LAND
instruments international

SYSTEM4

LANDMARK GRAPHIC

User Guide

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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

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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.

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QUALITY ASSURANCE

SAFETY INFORMATION

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PREFACE

Fig. 1 Landmark Graphic Processor

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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**
Accuracy	±0.12% of reading
Stability (Temp.)	0.01% of span/°
Discrimination	0.015% of full scale
Input update	2.5ms
Display	Cold cathode, back lit, 320 x 240 pixels
Display update	0.5s
Screens	Numeric, line chart, deviation chart, mixed, 4 channel numeric, 4 channel bar graph, 4 channel deviation bar graph
Line/Deviation chart ranges	5° steps, 200° min span, setable
Bar graph ranges	5° steps, 200° min span, setable
Time span	3, 12, 30, 90, 270 mins
User label	Up to 10 characters
Outputs	1mV/° and 0 to 20 or 4 to 20mA selectable 50° steps, 100° min span
Output update	10ms
Emissivity	0.050 to 1.000 in 0.001steps **(Note: below 0.200, system operation is unspecified and is not guaranteed)**
Non greyness	0.800 to 1.250 in 0.001 steps
Peak Picker	Reset, hold or peak sample, selectable
Threshold	1°steps, setable
On delay	0 to 10s in 0.1s steps
Off delay	0 to 10s in 0.1s steps
Decay rate	0, 0.25, 0.5, 1, 2, 4, 8, 16, 32, 64, 128, 256, 512°/s
Acquisition time	10ms
Valley Picker	Reset, hold or valley sample, selectable
Threshold	1° steps, setable
On delay	0 to 10s in 0.1s steps
Off delay	0 to 10s in 0.1s steps
Recovery rate	0, 0.25, 0.5, 1, 2, 4, 8, 16, 32, 64, 128, 256, 512°/s
Acquisition time	10ms
Interval	10 to 250s in 1s steps
Averager	
Time constant	0, 0.25, 0.5, 1, 2, 4, 8, 16, 32, 64, 128, 256, 512s
Track and Hold	
Control signal	5 to 24V d.c. or switch/relay contacts
Response time	10ms
Alarms	High or low, setable
Trip leve	1° steps, setable
Relay contact rating	50V a.c. or d.c. at 0.5A
Update	10ms
Hysteresis	3°
Power requirement	110 to 120V a.c. or 220 to 240V a.c. 48 to 63 Hz, 35VA (290VA max. with 4 thermometers)
Ambient operating temp	5 to 50°C / 40 to 120°F (specified) 5 to 60°C / 40 to 140°F (max. operating)
Sealing	To IP65/NEMA 4 with protection cover fitted
Humidity	0 to 99% non condensing
Vibration	1g Any axis 10 to 300Hz
C E	EN 50-082-2 (immunity), EN 50-081-1(emission), IEC 1010 (Safety)

1.5 2-sensor System Specification

Primary sensor:	FTS 500/2000C	FTS 900/3600F
Secondary sensor:	FTS 500/2000C (permits background compensated measurements to 2000°C/3600°F)	FTS 900/3600F
or:	Type R or Type S zone themocouples (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 1mV/°	
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.

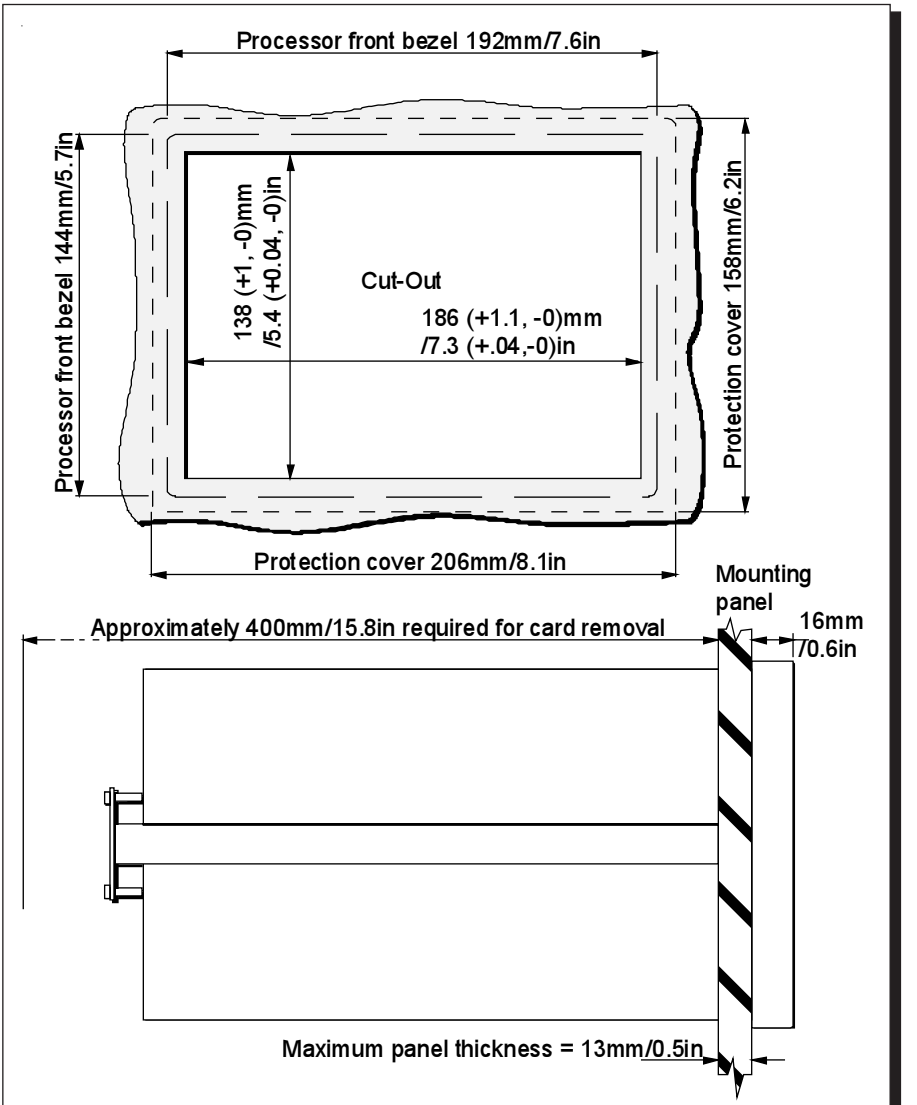


Fig. 2 Processor installation dimensions

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.

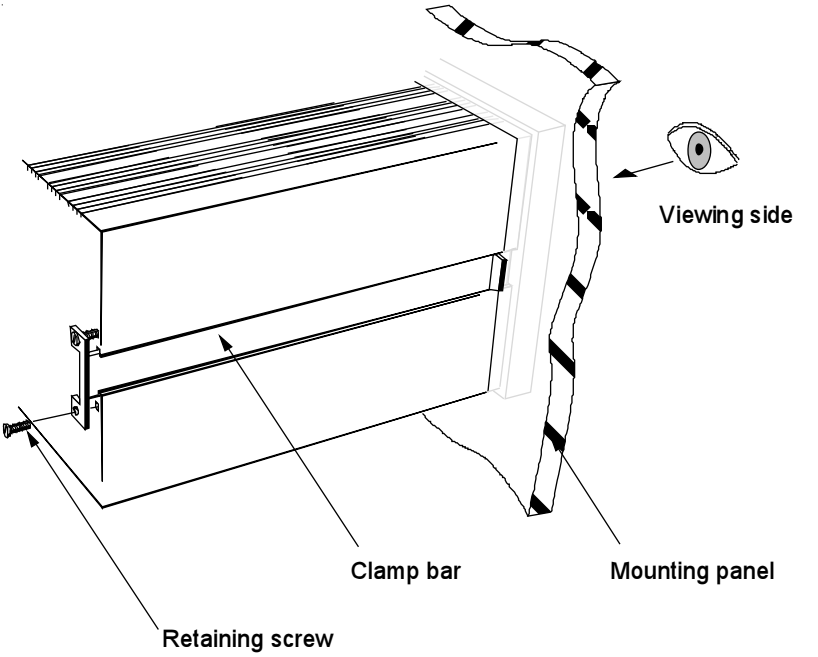


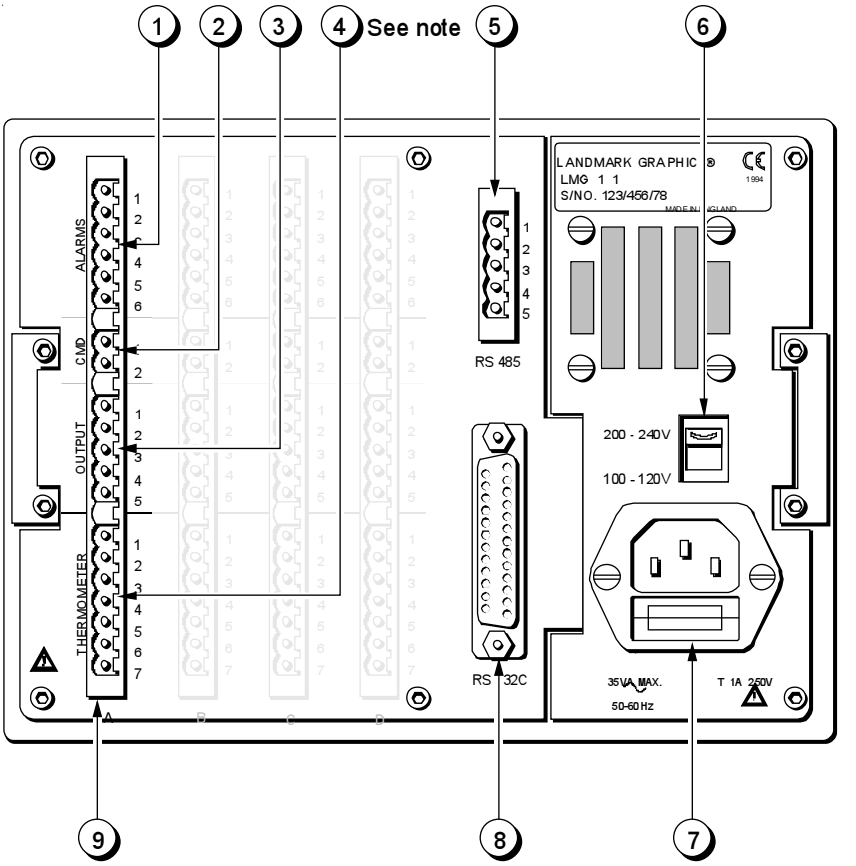
Fig. 3 Mounting the processor in a panel S4970071

(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 Nº	Function	Description	
1	C	Common	Alarm 1
2	NO	Normally Open	
3	NC	Normally Closed	
4	C	Common	Alarm 2
5	NO	Normally Open	
6	NC	Normally Closed	

Fig. 5 'Alarm' cable connection schedule S4970073

CMD (Command) input

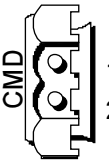
Pin Nº	Function	Description
 1	CMD+	Command input drive
2	CMD-	Command input return

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

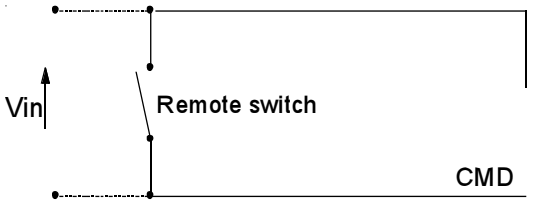
Each alarm is designed to be 'fail-safe'. i.e. if there is a loss of power to the processor, the alarms will remain in an activated state until the power supply is restored.

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.

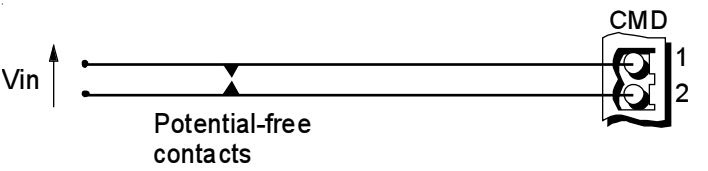


	Peak Picker	Track & Hold	Valley Picker
Switch Open	Peak Pick	Track	Valley Pick
Switch Closed	Reset	Hold	Reset

Note

Remote switch can be replicated by voltage Vin. Where:
>+3.0V = Switch open
<+1.5V = Switch closed

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



	Peak Picker	Track & Hold	Valley Picker
Open Circuit	Peak Pick	Track	Valley Pick
Short Circuit	Reset	Hold	Reset

Note
Potential-free contacts can be replicated by voltage Vin.
Where:
>+3.0V = Open Circuit
<+1.5V = Short Circuit

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.

Output (Retransmission output)

Pin N°	Function	Description	Load
1	I +	Current output drive	Maximum loop
2	I -	Current output return	resistance: 500Ω
3	Screen	Screen	
4	V +	Voltage output drive	Minimum load
5	V -	Voltage output return	resistance: 10kΩ

OUTPUT

Fig. 9 Retransmission 'Output' cable connection schedule S4970075

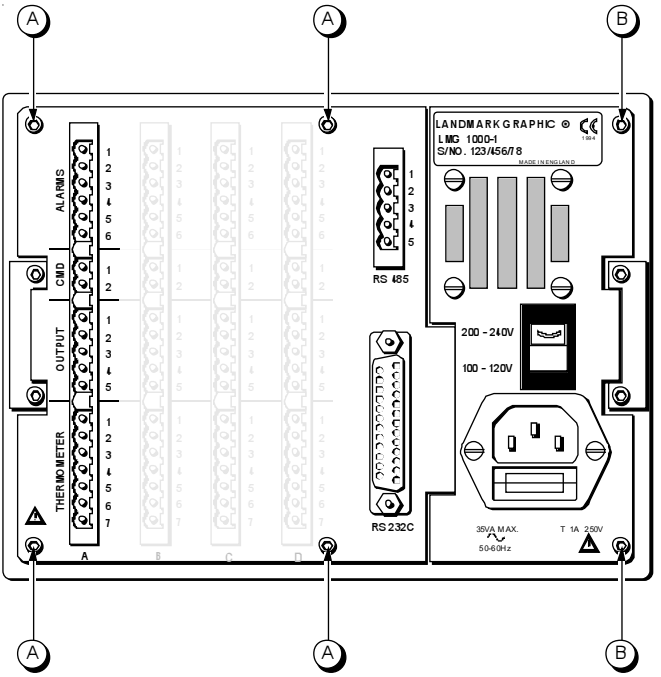


Fig. 10 Location of screws on back panel S4970076

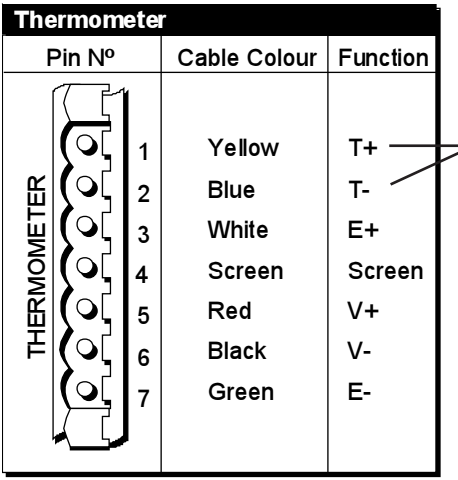


Fig. 12 Thermometer cable connection schedule S4970078a

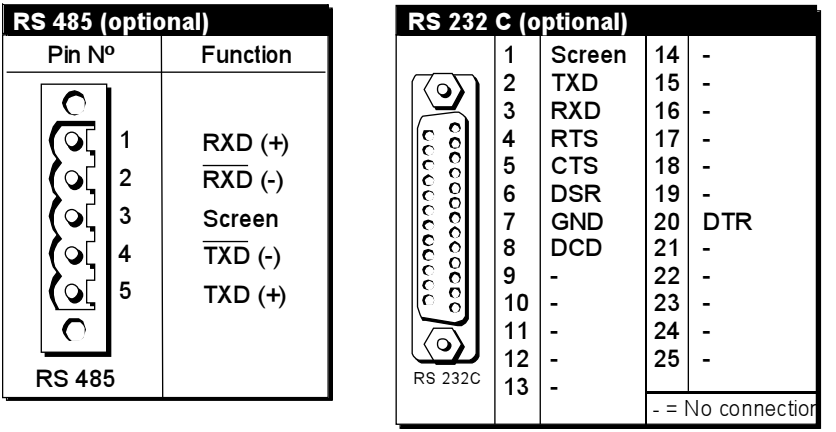


Fig. 13 Serial communications cable connection schedules

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

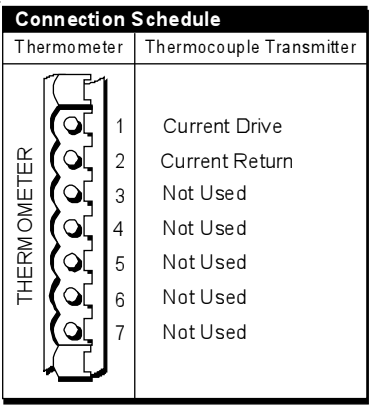


Fig. 11 Thermometer to thermocouple transmitter cable connection schedule

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.

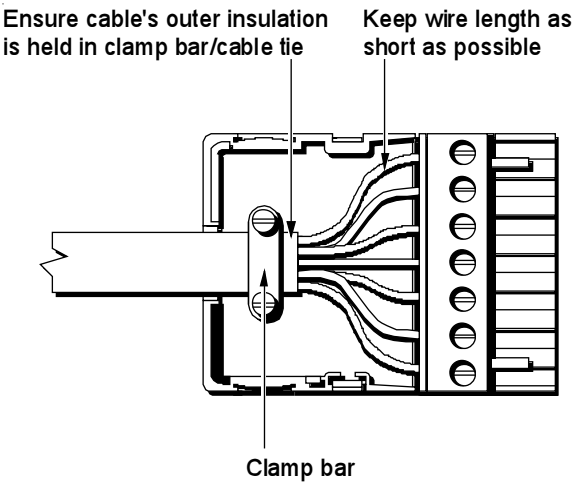


Fig. 14 Correct cable connector wiring arrangement S4970080

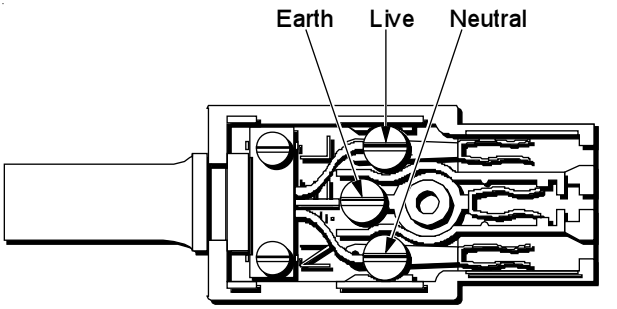


Fig. 15 A.C. power input plug wiring schedule S4970081

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.

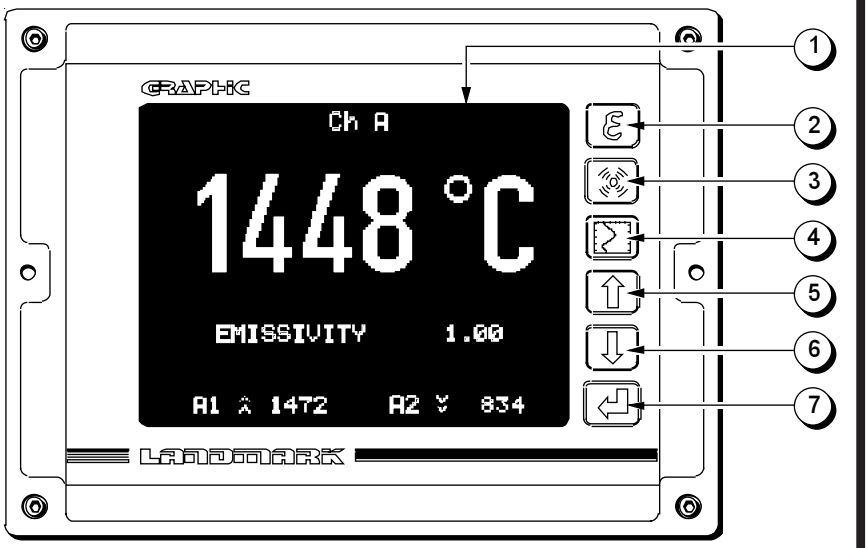
(iv) Clip together the two halves of the connector shell ensuring that the 'write-on' label is held in place by the shell assembly.

The connector is now ready for use.

2.4 a.c. Power Input Plug

A rewireable 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.



1	Front display panel	5	Cursor 'up' key
2	Emissivity adjustment 'quick key'	6	Cursor 'down' key
3	Alarm adjustment 'quick key'	7	'Enter' key
4	Display selector 'quick key'		

Fig. 16 Front Panel display and controls S4970082

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.

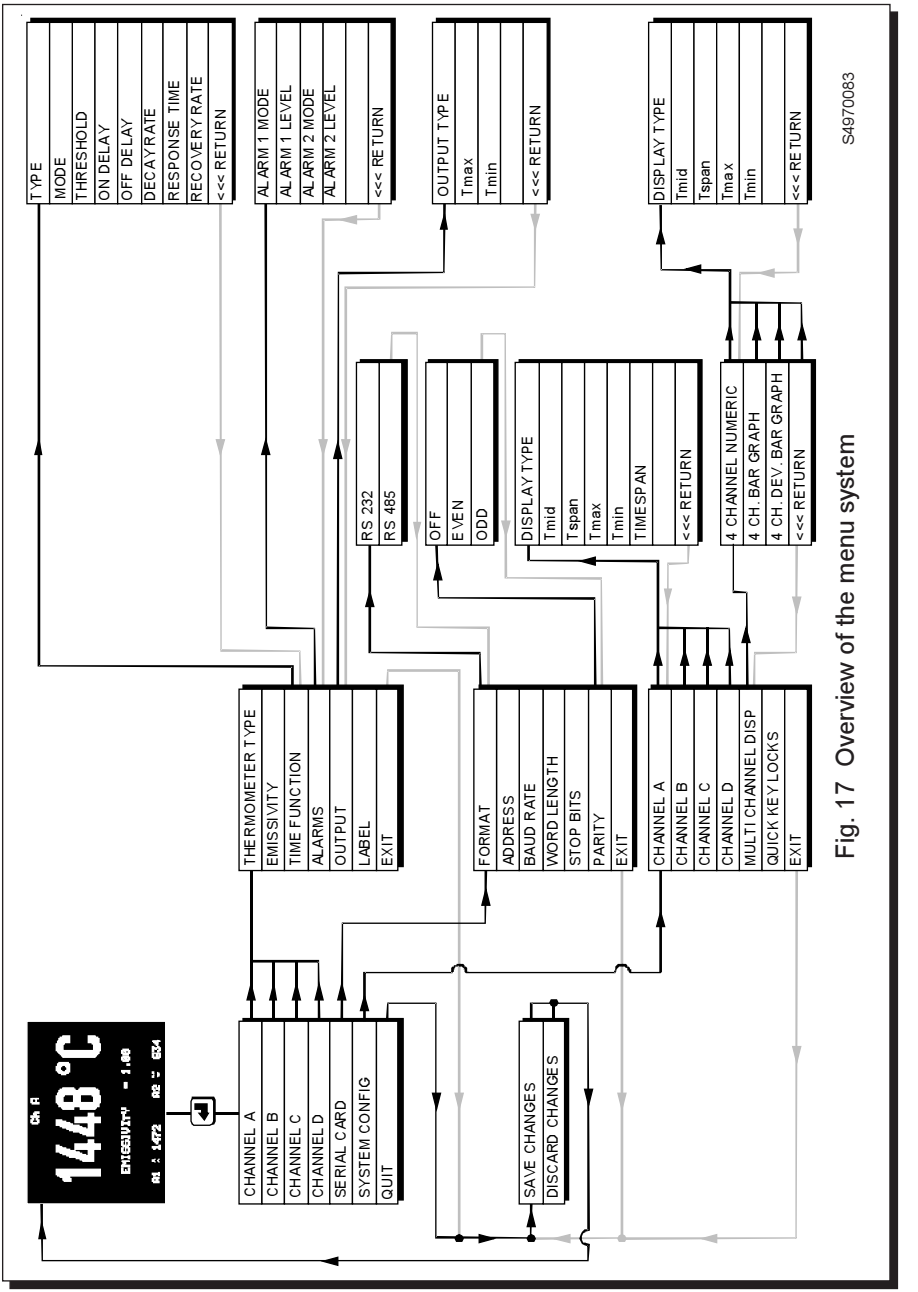


Fig. 17 Overview of the menu system

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.

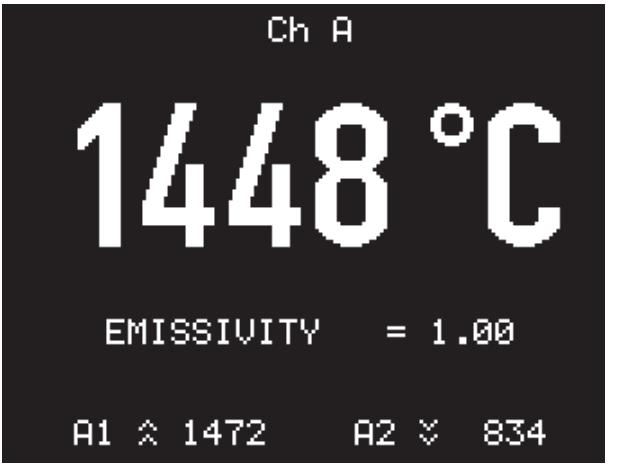


Fig. 18 Typical front panel display S4970084

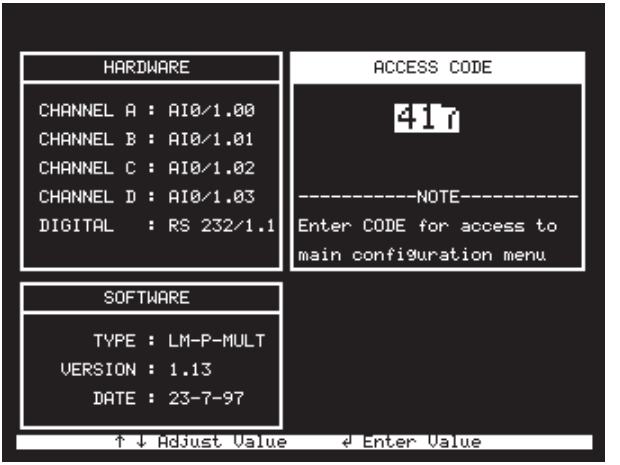


Fig. 19 Access code display S4970085

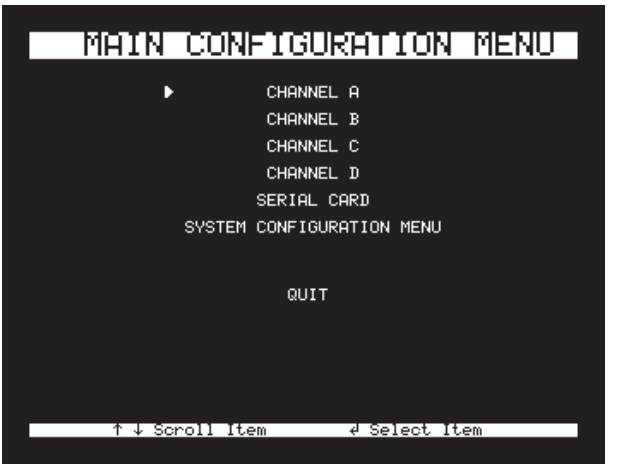


Fig. 20 Main Configuration Menu S4970086

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.

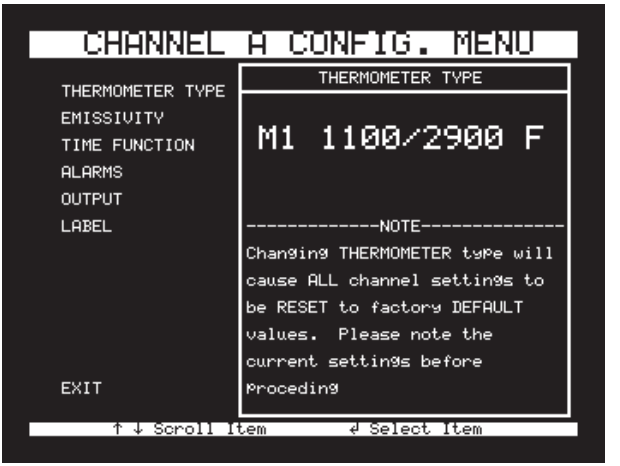
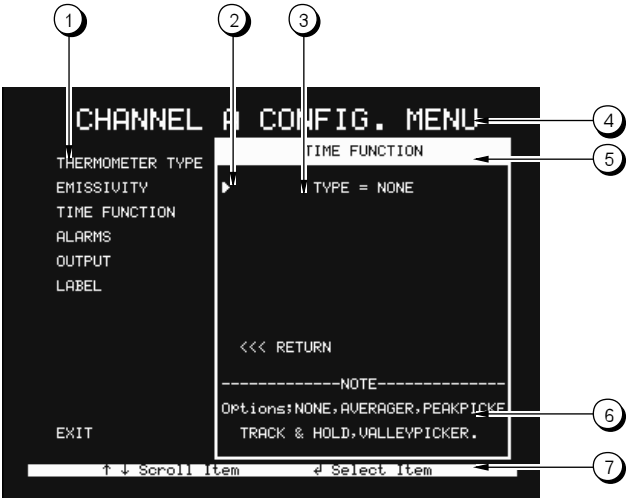


Fig. 21 Channel A Configuration Menu S4970087



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 **UP** and **DOWN** keys to scroll up and down menus. When the cursor is a BLOCK, use the **UP** and **DOWN** keys to change the displayed value or to select another available option.
Help Bar	Gives the function of the **UP**, **DOWN** and **ENTER** 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.

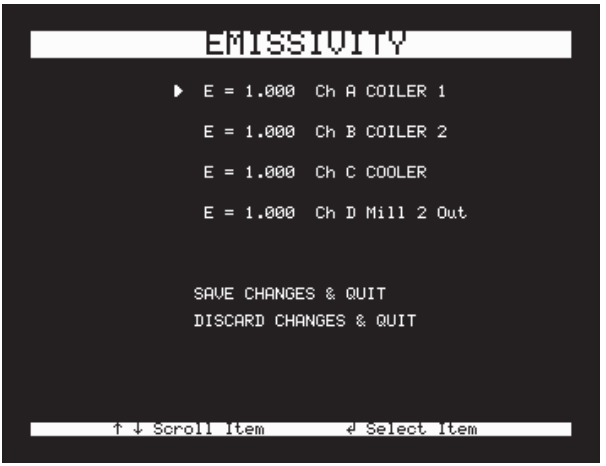


Fig. 23 Emissivity Menu S4980290

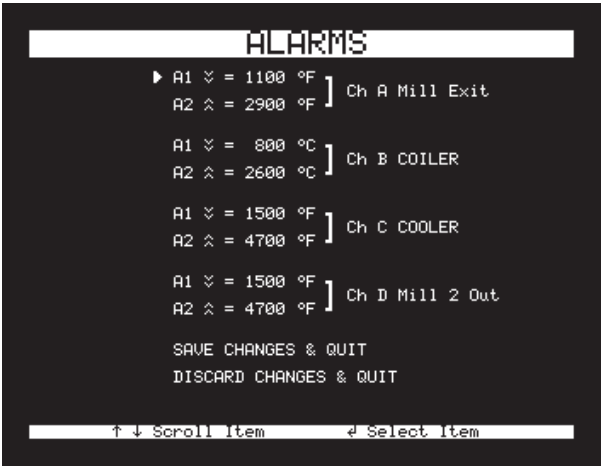


Fig. 24 Alarms Menu S4970090

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

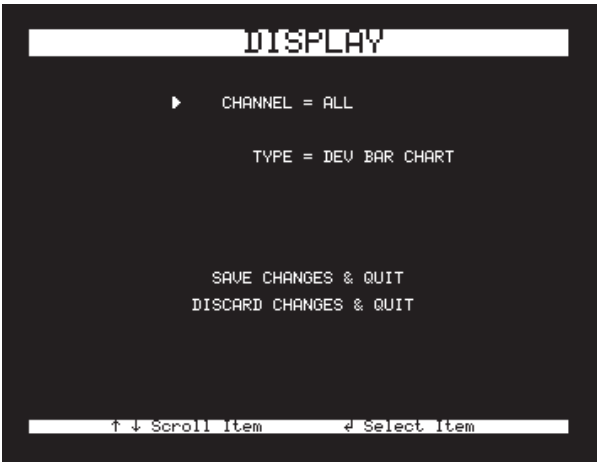


Fig. 25 Display Menu

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.

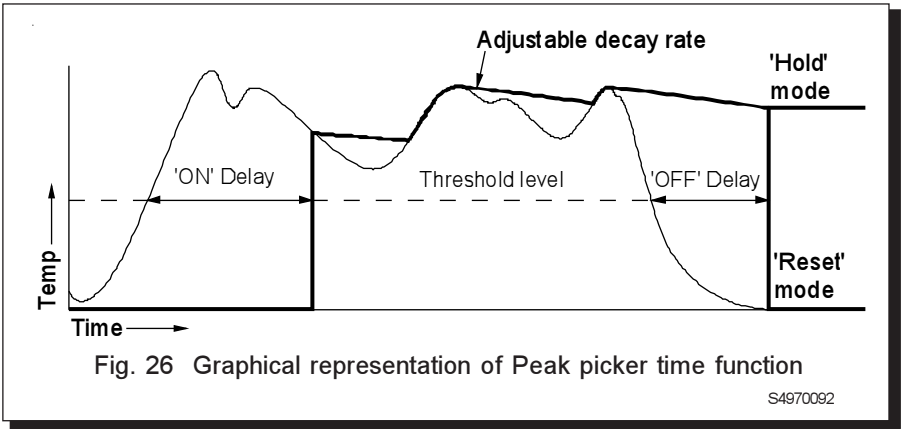


Fig. 26 Graphical representation of Peak picker time function

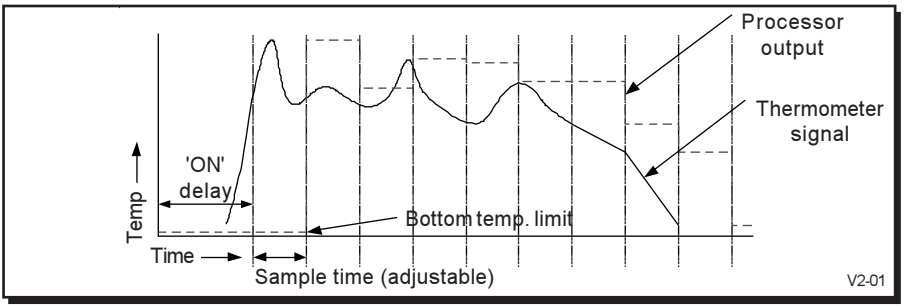
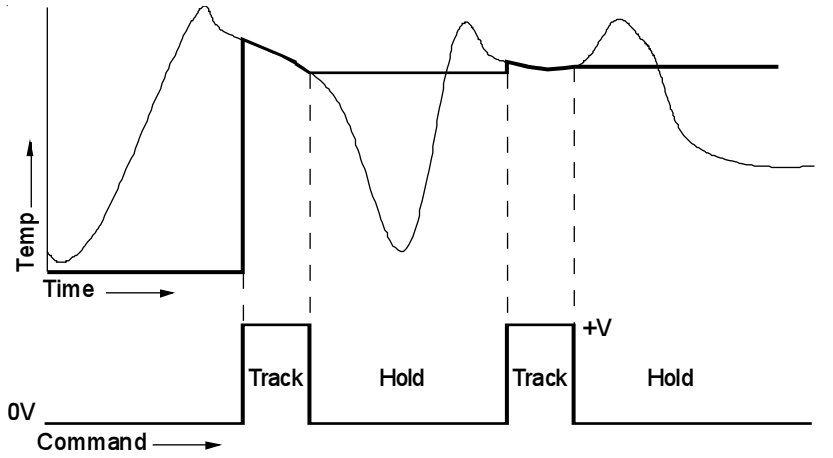


Fig. 42 Typical output of Peak Sampler function

4.2 Track and Hold

Refer to Fig. 27. The Track and Hold time function is useful especially for measuring intermittent processes e.g. items on a conveyor belt. The presence of a 'hot' object can be used to activate the 'Track' function, which causes the output to display the temperature of the object. When the object moves from the measurement area, the 'Track' function can be switched off and the temperature value held until the next 'hot' object appears.
The Track and Hold function function is controlled via the CMD (Command) input. The CMD input connections and operation is shown in Fig. 7 and Fig. 8.



Command signal = Closure of potential-free contacts, s/c = Hold
TTL level (0 to 5V) +5V = Track
or 0 to 24V +24V = Track
0V = Hold

Fig. 27 Graphical representation of Track and Hold time function

S4970093

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.

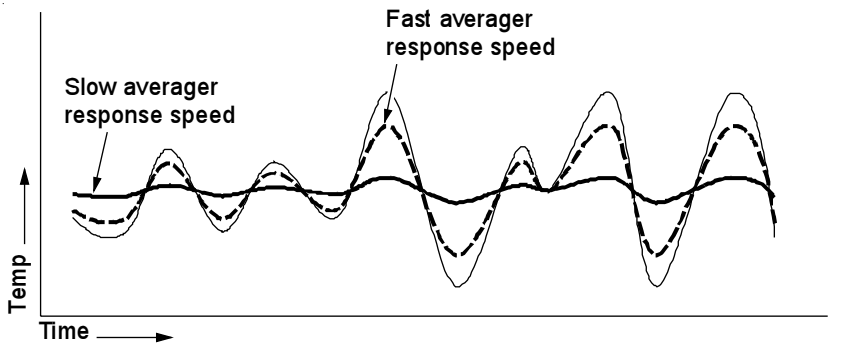


Fig. 28 Graphical representation of Averager time function

S4970094

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.

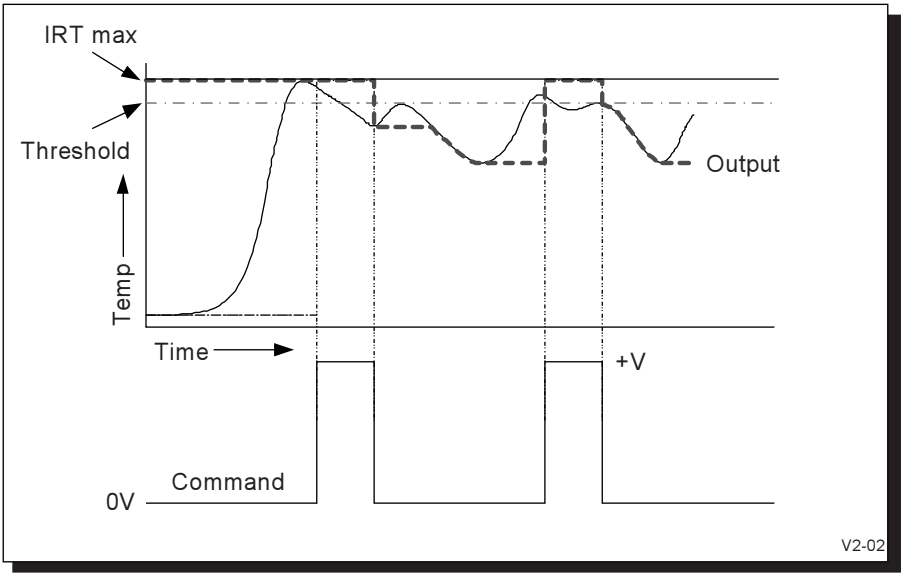


Fig. 41 Typical output of Valley Picker function

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.

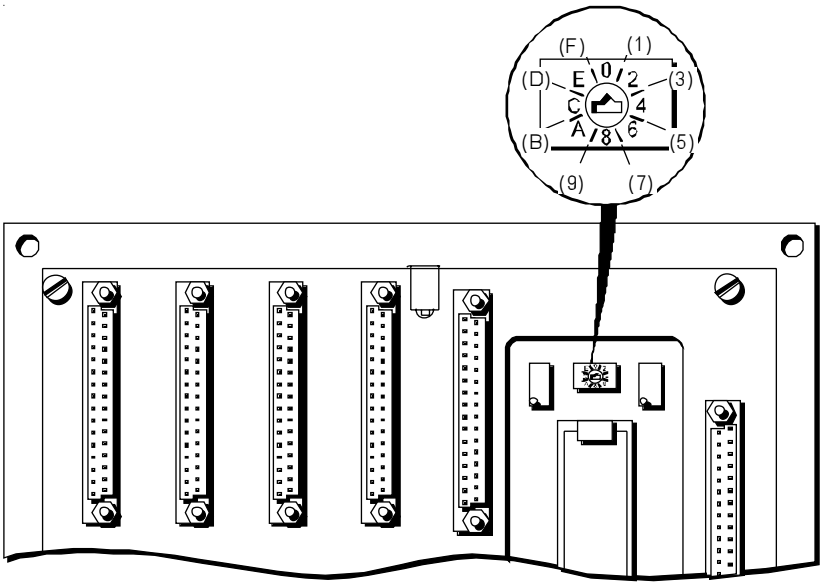


Fig. 30 Location of language selection switch S4970096

(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.

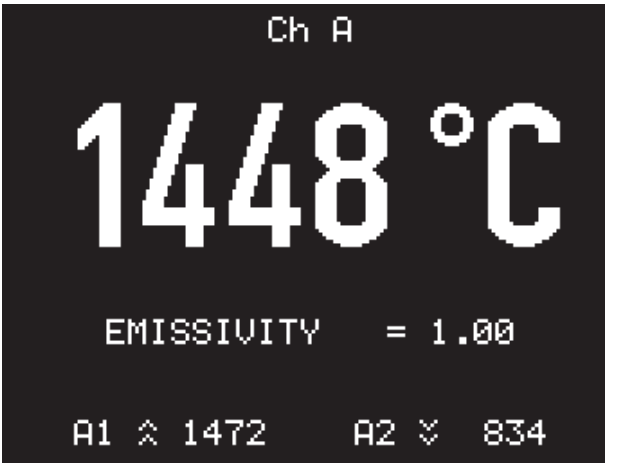


Fig. 32 Typical 'Numeric' display S4970098

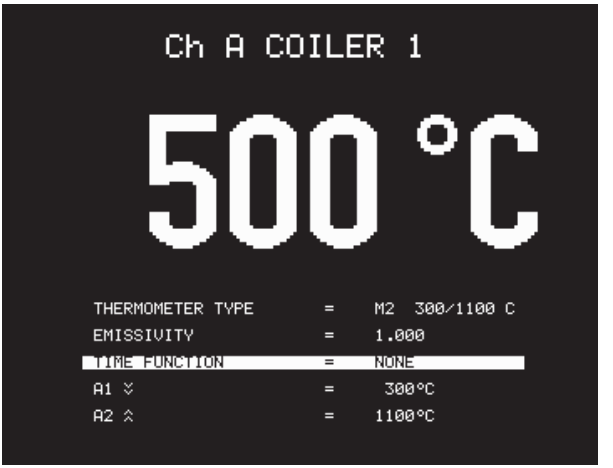


Fig. 33 Typical 'Mixed' display S4980291

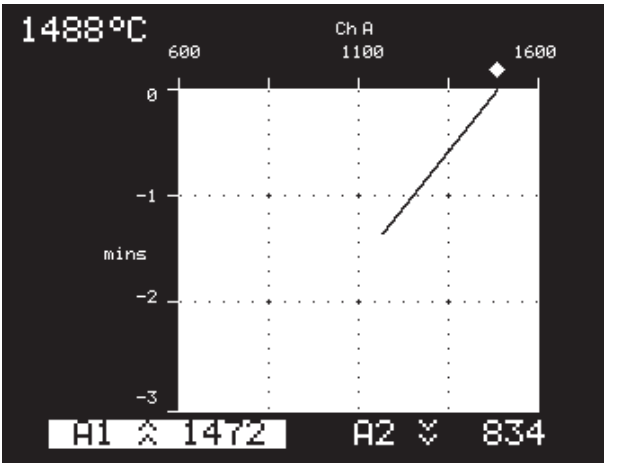


Fig. 34 Typical 'Line Chart' display S4970100

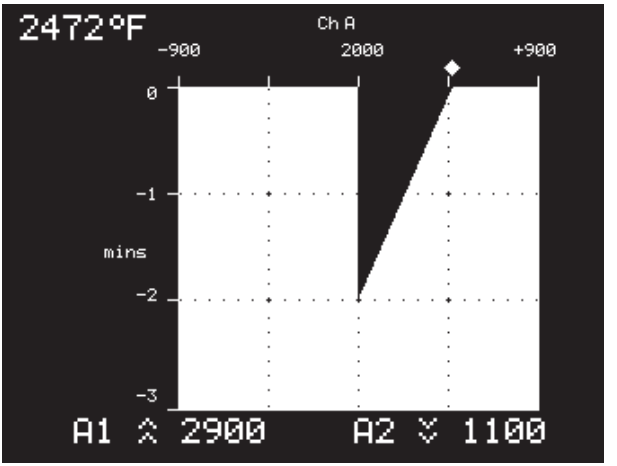


Fig. 35 Typical 'Deviation Chart' display S4970101

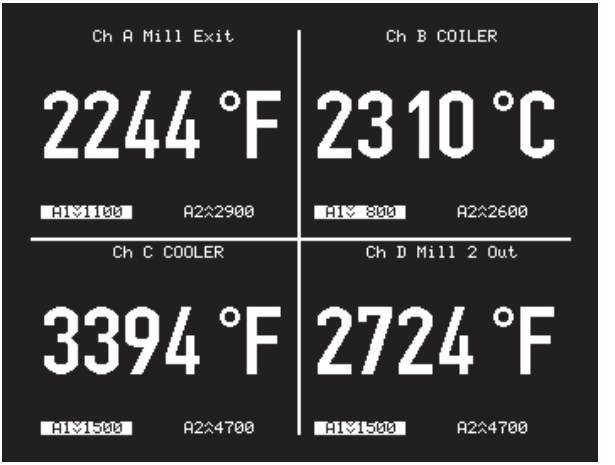


Fig. 36 Typical '4 Channel Numeric' display S4970102

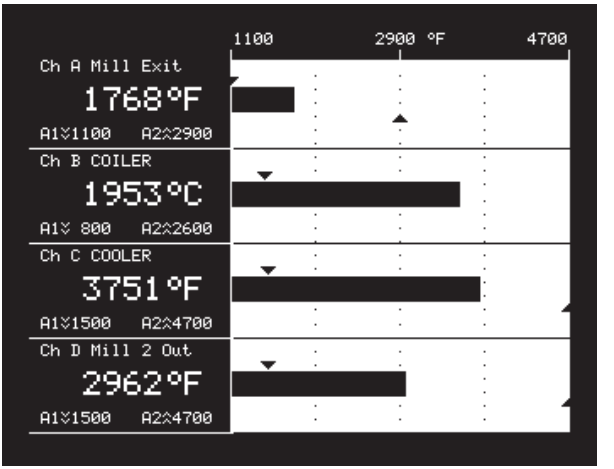


Fig. 37 Typical '4 Channel Bar Graph' display S4970103

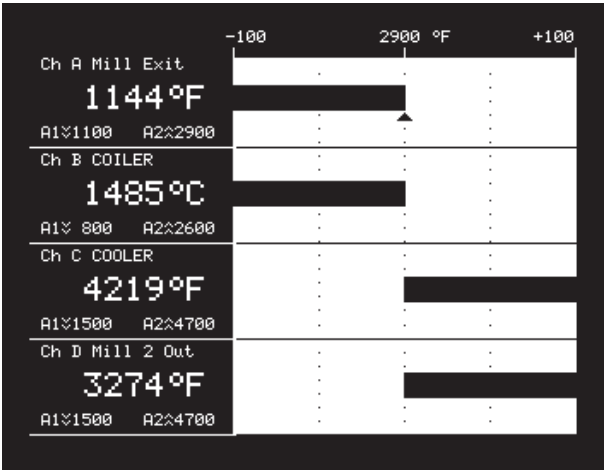


Fig. 38 Typical '4 Channel Deviation Bar Graph' display S4970104

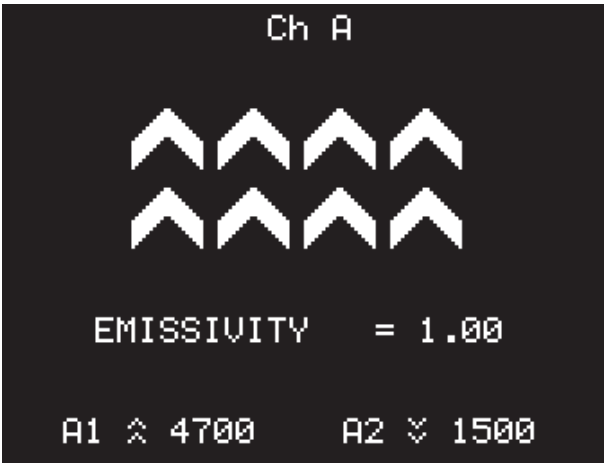


Fig. 39 Typical 'Over-Range' display S4970105

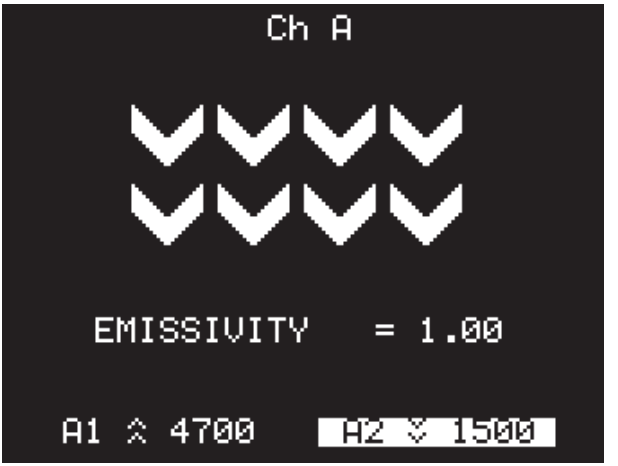


Fig. 40 Typical 'Under-Range' display S4970106

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