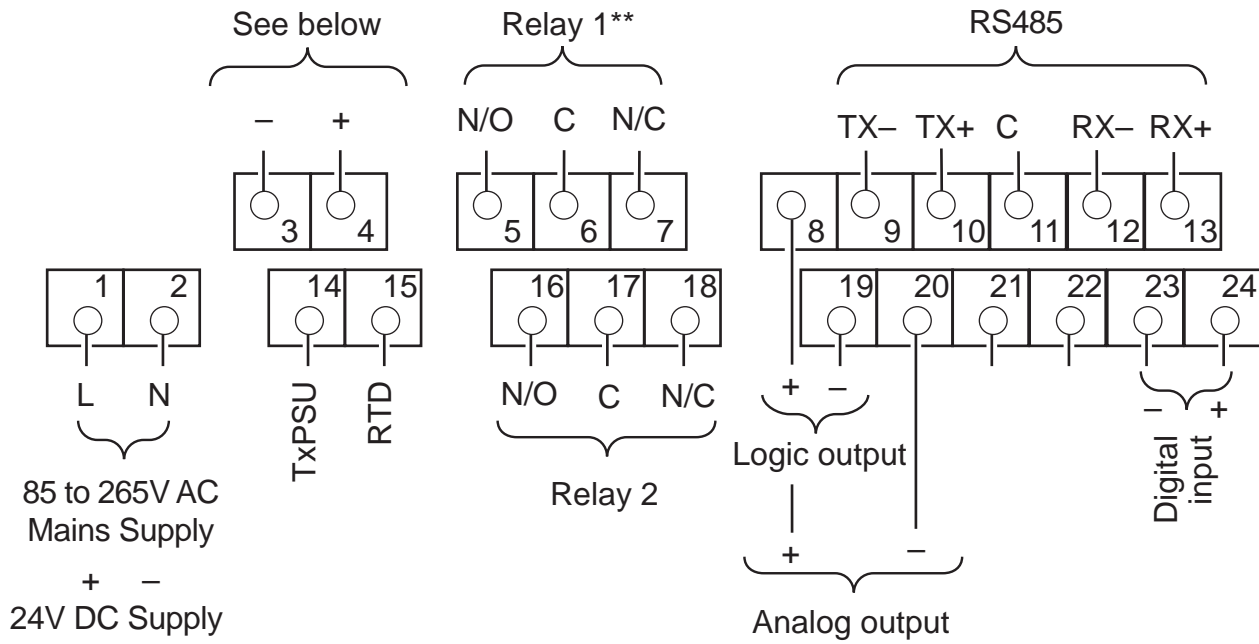


Fig. 5.8 Fitting Arc Suppression Components



...5 INSTALLATION



* Fit 100Ω resistor supplied

** Fit arc suppression components

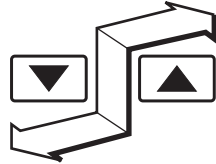
Fig. 5.9 Electrical Connections



CUSTOMER CONFIGURATION LOG



LEVEL 3



LEVEL 4

ENG HI

A 14.00

ENG LO

A _ B _ C _ D _

rEt HI

E 0000

rEt LO

E _ F _ G _ H _

CRt HI

J 0000

CUTOFF

J _ K _ L _ N _

S-PASS

P 0000

C-PASS

P _ R _ S _ T _

Addr.

__

CUSTOMER SET UP LOG



LEVEL 1		LEVEL 2				
Code		A 1xx	-----			
		A 2xx	-----			
		A 3xx	-----			
		xxxxxx				
		t-GO	-----			
		SEctot				
		PrESEt	-----			
		PrEdEt	-----			
		A xxxx				
		H xxxx				
		L xxxx				
		ORdJ	-----			

Instrument Serial Number: _____



OMEGAnet® On-Line Service http://www.omega.com	Internet e-mail info@omega.com
---	--

Servicing North America:

USA: One Omega Drive, Box 4047
ISO 9001 Certified Stamford, CT 06907-0047
Tel: (203) 359-1660 FAX: (203) 359-7700
e-mail: info@omega.com

Canada: 976 Bergar
Laval (Quebec) H7L 5A1
Tel: (514) 856-6928 FAX: (514) 856-6886
e-mail: info@omega.ca

For immediate technical or application assistance:

USA and Canada: Sales Service: 1-800-826-6342 / 1-800-TC-OMEGASM
Customer Service: 1-800-622-2378 / 1-800-622-BESTSM
Engineering Service: 1-800-872-9436 / 1-800-USA-WHENSM
TELEX: 996404 EASYLINK: 62968934 CABLE: OMEGA

Mexico and Latin America: Tel: (95) 800-826-6342 FAX: (95) 203-359-7807
En Español: (95) 203-359-7803 e-mail: espanol@omega.com

Servicing Europe:

Benelux: Postbus 8034, 1180 LA Amstelveen, The Netherlands
Tel: (31) 20 6418405 FAX: (31) 20 6434643
Toll Free in Benelux: 0800 0993344
e-mail: nl@omega.com

Czech Republic: ul. Rude armady 1868, 733 01 Karvina-Hranice
Tel: 420 (69) 6311899 FAX: 420 (69) 6311114
Toll Free: 0800-1-66342 e-mail: czech@omega.com

France: 9, rue Denis Papin, 78190 Trappes
Tel: (33) 130-621-400 FAX: (33) 130-699-120
Toll Free in France: 0800-4-06342
e-mail: france@omega.com

Germany/Austria: Daimlerstrasse 26, D-75392 Deckenfronn, Germany
Tel: 49 (07056) 3017 FAX: 49 (07056) 8540
Toll Free in Germany: 0130 11 21 66
e-mail: info@omega.de

United Kingdom: One Omega Drive, River Bend Technology Centre
ISO 9002 Certified Northbank, Irlam, Manchester
M44 5EX, United Kingdom
Tel: 44 (161) 777-6611 FAX: 44 (161) 777-6622
Toll Free in the United Kingdom: 0800-488-488
e-mail: info@omega.co.uk

It is the policy of OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

The information contained in this document is believed to be correct, but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, patient-connected applications.

Where Do I Find Everything I Need for Process Measurement and Control? OMEGA...Of Course!

TEMPERATURE

- ☑ Thermocouple, RTD & Thermistor Probes, Connectors, Panels & Assemblies
- ☑ Wire: Thermocouple, RTD & Thermistor
- ☑ Calibrators & Ice Point References
- ☑ Recorders, Controllers & Process Monitors
- ☑ Infrared Pyrometers

PRESSURE, STRAIN AND FORCE

- ☑ Transducers & Strain Gauges
- ☑ Load Cells & Pressure Gauges
- ☑ Displacement Transducers
- ☑ Instrumentation & Accessories

FLOW/LEVEL

- ☑ Rotameters, Gas Mass Flowmeters & Flow Computers
- ☑ Air Velocity Indicators
- ☑ Turbine/Paddlewheel Systems
- ☑ Totalizers & Batch Controllers

pH/CONDUCTIVITY

- ☑ pH Electrodes, Testers & Accessories
- ☑ Benchtop/Laboratory Meters
- ☑ Controllers, Calibrators, Simulators & Pumps
- ☑ Industrial pH & Conductivity Equipment

DATA ACQUISITION

- ☑ Data Acquisition & Engineering Software
- ☑ Communications-Based Acquisition Systems
- ☑ Plug-in Cards for Apple, IBM & Compatibles
- ☑ Datalogging Systems
- ☑ Recorders, Printers & Plotters

HEATERS

- ☑ Heating Cable
- ☑ Cartridge & Strip Heaters
- ☑ Immersion & Band Heaters
- ☑ Flexible Heaters
- ☑ Laboratory Heaters

ENVIRONMENTAL

MONITORING AND CONTROL

- ☑ Metering & Control Instrumentation
- ☑ Refractometers
- ☑ Pumps & Tubing
- ☑ Air, Soil & Water Monitors
- ☑ Industrial Water & Wastewater Treatment
- ☑ pH, Conductivity & Dissolved Oxygen Instruments