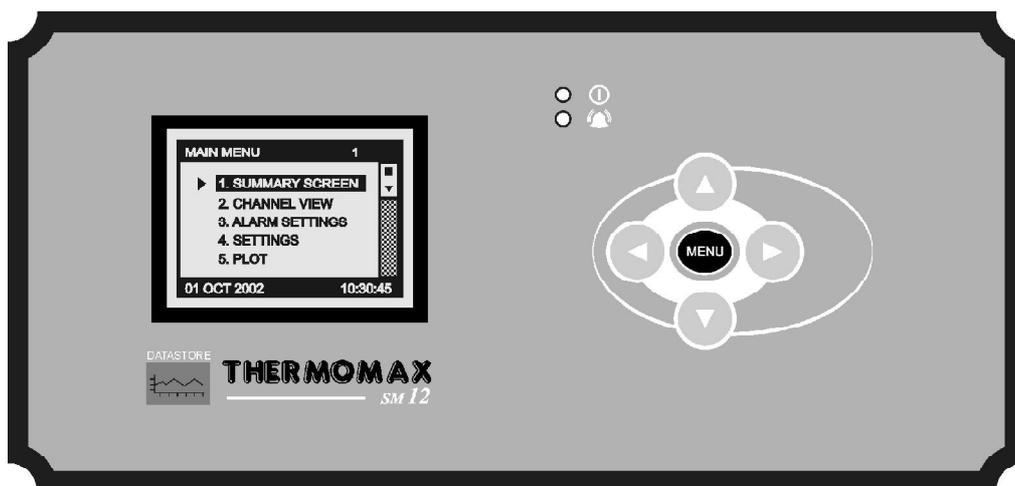


# THERMOMAX

## SM12

12 - CHANNEL DATALOGGER AND ALARM

ENGLISH



[www.Thermomax-Group.com](http://www.Thermomax-Group.com)

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# INTRODUCTION

The SM12 microprocessor-based datalogger uses the novel approach of a paperless logging and filing system, which allows the data of any day in its history to be read and examined with a few key presses.

The graphics LCD display communicates the information to the user with clarity, making programming and setting up friendly and uncomplicated, without compromising its sophistication and digital accuracy.

## SUMMARY OF FEATURES

### DATALOGGER

- Paperless datalogger with automatic filing by date
- Real Time Clock - this is backed up by an additional internal battery and allows the unit to store times and dates for 3-6 months in the event of a mains fail
- The temperature/ humidity from each Channel can be set to sample every 1/ 5/15/30/60 minutes and stored to an internal databank
- 'Percentage of internal databank used' indication in bargraph and digital form
- Power Supply 220 – 240V AC Mains
- Contents of internal databank can be transferred directly to the PC using the MASTERLINK Software
- Internal RS 232 feature for PC connection
- Built in Thermomax Network Connections (RS 485)

### ALARM

- 2-Stage high and low level alarms with mute facility
- Stage 1 temperature threshold with trigger delay
- Stage 2 limit temperature with immediate trigger
- Alarm history record for low alarm, high alarm and power fail.
- Battery back-up for power-fail operation.
- Summary Screen for Alarm Overview

*Note: The information supplied in this manual is for guidance only – no part of this may be used for any agreement, whether express or implied, or to form any contract.*

## INSTALLATION

Note: This installation procedure is for guidance only, and its suitability should be verified by the installer.

### SAFETY PRECAUTIONS

The following safety precautions are strongly recommended:

- 1 Before attempting to install and operate the unit, read this instruction manual carefully.
- 2 Installation and any maintenance required should only be carried out by suitably qualified personnel.
- 3 It is recommended that the unit be connected to the mains supply via a suitably rated isolating switch.
- 4 **WARNING: When the unit is connected to the mains supply and the cover is opened, the circuits at mains voltage will be exposed.** Therefore when installing the unit, ensure all required connections (including battery connection, if included), are made and covers replaced before turning on the mains supply. Ensure that all the connections made are secure. If any maintenance work e.g. installing a new battery, is required ensure that the unit is isolated from the mains supply before removing the cover. **Never leave the unit unattended if the cover has been removed and the mains supply is connected.**
- 5 Do not exceed unit ratings as shown on the ratings label.
- 6 It is advisable to route mains cables away from low voltage or sensor cables.

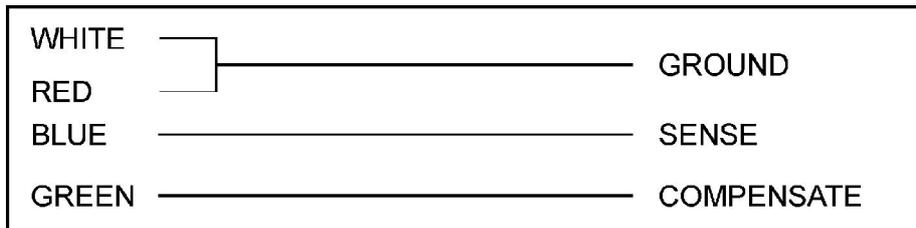
**(i) SM12 Unit**

NOTE: For viewing comfort, the SM12 unit should be positioned at eye level. The ambient temperature of the unit is (0°C to +40°C). It is always good practice to keep electronic equipment away from cold, heat and electrical plant, as extremes of temperature may reduce the lifetime of the device, and heavy electrical loads, switches, relays or contactors too close to the device may cause electrical and electro-magnetic interference when switched on or off.

To wall mount the SM12, drill four holes, according to the Template for Positioning Wall Mounting Screws, A6427, which can be found in a small bag inside the unit with four fixing screws. Fasten the four screws, supplied with the SM12, into the drilled holes. Leave a gap of approximately 3mm between the screw head and the wall. Position the moulding over the four screws.

**(ii) Sensors**

The SM12 may be used with a variety of sensors of different cable lengths. If required, sensors are available with extended cable lengths or alternatively, sensor extenders are available, also in a variety of lengths. If the sensors need to be extended, but factory-made extenders are not available, they can be extended using a suitable 4 core or 3 core cable, according to the diagram shown below.



Please note however, that as with all PT100 sensor applications, a good connection is vital. It is therefore recommended that wherever there is any doubt, a factory- extended sensor or sensor extender should be used.

**(iii) Alarm Relay**

NOTE: The 4 Alarm Relays are a 2 contact arrangement which are isolated (volt-free). These relays may be used to trigger an external bell, warning lamp, or digital communicator (telephone dialler).

The alarm relay is software configurable to accommodate normally open or normally closed operation, as described below and in section 4.9.

Normally Closed Operation - This is the default mode. The relay outputs will make contact in the event of an alarm or power failure.

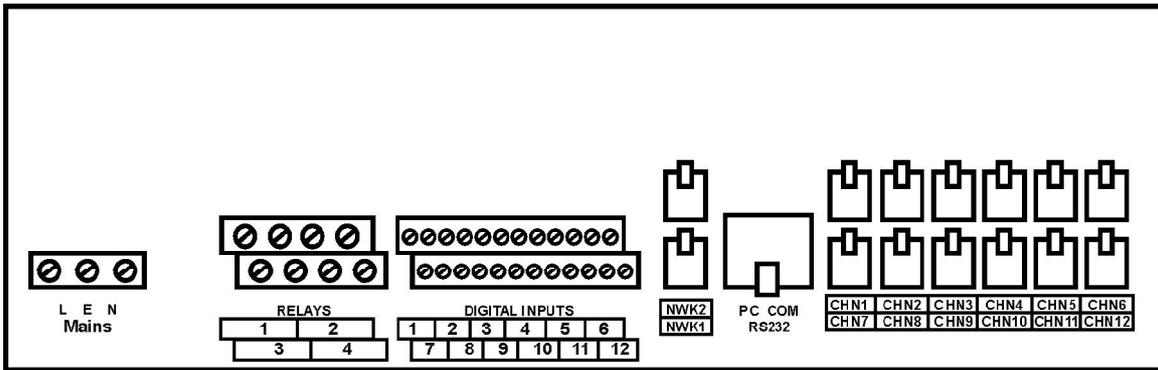
Normally Open Operation - In this mode, the relay outputs will break contact (open circuit) in the event of an alarm and make contact (closed circuit) in the event of power failure.

If an external device is used, connect the alarm as appropriate, according to the diagram in the next section.

**(iv) Power Connections and Wiring Diagram**

NOTE: This device should be properly earthed. Flexible wires simplify connection to the terminals. All connections should be secure and adequately tightened. It is good practice to keep mains cables away from sensor cables and other low voltage signal cables.

Connect the supply to the unit, as per diagram below, using the appropriate input voltage according to the application.



**(v) Battery**

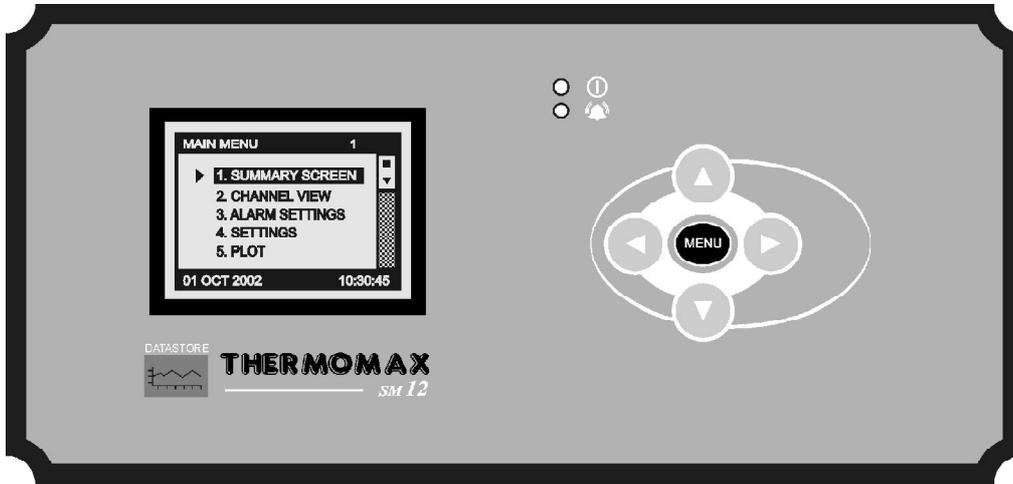
The battery supplied is a 9V PP3 nickel metal hydride rechargeable battery and is attached to the lid of the terminal compartment, but not plugged in. This should be plugged in after installation. This battery is not essential for the system operation, but is used in the case of power failure, thereby continuing to log the 12 sensor inputs for approximately 1 hour.

The system parameters will remain intact, in the event of a power failure.

It is recommended that the battery is changed every 12 months, in order to maintain good power failure operation. When replacing, ensure that the type of rechargeable battery used is as specified.

## SM12 OPERATION

In order to fully understand the operation of the *SM12*, this section should be read carefully.

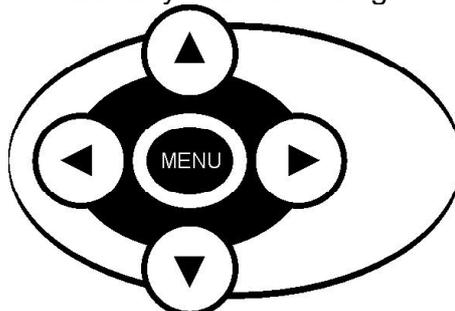


(i) **Graphics LCD Display**

Displays all the information. The contrast is adjustable to suit the user. (See Section 6.1).

(ii) **Function Keys**

The four arrow keys are used to navigate through the unit's menus, allowing for easy access to the SM12's many options and settings. The Up and Down arrow keys select an option in the displayed menu, while the Right arrow key selects a menu, and the Left arrow key returns to the previous menu. A menu I.D. is displayed at the top of each screen to indicate to the user which particular menu they are accessing.



Note: To return to the Main Menu from any screen, press and hold the



key for 3 seconds.

(iii) **Indicators**



Power ON / OFF Indicator



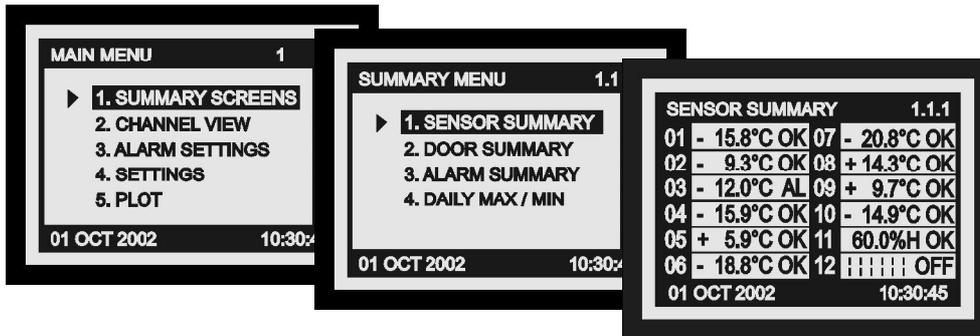
Alarm Triggered Indicator

## 1.0 SUMMARY SCREENS

These screens allow the user to view all the data logged by the unit for each channel, e.g. Sensor Summary, Door Summary, Alarm Summary, Daily Max. / Min. Temperatures.

### 1.1 SENSOR SUMMARY

From the Main Menu screen, press the  key twice to reveal the Sensor Summary Screen.



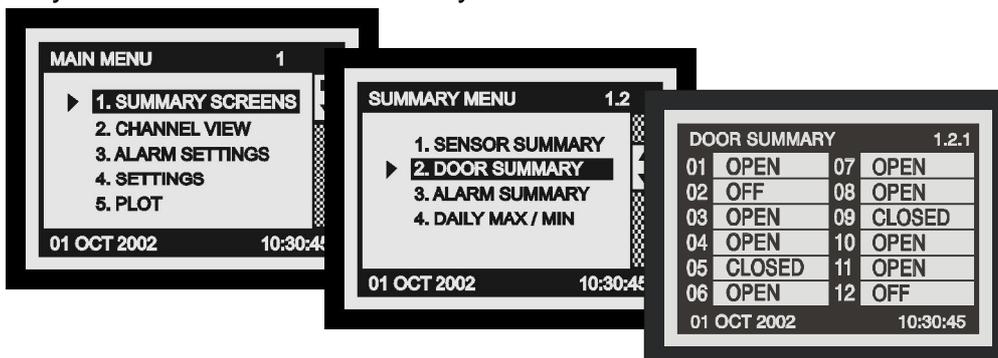
This screen displays the current temperature / humidity readings of each of the twelve channels and if the channel is in alarm or not.

The display contrast may be adjusted in this screen. Press  to increase and  to decrease the contrast. To adjust quickly, press and hold for auto-repeat.

The  key will return the user to the previous menu option.

### 1.2 DOOR SUMMARY

From the Main Screen, press the  key, followed by the  key to select Door Summary in the menu and then confirm selection using the  key to reveal the Door Summary Screen.

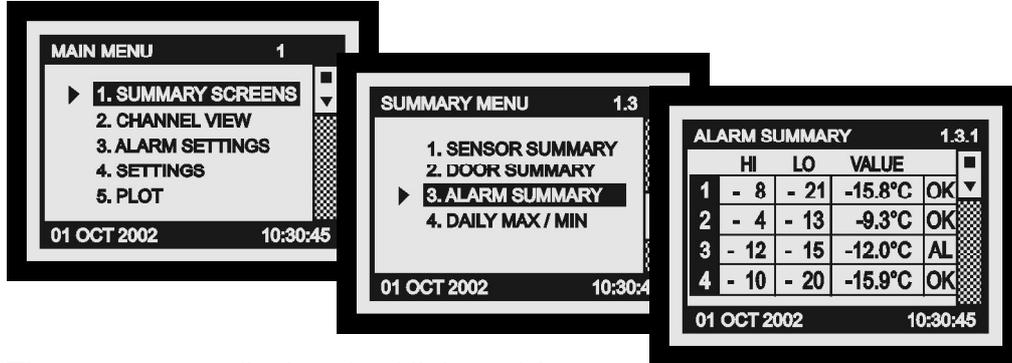


This screen displays the status of each of the 12 digital inputs, indicating whether it is OPEN, CLOSED or OFF.

The display contrast may be adjusted in this screen. Press  to increase and  to decrease the contrast. To adjust quickly, press and hold for auto-repeat.

### 1.3 ALARM SUMMARY

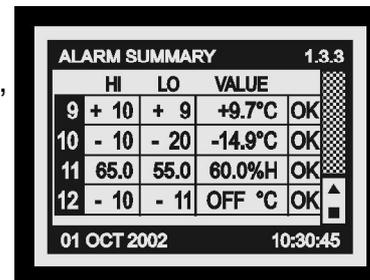
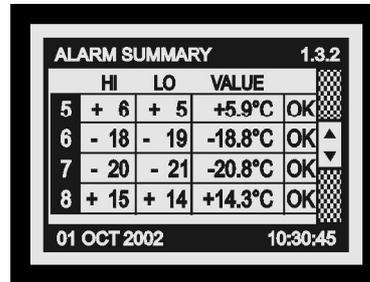
From the Main Screen, press the  key, followed by the  key to select Alarm Summary in the menu and then confirm selection using the  key to reveal the Alarm Summary Screen.



These screens display the High and Low Alarm Limit settings for each channel and also display the current temperature / humidity readings.

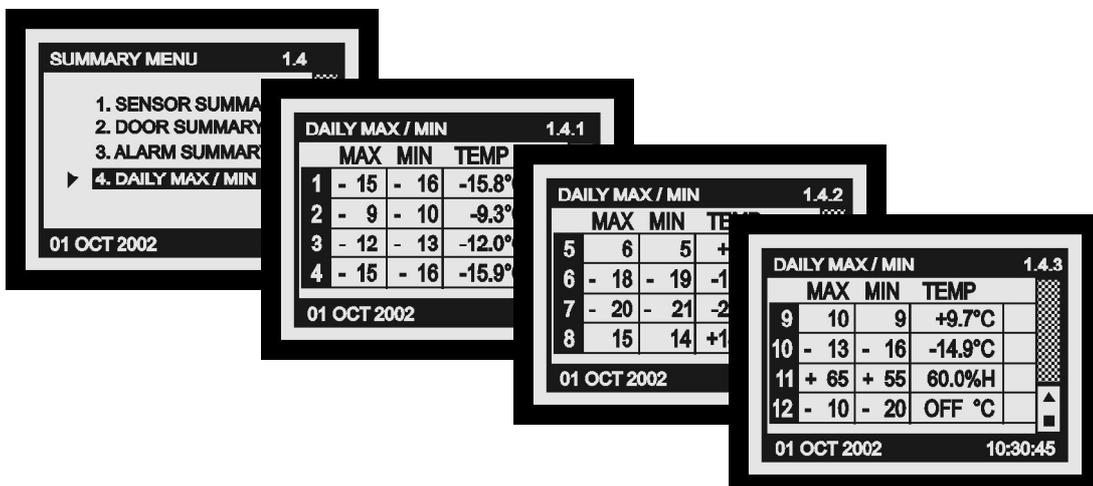
The sensors' status is also displayed, (i.e. in alarm or okay).

Pressing the  key will reveal information for channels 5 to 8, and pressing once more, reveals information for channels 9 to 12.



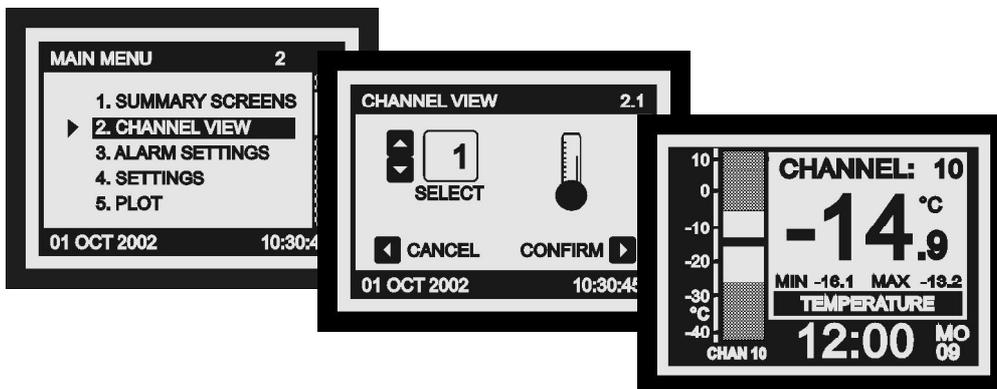
### 1.4 DAILY MAX / MIN READINGS

From the Main Screen, press the  key, followed by the  key to select Daily Min / Max in the menu and then confirm selection using the  key to reveal the Daily Min / Max Screen.



## 2.0 CHANNEL VIEW

From the Main Screen, press the  key to select Channel View from the main menu, then confirm selection using the  key to reveal the Channel View Selection screen.

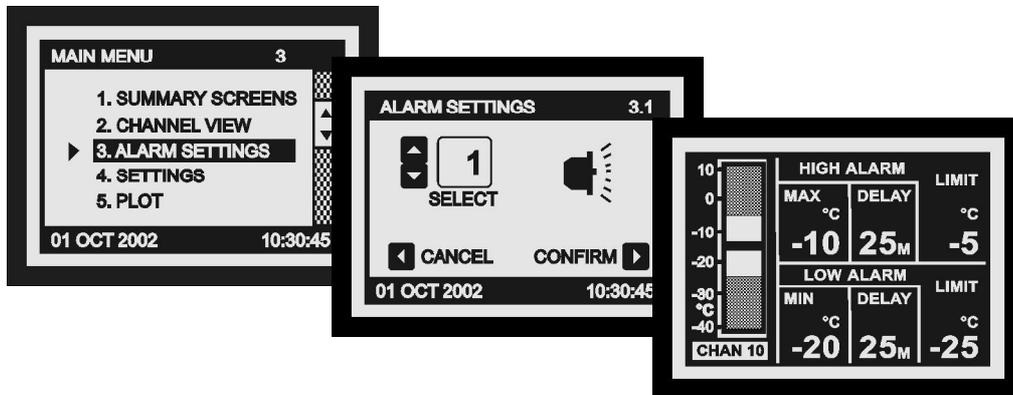


From this screen, the user can select to view any of the channels from 1 to 12, using the  and  keys and pressing the  key to confirm.

- (i) The clock is displayed in 24-hour format with the day of the week abbreviated.
- (ii) The temperature bargraph displays the current temperature of the selected channel. The high and low alarm limits are shown as shaded areas.
- (iii) Any channel can be set up to read either temperature or humidity. Depending on what has been selected, either **TEMPERATURE** or **REL HUMIDITY** will be displayed and values will be displayed as either °C or % rH (relative humidity).
- (iv) The current temperature / humidity for that channel is displayed digitally along with the daily maximum and minimum temperature, which are reset at midnight.

### 3.0 ALARM SETTINGS

From the Main Screen, press the  key to select Alarms from the main menu, then confirm selection using the  key to reveal the Alarms Selection screen.



From this screen, the user can select to view the alarm information on any of the channels from 1 to 12, using the  and  keys and pressing the  key to confirm.

#### (i) Bargraph Scale

By pressing the  or  key, the bargraph display scale may be adjusted to show the temperature / humidity range best suited to the particular installation.

#### (ii) High Alarm Stage 1 Temperature (-99°C to +150°C) / Humidity (0%rH to 100%rH)

The Stage 1 Alarm is a time / temperature related alarm. If the maximum threshold is exceeded, a timer is initiated, and no further action is taken at this time.

#### (iii) High Alarm Stage Delay (1 – 99 min.)

After the maximum threshold has been exceeded, the alarm will not be triggered until the timer exceeds the time delay set here. If the temperature drops below the threshold before the expiry of this delay, the timer is reset. If following this, the temperature rises above the threshold again, the timer restarts from zero.

#### (iv) High Alarm Limit Stage 2 temperature (-99°C to +150°C) / Humidity (0%rH to 100%rH)

If at any time this limit is exceeded, the time delays will be overridden and the alarm will trigger immediately.

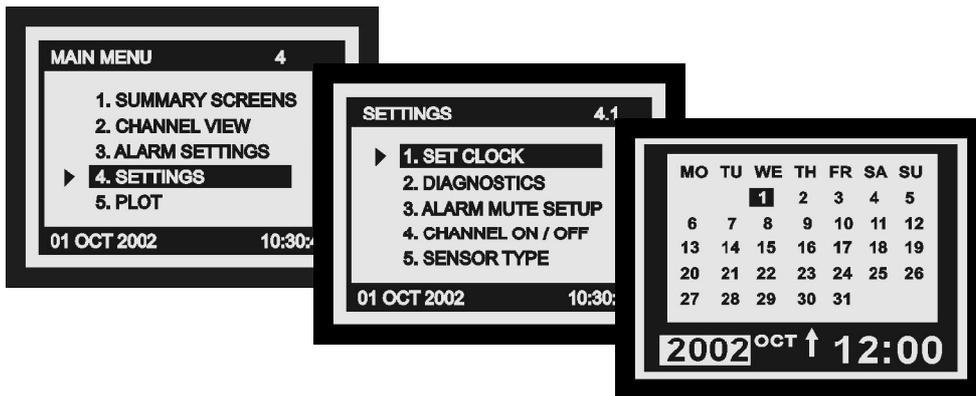
#### (v) Low Alarm

All the functions described for the high alarm also apply to the low alarm.

## 4.0 SETTINGS

### 4.1 SET CLOCK

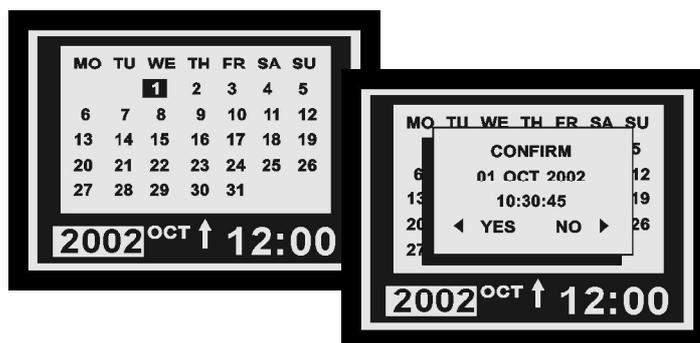
From the Main Screen, press the  key to select Settings from the main menu, then confirm selection using the  key to reveal the Settings Menu. Select Set Clock from the menu and press the  key to confirm.



The calendar screen allows the user to change the time and date settings of the unit.

The highlighted parameter is adjusted by pressing the  or  key. The parameters are Year, Month, Day, Hour and Minutes. To change any of these, press the  or  key. Once the user has made the changes and

has pressed the  key to confirm, the following screen will appear asking the user if they are sure of the change.

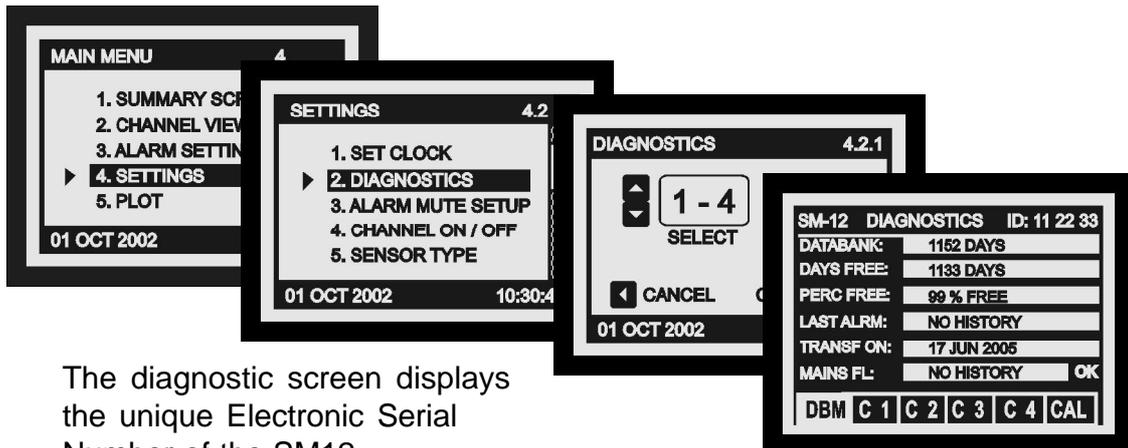


Press the  key to cancel or the  key to confirm.

## 4.2 DIAGNOSTICS

### DATABANK DIAGNOSTICS SCREEN

From the Main Screen, press the  key to select Settings from the main menu, then confirm selection using the  key to reveal the Settings Menu. Select Diagnostics from the menu and press the  key to confirm. Pressing the   keys reveals information for channels 5 to 8 and 9-12.



(i) The diagnostic screen displays the unique Electronic Serial Number of the SM12.

(ii) The DATABANK window shows the capacity of the internal databank.

(iii) The DAYS FREE window shows the number of days which have not yet been used.

(iv) The PERC FREE window shows the percentage of the databank which has not been used.

(v) The LAST ALRM window shows the last date on which an alarm condition occurred.

(vi) The TRANSF ON window shows the date on which the contents of the internal databank need to be transferred.

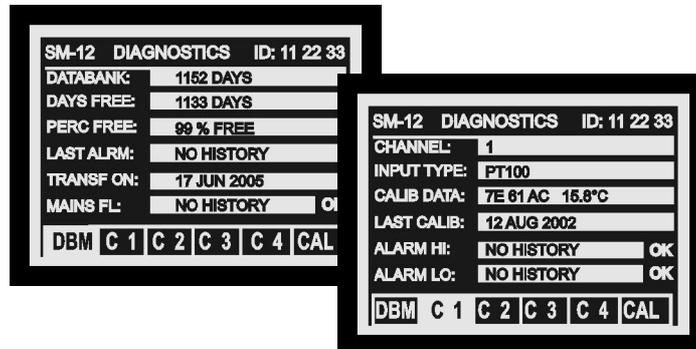
(vii) The MAINS FL window shows the last date on which the power failed. During a power fail situation, this window will display the duration in minutes, of the power failure.

(viii) Use the  and  keys to move between the diagnostic screens.

## CHANNEL DIAGNOSTICS SCREEN

To enter the Channel Diagnostics Screen, from the Databank Diagnostics

Screen press the  key to highlight the **C 1** box at the bottom of the display.

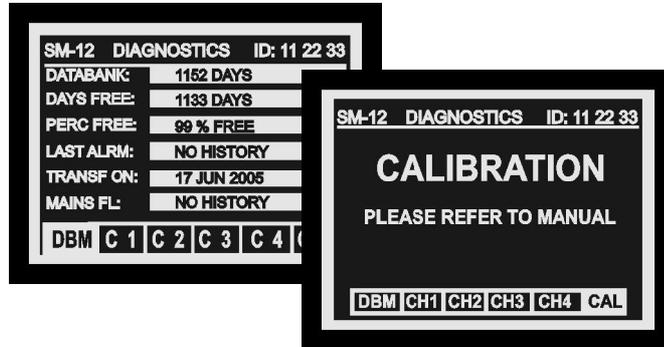


- (i) The CHANNEL window shows the number of the currently selected channel.
- (ii) The INPUT TYPE window shows which type of sensor is being used.
- (iii) The CALIB DATA window shows calibration values, for factory use only, and the current temperature reading.
- (iv) The LAST CALIB window shows the date when the SM12 was calibrated.
- (v) The AL HIGH window shows the date when the last high alarm condition occurred for this channel.
- (vi) The AL LOW window shows the date when the last alarm condition occurred for this channel.

## CALIBRATION TRIMMING

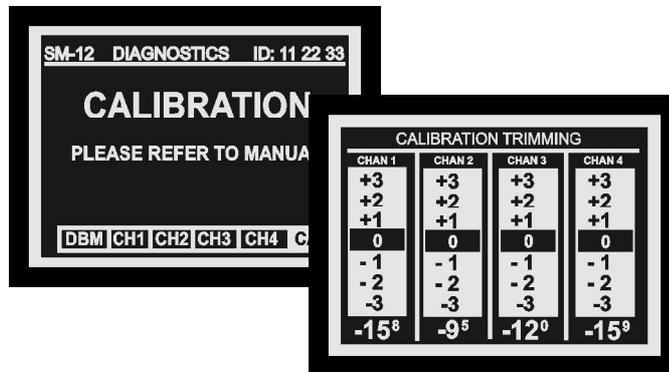
To enter the Calibration Screen, from the Databank Diagnostics Screen

press the  key to highlight the **CAL** box at the bottom right hand side of the display.



Calibration trimming allows qualified personnel to adjust the SM12's calibration by  $\pm 3^{\circ}\text{C}$  /  $\pm 3\%r\text{H}$ . A known reference value should be used.

To enter the Calibration Trimming screen, press and hold the  key for 8 seconds.



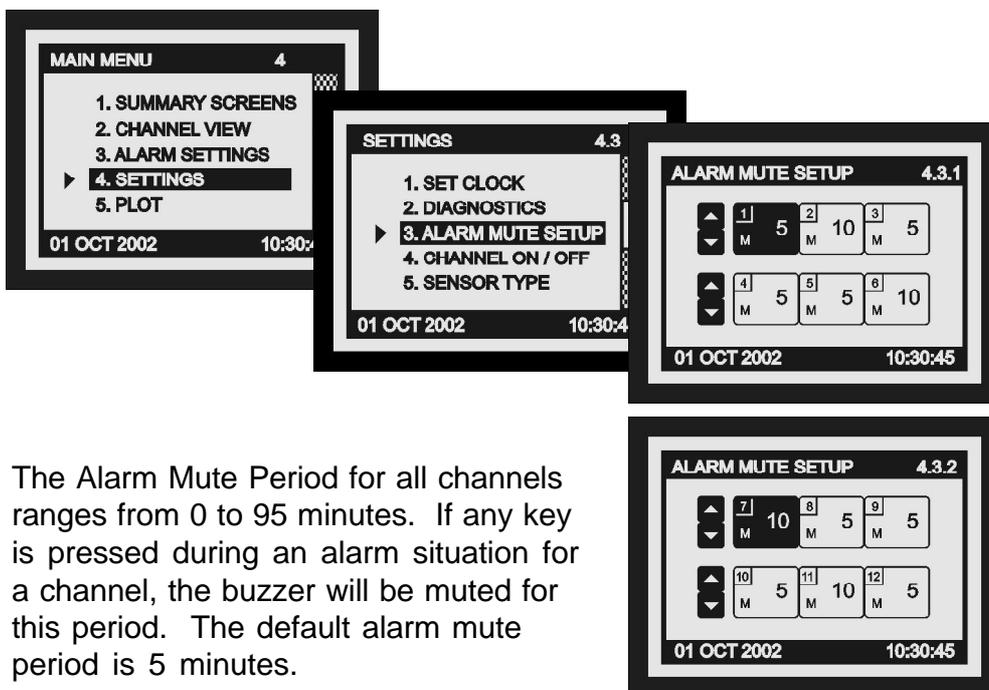
Use the   keys to move to the channel that requires calibration trimming. Then use the  or  key to adjust the current temperature reading.

Press the  key to return to the diagnostics screen, or press and hold

the  key to return to the Main Menu.

### 4.3 ALARM MUTE SETUP

From the Main Screen, press the  key to select Settings from the main menu, then confirm selection using the  key to reveal the Settings Menu. Select Alarm Mute Setup from the menu and press the  key to confirm.



The Alarm Mute Period for all channels ranges from 0 to 95 minutes. If any key is pressed during an alarm situation for a channel, the buzzer will be muted for this period. The default alarm mute period is 5 minutes.

In order to change the alarm mute period

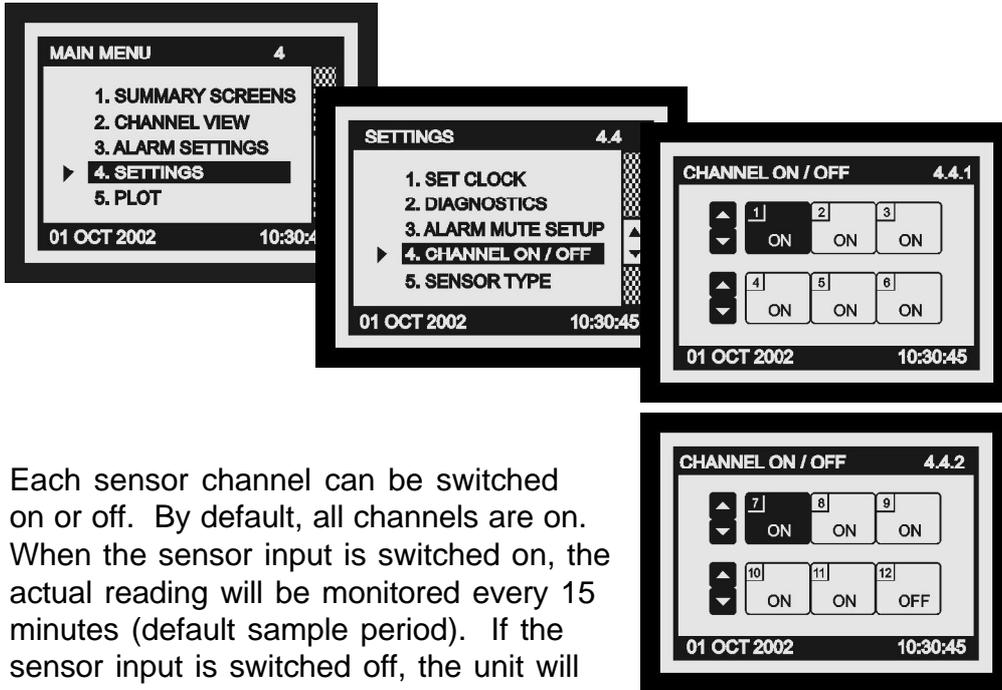
for any channel, move to the required channel by using the  or  key.

To increase the alarm mute period, press the  key. To decrease, press the  key.

If a channel is switched off, the alarm parameters will automatically revert back to the default factory settings to prevent an alarm occurrence. These parameters cannot be changed until the sensor input is switched on again.

#### 4.4 CHANNEL ON/OFF

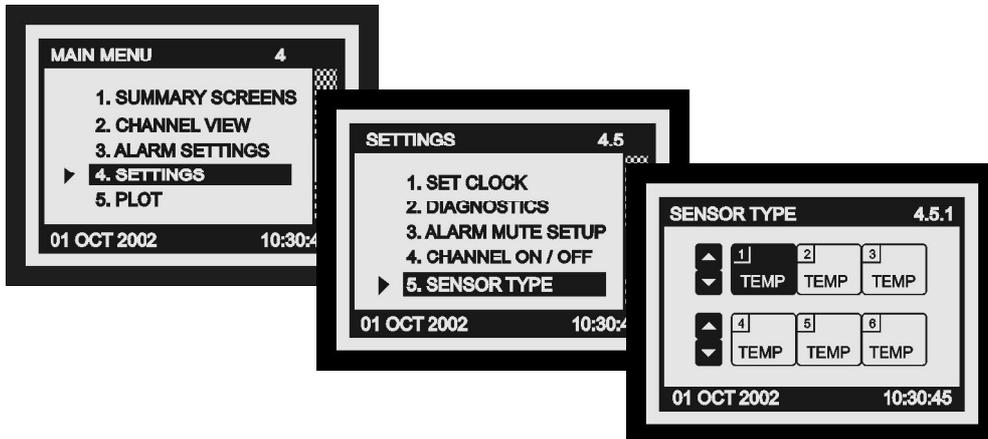
From the Main Screen, press the  key to select Settings from the main menu, then confirm selection using the  key to reveal the Settings Menu. Select Channel On / Off from the menu and press the  key to confirm.



To switch a channel off, press and hold the  key for 5 seconds. To switch the channel back on, press and hold the  key for 5 seconds.

## 4.5 SENSOR TYPE

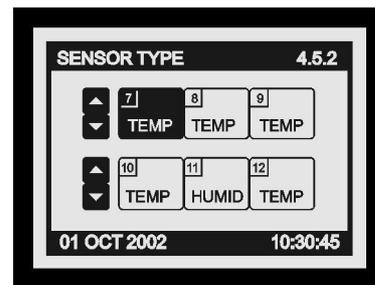
From the Main Screen, press the  key to select Settings from the main menu, then confirm selection using the  key to reveal the Settings Menu. Select Sensor Type from the menu and press the  key to confirm.



The 12 sensor inputs can be configured to read either Temperature or Relative Humidity. As a factory default, all 12 sensor inputs are configured to accept temperature sensors.

The first screen allows sensor type selection for channels 1 to 6. To select the second screen for channels 7 to 12,

press the  key when channel 6 is selected.



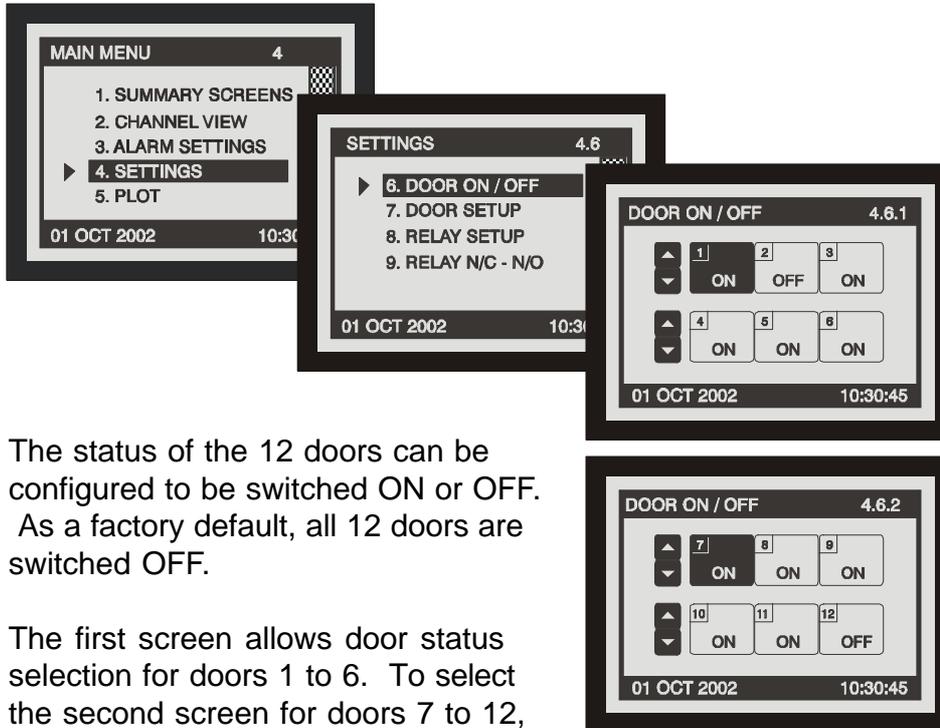
To change the sensor input configuration

to Humidity, press and hold the  key for 5 seconds. To change it back to

Temperature, press and hold the  key for 5 seconds.

## 4.6 DOOR ON/OFF

From the Main Screen, press the  key to select Settings from the main menu, then confirm selection using the  key to reveal the Settings Menu. Select Door ON / OFF from the menu and press the  key to confirm.



The status of the 12 doors can be configured to be switched ON or OFF. As a factory default, all 12 doors are switched OFF.

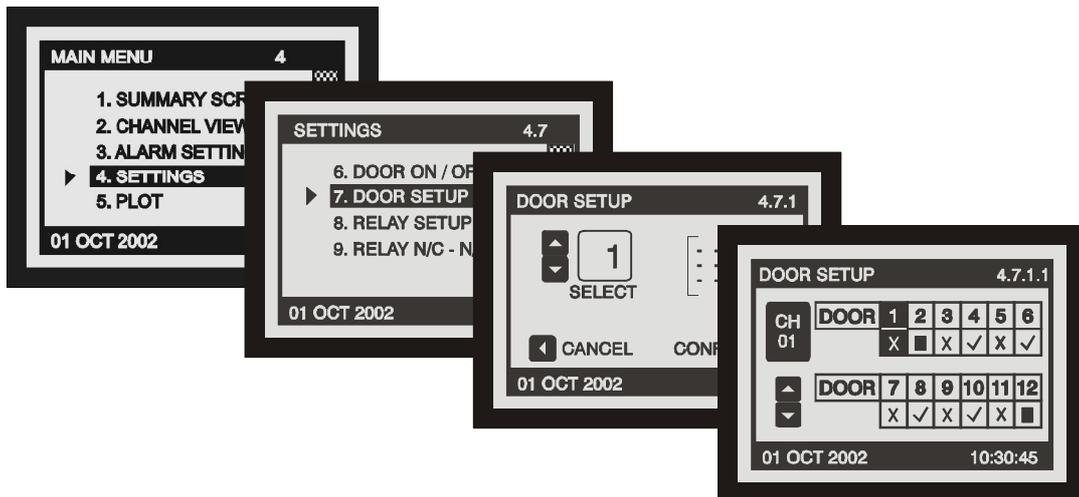
The first screen allows door status selection for doors 1 to 6. To select the second screen for doors 7 to 12,

press the  key when door 6 is selected.

To switch a door off, press and hold the  key for 5 seconds. To switch the door back on, press and hold the  key for 5 seconds.

## 4.7 DOOR SETUP

From the Main Screen, press the  key to select Settings from the main menu, then confirm selection using the  key to reveal the Settings Menu. Scroll down using the  key to the second page of the menu, select Door Setup from the menu and press the  key to confirm.



The Door Setup is purely for display / graphing purposes only. It allows the user to associate any channel with any number of digital inputs (e.g. doors).

The user can select any channel from screen 4.7.1, using the  and  keys and pressing the  key to confirm.

To set which door inputs are associated with each channel use the  and  keys to select a door input and use the  key to select and the  key to deselect.

✓ indicates that the digital input is associated with the selected channel.

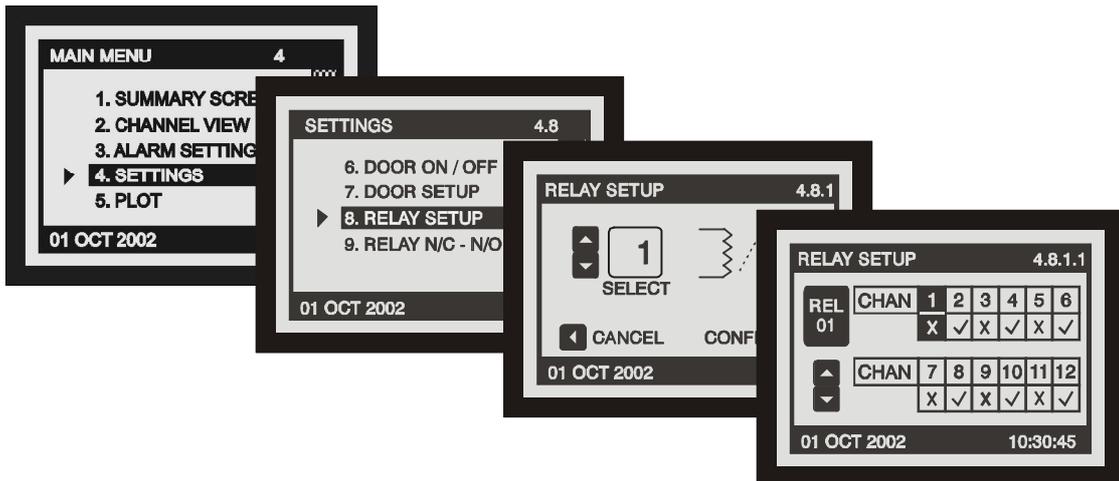
X indicates that the digital input is not associated with the selected channel.

■ indicates that the status of the door is OFF.

Note: The user cannot set the door input association if a door is turned off (see 4.6.1).

## 4.8 RELAY SETUP

From the Main Screen, press the  key to select Settings from the main menu, then confirm selection using the  key to reveal the Settings Menu. Scroll down using the  key to the second page of the menu, select Relay Setup from the menu and press the  key to confirm.



It allows the user to associate any channel with any number of relay outputs, (i.e. alarm relays). e.g. If channel 1 goes into fault, each alarm associated with channel 1 will be triggered.

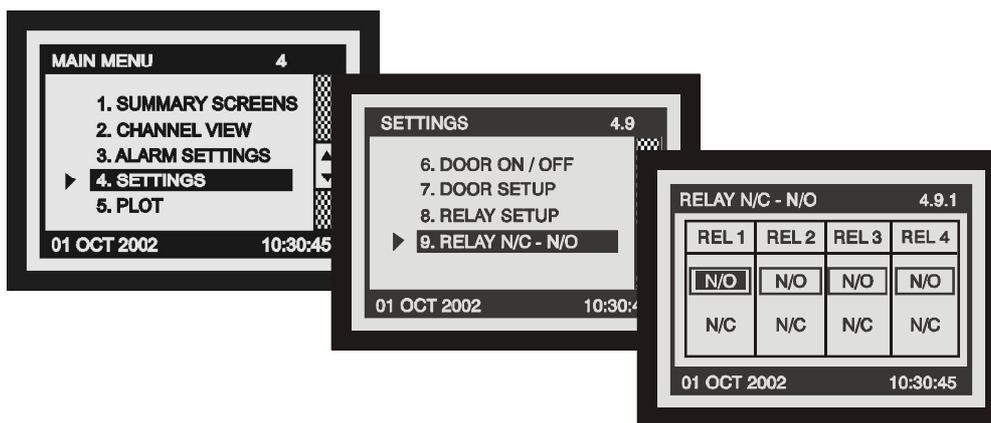
The user can select any relay from screen 4.8.1, using the  and  keys and pressing the  key to confirm.

To set which channel is associated with each relay use the  and  keys to select a channel and use the  key to select and the  key to deselect.

- ✓ indicates that the channel is associated with the selected relay.
- X indicates that the channel is not associated with the selected relay.

#### 4.9 RELAY NORMALLY CLOSED / NORMALLY OPEN

From the Main Screen, press the  key to select Settings from the main menu, then confirm selection using the  key to reveal the Settings Menu. Scroll down using the  key to the second page of the menu, select Relay N/C - N/O from the menu and press the  key to confirm.



The default state of each relay is set to normally closed (N/C). The user can change the setting of individual relays to be N/O or N/C.

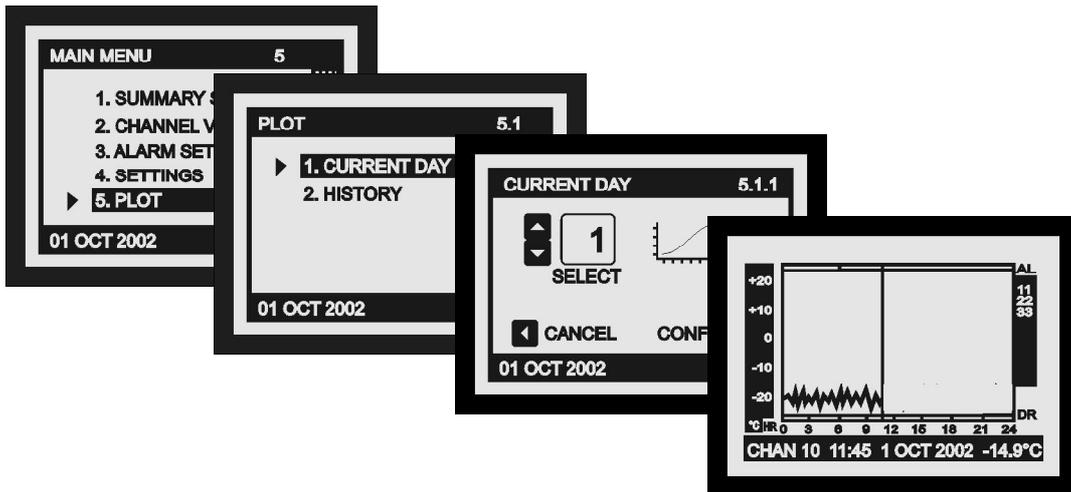
- N/C Normally Closed Operation - This is the default mode. The relay outputs will make contact in the event of an alarm or power failure.
- N/O Normally Open Operation - In this mode, the relay outputs will break contact (open circuit) in the event of an alarm and make contact (closed circuit) in the event of power failure.

To change the setting of each relay to normally closed, press and hold the  key for 5 seconds. To change the setting back to normally open, press and hold the  key for 5 seconds.

## 5.0 PLOT

### 5.1 CURRENT DAY

From the Main Screen, press the  key to select Plot from the main menu, then confirm selection using the  key to reveal the Plot Menu. Select Current Day from the menu and press the  key to confirm.



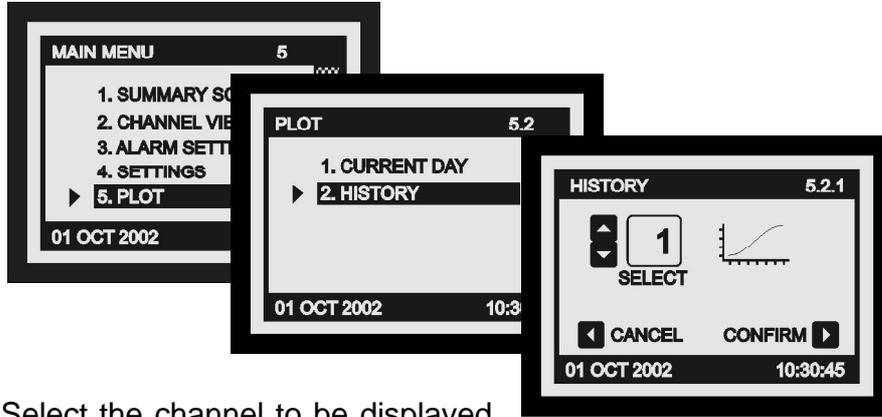
The user can select any channel from screen 5.1.1, using the  and  keys and pressing the  key to confirm.

The user can read sample information using the  and  keys.

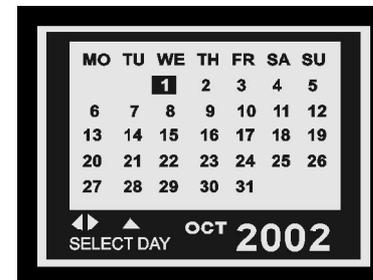
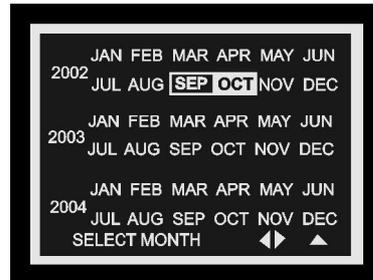
This screen displays the plot of the temperature / humidity readings logged for the current day.

## 5.2 HISTORY

From the Main Screen, press the  key to select Plot from the main menu, then confirm selection using the  key to reveal the Plot Menu. Select History from the menu and press the  key to confirm.

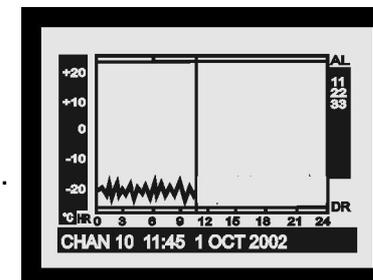


- 1 Select the channel to be displayed using the  and  keys and pressing the  key to confirm.
- 2 Select the year and month using the  and  keys and pressing the  key to confirm.
- 3 Select the day using the  and  keys and pressing the  key to confirm.



History functions that are available from this screen are as follows:

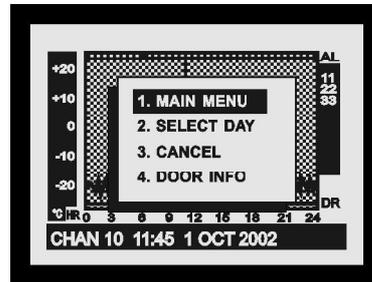
- (i) By pressing the  key, the values of the previous day will be displayed.
- (ii) By pressing the  key, the unit will increment through the values, according to the sample period. At the end of each day, the next day logged in the databank will be displayed.
- (iii) By pressing the  key, several new options become available to the user, these are detailed on the following page.



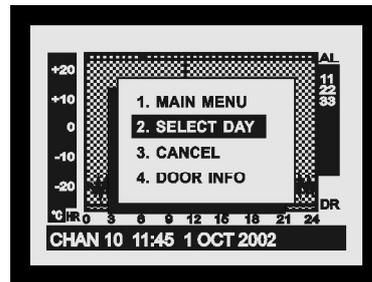


By pressing the  key from the History Plot Screen, the user has the option to:

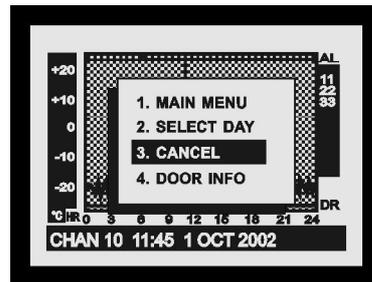
- (i) Return to the Main Menu, by selecting MAIN MENU from the pop-up menu and pressing the  key to confirm.



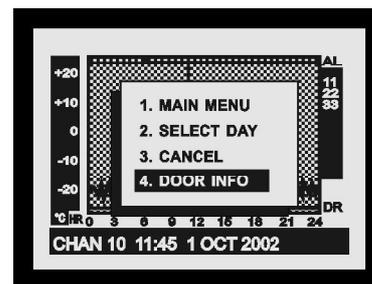
- (ii) Return to the select day screen, by selecting SELECT DAY from the pop-up menu and pressing the  key to confirm.



- (iii) Return to the history Plot, by selecting SHOW PLOT from the pop-up menu and pressing the  key to confirm.



- (iv) Display the door information by selecting SHOW DOOR from the pop-up menu and pressing the  key to confirm.



The user can select to view the information of any door by using

the  and  keys.

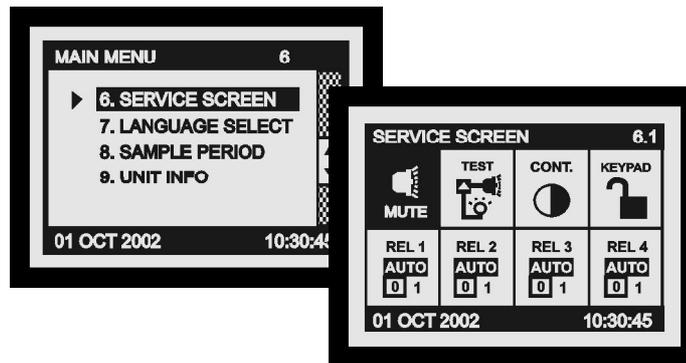


## 6.0 SERVICE SCREEN

### 6.1 SERVICE SCREEN

From the Main Screen, press the  key to scroll down to the second page of the menu. Select Service Screen from the main menu, then confirm

selection using the  key to reveal the Service Screen.



#### (i) MUTE

To mute the SM12's internal audible alarm, press the  key when the MUTE window is selected. When the alarm system is reset, either manually or by the temperatures dropping within pre-set limits, the alarm mute will be cancelled automatically.

#### (ii) TEST

By pressing the  key when the TEST window is selected, the SM12's internal audible alarm will 'sound' and all LED indicators will illuminate.

#### (iii) CONT.

The display contrast can be adjusted when the CONT. window is selected by pressing the  key to increase and the  key to decrease.

#### (iv) KEYPAD

The keypad can be locked or unlocked when the KEYPAD window is selected. When the keypad is locked, the SM12 enters into a security mode, which renders the unit 'tamper-proof'.

To lock, press and hold the  key for 5 seconds.

To unlock, press and hold the  key for 5 seconds.

## (v) Relays

The output status of each relay can be viewed or altered by pressing the  or  key when the REL window is selected.

AUTO  
0 1

Relay manually OFF

AUTO  
0 1

For normal operation - (frame around '0' indicates relay OFF)  
- (frame around '1' indicates relay ON)

AUTO  
0 1

Relay manually ON

This is the default status for Normally Closed operation (N.C.). If Normally Open (N.O.) operation for any relay is selected, then the override status will be reversed. (See section 4.8 Relay N.C./N.O. Setup, page 20).

## 7.0 LANGUAGE SELECT

### 7.1 LANGUAGE SELECT

From the Main Screen, press the  key to scroll down to the second page of the menu. Select Language Select from the main menu, then confirm selection using the  key to reveal the Language Select Screen.



The language used by the SM12 to communicate the information may be selected here, i.e. English, German and French.

Use the  or  key to select the required language and then confirm the selection using the  key.

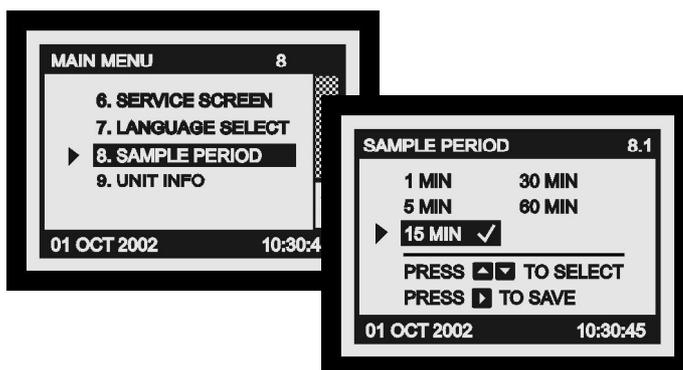
✓ indicates the language that is currently selected.

Press the  key to exit.

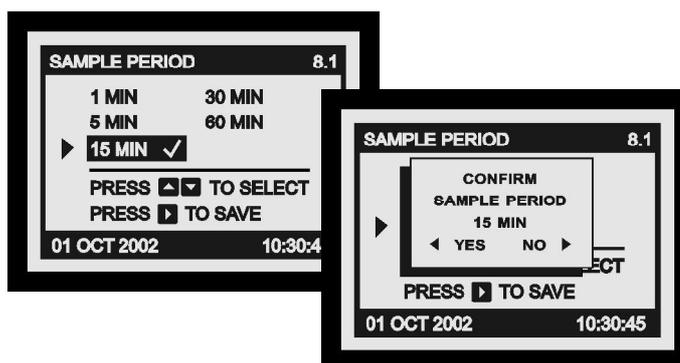
## 8.0 SAMPLE PERIOD

### 8.1 SAMPLE PERIOD

From the Main Screen, press the  key to scroll down to the second page of the menu. Select Sample Period from the main menu, then confirm selection using the  key to reveal the Sample Period Screen.



Use the  or  key to select the required sample period and then confirm the selection using the  key. Immediately the following screen will appear:

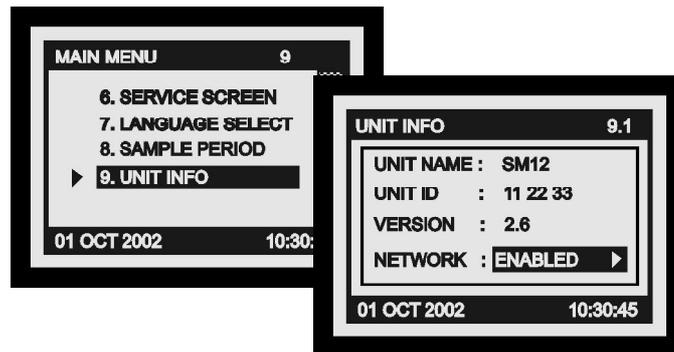


✓ indicates the sample period that is currently selected.

Press the  key to cancel or the  key to confirm.

## 9.0 UNIT INFORMATION

From the Main Screen, press the  key to scroll down to the second page of the menu. Select Unit Info from the main menu, then confirm selection using the  key to reveal the Unit Info Screen.



This screen displays information about the unit, including the name, identification number (electronic serial number), software version number and also allows the user to enable or disable the network mode.

Note: Network mode should be enabled if the unit is to be connected in a network of Thermomax units. This should be done before connecting the unit into the network.

If the network mode is enabled, to disable it, press and hold the  key for approximately 5 seconds.

If the network mode is disabled, to enable it, press and hold the  key for approximately 5 seconds.

## FAULT FINDING

Problem: Nothing happens when the unit is powered up.

Cause / Remedy: One of the fuses could be blown - check and replace if necessary (refer to specification for values). If the fuses blow again, contact the agent where the unit was purchased.

Problem: The sensor reading is fluctuating.

Cause / Remedy: One of the sensor connections may be loose. If the sensor cable has been extended tighten connections and ensure all couplers are connected correctly.

Problem: Unable to set any of the parameters: Keypad will not operate.

Cause / Remedy: The Keypad Lock is on - See 'Keypad', section 6.1.

Problem: The display screen is too dark or too faint.

Cause / Remedy: Adjust the display contrast to suit - See 'Contrast', section 6.1.

Problem: The system alarm light is flashing once every 3 seconds.

Cause / Remedy: This indicates a system warning. Check the CHANNEL DIAGNOSTICS screen for indication of the specific warning.

Problem: The System Alarm light is flashing and the audible sounder is active.

Cause / Remedy: This indicates a system fault or temperature alarm. Check the CHANNEL DIAGNOSTICS or ALARM SUMMARY screens for indication of the specific alarm.

## SPECIFICATIONS

### ELECTRICAL:

|                             |   |
|-----------------------------|---|
| <b>Supply Voltage:</b>      | 220-240V AC Single Phase  |
| <b>Fuses:</b>               | 2 X 1A 20mm Quick Blow  |
| <b>Relay Output:</b>        | <b>Alarm:</b> 5A changeover 2 pin isolated - (volt-free contacts) |
| <b>Ambient Temperature:</b> | 0°C to +40°C  |

### MECHANICAL:

|                      |                               |
|----------------------|-------------------------------|
| <b>Dimensions:</b>   | width: 281 mm                 |
|                      | height: 223mm                 |
|                      | depth: 66.5mm                 |
|                      | weight: SM12 1.8kg            |
|                      | Sensor: (each) 0.13kg         |
| <b>Box Material:</b> | Plastic                       |
| <b>Display:</b>      | Large LCD supertwist graphics |

### SENSORS:

|                      |  |
|----------------------|--|
| <b>Type:</b>         | SX™ PT 100 Platinum Film                           |
| <b>Compensation:</b> | 3 wire compensated                                 |
| <b>Cable Length:</b> | A variety of lengths are available from 5m to 50m. |
| <b>Battery:</b>      | 9V PP3 Rechargeable Ni-MH 9V, 120mAh               |

## PARTS LIST

|                   |       |
|-------------------|-------|
| SM12              | C0488 |
| Sensor (5m Cable) | A6905 |

## ACCESSORIES

|   |       |                     |       |
|---|-------|---------------------|-------|
| Sensor (15m Cable)                              | A6915 | Sensor Extender 50m | A6951 |
| Sensor (25m Cable)                              | A6925 | MASTERLINK Software | C0322 |
| Sensor Extender 10m                             | A6911 | Sensor Extender 20m | A6921 |
| Humidity Sensor                                 | C0429 |                     |       |
| Wall Bracket for Humidity Sensor                |       | A6936               |       |
| Network Connecting Cable : 1m (Ivory)           |       | A7004               |       |
| Network Connecting Cable : 10m (Ivory)          |       | A7426               |       |
| Network Connecting Cable : 20m (Ivory)          |       | A7427               |       |
| Network Connecting Cable : 50m (Ivory)          |       | A7428               |       |
| Network Connecting Cable : 100m (Ivory)         |       | A7429               |       |
| Network Connecting Cable : 200m (Ivory)         |       | A7431               |       |
| Masterlink Software Extension Kit : 10m (Ivory) | A7030 |                     |       |
| Masterlink Software Extension Kit : 20m (Ivory) | A7378 |                     |       |
| Masterlink Software Extension Kit : 40m (Ivory) | A7342 |                     |       |
| Masterlink Software Extension Kit : 60m (Ivory) | A7100 |                     |       |

# CE

This product has been tested to the EU EMC 89/336/EEC directive according to the Manufacturers report, which is available upon request.

This product is in conformance with the Low Voltage Directive 73/23/EEC.

Thermomax certifies that this datalogging and / or control device has been manufactured to an ISO 9002 Quality System.

Thermomax undertakes to repair or replace the device if same is shown to be defective in its manufacture and / or components, but Thermomax shall not be responsible for any other financial or economic loss (or any indirect loss) which may be incurred by the buyer / customer or others in the use of the device.

Any claim for repair or replacement must be made not later than 24 months after the date of manufacture.