

10 PRO-L Controller

Installation & Operation Handbook

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SAFETY and EMC INFORMATION

Please read this section before installing the controller

This controller meets the requirements of the European Directives on Safety and EMC; however, it is the responsibility of the installer to ensure the safety and EMC compliance of any particular installation.

Safety

This controller complies with the European Low Voltage Directive 73/23/EEC, amended by 93/68/EEC, by the application of the safety standard EN 61010(93).

Electromagnetic compatibility

This controller conforms with the essential protection requirements of the EMC Directive 89/336/EEC, amended by 93/68/EEC, by the application of a technical construction file.

INSTALLATION REQUIREMENTS FOR EMC

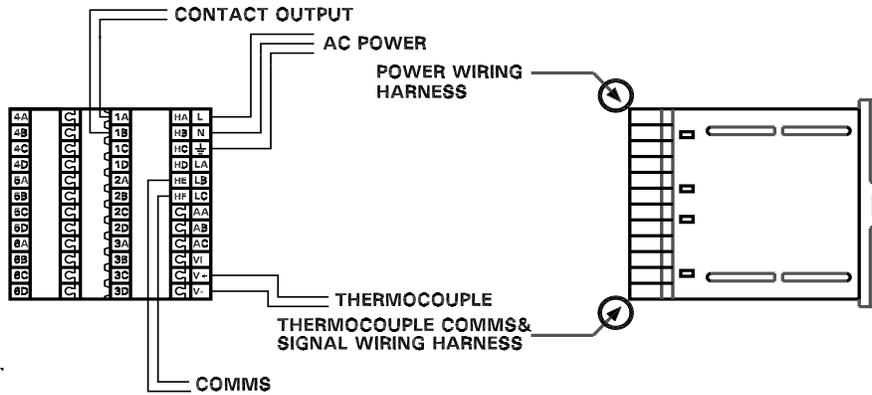
This unit satisfies the emissions and immunity standards for industrial environments. To ensure compliance with the European EMC directive, certain installation precautions are necessary as follows:

- For general guidance refer to the EMC Installation Guide, HA025464.
- When using relay or triac outputs, it may be necessary to fit a filter suitable for suppressing the conducted emissions. The filter requirements will depend on the type of load. For typical applications we recommend Schaffner FN321 or FN612.
- If the unit is used in table top equipment which is plugged into a standard power socket, then it is likely that compliance to the commercial and light industrial emissions standard is required. In this case, to meet the conducted emissions requirement, a suitable mains filter should be installed. We recommend Schaffner types FN321 and FN612.

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Routing of wires

To minimize the pick-up of electrical noise, the low voltage DC connections and the sensor input wiring should be routed away from high-current power cables. Where it is impractical to do this, use shielded cables with the shield grounded at both ends. See example below.



SERVICE AND REPAIR

This controller has no user serviceable parts. Contact your nearest Marathon Monitors agent for repair.

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TECHNICAL SPECIFICATION FOR SAFETY PURPOSES

Equipment ratings

Supply voltage:	100 to 240Vac -15%, +10%
Supply frequency:	48 to 62Hz
Power consumption:	10Watts maximum
Relay ratings:	Min: 100mA at 12Vdc. Max: 2A resistive at 264Vac
Triac output:	1A resistive max at 30 to 264Vac
Leakage current:	The leakage current through the external 'snubber' supplied to suppress voltage spikes on triac and relay contact outputs is less than 2mA at 264Vac, 50Hz
Over current protection:	External over current protection devices are required that match the wiring of the installation. A minimum of 0.5mm ² or 16awg wire is recommended. Use independent fuses for the instrument supply and each relay or triac output. Suitable fuses are T type, (IEC 127 time-lag type) as follows; Instrument supply: 85 to 264Vac, 2A, (T) Relay outputs: 2A (T). Triac outputs: 1A (T)
Low level I/O:	All other input and output connections are intended for low level signals at less than 42V

Environmental ratings

Panel sealing:	The alarm unit is intended to be panel mounted. The rating of panel sealing is defined by EN 60529: IP 65
Operating temperature:	0 to 55°C. Ensure the enclosure provides adequate ventilation. Relative humidity: 5 to 90%, non condensing
Atmosphere:	The instrument is not suitable for use above 2000m or in explosive or corrosive atmospheres

Electrical safety

Safety Standard:	Meets EN 61010, Installation category II, pollution degree 2. Voltage transients on any mains power connected to the instrument must not exceed 2.5kV. Electrically conductive pollution must be excluded from the cabinet in which the instrument is mounted.
Isolation:	All isolated inputs and outputs, have a reinforced isolation which provides protection against electric shock. Non-isolated logic connections are electrically connected to the main process variable input, (e.g. the thermocouple)

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Safety Symbols

Various symbols are used on the instrument, they have the following meaning:



Caution, (refer to the accompanying documents)



Functional earth (ground) terminal

A functional earth means one that is not required for safety purposes but is used for some functional purpose such as grounding EMC filters.

INSTALLATION SAFETY REQUIREMENTS

Personnel

Installation must only be carried out by qualified personnel.

Enclosure of live parts

To prevent hands or metal tools touching parts that may be electrically live, the controller must be installed in an enclosure.

Wiring

It is important to connect the alarm unit in accordance with the wiring data given in this handbook. Take particular care not to connect AC supplies to the low voltage sensor input, DC, or logic inputs and outputs. Wiring installations must comply with all local wiring regulations.

Isolation

The installation must include a power isolating switch or circuit breaker. This device should be in close proximity to the alarm unit, within easy reach of the operator and marked as the disconnecting device for the instrument.

Overcurrent protection

To protect the internal PCB tracking within the alarm unit against excess currents, the AC power supply to the alarm unit and power outputs must be wired through the fuse or circuit breaker specified in the technical specification.

Voltage rating

The maximum continuous voltage applied between any of the following terminals must not exceed 264Vac:

- line or neutral to any other connection
- relay or triac output to logic, DC or sensor input connections
- any connection to ground

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The alarm unit should not be wired to a three phase supply with an unearthed star connection. Under fault conditions such a supply could rise above 264Vac with respect to ground and the product would not be safe.

Voltage transients across the power supply connections, and between the power supply and ground, must not exceed 2.5kV. Where occasional voltage transients over 2.5kV are expected or measured, the power installation to both the instrument supply and load circuits should include a transient limiting device.

These units will typically include gas discharge tubes and metal oxide varistors that limit and control voltage transients on the supply line due to lightning strikes or inductive load switching. Devices are available in a range of energy ratings and should be selected to suit conditions at the installation.

Conductive pollution

Electrically conductive pollution must be excluded from the cabinet in which the controller is mounted. For example, carbon dust is a form of electrically conductive pollution. To secure a suitable atmosphere, install an air filter to the air intake of the cabinet. Where condensation is likely, for example at low temperatures, include a thermostatically controlled heater in the cabinet.

Grounding

The non-isolated logic has an electrical path to the sensor input. Because of this, two possible conditions need to be considered:

- In some installations it is common practice to replace the temperature sensor while the alarm unit is still powered up. Under these conditions, we recommend that the shield of the temperature detector is grounded. Do not rely on grounding through the framework of the machine.

Electrostatic discharge precautions

When the controller is removed from its sleeve, some of the exposed electronic components are vulnerable to damage by electrostatic discharge from someone handling the controller. To avoid this, before handling the unplugged controller discharge yourself to ground.

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Chapter 1 INSTALLATION

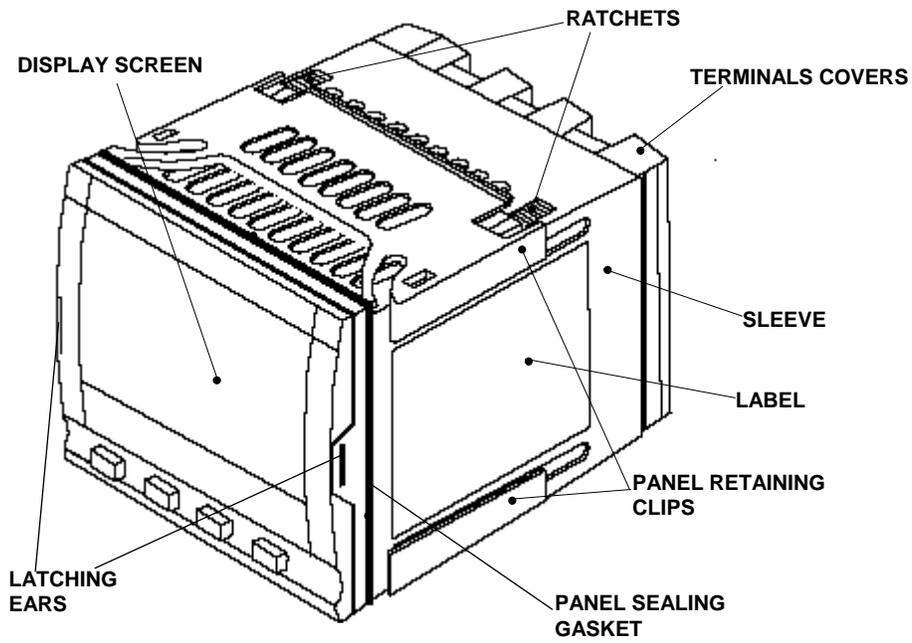


Figure 1-1
Model 10PRO-L 1/4 DIN alarm unit

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Outline dimensions Model 10PRO-L

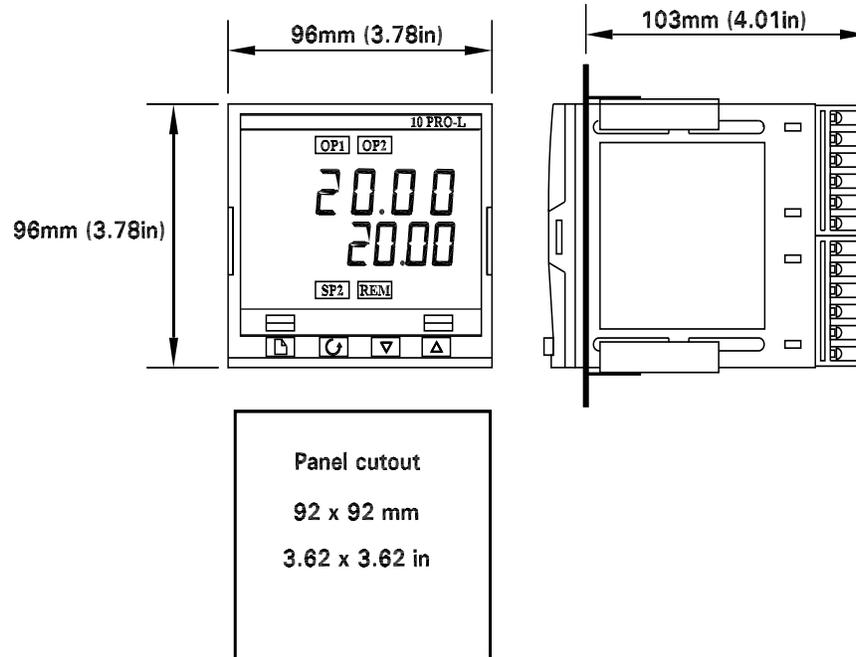


Figure 1-2

Outline dimensions Model 10PRO-L alarm unit.

The electronic assembly of the alarm unit plugs into a rigid plastic sleeve, which in turn fits into the standard DIN size panel cut-out shown in Figure 1-2.

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INTRODUCTION

The Model 10PRO-L is a precision temperature indicator and alarm unit. It has a modular hardware construction which provides four alarm relays and one communications port. Two logic inputs are provided as standard.

Before installing the alarm unit, please read *Safety Information* on page (4)

Alarm unit labels

The labels on the sides of the alarm unit identify the ordering code, the serial number, and the wiring connections.

MECHANICAL INSTALLATION

To install the alarm unit

1. Prepare the control panel cut-out to the size shown in Figure 1-1.
2. Insert the alarm unit through the panel cut-out.
3. Spring the upper and lower panel retaining clips into place. Secure the alarm unit in position by holding it level and pushing both retaining clips forward.

Note: If the panel retaining clips subsequently need removing, in order to extract the alarm unit from the control panel, they can be unhooked from the side with either your fingers or a screwdriver.

Unplugging and plugging-in the alarm unit

If required, the alarm unit can be unplugged from it's sleeve by easing the latching ears outwards and pulling it forward out of the sleeve. When plugging the alarm unit back into it's sleeve, ensure that the latching ears click into place in order to secure the IP65 sealing.

ELECTRICAL INSTALLATION

This section consists of three topics:

- Wiring connections
- Outputs 1 and 2 connections
- Communications connections
- Typical wiring diagram

WARNING

Before installing the alarm unit you must ensure that it is correctly configured for your application. Incorrect configuration could result in damage to the process being controlled, and/or personal injury. The alarm unit may either have been configured when ordered, or may need configuring now.

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Wire sizes

All electrical connections are made to the screw terminals at the rear of the alarm unit. If you wish to use crimp connectors, the correct size is AMP part number 165004. They accept wire sizes from 0.5 to 1.5 mm² (16 to 22 awg). A set of connectors are supplied with the alarm unit. The terminals are protected by a clear plastic hinged cover to prevent hands or metal making accidental contact with live wires.

Wiring connections

The wiring connections are shown in Figure 1-3.

Please note that outputs 1 and 2 can be any one of the types shown in figure 1-5.

The ground connection is provided as a return for internal EMC filters. It is not required for safety purposes, but must be connected in order to satisfy EMC requirements.

MODEL 10PRO-L CONNECTIONS

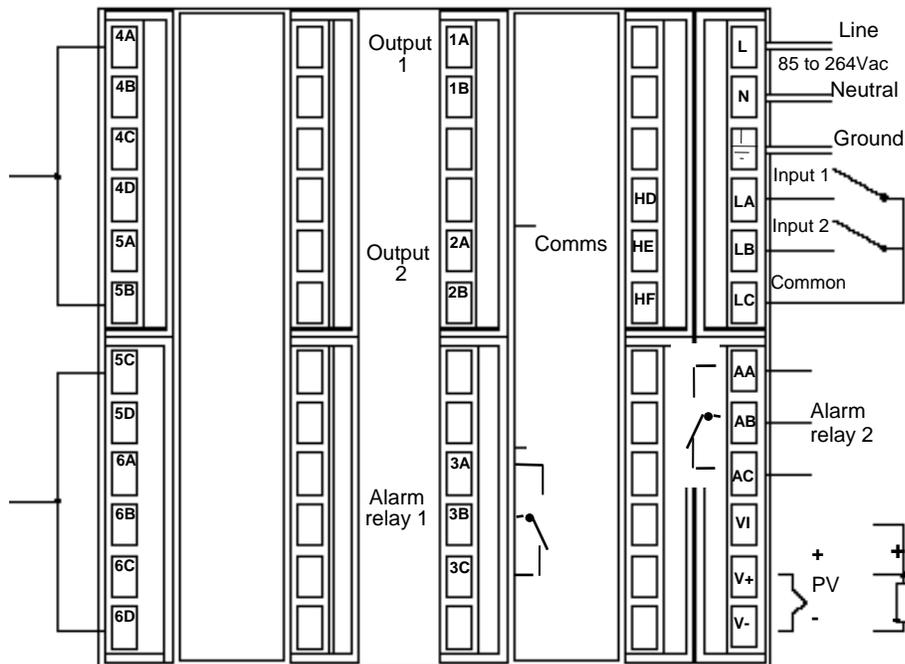


Figure 1-3
Model 10PRO-L wiring connections

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Sensor input connections

The connections for the various types of input are as follows:

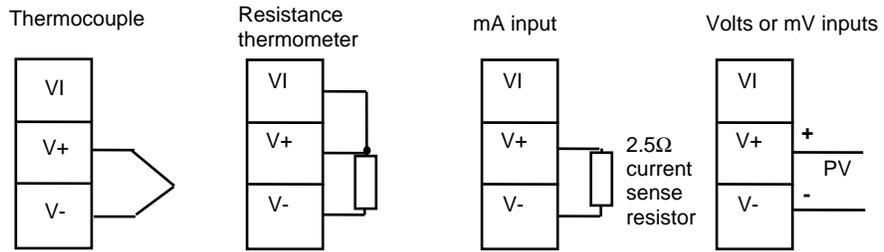


Figure 1-4
Sensor input connections

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OUTPUTS 1 AND 2 CONNECTIONS

Outputs 1 and 2 can be any one of the possible types shown in table below configured to perform any of the functions shown in the table.

To check which outputs are installed in your particular alarm unit, and which functions they are configured to perform, refer to the ordering code and the wiring information on the alarm unit side labels.

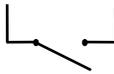
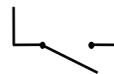
Module type	Connections			
	Output 1		Output 2	
	1A	1B	2A	2B
Relay: 2-pin (2A, 264 Vac max.)				

Figure 1-5
Outputs 1 and 2 connections

Snubbers

The alarm unit is supplied with 'snubbers' (15nF +100ohm) which should be wired across the relay or triac outputs when switching inductive loads such as mechanical contactors and solenoid valves. The snubbers are used to prolong contact life and to suppress interference when switching such loads. Do not use snubbers when switching high impedance loads. The snubbers pass 0.6mA at 110Vac and 1.2mA at 240Vac. This may be sufficient to hold in high impedance relay coils and should not be used in such installations.

WARNING

When a relay contact is used in an alarm circuit it is the user's responsibility to ensure that the current passing through the snubber when the relay contact is open does not hold in low power electrical loads and thereby interfere with the failsafe operation of the alarm circuit.

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COMMUNICATIONS CONNECTIONS

Communications type	Connection		
	HD	HE	HF
EIA-485 serial communications	Common	A Neg -	B Pos +

Figure 1-6
Communication connections

Chapter 2 OPERATION

This chapter has six topics:

- FRONT PANEL LAYOUTS
- POWER ON
- PARAMETERS AND HOW TO ACCESS THEM
- NAVIGATION DIAGRAM
- PARAMETER TABLES
- ALARM MESSAGES

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FRONT PANEL LAYOUT

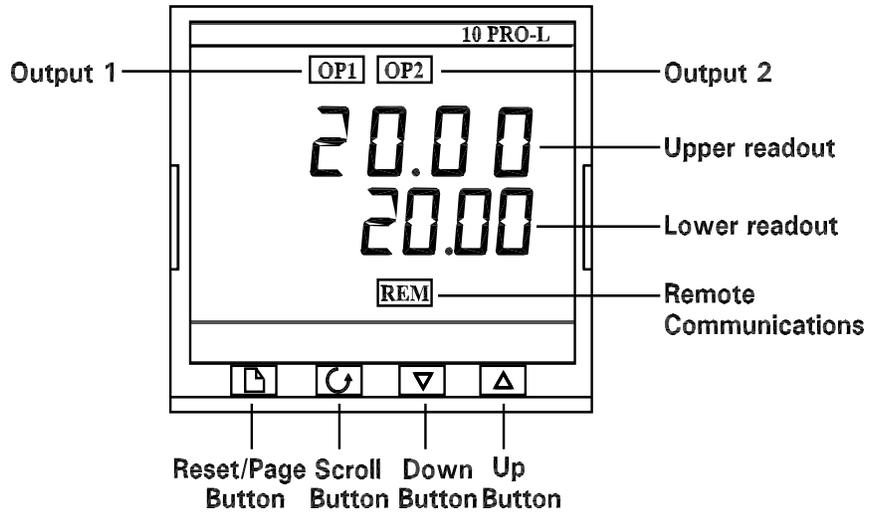


Figure 2-1
Model 10PRO-L front panel layout

Button or indicator	Name	Explanation
OP1	Output 1	When lit, this indicates that alarm 1 is on.
OP2	Output 2	When lit, this indicates that alarm 2 is on.
REM	Remote setpoint	When lit, this indicates that a remote device is using MMI communications.
	Reset/Page button	Press to reset all alarms or to select a new list of parameters.
	Scroll button	Press to select a new parameter in a list.
	Down button	Press to decrease a value in the lower readout.
	Up button	Press to increase a value in lower readout.

Figure 2-2 Alarm unit buttons and indicators

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POWER ON

Switch on the power to the alarm unit. It runs through a self-test sequence for about three seconds and then shows the temperature or process value in the upper readout. This is called the Home display.

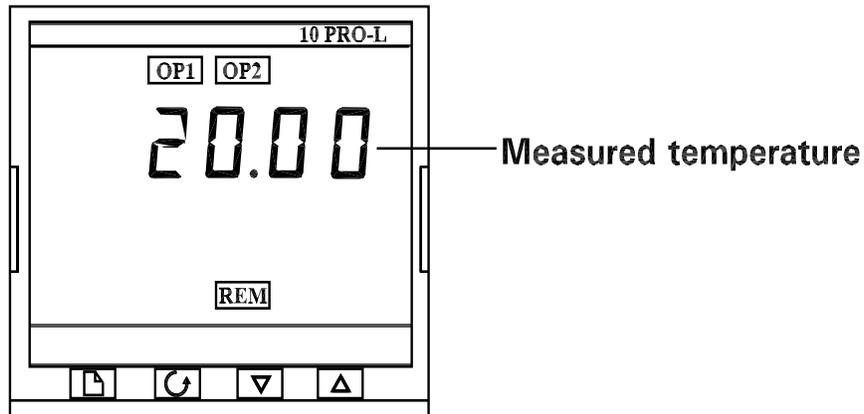


Figure 2-3
Home display

Note: You can get back to the Home display at any time by pressing  and  together. Alternatively you will always be returned to the Home display if no button is pressed for 45 seconds or whenever the power is turned on.

Alarms

If the alarm unit detects an alarm condition, it flashes an alarm message in either the upper or lower readout of the Home display. For a list of all the alarm messages, their meaning and what to do about them, see *alarms* at the end of this chapter.

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PARAMETERS AND HOW TO ACCESS THEM

Parameters are settings within the alarm unit that determine how the alarm unit will operate.

For example, alarm setpoints are parameters that set the points at which alarms will occur. For ease of access, the parameters are arranged in lists as shown in the navigation diagram on the following page. The names of these lists are called the *list headers*. The lists are:

Home list

Alarm list

Input list

Communications list

Note: All this may not be accessible in the as shipped configuration. Refer to Chapter 3.

To step through the list headers press the Page button . You can recognize a list header by the fact that it always shows 'LiSt' in the lower readout. Depending upon how your alarm unit has been configured, a single press may momentarily flash the display units. In this case, a double press will be necessary to take you to the first list header.

Continued pressing of the  button will step through the list headers, eventually returning you to the Home display.

To step through the parameters within a particular list, press the Scroll button . When you reach the end of the list, you will return to the list header.

From within a list you can return to the list header at any time by pressing the Page button . To step to the next list header press the Page button  once again.

Parameter names

In the navigation diagram, each box depicts the display for a selected parameter. The upper readout shows the name of the parameter and the lower readout it's value. The Operator parameter tables later in this chapter list all the parameter names and their meaning.

The navigation diagram shows all the parameters that *potentially* can be present in the alarm unit. In practice, only those associated with a particular configuration will appear.

The shaded boxes in the diagram indicate parameters that are hidden in normal operation. To see all the available parameters, you must select 'Full' access level. For more information about this, see Chapter 3, *Access Levels*.

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To change the value of a parameter

First, select the required parameter. The parameter name is shown in the upper readout and the parameter value in the lower readout.

To change the parameter value, press either  or .

In this adjustment, single presses change the value by one digit.

Keeping the button pressed speeds up the rate of change.

Two seconds after releasing either button, the display blinks to show that the alarm unit has accepted the new value.

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NAVIGATION DIAGRAM

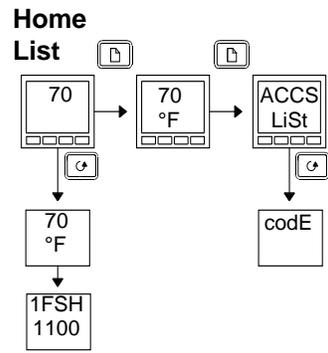


Figure 2-4
Navigation diagram

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PARAMETER TABLE

Name	Parameter Description
Alarm list	
AL	Alarm Parameters
1 - - -	Alarm 1 setpoint value
2 - - -	Alarm 2 setpoint value
3 - - -	Alarm 3 setpoint value
4 - - -	Alarm 4 setpoint value
<i>In place of dashes, the last three characters indicate the alarm type as follows:</i>	
- FSH	Full scale high alarm
- FSL	Full scale low alarm

Name	Parameter Description
iP	
Input list	
FiLt	Input filter time constant. 1.0 to 999.9 seconds
<i>The following two parameters are always present in Full access level</i>	
CJC°	Cold junction temperature in C
mV	Millivolt inputs

cmS	Comms list
Addr	Communications Address

Note: A full reset of the instrument is required to implement the address change.

ACCS	Access List
codE	Full and Edit level password
Goto	Goto level - OPEr, FuLL, Edit or conF
ConF	Configuration level password

Note: After reaching the password value wait 2 to 3 seconds for the unit to verify.

List header displays

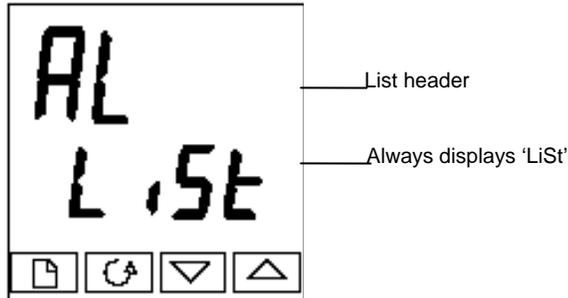


Figure 2-5
Typical list header display

You can recognise a list header by the fact that it always shows 'LiSt' in the lower readout. The upper readout is the name of the list. In the above example, AL indicates that it is the Alarm list header. List header displays are read-only.

Parameter displays

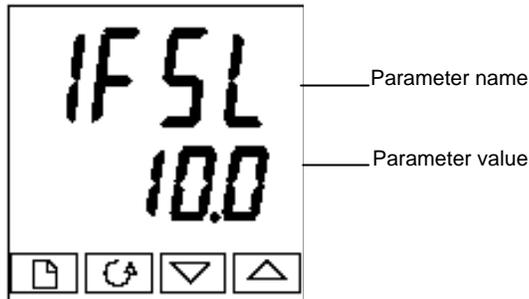
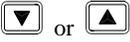


Figure 2-6
Typical parameter display

Parameter displays show the alarm units' current settings. The layout of parameter displays is always the same: the upper readout shows the parameter name and the lower readout it's value. Alterable parameters can be changed using the  or  buttons. In the above example, the parameter mnemonic is IFSL (indicating *Alarm 1, full scale low*), and the parameter value is 10.0.

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ALARMS

Alarms 1 and 2 are dedicated to safety interlocks and are restricted to latching, not blocking configuration with the relay energised in the safe state. Alarms 3 and 4 can be configured to outputs 3 and 4 with full latching and blocking features available.

Alarm annunciation

If the alarm unit detects an alarm condition, it will flash a message in the lower readout of the Home display. A new alarm will be displayed as a double flash followed by a pause. Old (acknowledged) alarms will be displayed as a single flash followed by a pause. In the case of alarm 1 and alarm 2 only, the front panel beacon OP1 and OP2 will flash on an unacknowledged alarm. After the alarm has been acknowledged the beacon will be lit constantly. When the alarm condition is corrected, an alarm acknowledge will clear the beacon and the alarm relay will return to the safe state. If there is more than one alarm condition, the display cycles through all the relevant alarm messages. Tables 2.1 and 2.2 list all of the possible alarm messages and their meaning.

Alarm modes

Alarms will have been set up to operate in one of several modes, either:

- **Non-latching**, which means that the alarm will automatically clear when the alarm condition no longer exists.
- **Latching**, which means that the alarm message will continue to flash even if the alarm condition no longer exists. Latched alarms are cleared (*acknowledged*) by pressing either the Page or Scroll button.
- **Blocking**, which means that the alarm will only become active after it has first entered a safe state after powering up

Alarm types

There are two kinds of alarm: **Process alarms** and **Diagnostic alarms**

Process alarms

These warn that there is a problem with the process that the alarm unit is trying to control.

Alarm Display	What it means
-FSH*	Full Scale High alarm
-FSL*	Full Scale Low alarm

Table 2-1
Process alarms

**In place of the dash, the first character will indicate the alarm number*

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Diagnostic alarms

These indicate that a fault exists in either the alarm unit or the connected devices.

Display shows	What it means	What to do about it
EE.Er	<i>Electrically Erasable Memory Error:</i> The value of an operator or configuration parameter has been corrupted.	This fault will automatically take you into configuration level. Check all of the configuration parameters before returning to operator level. Once in operator level, check all of the operator parameters before resuming normal operation. If the fault persists or occurs frequently, contact Marathon Monitors.
S.br	<i>Sensor Break:</i> Input sensor is unreliable or the input signal is out of range.	Check that the sensor is correctly connected.
HW.Er or no.io	<i>Hardware error</i> Indication that a module is of the wrong type, missing or faulty.	Check that the correct modules are fitted.

Table 2-2a
Diagnostic alarms

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Diagnostic alarms continued

These indicate that a fault exists in either the alarm unit or the connected devices.

Display shows	What it means	What to do about it
LLLL	<i>Out of range low reading.</i>	Check the value of the input.
HHHH	<i>Out of range high reading.</i>	Check the value of the input.
Err1	<i>Error 1: ROM self-test fail.</i>	Return the alarm unit for repair.
Err2	<i>Error 2: RAM self-test fail.</i>	Return the alarm unit for repair.
Err3	<i>Error 3: Watchdog fail.</i>	Return the alarm unit for repair.
Err4	<i>Error 4: Keyboard failure</i> Stuck button, or a button was pressed during power up.	Switch the power off and then on without touching any of the alarm unit buttons.
Err5	<i>Error 5: Input circuit failure.</i>	Return the alarm unit for repair.
Pwr.F	<i>Power failure.</i> The line voltage is too low.	Check that the supply to the alarm unit is within the rated limits.

Table 2-2b
Diagnostic alarms

Chapter 3 ACCESS LEVELS

This chapter describes the different levels of access to the operating parameters within the alarm unit.

There are three topics:

- THE DIFFERENT ACCESS LEVELS
- SELECTING AN ACCESS LEVEL
- EDIT LEVEL

THE DIFFERENT ACCESS LEVELS

There are three access levels:

- **Operator level**, which you will normally use to operate the alarm unit
- **Full level**, which is used to commission the alarm unit and the process being controlled
- **Edit level**, which is used to set up the parameters that you want an operator to be able to see and adjust when in Operator level

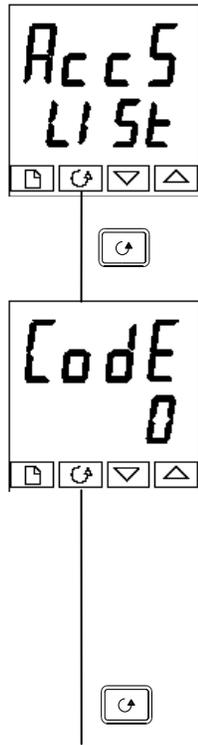
Access level	Display shows	What you can do	Password Protection
Operator	OPeR	In this level operators can view and adjust the value of parameters defined in Edit level (see below).	No
Full	FuLL	In this level all the parameters relevant to a particular configuration are visible. All alterable parameters may be adjusted.	Yes
Edit	Edit	In this level you can set which parameters an operator in Operator level is able to view and adjust. You can hide or reveal complete lists and individual parameters within each list, and you can make parameters read-only or alterable. (See <i>Edit level</i> at the end of the chapter).	Yes

Figure 3-1
Access levels

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SELECTING AN ACCESS LEVEL

Access to Full or Edit levels is protected by a password to prevent unauthorised access`



Access list header

Press  until you reach the access list header 'ACCS'.

Press the Scroll button

Password entry

The password is entered from the 'Code' display.

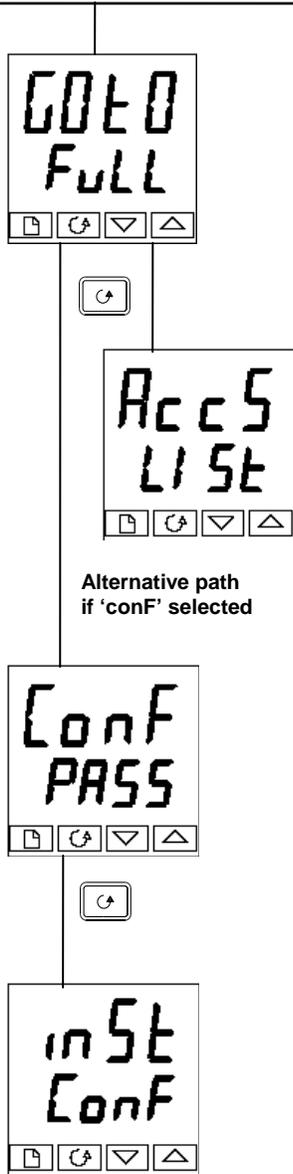
Enter the password using the  or  buttons. Once the correct password has been entered, there is a two second delay after which the lower readout will change to show 'PASS' indicating that access is now unlocked.

The pass number is set to '1' when the alarm unit is shipped from the factory.

Note: A special case exists if the password has been set to '0'. In this case access will be permanently unlocked and the lower readout will always show 'PASS'

Press the Scroll button to proceed to the 'Goto' display.

(If an *incorrect* password has been entered and the alarm unit is still 'locked' then pressing *Scroll* at this point will simply return you to the access list header.)



Level selection

The 'Goto' display allows you to select the required access level.

Use  and  to select from the following display codes:

- OPER: Operator level
- FuLL: Full level
- Edit: Edit level
- conF: Configuration level

Press the Scroll button

If you selected either 'OPER, FuLL or Edit level you will be returned to the 'ACC5 list header in the level that you chose

Configuration password

When the 'ConF' display appears, you must enter the Configuration password in order to gain access to Configuration level. Do this by repeating the password entry procedure described in the previous section

The configuration password is set to '2' when the controller is shipped from the factory. If you need to change the configuration password, see Chapter 4, *Configuration*

Press the Scroll button

Configuration level

The first display of configuration is shown. See chapter 4, *Configuration* for details of the configuration parameters.

For instructions on leaving configuration level see Chapter 4, *Configuration*

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Returning to Operator Level

To return to operator level from either 'FuLL' or 'Edit' level, repeat entry of the password and select 'OPeR' on the 'Goto' display.

In 'Edit' level the alarm unit will automatically return to operator level if no button is pressed for 45 seconds.

EDIT LEVEL

Edit level is used to set which parameters you can see and adjust in Operator level. It also gives access to the 'Promote' feature which allows you to select and add ('Promote') up to twelve parameters into the Home display list, thereby giving simple access to commonly used parameters.

Setting operator access to a parameter

First you must select Edit level, as shown on the previous page.

Once in Edit level you select a list or a parameter within a list in the same way as you would in Operator or Full level—that is to say, you move from list header to list header by pressing the Page button, and from parameter to parameter within each list using the Scroll button. **However, in Edit level what is displayed is not the value of a selected parameter but a code representing the parameter's availability in Operator level.**

When you have selected the required parameter, use the  and  buttons to set its availability in operator level.

There are four codes:

- Altr** Makes a parameter alterable in Operator level
- Pro** Promotes a parameter into the Home display list
- REAd** Makes a parameter or list header read-only (*it can be viewed but not altered*)
- HidE** Hides a parameter or list header

For example:



The parameter selected is the sepoint for Alarm 2 - Full Scale Low

It will be alterable in Operator level

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Hiding or revealing a complete list

To hide a complete list of parameters, all you have to do is hide the list header. If a list header is selected only two selections are available: REAd and HidE.

(It is not possible to hide the 'ACCS' list which will always display the code: 'LiSt'.)

Promoting a parameter

Scroll through the lists to the required parameter and choose the 'Pro' code. The parameter is then automatically added(promoted) into the Home display list (the parameter will also be accessible as normal from the standard lists. A maximum of twelve parameters can be promoted. Promoted parameters are automatically 'alterable'.

Chapter 4 CONFIGURATION

This chapter consists of five topics:

- SELECTING CONFIGURATION LEVEL
- LEAVING CONFIGURATION LEVEL
- SELECTING A CONFIGURATION PARAMETER
- THE CONFIGURATION NAVIGATION DIAGRAM
- THE CONFIGURATION PARAMETER TABLES

In configuration level, you set up the fundamental characteristics of the alarm unit. These are:

- The Input type and range
- The Alarm functions
- The logic input functions
- The Communications configuration
- Calibration
- The Passwords

WARNING

Configuration is protected by a password and should only be carried out by a qualified person authorized to do so. Incorrect configuration could result in damage to the process being controlled and/or personal injury. It is the responsibility of the person commissioning the process to ensure that the configuration is correct.

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SELECTING CONFIGURATION LEVEL

There are two alternative methods of selecting Configuration level:

- If you have already powered up the alarm unit, then follow the access instructions given in Chapter 3: *Access levels*.
- Alternatively press  and  together when powering up the alarm unit. This will take you straight to the 'ConF' password entry display.



Password entry

When the 'ConF' display appears, you must enter the Configuration password in order to gain access to Configuration level.

Enter the password using the  or  buttons. The configuration password is set to '2' when the alarm unit is shipped from the factory.

Once the correct password has been entered, there is a two second delay after which the lower readout will change to 'PASS' indicating that access is now unlocked.

Note: A special case exists if the password has been set to '0'. In this situation access will be permanently unlocked and the lower readout will always show 'PASS.'

Press the Scroll button to enter configuration level

This is the first display in configuration level. (If an incorrect password has been entered and the alarm unit is still 'locked' then pressing *Scroll* at this point will take you to the 'Exit' display with 'no' in the lower readout. Simply press *Scroll* to return to the 'ConF' display).

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LEAVING CONFIGURATION LEVEL

To leave Configuration level and return to Operator level, Press  until the 'Exit' display appears.

Alternatively pressing  and  together will take you straight to the 'Exit' display.



Use  or  to select 'YES'. After a two-second delay, the display will flash and revert to the Home display in Operator level.

SELECTING A CONFIGURATION PARAMETER

The configuration parameters are arranged in lists as shown in the navigation diagram in Figure 5.1a and 5.1b. Each box in the diagram depicts the display for a particular list header or parameter.

To select a particular parameter, you must first select the list in which the parameter appears.

You step through the list headers by pressing the Page button . You can recognize a list header by the fact that it always shows 'ConF' in the lower readout. The upper readout is the name of the list.

Having selected a particular list header, **You step through the parameters** within a particular list by pressing the Scroll button . The upper readout shows the name of the parameter and the lower readout its value. The value of a parameter is changed by using the  or  buttons. For a definition of each parameter, see the configuration parameter tables at the end of this chapter.

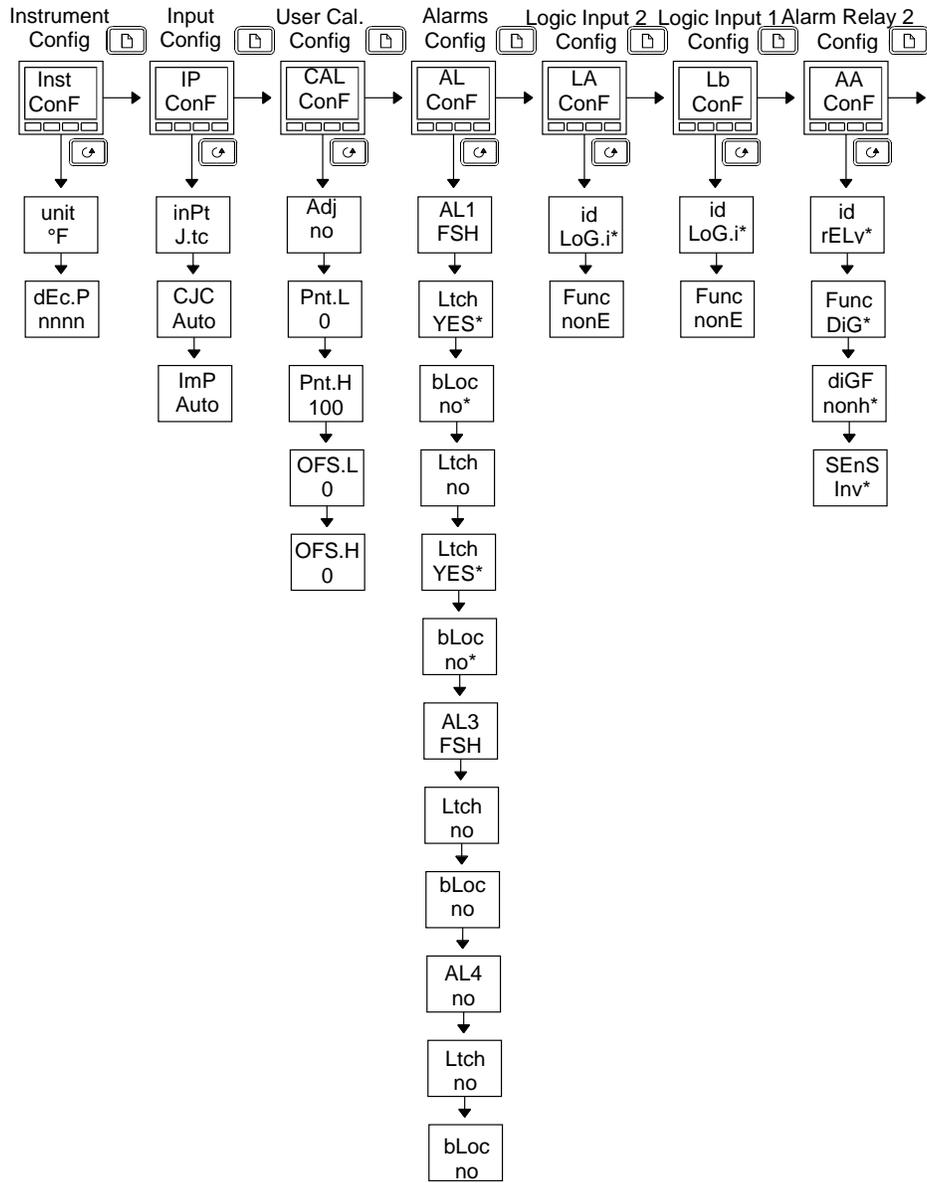
When you reach the end of the list you will return to the list header. From within a list you can return to the list header at any time by pressing the Page button .

Parameter availability

The navigation diagram shows all the lists headers and parameters that potentially can be present in the alarm unit. In practice, those actually present will vary according to the particular configuration choices you make.

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CONFIGURATION NAVIGATION DIAGRAM (PART A)



* Fixed Parameters

Figure 4-1a
Configuration navigation diagram (Part A)

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CONFIGURATION PARAMETER TABLES

Name	Parameter description	Values	Meaning
inSt	Instrument configuration		
unit	Instrument units	°C °F °K nonE	Centigrade Fahrenheit Kelvin Display units will be blanked
dEc.P	Decimal places in the displayed value	nnnn nnn.n nn.nn	None One Two

Name	Parameter description	Values	Meaning
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iP	Input configuration		
inPt	Input type	J.tc K.tc r.tc b.tc n.tc t.tc S.tc rtd C.tc mV voLt	J thermocouple K thermocouple R thermocouple (Pt/Pt13%Rh) B thermocouple (Pt30%Rh/Pt6%Rh) N thermocouple T thermocouple S thermocouple (Pt/Pt10%Rh) 100Ω platinum resistance thermo. This is the custom downloaded input type. The default is C thermocouple. If not, the name of the downloaded custom input will be displayed. Linear millivolt Linear voltage
<i>The following parameters will appear if a linear input is chosen.</i>			
inP.L	Input value low		Linear input low value
inP.H	Input value high		Linear input high value
VAL.L	Display reading low		Display reading corresponding to 'inp.L'
VAL.H	Display reading high		Display reading corresponding to 'inp.H'
ImP	Sensor break input impedance trip level	Off Auto Hi HiHi	Sensor break detection is disabled <i>Appears for linear inputs only</i> Trip level is set by the sensor input table Trip level is set at 7.5KΩ Trip level is set at 15KΩ

*If User calibration is enabled, then the User calibration parameters will appear in the Input list of Operator Full access level.

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Name	Parameter description	Values
AL	Alarm configuration	Values
AL1	Alarm 1 Type	Select table A
Ltch	Alarm 1 Latching	YES
bLoc	Alarm 1 Blocking ⁽¹⁾	no
AL2	Alarm 2 Type	Select table A
Ltch	Alarm 2 Latching	YES
bLoc	Alarm 2 Blocking ⁽¹⁾	no
AL3	Alarm 3 Type	Select table A
Ltch	Alarm 3 Latching	no/YES
bLoc	Alarm 3 Blocking ⁽¹⁾	no/YES
AL4	Alarm 4 Type	Select table A
Ltch	Alarm 4 Latching	no/YES
bLoc	Alarm 4 Blocking ⁽¹⁾	no/YES
Table A: Alarm types		
OFF	No alarm	
FSH	Full scale high	
FSL	Full scale low	

⁽¹⁾ Alarm blocking allows the alarm to become active only after it has first entered a safe state.

LA	Logic input 1 configuration	Functions	Action on contact closure
id	Identity of input	LoG.i	Logic input
Func	Function	nonE Ac 1 Ac 2 Ac 3 Ac 4 Ac.AL	None Acknowledge alarm 1 Acknowledge alarm 2 Acknowledge alarm 3 Acknowledge alarm 4 Acknowledge all alarms

Lb	Logic input 2 configuration	Functions	Action on contact closure
As per Logic input LA.			

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Name	Parameter description	Functions	Meaning
AA	Alarm relay 2 configuration	Functions	Meaning
id	Identity of output	rELy	Relay
Func	Function	diG	Function set by diG.F
diG.F	Digital output functions	no.CH	No change (Alarm 2)
SEnS	Sense of output	inv	Inverted (<i>alarms - de-energizes in the alarm state</i>)

HA	Comms module config	Functions	Meaning
id	Identity of the option installed	cmS	EIA-485 comms module
Func	Function		
<i>The following parameters will not appear if the EIA-485 board is removed</i>			
		10PL	MMI protocol
		nonE	None
<i>The following parameters will appear if the function chosen is 10PL Protocol</i>			
bAud	Baud Rate	1200, 2400, 4800, 9600, 19.20 (19,200)	
PrtY	Comms Parity	nonE	No parity (Not used)
		EvEn	Even parity
		Odd	Odd parity (Not used)
rESn	Resolution	int	Integer
		FuLL	Not used

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Name	Parameter description	Functions	Meaning
1A	Output 3 configuration	Functions	Meaning
id	Identity of module installed	rELY dC.OP LoG SSr	Relay output Not used Not used Not used
Func	Function	nonE diG	Function set by diG.F
<i>The following parameters appear if 'diG' is chosen as the function</i>			
diG.F	Digital output functions Any number of the functions listed can be combined onto the logic output. Use the  and  buttons to select a desired output function. After two seconds the display will blink and return to the 'no.CH' display. Use the arrows again to scroll through the function list. The previously selected function display will show two decimal points indicating that it has been added to the output.	no.CH Clr 1 --- 2 --- 3 --- 4 --- S.br L.br L.dF MAN SPAn rmtF HtrF SSrF LdoP	No change Clear all existing functions Alarm 1* Alarm 2* Alarm 3* Alarm 4* Sensor break Not used Not used Not used PV out of range Not used Not used Not used Not used
SEnS	Sense of output	nor inv	Normal (<i>heat and cool outputs</i>) Inverted (<i>alarms - de-energizes in the alarm state</i>)

*In place of the dashes, the last three characters indicate the alarm type.

If an alarm is not configured the displayed name will differ: e.g. for the first alarm 'AL1' will be shown.

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Name	Parameter description	Functions	Meaning
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2A	Output 4 configuration	Functions	Meaning
As per Output 3 '1A' relay configuration			

3A	Alarm 1 relay configuration	Functions	Action on contact closure
As per Alarm 2 'AA' relay configuration			

4A	10 Amp relay	Functions	Action on contact closure
As per Output 3 '1A' relay configuration			

PASS	Password list		
ACC.P	FuLL or Edit level password		
cnF.P	Configuration level Password		

Exit	Exit configuration	no/YES	
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