

# SYSTEM 4

## LANDMARK GRAPHIC

### User Guide

Land Instruments International  
Dronfield S18 1DJ  
England  
Telephone: (01246) 417691  
Facsimile: (01246) 410585  
Email: [infrared.sales@landinst.com](mailto:infrared.sales@landinst.com)  
Internet: [www.landinst.com](http://www.landinst.com)

Land Instruments International  
10 Friends Lane  
Newtown, PA 18940-1804, U.S.A.  
Telephone: (215) 504-8000  
Facsimile: (215) 504-0879  
Email: [irsales@landinstruments.net](mailto:irsales@landinstruments.net)  
Internet: [www.landinstruments.net](http://www.landinstruments.net)



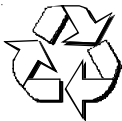


The Quality Management System of Land Instruments International Ltd. is approved to BS EN ISO9001:2000 for the design and manufacture, stockholding, in-house repair and site servicing of non contact temperature measuring instrumentation. Associated software designed and developed in accordance with TickIT.

Calibration certificates are available from our UKAS accredited Calibration Laboratory No. 0034. The Land calibration laboratory complies with the requirements of the international standard BS EN ISO/IEC 17025.



This product complies with current European directives relating to electromagnetic compatibility and safety (EMC directive 89/336/EEC; Low voltage directive 73/23/EEC).














All packaging material used for this product is 100% recyclable.






**LANDMARK**

Landmark ® is a registered trademark of Land Instruments International Ltd.

**SAFETY INFORMATION**

Symbol	Publication	Description
	IEC 417, No. 5031	Direct current
	IEC 417, No. 5032	Alternating current
	IEC 417, No. 5033	Both direct and alternating current
	IEC 617-2, No. 02-02-06	Three-phase alternating current
	IEC 417, No. 5017	Earth (ground) terminal
	IEC 417, No. 5019	Protective conductor terminal
	IEC 417, No. 5020	Frame or chassis terminal
	IEC 417, No. 5021	Equipotentiality
	IEC 417, No. 5007	On (Supply)
	IEC 417, No. 5008	Off (Supply)
	IEC 417, No. 5172	Equipment protected throughout by double insulation or reinforced insulation (equivalent to Class II of IEC 536)

**SAFETY INFORMATION (CONTINUED...)**

Symbol	Publication	Description
	ISO 3864, No. B.3.6	Caution, risk of electric shock
	ISO 3864, No. B.3.1	Caution
	BS EN 100015	Observe precautions for handling electrostatic discharge sensitive devices
	BS EN 60825-1, 1994	Warning, laser radiation
		Refer to the Operating Instructions.

## CONTENTS

QUALITY ASSURANCE	
SAFETY INFORMATION	
CONTENTS (THIS PAGE)	
PREFACE	
1.0 INTRODUCTION	1
1.1 About this Guide	1
1.2 About the Processor	1
1.3 About System 4	1
1.4 Landmark Graphic Specification	2
1.5 2-sensor System Specification	3
1.6 Unpacking the Processor	3
2.0 INSTALLING THE PROCESSOR	5
2.1 Installing the Processor in a Panel	5
2.2 Electrical Connections	9
2.3 Cable Connector Assembly	17
2.4 a.c. Power Input Plug	17
3.0 USING THE PROCESSOR	19
3.1 Getting Started (accessing the menu system)	21
3.2 About the Menu System	25
3.3 Configuring Items in the Menu System	25
3.4 Using the 'Quick' Keys	28
4.0 TIME FUNCTION PROCESSING	30
4.1 Peak Picker	30
4.2 Track and Hold	32
4.3 Averager	33
4.4 Valley Picker	33
5.0 LANGUAGE SELECTION	35
6.0 MAINTENANCE	37
APPENDIX A DISPLAY MODES	38

PREFACE



Fig. 1 Landmark Graphic Processor



## 1.0 INTRODUCTION

### 1.1 About this Guide

This guide gives you the information necessary for you to operate a LAND System 4 Landmark Graphic processor. Basic information regarding installation of the processor is also contained in the Installation Guide. More detailed information regarding servicing, repair and calibration of the processor is contained in the Service Manual.

### 1.2 About the Processor

The Landmark Graphic Signal processor is designed to be used in conjunction with any LAND System 4 thermometer.

The processor features include:

- Large, clear LCD panel.
- Easy to use configuration menu system, with security code, context-sensitive help display and 'Quick Key' selection of the most commonly changed parameters.
- Multi-channel version for up to four System 4 thermometers.
- A choice of time function processing options for each thermometer input.
- Current and voltage retransmission outputs.
- Power supply for processor and thermometer(s).

The processor's capabilities can be enhanced with several optional extras.

- Serial communications in either RS 232C or RS 485 format.
- Math function.
- A front panel cover which provides sealing up to IP65 standards.

The Landmark Graphic signal processor, fitted with the Math function card, is also designed for use on 2-sensor reheat furnace (background compensation) applications used in conjunction the application-dedicated FTS thermometer. Refer to the Math Function User Guide for further details.

### 1.3 About System 4

LAND System 4 is a range of high accuracy thermometers, state of the art processors and rugged mounting accessories designed to provide precise non contact temperature measurement in a wide range of industrial applications.

1.4 Specification

Model:	Landmark Graphic
<p>Accuracy Stability (Temp.) Discrimination Input update <b>Display</b>   Display update   Screens    Line/Deviation chart ranges   Bar graph ranges   Time span   User label Outputs  Output update Emissivity</p>	<p>±0.12% of reading 0.01% of span/° 0.015% of full scale 2.5ms Cold cathode, back lit, 320 x 240 pixels 0.5s Numeric, line chart, deviation chart, mixed, 4 channel numeric, 4 channel bar graph, 4 channel deviation bar graph 5° steps, 200° min span, settable 5° steps, 200° min span, settable 3, 12, 30, 90, 270 mins Up to 10 characters 1mV/° and 0 to 20 or 4 to 20mA selectable 50° steps, 100° min span 10ms 0.050 to 1.000 in 0.001steps</p>
<p>Non greyiness <b>Peak Picker</b>   Threshold   On delay   Off delay   Decay rate   Acquisition time</p>	<p>0.800 to 1.250 in 0.001 steps Reset, hold or peak sample, selectable 1° steps, settable 0 to 10s in 0.1s steps 0 to 10s in 0.1s steps 0, 0.25, 0.5, 1, 2, 4, 8, 16, 32, 64, 128, 256, 512°/s 10ms</p>
<p><b>Valley Picker</b>   Threshold   On delay   Off delay   Recovery rate   Acquisition time   Interval</p>	<p>Reset, hold or valley sample, selectable 1° steps, settable 0 to 10s in 0.1s steps 0 to 10s in 0.1s steps 0, 0.25, 0.5, 1, 2, 4, 8, 16, 32, 64, 128, 256, 512°/s 10ms 10 to 250s in 1s steps</p>
<p><b>Averager</b>   Time constant</p>	<p>0, 0.25, 0.5, 1, 2, 4, 8, 16, 32, 64, 128, 256, 512s</p>
<p><b>Track and Hold</b>   Control signal   Response time</p>	<p>5 to 24V d.c. or switch/relay contacts 10ms</p>
<p><b>Alarms</b>   Trip leve   Relay contact rating   Update   Hysteresis</p>	<p>High or low, settable 1° steps, settable 50V a.c. or d.c. at 0.5A 10ms 3°</p>
<p>Power requirement  Ambient operating temp</p>	<p>110 to 120V a.c. or 220 to 240V a.c. 48 to 63 Hz, 35VA (290VA max. with 4 thermometers) 5 to 50°C / 40 to 120°F (specified) 5 to 60°C / 40 to 140°F (max. operating)</p>
<p>Sealing Humidity Vibration C E</p>	<p>To IP65/NEMA 4 with protection cover fitted 0 to 99% non condensing 1g Any axis 10 to 300Hz EN 50-082-2 (immunity), EN 50-081-1(emission), IEC 1010 (Safety)</p>

**1.5 2-sensor System Specification**

Primary sensor:	FTS 500/2000C	FTS 900/3600F
Secondary sensor:	FTS 500/2000C	FTS 900/3600F
or:	(permits background compensated measurements to 2000°C/3600°F) Type R or Type S zone thermocouples (permits background compensated measurements to 1600°C/2912°F)	
Measurement range		
Primary input:	500 to 2000°C	900 to 3600°F
Secondary input		
a) thermometer:	500 to 2000°C	900 to 3600°F
b) thermocouple:	Type R or S, 0 to 1600°C, via 4-20mA linear transmitter	Type R or S, 30 to 3200°F, via 4-20mA linear transmitter
Update time:	0.5s (to 95%)	
Emissivity range:	0.300 to 1.000 adjustable in 0.001 increments	
Outputs:	0 to 20mA, 4 to 20mA or 1 mV/°	
Out of range warning:	Voltage-free alarm contacts change status when either primary or secondary input is out of measurement range	
Signal Processor		
Single system:	LMG-M 1100-2 (one primary input and one secondary input)	
Dual system:	LMG-M 1111-2 (two primary inputs and two secondary inputs)	

**1.6 Unpacking the Processor**

The package containing the processor will contain the following items:

- (i) User Guide. (A binder for your user documentation is supplied with the System 4 thermometer.)
- (ii) Landmark Graphic Processor.
- (iii) 7-way plug\* and cover (including 2 screws and a clamp bar) for connection to the Thermometer.
- (iv) 6-way plug\* for Alarm output connection.
- (v) 5-way plug\* and cover (including 2 screws and a clamp bar) for Retransmission output connection.
- (vi) 2-way plug\* for Command input connection.
- (vii) 3 way appliance connector (rewireable) for power input cable.
- (viii) One 2.5mm flat bladed screwdriver and one 2.5mm hexagonal screwdriver to aid installation and set up.

\* One of these connectors is supplied for each thermometer channel fitted to the processor.

If you have ordered any optional serial communications boards, these will be supplied pre-fitted. Check that you have been supplied with all ordered items.

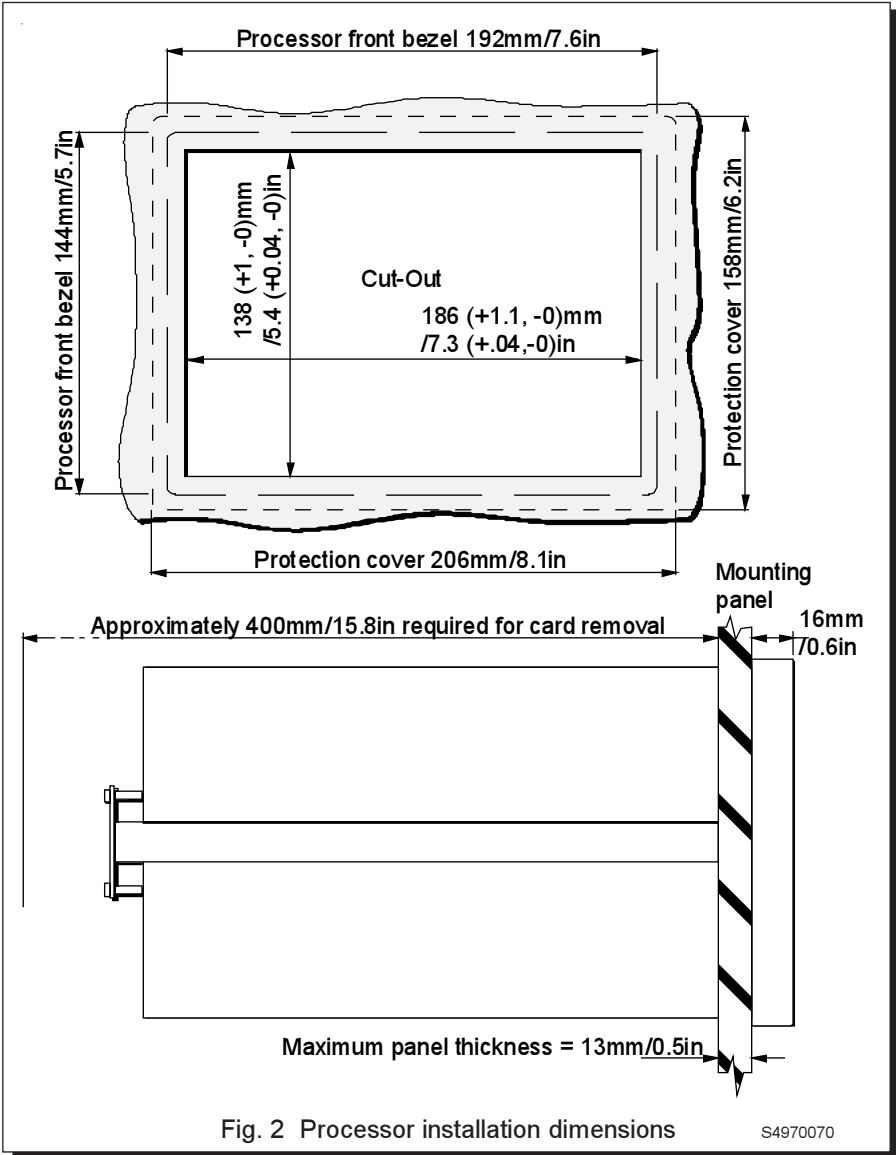


Fig. 2 Processor installation dimensions

S4970070

## 2.0 INSTALLING THE PROCESSOR

The Landmark Graphic processor is designed to be mounted in an instrument panel.

The overall installation dimensions of the processor are given in Fig. 2.

### 2.1 Installing the Processor in a Panel

---

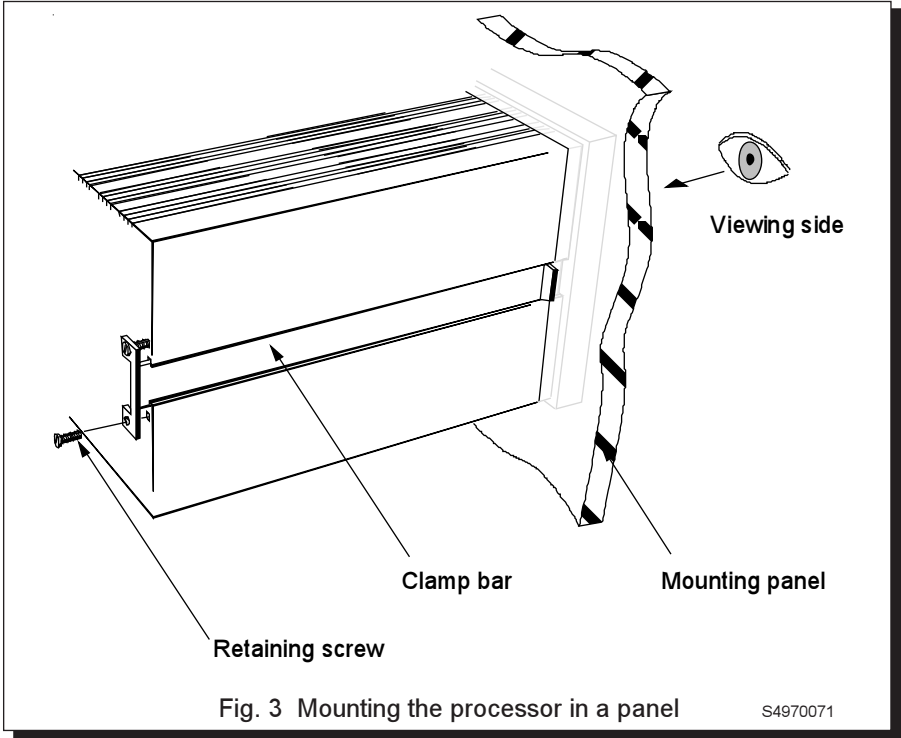
#### NOTES

The Landmark Graphic processor can be set up to display text in either English, German, Italian, French, Spanish or Japanese. The processor is supplied set up to display in English. Changing the language setting involves removal of the back panel, therefore it is recommended that the language is selected before installing the processor in a panel. If you wish to change the language setting, refer to Section 5.0.

Mounting the processor in a panel is best achieved by two people, one on the viewing side and one at the rear of the mounting panel.

---

- (i) Refer to Fig. 2. Choose an area of your mounting panel of sufficient size to contain the processor.
- (ii) Carefully cut a rectangular area out of the panel 186mm/7.3in wide, by 138mm/5.4in high.
- (iii) Refer to Fig. 3 (overleaf). Unscrew the four retaining screws on the rear of the processor and slide out the two clamp bars.
- (iv) From the viewing side, insert the processor in the mounting panel.



- (v) From the rear, re-insert the clamp bars into their channels and push them up to touch the mounting panel.
- (vi) Insert and tighten the retaining screws until the mounting panel is firmly gripped between the processor front panel and the clamp bar.

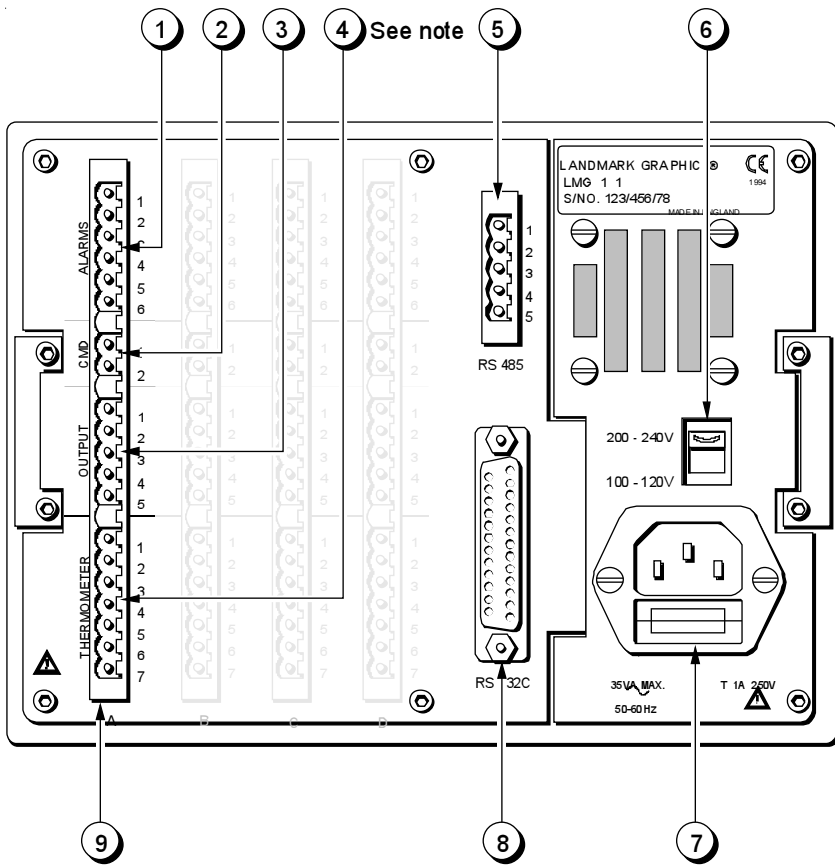
---

**CAUTION**



Do not overtighten the screws as this will deform the clamp bar.

---



1	Alarm output	6	Supply voltage selector switch
2	Command input	7	AC power input
3	Retransmission output	8	RS 232C serial comms input
4	Thermometer connector	9	Channel A* terminal block
5	RS 485 serial comms output		(* Channels B,C & D identical to A)

**NOTE**  
Provides connection to thermocouple transmitter used as secondary sensor in 2-sensor (background compensation) applications

Fig. 4 Rear panel electrical connections S4970072a

## 2.2 Electrical Connections

The electrical connections to and from the processor are all made via connectors on the rear panel of the processor. Fig. 4 shows the location of the connectors.

---

### WARNING



Risk of electric shock. Refer to the processor Service Manual before removing the rear panel screws.

Ensure that the a.c. mains input is disconnected before removing the rear panel of the processor.

---


Alarm output				
Pin N°	Function	Description		
	1	C	Common	
	2	NO		Normally Open
	3	NC		Normally Closed
	4	C	Common	
	5	NO		Normally Open
	6	NC		Normally Closed

Fig. 5 'Alarm' cable connection schedule

S4970073

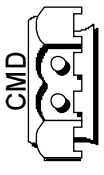
CMD (Command) input			
Pin N°	Function	Description	
	1	CMD+	Command input drive
	2	CMD-	Command input return

Fig. 6 'CMD' (command) cable connection schedule

S4970074

### 2.2.1 Alarm output connection schedule

The Alarm output connection schedule is given in Fig. 5.

The Alarm relay contact rating is 50V a.c. or d.c. at 0.5A.

---

#### NOTE

Each alarm is designed to be 'fail-safe'. i.e. if there is a loss of power to the processor, the alarms will remain in an activated state until the power supply is restored.

---

### 2.2.2 CMD (Command) input connection schedule

The CMD (Command) input connection schedule is given in Fig. 6.

The command signal is inactive when the voltage is  $>3.0V$  or open circuit (i.e. Track).  
The command signal is active when the voltage is  $<1.5V$  or short circuit (i.e. Hold).

The command input can be controlled via a remote switch, as shown in Fig.7, or via potential-free contacts, as shown in Fig. 8.

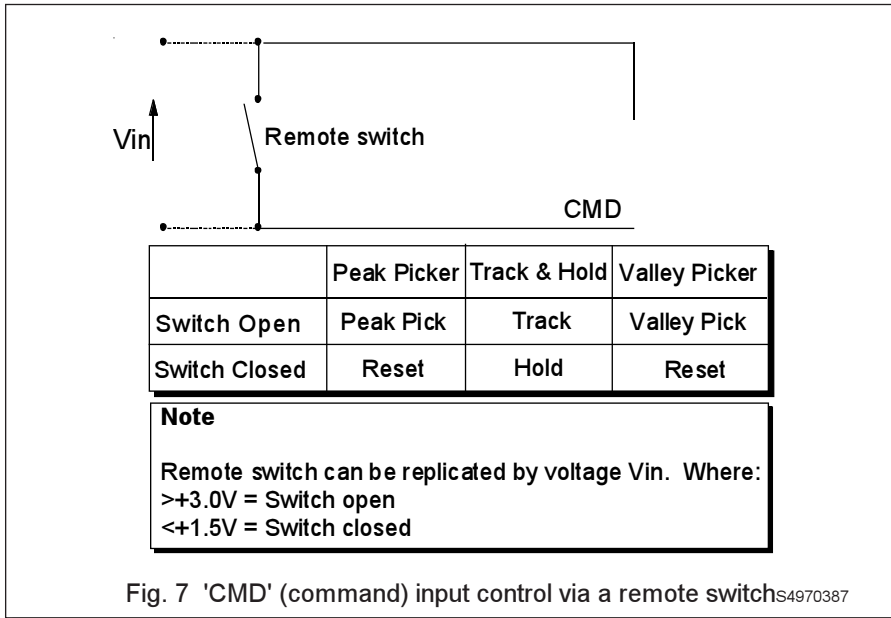


Fig. 7 'CMD' (command) input control via a remote switch S4970387

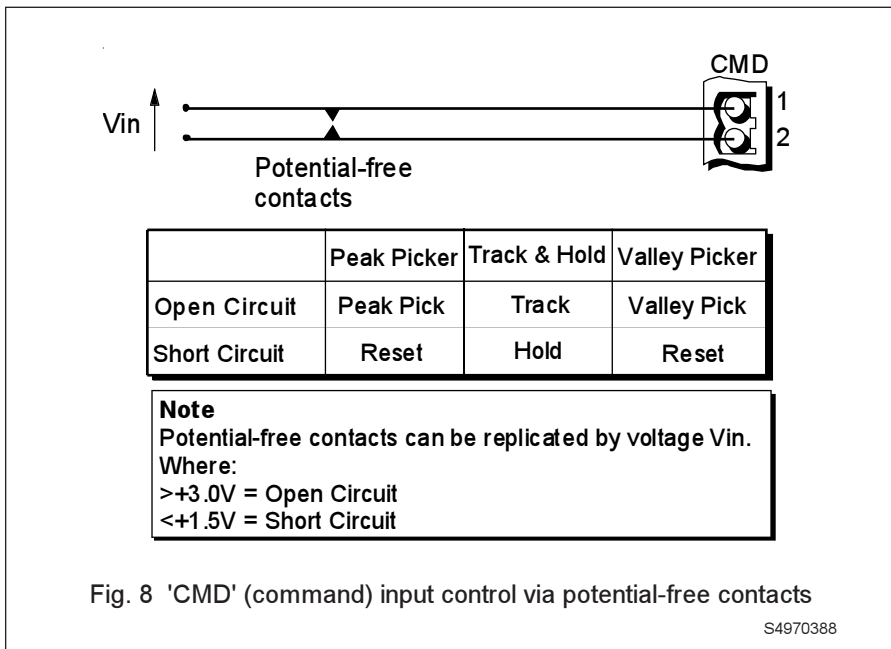


Fig. 8 'CMD' (command) input control via potential-free contacts

S4970388

**2.2.3 Output (Retransmission output) connection schedule**

The Output (Retransmission output) connection schedule is given in Fig. 9.

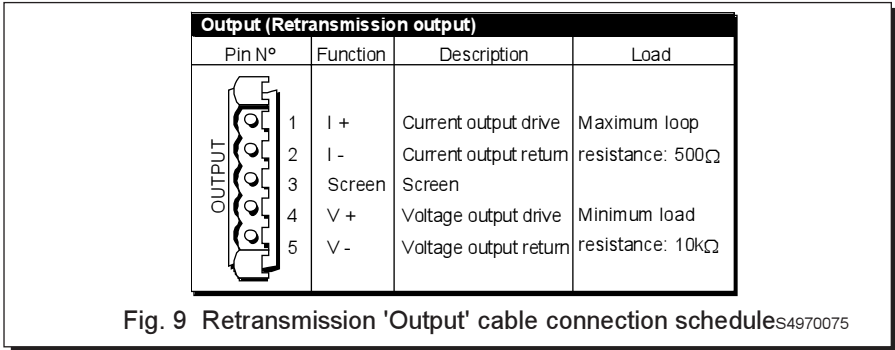


Fig. 9 Retransmission 'Output' cable connection schedule S4970075

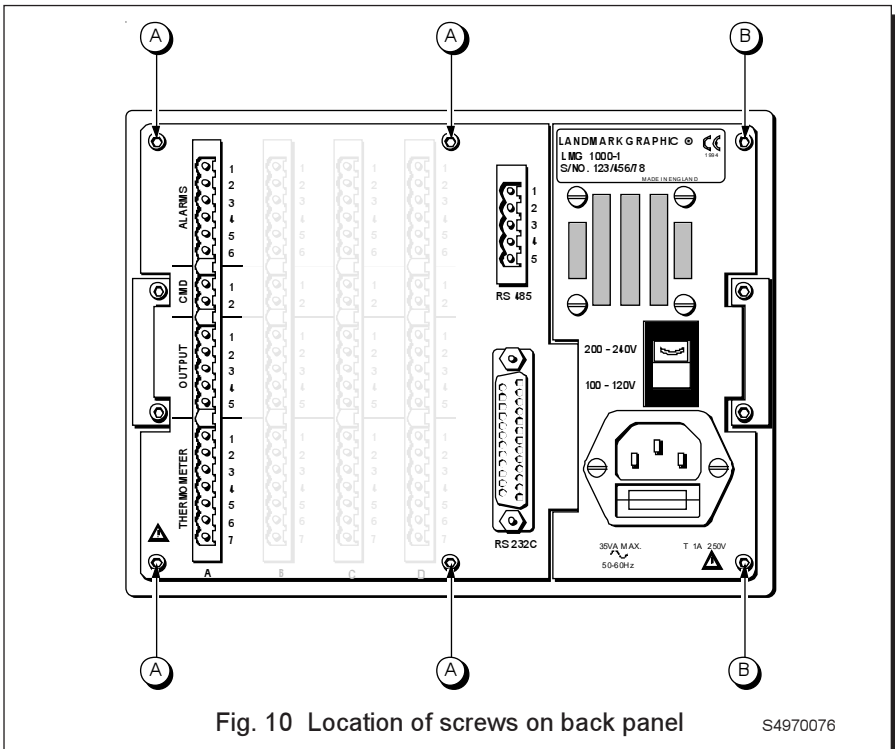


Fig. 10 Location of screws on back panel S4970076

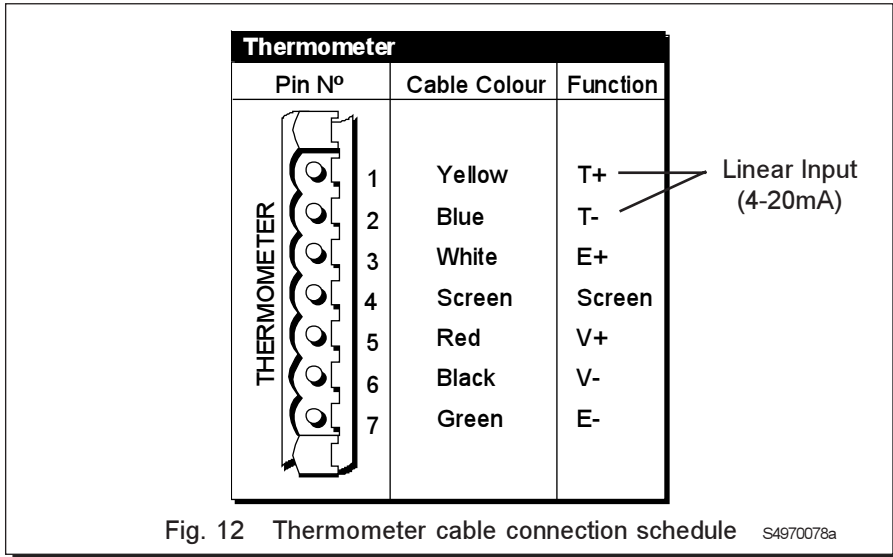


Fig. 12 Thermometer cable connection schedule S4970078a

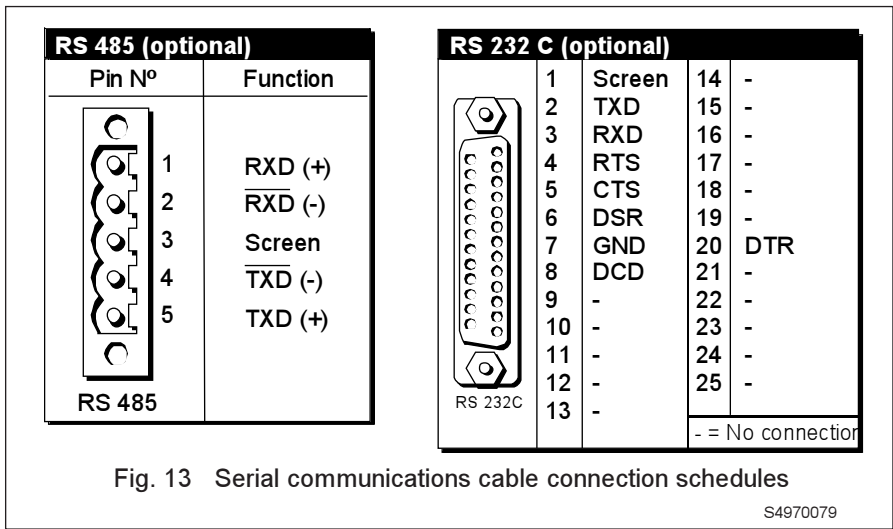


Fig. 13 Serial communications cable connection schedules

S4970079

**2.2.4 Thermometer connection schedule**

The thermometer connection schedule is given in Fig. 12.

**NOTE**

When using a thermocouple on the linear 4-20mA input for 2-sensor applications, then a transmitter must be used scaled to fit one of the following ranges:

0-600°C	30-1100°F
0-1100°C	30-2000°F
0-1600°C	30-3200°F

**2.2.5 Thermocouple transmitter connection schedule**


Connection Schedule	
Thermometer	Thermocouple Transmitter
	1 Current Drive
	2 Current Return
	3 Not Used
	4 Not Used
	5 Not Used
	6 Not Used
	7 Not Used

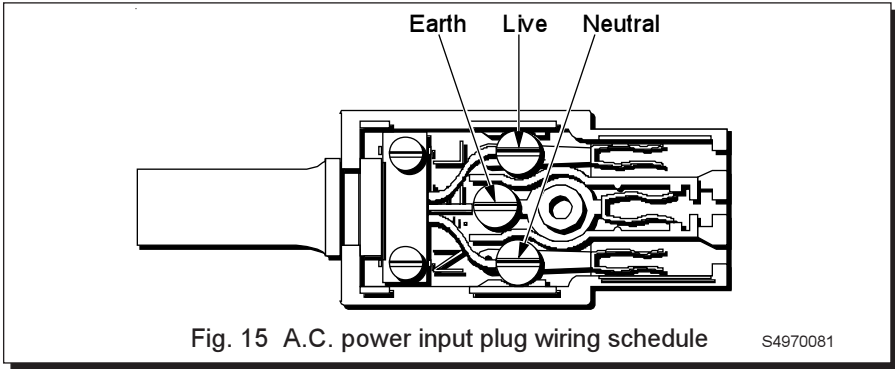
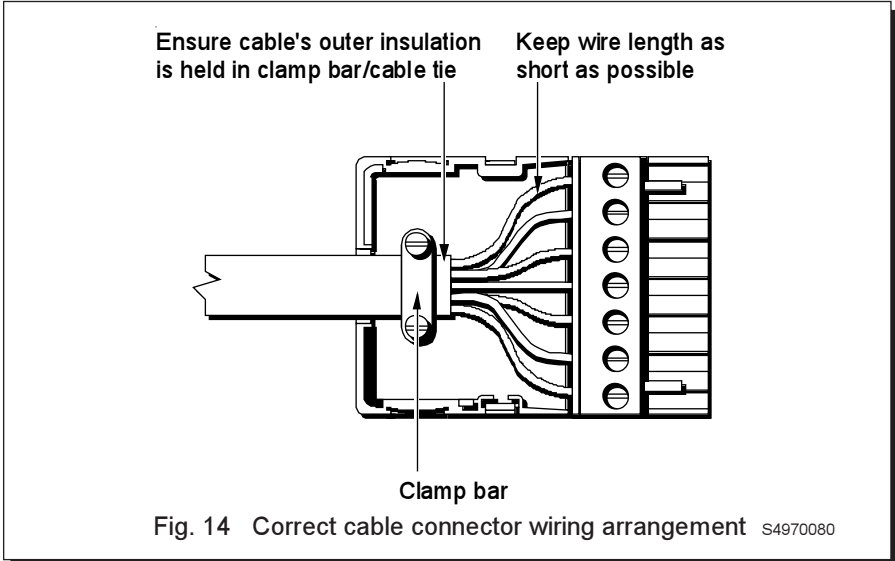
Fig. 11 Thermometer to thermocouple transmitter cable connection schedule

S4970078b

**2.2.6 Serial communications output connection schedule**

The RS 485 and RS 232 optional serial communications output connection schedules are given in Fig. 13.

For interconnection details of any further options for the Landmark Graphic Processor (e.g. Math function), refer to the User Guide supplied with the particular option.



## 2.3 Cable Connector Assembly

The cable connectors for the rear panel of the processor are included in the processor package. Each cable connector must be correctly wired with the appropriate cable before the processor is used (Refer to Section 2.2 for the cable schedules). A 'write on' label is included in the connector for your use.

To wire up the connector.

- (i) Make a note of the connector's orientation in the rear panel of the processor.
- (ii) Unclip the two halves of the connector shell to reveal the terminal block and the cable tie/clamp bar.
- (iii) Wire up the connector, remembering the correct orientation of the plug, in accordance with the relevant cable schedule (see Section 2.2).

---

### NOTE

Keep wire length as short as possible.

---

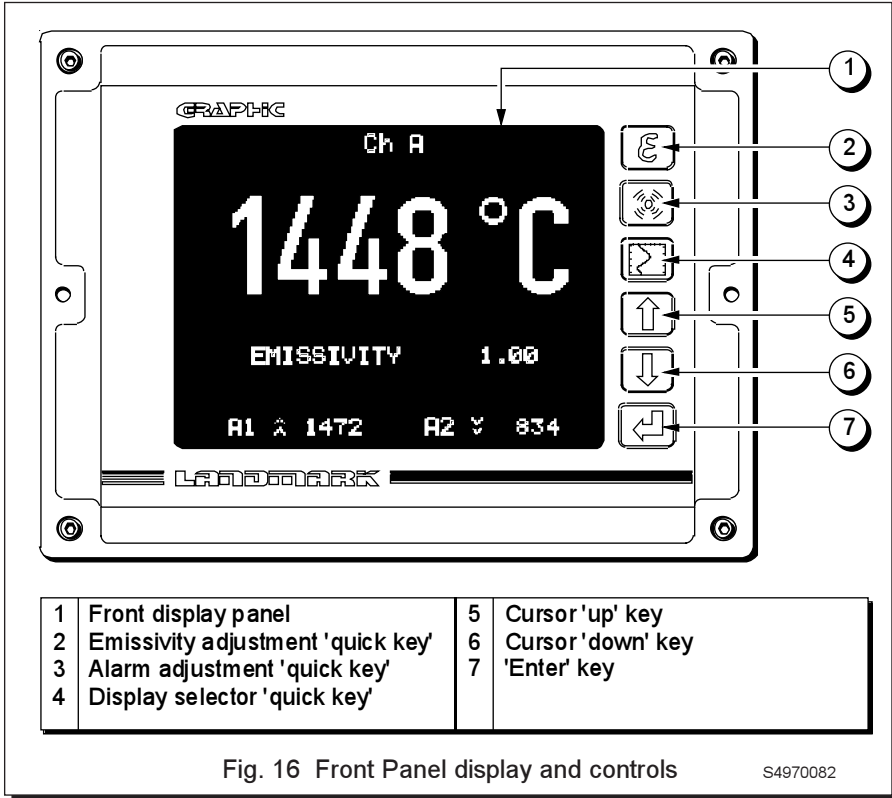
- (iii) Ensure that the cable outer insulation is held in the clamp bar/cable tie at the connector and tighten the clamp bar screws/cable tie. Refer to Fig. 14.
- (iv) Clip together the two halves of the connector shell ensuring that the 'write-on' label is held in place by the shell assembly.

The connector is now ready for use.

## 2.4 a.c. Power Input Plug

A rewirable a.c. power input plug is supplied with the processor, which will accept any mating IEC connection. The plug complies with BS 4491 - EN60 320.

The wiring schedule of the plug assembly is shown in Fig.15.

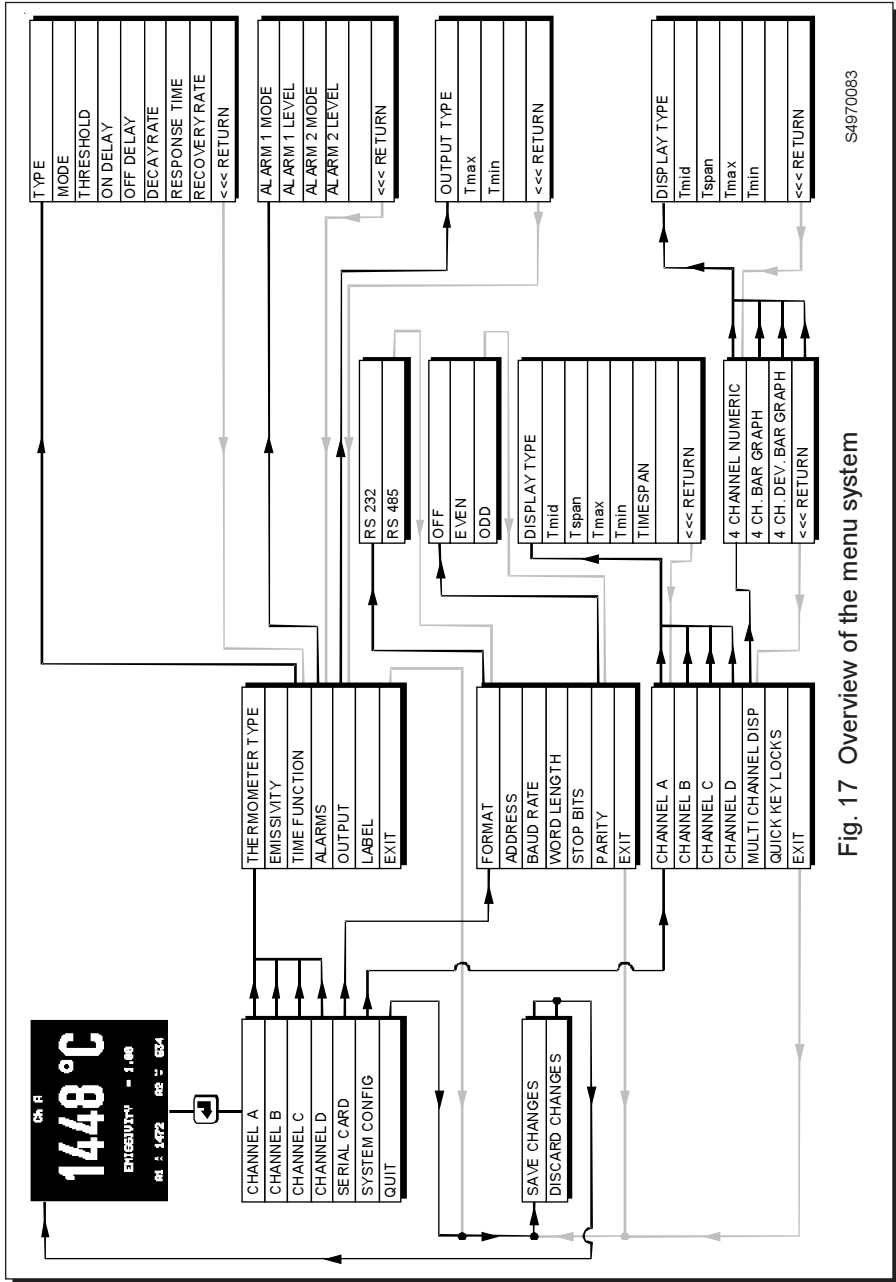


### 3.0 USING THE PROCESSOR

Once the processor has been installed in its chosen location, it must be connected to the System 4 thermometer(s) and to a suitable a.c. power supply.

Ensure that the supply voltage setting switch, on the rear panel of the processor, is set to correspond with your local power supply.

When the processor is first connected to a System 4 thermometer, the processor must be configured for use with that thermometer. Electrical connections to and from the processor are made on the rear panel. The temperature measurement system (i.e. processor and thermometer) is configured, via the processor's menu system, using the keys on the front panel. The location of the processor controls is given in Fig. 16. An overview of the menu system is given in Fig. 17.



S4970083

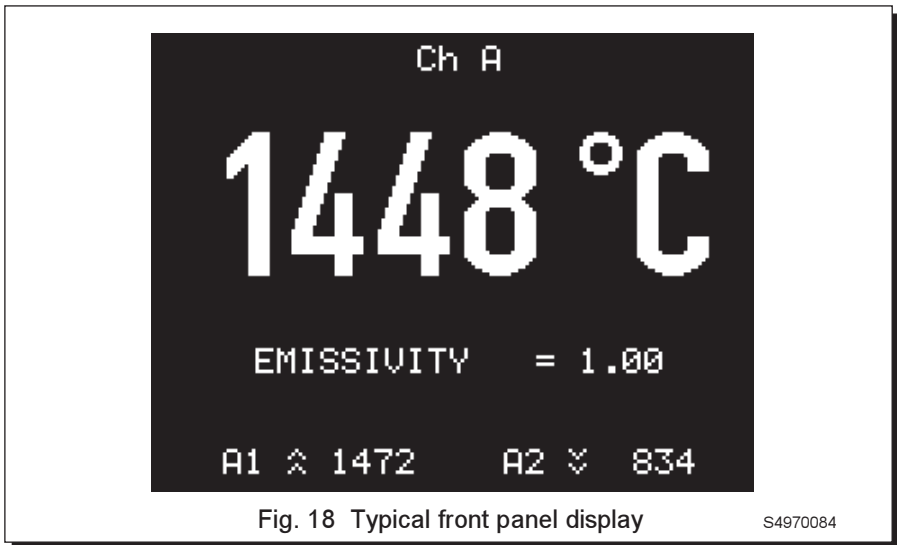
Fig. 17 Overview of the menu system

### 3.1 Getting Started (accessing the menu system)

When the Landmark Graphic processor is first connected to a System 4 thermometer and a suitable power supply, the processor display will be similar to that shown in Fig. 18.

To access the configuration menus, and set up your system to your particular requirements, press the **↵ ENTER** key.

The processor display will now be similar to that shown in Fig. 19. A 'Help' bar is displayed below each menu, explaining the function of the **▲ UP**, **▼ DOWN** and **↵ ENTER** keys for that specific menu.



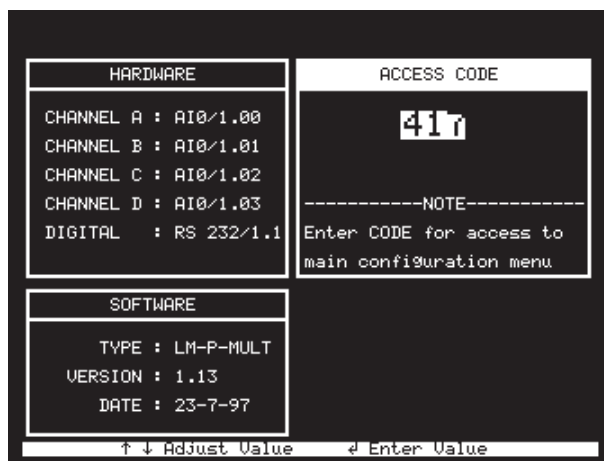


Fig. 19 Access code display

S4970085



Fig. 20 Main Configuration Menu

S4970086

The processor requires an 'access code' to be entered before it allows you into the configuration menus.

Use the **UP** and **DOWN** keys to change the displayed access code value to **417**.

Press the **ENTER** key. The Main Configuration Menu will now be displayed. See Fig. 20.

---

**NOTE**

A 'Time-out' feature returns you to the original screen (see Fig. 18) if 60 seconds elapse without a key being pressed. If this occurs, the access code must be re-entered in order to regain access to the configuration menus.

---

Fig. 20 shows the Main Configuration Menu for a processor connected to four thermometers and fitted with a serial communications card. Your system may differ from this.

To select an item to configure, use the **UP** and **DOWN** keys to move the ► cursor to the required item.

Press the **ENTER** key.

The Configuration Menu for the item you selected from the Main Configuration Menu will now be displayed. Fig. 21 shows the Channel A Configuration Menu.

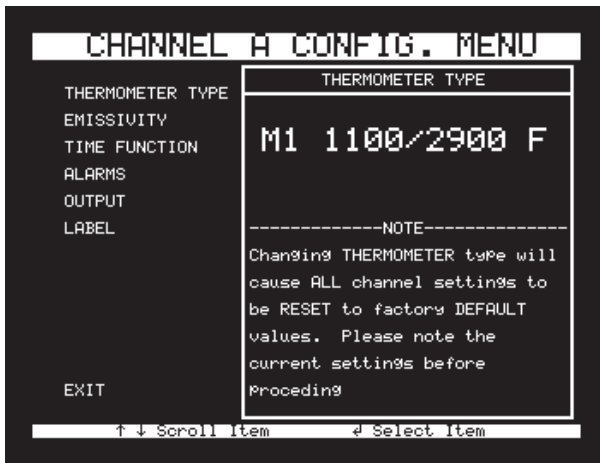
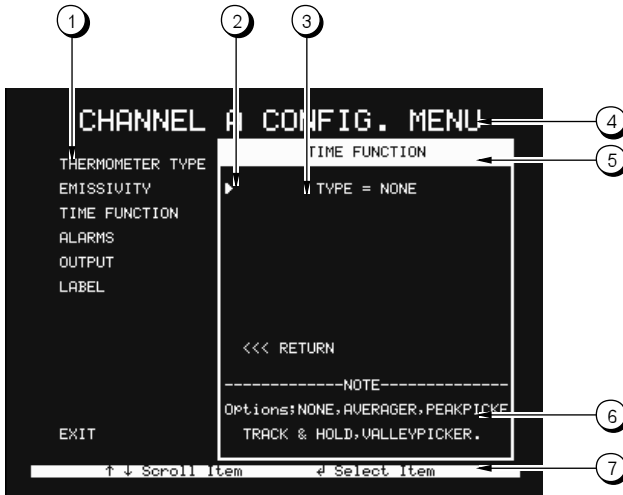


Fig. 21 Channel A Configuration Menu

S4970087



1	Main menu	5	Active title bar (white background)
2	Cursor	6	Note area (shows available options)
3	Sub-menu	7	Help Bar
4	Inactive title bar (blue background)		

Fig. 22 Configuration Menu components

S4970088

### 3.2 About the Menu System

Each Configuration Menu comprises the components shown in Fig. 22.

The function of each component of the menu is as follows.

Main Menu	This shows the items that can be altered in the Configuration Menu.
Sub Menu	This shows the list of options available for each main item in the Configuration Menu.
Active Menu	Denoted by blue text on a white title bar.
Inactive Menu	Denoted by white text on a blue title bar.
Cursor	When the cursor is a ►, use the <b>UP</b> and <b>DOWN</b> keys to scroll up and down menus.  When the cursor is a <b>BLOCK</b> , use the <b>UP</b> and <b>DOWN</b> keys to change the displayed value or to select another available option.
Help Bar	Gives the function of the <b>UP</b> , <b>DOWN</b> and <b>ENTER</b> keys for the particular menu displayed.

### 3.3 Configuring Items in the Menu System

- (i) To select an item from the Main Menu use the **UP** and **DOWN** keys to move the ► cursor to the required item.
- (ii) Press the **ENTER** key.

The sub-menu relating to the item selected from the main menu is activated.

If there is only one item that can be changed in the sub-menu the cursor becomes a **BLOCK**.

If there is more than one available item to be changed in the sub-menu the cursor becomes a ► at the top of the list of selectable items.

- (iii) Use the **UP** and **DOWN** keys to select the required item and press the **ENTER** key.

The NOTE area, at the bottom of the sub-menu, gives the range of available settings for the selected item.

- (iv) The cursor will now become a **BLOCK**. Use the **UP** and **DOWN** keys to select the required value/option for the selected item.

---

#### NOTE

In the 'LABEL' sub-menu, a Japanese set of characters is present in each of the other language character sets (e.g. English or German). These can be scrolled through and selected if required.

---

- (v) Press the **ENTER** key.

If there is only one item that can be changed in the sub-menu, pressing the **ENTER** key de-activates the sub-menu and moves the **▶** cursor to the most recently selected item in the Main Menu.

If there is more than one item that can be changed in the sub-menu, pressing the **ENTER** key reverts the cursor back to a **▶** next to the most recently changed item.

- (vi) To exit a sub-menu containing more than one variable, use the **UP** and **DOWN** keys to move the **▶** cursor to the **<<< RETURN** option and press the **ENTER** key.

The cursor then reverts to a **▶** next to the most recently selected item in the Configuration Menu.

- (vii) To exit the Configuration Menu use the **UP** and **DOWN** keys to move the **▶** cursor to the **EXIT** option and press the **ENTER** key.

The **EXIT** sub-menu is displayed and you are given the choice of either saving or discarding any changes you have made to the system configuration.

- (viii) Use the **UP** and **DOWN** keys to move the **▶** cursor to either the **SAVE CHANGES** or the **DISCARD CHANGES** option and press the **ENTER** key.

The display now reverts to the Main Configuration Menu.

- (ix) To exit the Main Configuration Menu, use the **UP** and **DOWN** keys to move the **▶** cursor to the **QUIT** option and press the **ENTER** key.

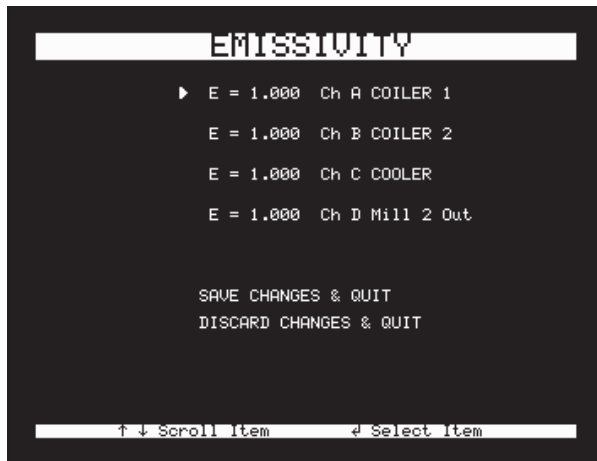


Fig. 23 Emissivity Menu

S4980290

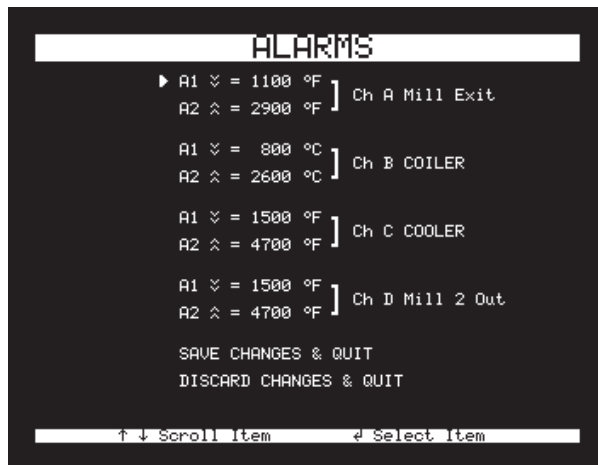



Fig. 24 Alarms Menu

S4970090

### 3.4 Using the 'Quick' Keys

The 'quick' keys, on the processor front panel, provide immediate access to the parameters which are changed most frequently.

#### 3.4.1 Emissivity quick key

Pressing the  key opens up the Emissivity menu (See Fig. 23).


---

#### NOTE


The user should note that for emissivity set in the range 0.05 to 0.19, system performance is unspecified and is not guaranteed.

---

#### 3.4.2 Alarm quick key

Pressing the  key opens up the Alarm menu (See Fig. 24).

#### 3.4.3 Display quick key

Pressing the  key opens up the Display menu (See Fig. 25).

---

#### NOTE

The function of each quick key can be locked. i.e. pressing the quick key accesses the relevant menu, but adjustment of the settings is prevented. This feature is useful in preventing inadvertent or mischevous altering of system settings. The quick key locks are accessed via the main configuration menu

---

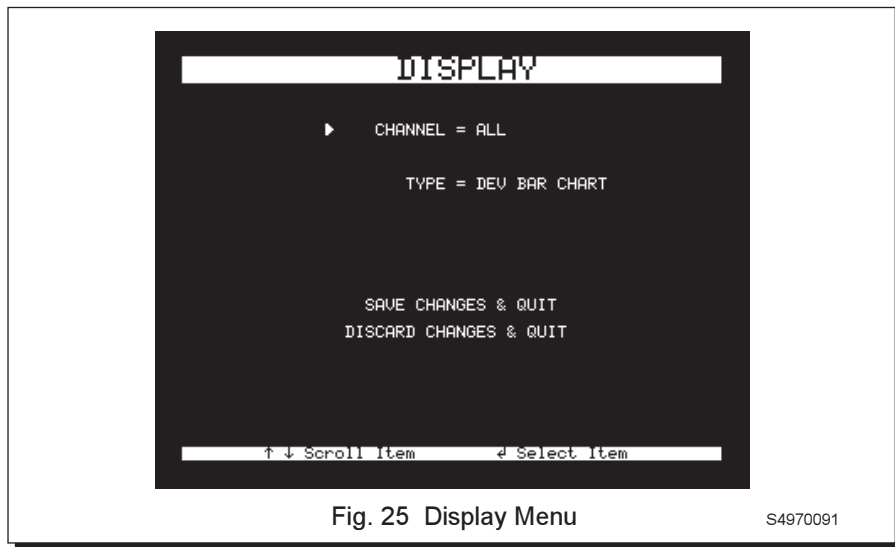


Fig. 25 Display Menu

S4970091

## 4.0 TIME FUNCTION PROCESSING

### 4.1 Peak Picker

The Peak Picker function can be used to monitor the highest temperature measured by the thermometer. This feature is useful especially for moving targets and/or where the target is obscured partially e.g. a steel slab on a rolling mill where parts of the surface are covered with scale. The 'clean' area will be at the higher (i.e. true) temperature. The Peak Picker used in Landmark Graphic processors has the following features.

**Threshold level**      Temperature above which the Peak Picker is active, used in conjunction with the ON and OFF delay.

**ON delay**              Time period between the temperature rising above the threshold level and the Peak Picker function switching on.

**OFF delay**             Time period between the temperature falling below the threshold level and the Peak Picker function switching off.

In 'Hold' mode, at the end of the 'OFF' delay, the temperature output value is held constant until the temperature input next rises above the threshold level.

In 'Reset' mode, at the end of the 'OFF' delay, the temperature output signal falls to 'under-range' until the temperature input next rises above the threshold level.

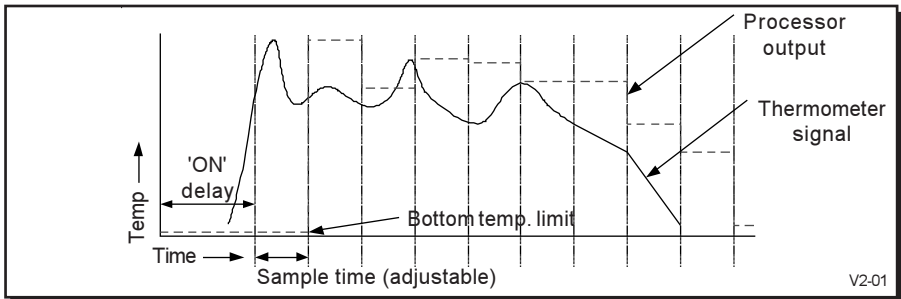
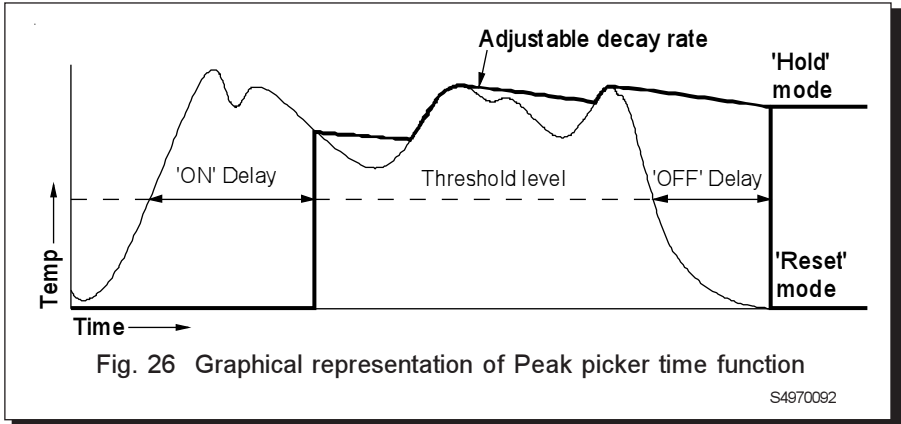
In 'Sample' mode the peak picker samples for a pre-defined period, then outputs this value.

In 'Peak Sample' mode, the temperature is sampled in pre-defined intervals and outputs the peak value of the most recent interval.

**Decay rate**            A user-adjustable value at which the stored temperature output signal decays.

The Peak Picker function can be reset via the CMD (Command) input. The CMD input connections and operation is shown in Fig. 7 and Fig. 8.

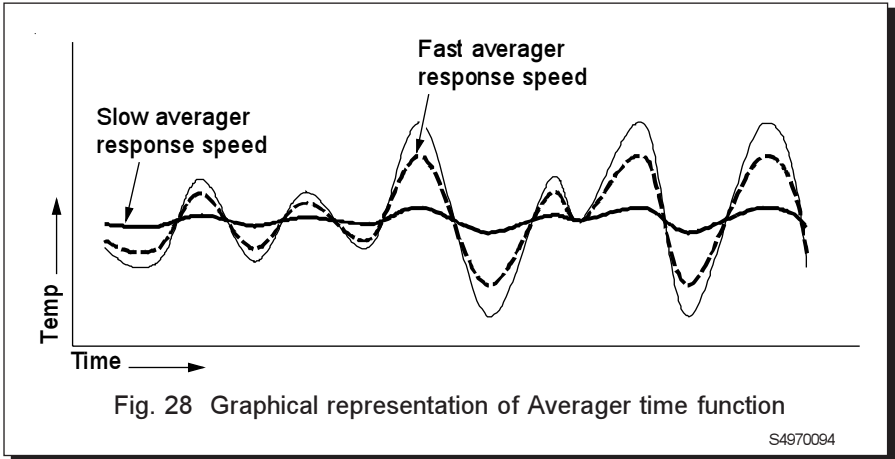
For typical Peak Picker and Peak Sampler responses, see Fig. 26 and Fig. 42 respectively.





4.3 Averager

Refer to Fig. 28. The Averager time function can be used to 'smooth' the temperature output signal in relation to the temperature input. The averager response can be adjusted to suit your application. With a fast response speed, the temperature output signal tracks the input signal closely, any rapid fluctuations in the input are reflected in the output. With a slow response speed, the temperature output signal is much smoother, displaying more the 'trend' of the input signal rather than rapid changes.



4.4 Valley Picker

Refer to Fig. 41. This function is the inverse of the peak picker. It allows the operator to find the minimum peak value instead of the largest peak value.

- Threshold level: Temperature below which the Valey Picker is active, used in conjunction with on/off delays.
- ON/OFF delay: See Peak Picker.
- Recovery rate: A user adjustable rate at which the stored temperature recovers.

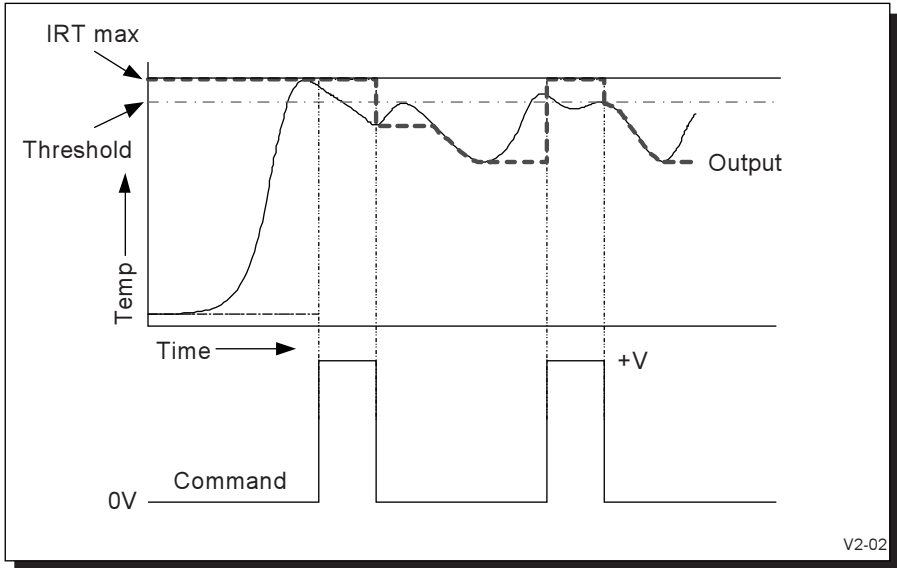


Fig. 41 Typical output of Valley Picker function

**5.0 LANGUAGE SELECTION**

The Landmark Graphic processor can be set up to display text in either English, German, Italian, French, Spanish or Japanese. The processor is supplied set up to display in English.

Changing the language setting involves removal of the back panel, therefore it is recommended that the language is selected before installing the processor in a panel.

- (i) To change the language setting, first unscrew the six screws on the back panel of the processor. Refer to Fig. 10.
- (ii) If a serial communications board is fitted, remove it.
- (iii) Remove the power supply assembly (on right hand side) and slide out as many of the thermometer channel boards as necessary to gain access to the language selector switch.

The language selector switch, on the rear of the front panel assembly, is now revealed. See Fig. 30.

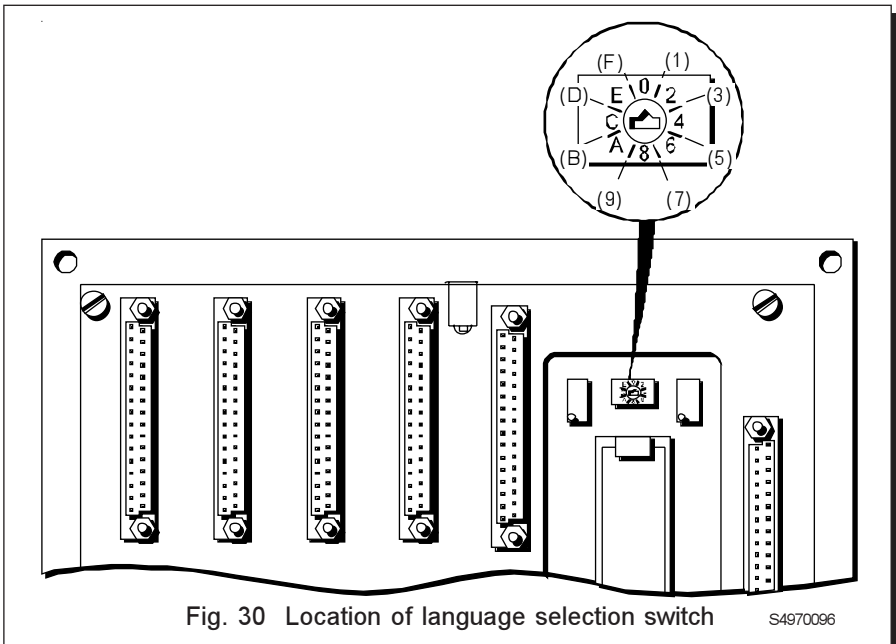


Fig. 30 Location of language selection switch

S4970096

- (iv) Use a small bladed screwdriver to turn the switch to the required setting.

The table of available language settings is given in Fig. 31.

---

**NOTE**

A Japanese set of characters is present in each of the other language character sets (e.g. English or German). These can be scrolled through and selected if required.

---

- (iv) Insert the power supply board (on right hand side) and replace any thermometer channel board(s) in the correct slots in the processor.
- (v) If a serial communications card was fitted in your processor, refit it.
- (vi) Insert, and tighten, the six screws in the back panel of the processor. Refer to Fig. 10.

Language Selection					
0	English	6	English	C	English
1	German	7	English	D	English
2	Italian	8	English	E	English
3	French	9	English	F	English
4	Spanish	A	English		
5	Japanese	B	English		

Fig. 31 Language selector options

S4970097

## 6.0 MAINTENANCE

The Landmark Graphic processor is designed to be virtually maintenance free.

The maximum recommended period between calibration checks is one year.

APPENDIX A DISPLAY MODES

This section contains samples of the screens most commonly displayed by the Landmark Graphic Processor.

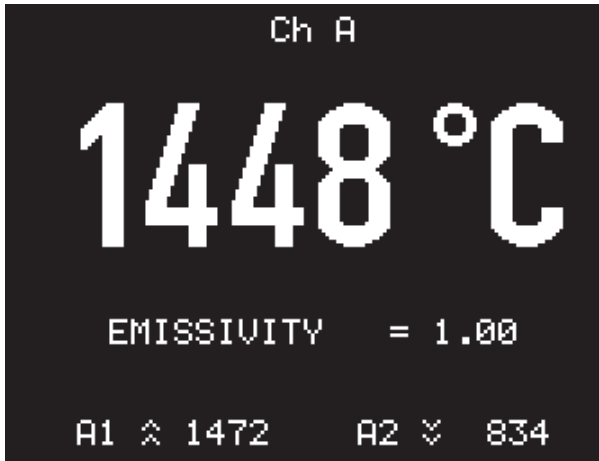


Fig. 32 Typical 'Numeric' display

S4970098

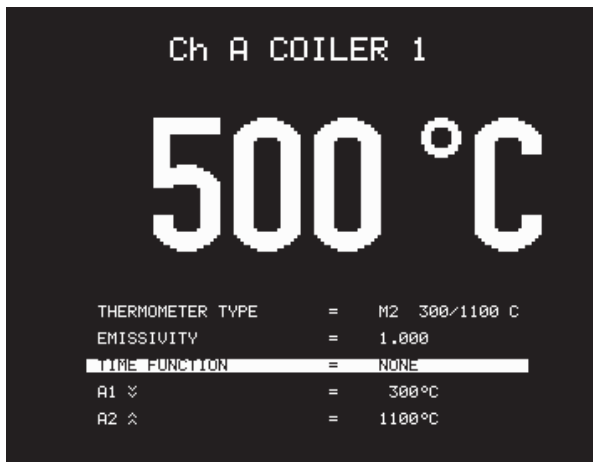


Fig. 33 Typical 'Mixed' display

S4980291

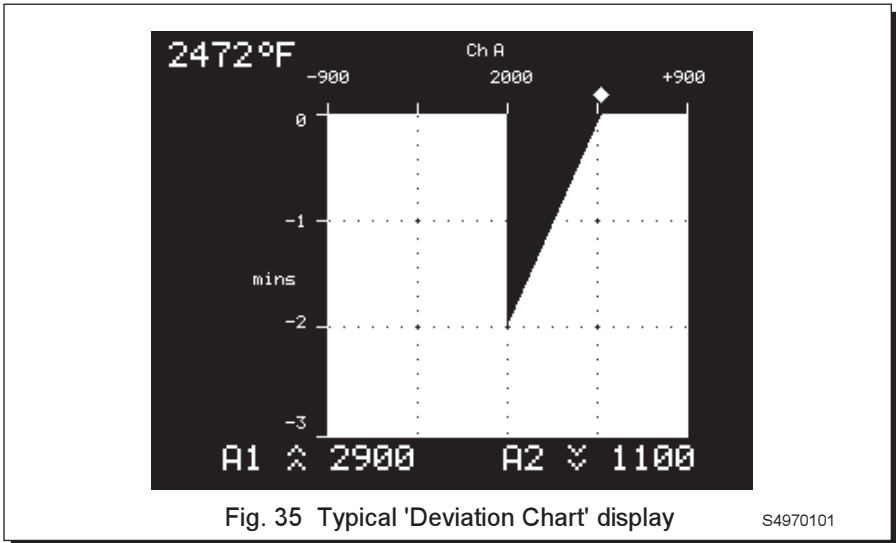
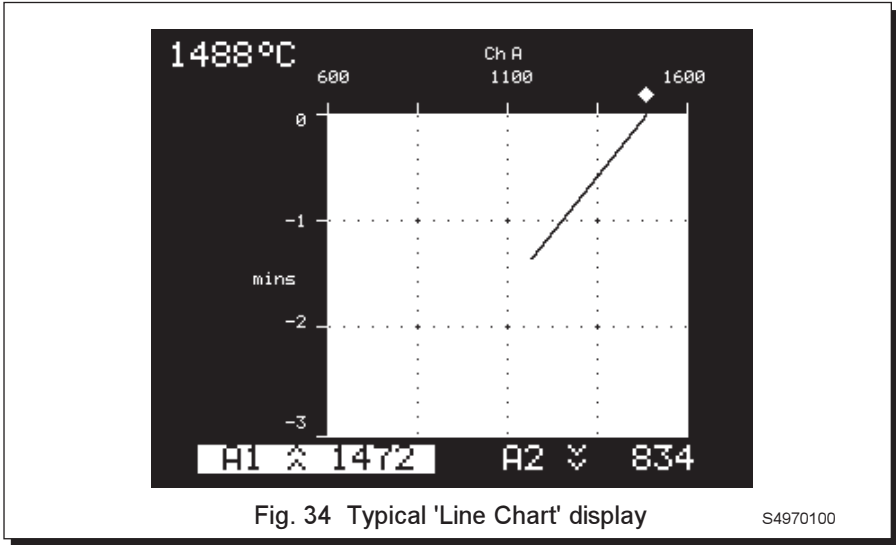




Fig. 36 Typical '4 Channel Numeric' display

S4970102

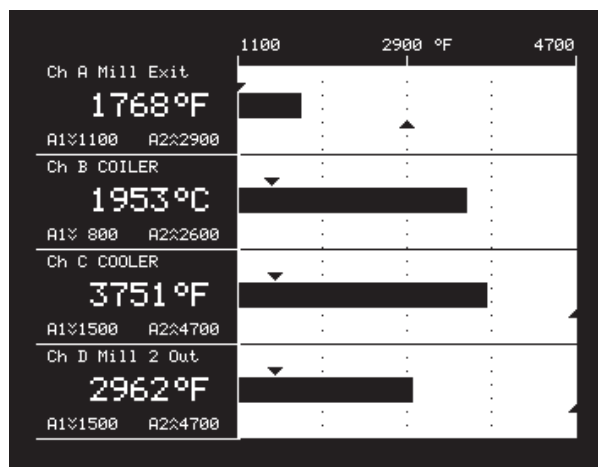


Fig. 37 Typical '4 Channel Bar Graph' display

S4970103

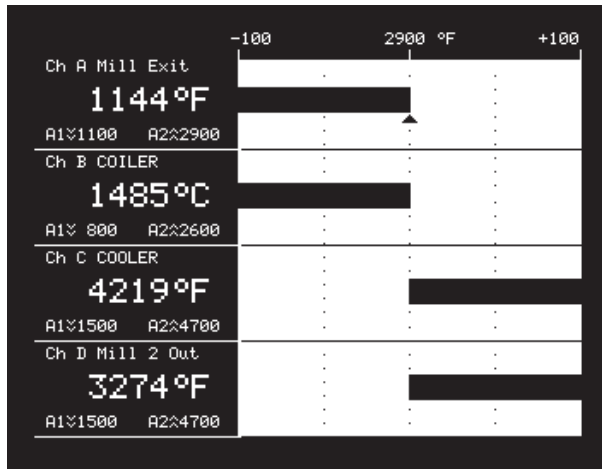


Fig. 38 Typical '4 Channel Deviation Bar Graph' display<sup>S4970104</sup>

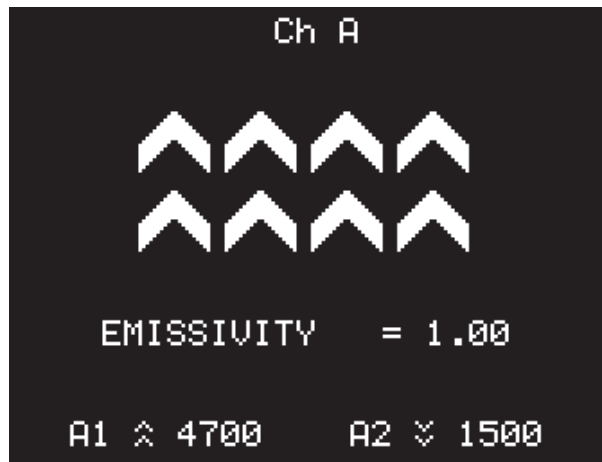


Fig. 39 Typical 'Over-Range' display

<sup>S4970105</sup>

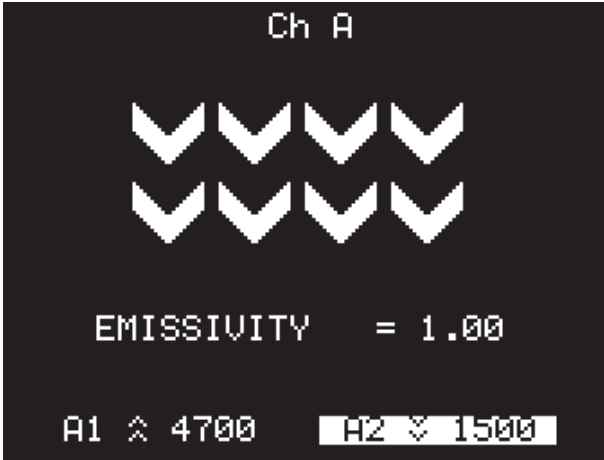


Fig. 40 Typical 'Under-Range' display

S4970106

## Index

Alarm 'Quick' key	3.4.2	Processor	
Averager	4.3	<i>about</i>	1.2
Cable		<i>configuration</i>	3.3
<i>alarm</i>	2.2.1	<i>connections</i>	2.2
<i>command (CMD)</i>	2.2.2	<i>controls</i>	3.1
<i>connector assembly</i>	2.3	<i>dimensions</i>	2.0
<i>power input</i>	2.4	<i>front panel</i>	3.0
<i>retransmission o/p</i>	2.2.3	<i>installation</i>	2.0
<i>thermometer</i>	2.2.4	<i>language selection</i>	5.0
Dimensions	2.0	<i>maintenance</i>	6.0
Display		<i>menu system</i>	3.0
<i>front panel</i>	3.0	<i>power input</i>	2.4
'iQuick' key	3.4.3	<i>specifications</i>	1.4
Electrical connections	2.2	<i>time functions</i>	4.0
Emissivity 'Quick' key	3.4.1	<i>unpacking</i>	1.5
Front panel	3.0	<i>using</i>	3.0
Installation		Quick keys	
<i>dimensions</i>	2.0	<i>Alarm</i>	3.4.1
<i>processor</i>	2.1	<i>Display</i>	3.4.3
Language selection	5.0	<i>Emissivity</i>	3.4.2
Maintenance	6.0	Retransmission output	2.2, 2.2.3
Menu system		Specifications	1.5
<i>about</i>	3.2	System 4	
<i>accessing</i>	3.1	<i>about</i>	1.3
<i>configuration</i>	3.3	Time function processing	
<i>overview</i>	3.0	<i>averager</i>	4.3
Panel mounting	2.1	<i>peak picker</i>	4.1
Peak picker	4.1	<i>track and hold</i>	4.2
Peak sample	4.1	Track and hold	4.2
Power input	2.4	Up scale/Down scale selector	2.2, 2.2.3
		Valley picker	4.4

