TP5000 Si Range

Electronic 5/2 day programmable room thermostat
Mains, Battery and RF versions

energy saving recommended
Certification Mark

GB **Installation and User Instructions**

Danfoss

GB Index

Installation Instructions

GB

Please Note:
This product should only be installed by a qualified electrician or competent heating installer and should be in accordance with the current edition of the IEEE wiring regulations.

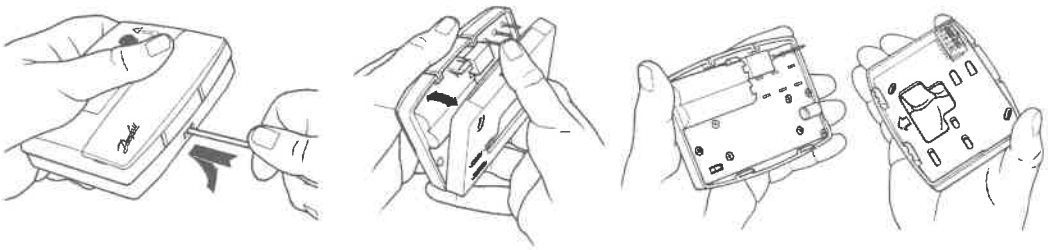
Product Specification

Thermostat features	TP5000 Si	TP5000-RF Si	TP5000M Si	TP5000M 24 Si
Power supply	2 x AA/MN1500/LR alkaline cells		230V, ±15%, 50Hz	24V, ±15%, 50Hz
Memory back-up	Retained for life of product			
Temperature Range Sensing	5-30°C			
Factory set calendar clock	Automatic summer/winter time change			
Switching action of output relay	3(1)A, 10-230V	N/A	3(1)A, 10-230V, Type 1B	
Transmission frequency (RF models)	N/A	433.92MHz	N/A	N/A
Transmission range (RF models)	N/A	30m max.	N/A	N/A
Remote sensor inputs (A models only)	Can be set by installer for remote temperature sensor, limit sensor, window contact or telephone activated switch contacts			
Dimensions (mm)	110 wide, 88 high, 28 deep			
Design standard	EN60730-2-9 (EN300220 for RF)			
Rated impulse voltage	2.5kV			
Ball hardness test	75°C			
Control pollution situation	Degree 2			
Temperature accuracy	±1°C			
Time accuracy	±1 minute per month			

Important note RF products: *Ensure that there are no large metal objects, such as boiler cases or other large appliances, in line of sight between the transmitter and receiver as these will prevent communication between thermostat and receiver.*

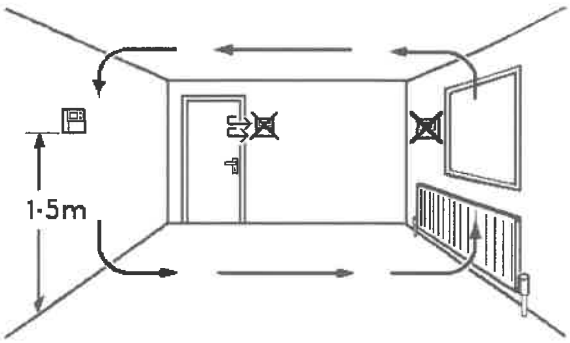
Installation

❑ First, remove the wallplate from the back of the unit.



❑ From the top left hand corner of the wallplate, there must be clearances of at least 15mm to the right, 15mm to the left, 30mm above and 100mm below in order to mount the plug-in module.

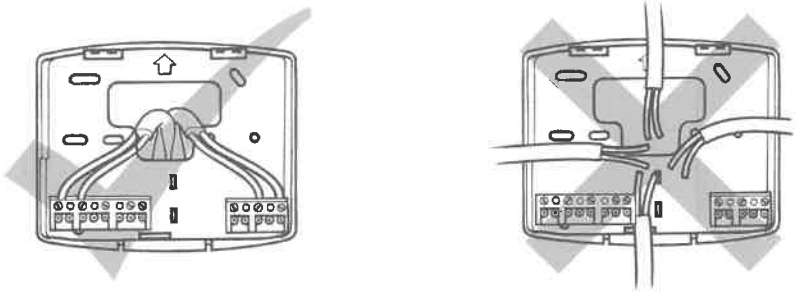
❑ **Thermostat and Remote Room Sensor:**
Fix at a height of approximately 1.5m from the floor, away from draughts or heat sources such as radiators, open fires or direct sunlight.



❑ Prior to mounting the unit the 2 DIL switches on the rear of the unit have to be moved to the required position. The factory presets are shown below.

Sw. No.	OFF		ON
1	Keyboard disabled		Keyboard enabled
2	Reset disabled		Reset enabled

Cable Access



Battery Installation

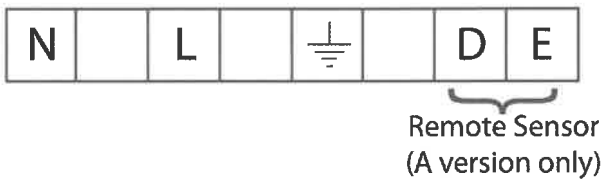
When installing the batteries in the TP5000 Si and TP5000 Si RF please ensure that the correct polarity is observed as per the markings on the inside of the battery compartment.

IMPORTANT: After installing the batteries press and release the RESET button to start the unit. The display may appear blank until this is done. Once the button is released the display will appear. All date, time, programming and override settings are maintained for the life of the product.

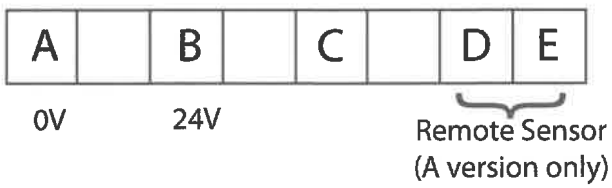
Wiring

Power Supply Connections

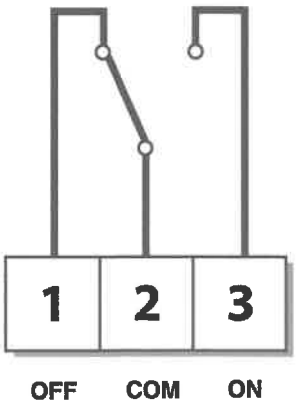
M 230V Models



M 24V Models



Output Connections, all hard wired models



Some existing thermostats will have a Neutral and/or Earth wire connected. These are not required by the battery powered versions of the TP5000 Si and must NOT be connected to any battery powered TP5000 Si terminals. Instead they should be made electrically safe and coiled in the recess at the back of the TP5000 Si.

Models with remote sensor inputs

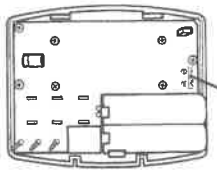
The TP5000A Si, TP5000A-RF Si and TP5000MA Si incorporate an input which can be used to connect one of the following:

1) remote room temperature sensor (sold as accessory).
2) limit sensor, for example, floor temperature sensor (sold as accessory).
3) window contacts, card reader contacts or teleswitch contacts.

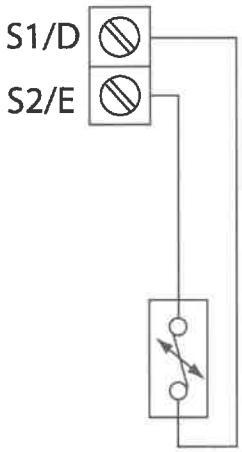
See **Installer Advanced Programming Options** for set-up instructions.

Models with remote sensor inputs

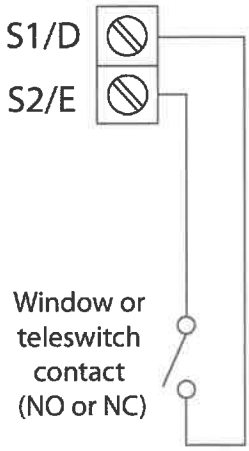
Terminal block for remote control/ sensing is located on the circuit board above the battery compartment.



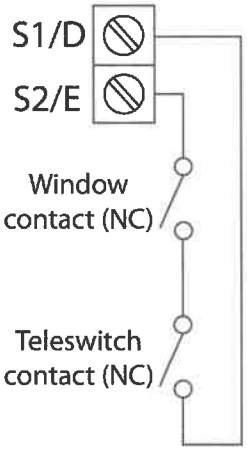
Remote control connections Battery powered verions



Configured for remote room sensor or limit sensor



Configured for window contact or other contact such as teleswitch



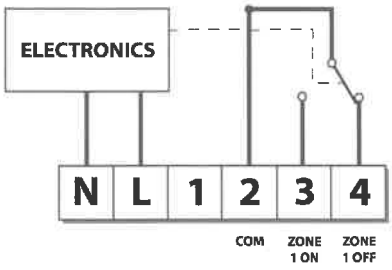
Configured for window contact and other contact such as teleswitch

Note:

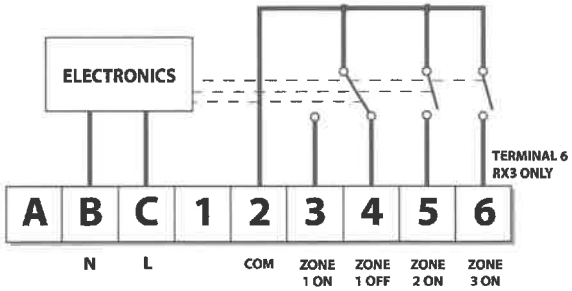
Battery powered versions use S1 and S2.
Mains powered versions use D and E.

RX Receiver Wiring (RF models only)

RX1



RX2 & RX3



1) For mains voltage operated systems link terminal 2 to mains live supply.
2) Power supply to unit must not be switched by timeswitch.

IMPORTANT

To ensure that the factory programmes are set and the micro-computer is operating correctly it is essential that you press and hold the RESET button before you begin any commissioning or programming.

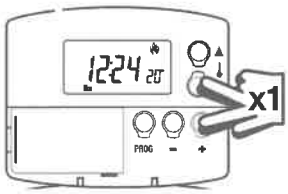
Commissioning (RF models only)

If the thermostat and the receiver have been supplied together in a combined pack, the units have been paired in the factory and no commissioning is required (RX1 only).

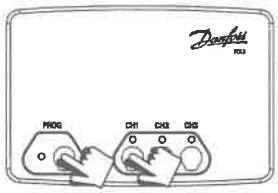
To make the RX receiver learn the thermostat's signal, follow steps 1-5 below.

Step 1
TP5000-RF Si - Reset the unit by pressing the recessed reset button.

Step 2
Press and hold **V and +** buttons for 3 seconds (TP5000 RF Si now transmits unique signal continuously for 3 minutes).



Step 3
RX1 - Press and hold buttons **PROG and CH1** for 3 seconds until green light flashes once.



Step 4
RX2 (if applicable)
Stat 1 - perform steps 1-3 and 5.
Stat 2 -perform steps 1-2 and then press **PROG and CH2 on RX2.**
RX3 (if applicable)
Stat 1 - perform steps 1-3 and 5.
Stat 2 - perform steps 1-2 and then press **PROG and CH2 on RX3 then step 5.**
Stat 3 - perform steps 1-2 and then press **PROG and CH3 on RX3.**

Step 5
TP5000Si-RF - Press **V or Λ** to select temperature - the unit will revert back to operating mode.

Installer advanced programming options

TP5000 Si incorporates a number of advanced features which can be set by the user. These are accessed via a User Advanced Programming Mode, please refer to **User Advanced Programming** in the user instructions for details (see page 25).

Installer advanced programming options

TP5000 Si incorporates an additional number of advanced features which can be set by the installer to improve the operating efficiency of the system and where required, to change the user functionality of the product. These are accessed via an Installer Advanced Programming Mode. These settings are optional and need only be made if there is a demand for the enhanced functions.

Service Interval Timer

Instructions on how to access this feature are available from our customer support desk. Please note these are only issued to boni-fide heating installers.

Entering Installer Advanced Programming Mode

To access the Installer Advanced Programming Mode follow the steps below:

a) Press and hold **V** and **PROG** for 3 seconds to enter User Advanced Programming, the display will change to figure opposite.

b) Press and hold **V**, **Λ** and **PROG** for 5 seconds to enter Installer Advanced Programming, the display will change to figure opposite.

c) Use **+** and **-** keys to scroll backwards and forwards between options then **V** and **Λ** keys to change the option settings. The flashing digit on the right hand of the display indicates the number of the selected option. The large characters display the option value selected.

d) To return to **RUN**, press and hold **PROG** until the display returns to previous **RUN** mde.

Option 30 - Set upper limit of temperature range	
This allows the upper limit of the thermostat setting range to be electronically limited. Press + until Option 30 is displayed, use **V** and **Λ** to select required setting. 	
Setting	40 - 5°C (Factory setting is 30°C)

Option 31 - Set lower limit of temperature range	
This allows the lower limit of the thermostat setting range to be electronically limited. Press + until Option 31 is displayed, use **V** and **Λ** to select required setting. 	
Setting	5 - 40°C (Factory setting is 5°C)

Option 32 - Enable Off at lower limit	
This enables an **OFF** function to be selected if a set point below the lower limit is selected. Press + until Option 32 is displayed, use **V** and **Λ** to select required setting. 	
Setting 0	Disabled
Setting 1	Enabled (factory setting)

Option 33 - Enable On at upper limit	
This enables an **ON** function to be selected if a set point above the upper limit is selected. Press + until Option 33 is displayed, use **V** and **Λ** to select required setting. 	
Setting 0	Disabled (factory setting)
Setting 1	Enabled

Option 34 - Select On/Off or Chrono-proportional	
This allows the thermostat to be set to run in On/Off mode or for a chrono-proportional cycle rate to be selected. Press + until Option 34 is displayed, use **V** and **Λ** to select required setting. 	
0	On/Off
3	3 cycles per hour
6	6 cycles per hour (factory setting)
9	9 cycles per hour
12	12 cycles per hour

Option 35 - Set integration time (Option 34 set to 3, 6, 9 or 12) (seek advice prior to adjusting)	
This adjusts the integration time of the PI algorithm to increase control accuracy. It is only active if option 34 has been set to Chrono 3, 6, 9 or 12. It should only be adjusted after seeking advice from the manufacturer. Press + until Option 35 is displayed, use **V** and **Λ** to select required setting. 	
2.5	Integration time set to 2.5% (factory setting)
5	Integration time set to 5%
10	Integration time set to 10%

Option 36 - Set temperature override rule	
This establishes the degree of temperature override available to the user. Press + until Option 36 is displayed, use **V** and **Λ** to select required setting.	
Setting 0	No limit (factory setting)
Setting 1	Limited to ±2°C
Setting 2	No override allowed

Option 37 - Set time duration of override rule (Option 36 set to 1 or 2)	
This establishes the duration of a temperature override available to the user. Press + until Option 37 is displayed, use **V** and **Λ** to select required setting.	
Setting 0	Next event (factory setting)
Setting 1	1 hour
Setting 2	2 hours
Setting 3	3 hours
Setting 4	4 hours

Option 38 - Relay state on low battery detect (battery products only)	
This establishes the position that the relay is driven to when the unit shuts down due to low battery state. Press + until Option 38 is displayed, use **V** and **Λ** to select required setting.	
Setting 0	Relay parked with output **OFF** (factory setting)
Setting 1	Relay parked with output **ON**

Option 40 - Number of Events per Day	
This sets the thermostat to operate with either 2, 4 or 6 switching events per day or to run it in stat mode. Press + until option 40 is displayed, use **Λ** or **V** to select required setting.	
1	Stat mode
2	Two switching events per day
4	Four switching events per day (Factory setting)
6	Six switching events per day

Option 41 - Operating Mode (5/2 day or 24 hour)	
This sets the thermostat to operate using either 5/2 day or 24 hour mode. Press + until option 41 is displayed, use **Λ** or **V** to select required setting. 	
5-2	5/2 day (Factory setting)
24	24 hour

Option 70 - Keyboard disable rules	
This establishes the degree of functionality of the keyboard available to the user. It is only active if DIL switch 1 is set to "Disabled". Press + until Option 70 is displayed, use **V** and **Λ** to select required setting. 	
Setting 0	Normal lock: Programming functions locked (factory setting)
Setting 1	Full lock: All keys are disabled

Option 71 - Random start rules (24V/230 Volt models only)	
This enables a random start on power-up following a power cut to reduce load on the electrical network. Random delay is in the range of 2 - 90 seconds. Press + until Option 71 is displayed, use **V** and **Λ** to select required setting. 	
Setting 0	Disabled (factory setting)
Setting 1	Enabled

Option 72 - Owner site reference number	
This enables multi-site owners to store a site reference number in the thermostat. Press + until Option 72 is displayed, use **V** and **Λ** to select required setting. 	
Setting	Any value between 00 and 99 can be set
Factory setting is 00	

Option 73 - Owner thermostat reference number	
This enables site owners to store a thermostat reference number in the thermostat. Press + until Option 73 is displayed, use **V** and **Λ** to select required setting. 	
Setting	Any value between 000 and 999 can be set
Factory setting is 000	

Option 74 - Date format for calendar clock	
This allows date format to be chosen. Press + until Option 74 is displayed, use **V** and **Λ** to select required setting. 	
Setting 0	European format (dd/mm/yy), (Factory setting)
Setting 1	North American format (mm/dd/yy)

Option 81 - Thermostat calibration bias	
This allows the thermostat calibration to be biased by up to ±1.5°C. Press + until Option 81 is displayed, use **V** and **Λ** to select required setting. 	
Setting	Any value between ±1.5 in 0.5°C steps (Factory setting is 0°C)

Option 90 - Define remote sensor type, "A" models only	
This allows type of remote sensor input type to be defined. Press + until Option 90 is displayed, use **V** and **Λ** to select required setting. 	
Setting 0	No remote sensor fitted (Factory setting)
Setting 1	Remote room or duct sensor fitted, internal sensor disabled,
Setting 2	Remote limit sensor fitted, refer to option 93 to define set-point
Setting 3	Configured as digital input for window, card reader or teleswitch, refer to option 94 to define o/c or s/c.

Option 93 - Set limit sensor set-point, "A" models only, (option 90 set to 2)	
This allows the thermostat limit sensor to be set, typical application is floor heating. Press + until Option 93 is displayed, use **V** and **Λ** to select required setting. If the temperature sensed by the limit sensor exceeds the limit setting the output will be turned off until the temperature has dropped by 2°C. "F10" will flash in the display while the output is disabled. 	
Setting	Any value between 20 - 50°C (Factory setting is 27°C)

Option 94 - Configure digital input switch type, "A" models only, (option 90 set to 3)	
This allows switch type of digital input to be configured. Press + until Option 94 is displayed, use **V** and **Λ** to select required setting. 	
Setting 0	Contacts NC, open circuit contact to force unit into thermostat mode, short circuit contacts to return to normal operation
Setting 1	Contacts NO, short circuit contacts to force unit into thermostat mode, open circuit contacts to return to normal operation (Factory setting)

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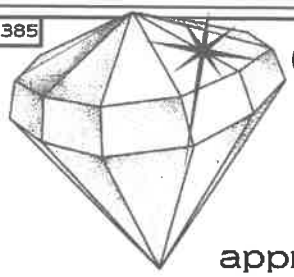

Crystal Mark

Clarity approved by Plain English Campaign

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User Instructions

What is a programmable room thermostat?

... an explanation for householders

A programmable room thermostat is both a programmer and a room thermostat. A programmer allows you to set 'On' and 'Off' time periods to suit your own lifestyle. A room thermostat works by sensing the air temperature, switching on the heating when the air temperature falls below the thermostat setting, and switching it off once this set temperature has been reached.

So, a programmable room thermostat lets you choose what times you want the heating to be on, and what temperature it should reach while it is on. It will allow you to select different temperatures in your home at different times of the day (and days of the week) to meet your particular needs.

Turning a programmable room thermostat to a higher setting will not make the room heat up any faster. How quickly the room heats up depends on the design of the heating system, for example, the size of boiler and radiators.

Neither does the setting affect how quickly the room cools down. Turning a programmable room thermostat to a lower setting will result in the room being controlled at a lower temperature, and saves energy.

The way to set and use your programmable room thermostat is to find the lowest temperature settings that you are comfortable with at the different times you have chosen, and then leave it alone to do its job. The best way to do this is to set low temperatures first, say 18°C, and then turn them up by one degree each day until you are comfortable with the temperatures. You won't have to adjust the thermostat further. Any adjustments above these settings will waste energy and cost you more money.

If your heating system is a boiler with radiators, there will usually be only one programmable room thermostat to control the whole house. But you can have different temperatures in individual rooms by installing thermostatic radiator valves (TRVs) on individual radiators. If you don't have TRVs, you should choose a temperature that is reasonable for the whole house. If you do have TRVs, you can choose a slightly higher setting to make sure that even the coldest room is comfortable, then prevent any overheating in other rooms by adjusting the TRVs.

The time on the programmer must be correct. Some types have to be adjusted in spring and autumn at the changes between Greenwich Mean Time and British Summer Time.

You may be able to temporarily adjust the heating programme, for example, 'Override', 'Advance' or 'Boost'. These are explained in the manufacturer's instructions.

Programmable room thermostats need a free flow of air to sense the temperature, so they must not be covered by curtains or blocked by furniture. Nearby electric fires, televisions, wall or table lamps may prevent the thermostat from working properly.

GB User Instructions

An introduction to your programmable room thermostat

Your programmable room thermostat allows you to programme different temperatures at different time periods. You can programme one set of times and temperatures for week days with a different set of temperatures for weekend days, this is referred to as 5/2 day operation.

The thermostat can also be set up by your installer to provide one set of times and temperatures that are repeated each day of the week. This is referred to as 24 hour operation.

The thermostat can also be set by you to provide two different programming blocks which can then be assigned to any day of the week, this is referred to as A/B programme operation.

All thermostats can be set by your installer to provide up 2, 4 or 6 time and temperature settings each day.

All thermostats feature useful overrides, including a programmable frost setting.

Your thermostat has some advanced features which the installer will set-up if they are required. There are also a number of advanced features which can be set up by you. These advanced settings alter the way that your thermostat operates, some also affect the programming functions and the user overrides. Please read the **User Advanced Programming** instructions before programming the unit (see page 25).

Preset programmes

Your TP5000 Si comes ready programmed with a set of operating times and temperatures which suit most people. Please remember that some of the options available will depend on how the installer has set up the unit.

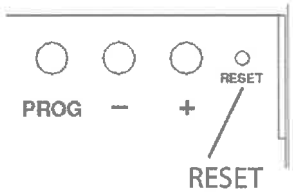
Weekdays (Mon-Fri)		
Event	**Time**	**Temp. °C**
1	06:30	20
2	08:30	15
3	11:30	20
4	13:30	15
5	16:30	21
6	22:30	15
Note: these are also times for Block "A" programmes		

Weekend (Sat-Sun)		
Event	**Time**	**Temp. °C**
1	07:30	20
2	09:30	20
3	11:30	20
4	13:30	20
5	16:30	21
6	22:30	15
Note: these are also times for Block "B" programmes		

Note: If set up for 4 events per day, events 3 & 4 are skipped. If set up for 2 events per day, events 2, 3, 4 & 5 are skipped. In both cases the events are re-numbered.

Before you start

Open the flap on the front of the programmer and press the **RESET** button with a non-metallic object until the display goes blank. This will ensure that the micro-computer in the product is operating correctly.



Customising the display

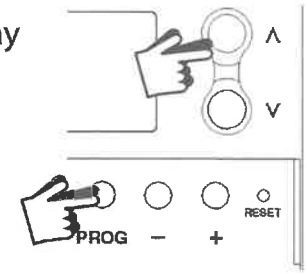
For the sake of clarity, the instructions assume that the display setting uses a 24 hour clock, °C and that days of the week are shown as text. All of these settings can be personalised after the thermostat has been programmed, see pages 22 - 24.

Setting the correct date and time

Your TP5000 Si incorporates a real time clock with calendar function that automatically changes time in both Spring and Autumn. The time and date is set in the factory for the UK time zone, and does not normally require adjustment. If you live in another time zone refer to "Time zone offset" on page 26. However, should it be found necessary to adjust time or date for any other reason refer to the following instructions.

Setting the date

Press and hold **Λ** and **PROG** for 3 seconds, to display date in dd/mm/yy format.



The **YEAR** number will flash, use **Λ** or **V** to correct the year.

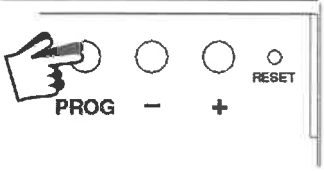
Use - or + to move to **MONTH**, then use **Λ** or **V** to correct month.

Use - or + to move to **DATE** in month, then use **Λ** or **V** to correct day in month.

If you attempt to select an invalid date the unit software will reject it and apply the nearest valid date. It is recommended that date is set in the order, yy/mm/dd.

Setting the correct time

After setting the date press **PROG** to display the time. The time display will flash on and off.



Use the + and - buttons to set the correct time (press and hold to change in 10 min. increments).

Setting the correct day

The day of the week is set automatically. Press **PROG** to return to normal operation (**RUN**).

Accepting the preset programmes

If you are happy with the preset times shown in the table on page 17you need take no further action.

Changing the preset programmes

Before you change the preset programmes
Your installer will have set the unit to operate in one of the following modes:

- 5/2 day - one set of programmes for weekdays and another for weekends (page 19-20).
- 24 hr - one set of programmes for the whole of the week (page 20).

Alternatively

- A/B - The unit can also be set by you to provide two programme blocks, either of which can be applied to different days of the week. If this is required refer to page 21 for instructions on how to turn on this feature.

Please Note

The unit must be programmed in sequence, event times cannot be set out of sequence.

If you want to leave a preset time as it is, simply press **PROG** to move to the next setting.

If you want to return the unit to **RUN**, press **PROG** and hold until the display returns to the previous **RUN** mode. Alternatively leave alone and the unit will automatically return to **RUN** after 2 minutes.

Your installer will have set your unit to programme 6, 4 or 2 events per day. This will determine the number of events per day that you are able to programme.

Changing the preset programmes in 5/2 day mode

For Weekdays

a) Press **PROG** until the first preset time and temperature (Event 1 Days MON, TUE, WED, THU, FRI) appears in display.

b) Use the + and - buttons to adjust the **TIME** (press and hold to change in 10 minute increments).

c) Use the **Λ** and **V** buttons to adjust the required **TEMPERATURE.**

d) Press **PROG** to move to the next preset time and temperature (Event 2).

e) Repeat steps b, c, & d to programme the remaining weekday events.

For Weekends

Press **PROG** until the first preset time and temperature (Event 1 Days SAT, SUN) appears in display.

Repeat steps b, c, & d above to programme the remaining weekend events.

Changing the preset programmes in 24 hour mode

a) Press **PROG** until the first preset time and temperature (Event 1 for all days of the week) appears in display.

b) Use the + and - buttons to adjust the **TIME** (press and hold to change in 10 min increments).

c) Use the **Λ** and **V** buttons to adjust the required **TEMPERATURE.**

d) Press **PROG** to move to the next preset time and temperature (Event 2).

e) Repeat steps b, c, & d to programme the remaining events.

Changing preset programmes for AB programming

(Installer setting must be in 5/2 day mode)

Press and hold **PROG** and **V** for 3 seconds. The display will change to the figure opposite. This will take you into **User Advanced Programming** option 1.

Use **Λ** and **V** keys to enable or disable the function (1=enabled, 0=disabled).

Press **PROG** for 5 seconds until the display returns to previous **RUN** mode.

Press **PROG** once, the display will change to show the default days assigned to programme "A" (days MON, TUE, WED, THU, FRI).

Use the + and - keys to scroll forwards or backwards through the days of the week.

To deselect a day press **V**, (for example TUE). To select a day press **Λ** (for example SUN).

Any deselected days are automatically assigned to programme "B".

Programming "A" programme days and events

a) Press **PROG** until the first preset time and temperature (Event 1 for Programme A) appears in display.

b) Use the + and - buttons to adjust the **TIME** (press and hold to change in 10 minute increments).

c) Use the **Λ** and **V** buttons to adjust the required **TEMPERATURE**.

d) Press **PROG** to move to the next preset time and temperature (Event 2).

e) Repeat steps b, c, & d to programme the remaining events.

Programming "B" programme days and events

a) Press **PROG** until the first preset time and temperature (Event 1 for Programme B) appears in the display.

b) Use the + and - buttons to adjust the **TIME** (press and hold to change in 10 minute increments).

c) Use the **Λ** and **V** buttons to adjust the required **TEMPERATURE**.

d) Press **PROG** to move to the next preset time and temperature (Event 2).

e) Repeat steps b, c, & d to programme the remaining events.

Running the programme

Press **PROG** to return to previous **RUN** mode. The heating will now follow the times and temperatures programmed.

User Overrides

Altering the display to show time or temperature

Press + and - together to change between settings.

Temporarily alter current programmed temperature

Press **Λ** or **V** until required temperature is displayed. Please note that your installer may have restricted both upper and lower temperature settings and the temperature override limits.

This override will automatically be cancelled at the beginning of the next programmed event. Please note that your installer may have restricted the duration of the override to something other than next event. In this case the override arrow will flash to indicate a timed override is active during the next event

To change day of week legends from numbers to text

Press **Λ** and - together to toggle between day numbers and text.

To change time display between 12 hour and 24 hour clock

Press **Λ** and + together to toggle between 12 and 24 hour clock.

To change between °C and °F scaling

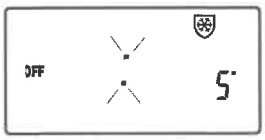
Press **V** and - together to toggle between °C and °F temperature scaling.

Thermostat mode

a) A constant temperature of between 5-30°C can be selected if required. This can provide frost protection for periods away from home, it can also be used to provide untimed higher temperatures if, for example, a family member is sick.

b) Press **Λ** and **V** together to enter thermostat mode. The default setting is 5°C, but this can be reprogrammed, see **User Advanced Programming**, step 10, (page 27).

c) A frost protection symbol (snowflake in a shield) will appear in the display when the selected temperature is equal to or less than the programmed frost protection setting.



d) Use the **Λ** or **V** buttons to change the temperature away from the programmed frost protection temperature to another value.

e) To return to automatic programming press both **Λ** and **V** together.

Changing the clock forwards and backwards

This is handled automatically, however, if the manual changeover has been selected (User Advanced Programming step 3 on page 26) follow the instructions below.

To change from Summer to Winter (clocks back)
With clock display showing, press and hold - button until time moves back.
To change from Winter to summer (clocks forward)
With clock display showing, press and hold + button until time moves forward.

Remote override into and out of thermostat mode

Selected models are available with a feature which allows a telephone activated switch or window contacts to step the unit into or out of thermostat mode.

The required temperature to be maintained when the building is unoccupied, or when windows are open, must first be set up in **User Advanced Programming**, step 10, (page 27).

To locally override this feature press both **Λ** and **V** together.

Delay start feature

Your thermostat includes an optional delay start feature to hold off the heating for a time on mild days when the room temperature at the start of an event is close to the programmed value. If you have enabled this function it can be overridden by pressing either **Λ** or **V** buttons. To enable this feature, please refer to **User Advanced Programming**, step 11, (page 27).

When this function is active, the set temperature will flash on the display and an hourglass symbol will be displayed.

Optimum start control (OSC)

Your thermostat includes an optional optimum start control. This feature allows you to set the time at which you require a room temperature by. The thermostat then calculates how soon before the event time the system must be turned up to ensure that the room is at the temperature by the required time. A full description of this and how to enable it and set it up is given in **User Advanced Programming**, steps 12 & 13, (page 28). When this function is active, the set temperature will flash on the display

Battery replacement (battery models only)

When batteries are low a battery symbol will appear on the display. You have 15 days to replace the batteries before the unit shuts down. **When replacing batteries ensure that only high quality alkaline cells are use.**

IMPORTANT: ***After replacing the batteries press and release the RESET button to restart the unit. All date, time, programming and override settings are maintained for the life of the product.***

User Advanced Programming Options

Important: The thermostat has been set in the factory to suit most situations, however, there are additional optional settings which can improve the comfort, convenience and energy effectiveness of your thermostat. These are set in the **User Advanced Programming** and **Installer Advanced Programming** modes.

To access User Advanced Programming

Press and hold **V** and **PROG** for 3 seconds. This will take you into **User Advanced Programming**. Use + and - keys to scroll backwards and forwards between options then **Λ** and **V** keys to change option settings. The flashing digit on the right hand of the display indicates the number of the selected option.

Option 1 - Enable or disable A/B programming (option 41 set to 5+2)	
This enables or disables the A/B programming option. Press + until Option 1 is displayed, use **Λ** and **V** to select required setting. 	
Setting 0	Disabled, unit operates as 5+2 or 24 hour product depending on installer settings (factory setting)
Setting 1	Enabled: activates A/B programming

Option 3 - Calendar clock rules	
This establishes the rules that the automatic calendar clock follows to calculate changes between summer and winter time. Press + until Option 3 is displayed, use **Λ** and **V** to select required setting 	
Setting 0	Disabled.
Setting 1	Manual: user must change using + to advance and - to retard displayed time.
Setting 2	European rules. (Factory Setting)
Setting 3	USA rules (2007 onwards)
Setting 4	USA rules (pre-2007)

Option 4 - Time zone offset	
This feature allows the time zone to be established and corrects time display. Press + until Option 4 is displayed, use **Λ** and **V** to select required setting 	
Setting 0	UK models: this feature should be left at the factory setting of 0.
Setting 1	Central European time models: this feature should be left at the factory setting of +1:00.
-12 Hours +14 Hours Rest of World: use **Λ** and **V** keys to select offset from Universal time (GMT) for the location in which the thermostat is being installed.	

Option 10 - Frost/ thermostat mode setting	
This feature allows the default frost/thermostat mode temperature to be set. Press + until Option 10 is displayed, use **Λ** and **V** to select required setting.	
5-40°C **-** Factory setting is 5°C, but can be changed to any value between 5-40°C.	

Option 11 - Start-up method	
Your thermostat can start up the system in three different ways. Press + until Option 11 is displayed, use **Λ** and **V** to select required setting.	
Setting 0	Normal: Heating is turned up or down at the programmed times.
Setting 1	Optimum start control (OSC) (or Comfort Setting): This allows you to programme the time at which you would like to be up to the required temperature. The thermostat then calculates how soon before the required time the heating is turned up. This will vary with weather conditions ranging from a maximum of 120 minutes to 0 minutes before the programmed event time. This setting must be used together with option 12 to match the optimiser setting to the building in which it is installed.
Setting 2	Delay start (or Economy Setting): This is an alternative to OSC. Set the event times in the normal way taking into account the time that the building takes to heat on an average day. The thermostat monitors switch on time, actual temperature and wanted temperature and delays the start of the heating if the actual temperature is close to the programmed temperature.

Option 12 - Optimum start control pre-heat setting (Option 11 set to 1)	
Press + until Option 12 is displayed, use **Λ** and **V** to select required setting (only active if Option 11 is set to 1). 	
The optimum start control must be adjusted to match the building energy characteristics. Use the **Λ** and **V** keys to selected the required pre-heat period. The table below suggests typical settings. If the building fails to reach temperature on time, increase the setting by 15 minute steps each day until the correct setting is found. If the building reaches temperature ahead of time, decrease the setting by 15 minute steps each day until the correct setting is found.	
0:15	15 mins, warm air systems, well insulated building.
0:30	30 mins, warm air systems, well insulated building.
0:45	45 mins, warm air system poorly insulated building.
1:00	60 mins, radiator system, light weight well insulated building. (Factory setting)
1:15	75 mins, radiator system, light weight medium insulation.
1:30	90 mins, radiator system, medium weight poorly insulation.
1:45	105 mins, radiator system, heavy weight building, well insulated.
2:00	120 mins, radiator system, heavy weight building, poorly insulated.

Option 13 - Optimum start control/Delayed start event setting (Option 11 set to 1 or 2)	
The Optimum start or delayed start control can be applied to event 1 only or to each event of the day which requires a higher temperature than the previous event. Press **+** until Option 13 is displayed, use **Λ** and **V** to select required setting (only active if Option 11 is set to 1 or 2). 	
Setting 0	Applies only to first event of day. (Factory setting)
Setting 1	Applies to each event of the day that requires a higher temperature compared to previous event.

Overview of installer selectable features which may affect the operation of your thermostat

Temperature range limitation

This allows the installer to programme both upper and lower temperature limits. It may limit the upper and lower temperature that you are able to set on the thermostat.

Temperature override limitation

This allows the installer to limit the number of degrees that you can override the programmed temperature by, it also allows the installer to set rules regarding how long a temperature override will remain in place.

Keyboard lock

This allows the installer to limit or lock the keyboard to prevent unauthorised changes to programme values and limits overrides.

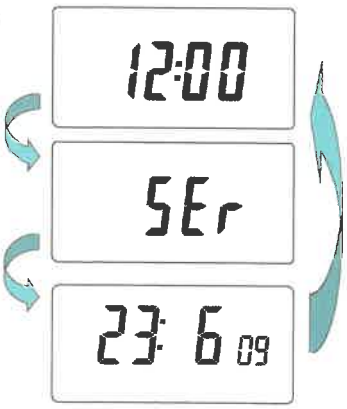
What happens to the unit when batteries fail

If batteries are not changed within 15 days of a low battery warning, the unit shuts down. In normal circumstances the thermostat turns off the valve or the boiler it is controlling. In extreme climates turning off the heating is likely to result in the building freezing up. To prevent this, the installer can set up the unit to turn the heating **ON** rather than turn **OFF** on battery failure. This will consume more fuel but will prevent damage occurring to the building. If appropriate please check that the installer has set this function correctly.

Please note: If you replace the batteries and the LCD does not come on immediately please check battery orientation. Do not leave batteries in the product if the display is not active.

If, after changing the batteries, the screen remains blank it is necessary to carry out a partial reset. See page 30 for details.

Service Interval Timer



Service Interval Date

- If the property is owned by a landlord he may, for gas safety reasons, have instructed the installer to set the service interval timer.
- If set, 28 days prior to the service due date, a visual and audible warning will start each day at noon. The audible warning will last for 10 seconds and will be repeated every hour until a button is pressed to cancel it. If cancelled the alarm will recommence the following day at noon.
- If the boiler is not serviced before the due date, a visual and audible warning will start each day at noon. The audible warning will last for 1 minute and will be repeated every hour until a button is pressed to cancel it. If cancelled the alarm will recommence the following day at noon.
- In addition, all overrides and programming buttons will be disabled and the heating may operate for a limited amount of time each hour.
- The installer may cancel or reset the service interval timer as part of the boiler service.
- This is a gas safety feature that can only be accessed by an installer.

Resetting the unit

Partial reset: Press **RESET** (used to restart micro-computer) if display freezes for any reason. This does not reset any programme, clock or date. It is recommended that this is done at time of installation.
User full reset: Press **RESET** whilst holding down **PROG** button. This resets event times and any User Advanced Programme setting, but does not reset time or date.
Installer full reset: This is only available to the installer. In addition to the above all of the Installer Advanced Programming settings are returned to factory settings, however, time, date and service due date are not reset.

Settings Reference

GB

Note to installers:
Please use this table to record changes to default settings.

Installer Settings		
Option	**Description**	**Installer Set Value**
30	Set upper limit of temperature range	
31	Set lower limit of temperature range	
32	Enable Off at lower limit	
33	Enable On at upper limit	
34	Select On/Off or Chrono-proportional	
35	Set Integration Time	
36	Set temperature override rule	
37	Set time duration of override rule	
38	Relay state on low battery detect (battery products only)	
40	Number of events per day	
41	Operating mode (5/2 day or 24 hour)	
70	Keyboard disable rules	
71	Random start rules (24V/230V only)	
72	Owner site reference number	
73	Owner thermostat reference number	
74	Date format for calendar clock	
81	Thermostat calibration bias	
90	Define remote sensor type ("A" models only)	
93	Set limit sensor set-point ("A" models only)	
94	Configure digital input switch ("A" models only)	

User Settings		
Option	**Description**	**Installer Set Value**
1	Enable or disable A/B programming	
3	Calendar Clock Rules	
4	Time zone offset	
10	Frost/Thermostat mode setting	
11	Start-up method	
12	Optimum start control pre-heat setting	
13	Optimum start control/Delayed start event setting	

Still having problems?

Call your local heating engineer:

Name: .....

Tel: .....

For problems relating to your ***heating controls*** ...

Visit our website:

www.danfoss-randall.co.uk

Email our technical department:

drl_technical@danfoss.com

Call our technical department

0845 121 7505
(8.45-5.15 Mon-Thurs, 8.45-4.45 Fri)

For a large print version of these instructions please contact the Marketing Services Department on 0845 121 7400.

Danfoss Randall Ltd
Ampthill Road
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Tel: 01234 364621
Fax: 01234 219705

Part No. 40798v02s3-00 02/08

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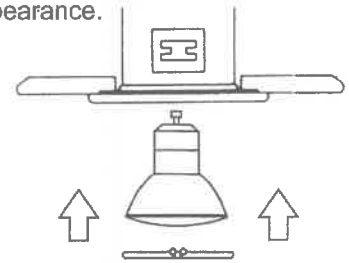
Care and Replacement of Lamps

- Switch off at the mains and allow bulb to cool before replacing.
- Use a soft cloth to handle bulbs as touching them directly will shorten their lifespan.
- Use the same shape and wattage bulb indicated on the product.
- Clean bulbs with a soft dry cloth. Do not use solvents or abrasive cleaners which can damage the finish and diminish their appearance.



1. Rotate and remove front bezel.
2. Twist and pull the bulb out of the clip.
3. Slide new bulb into clip and seat securely in recess.
4. Replace bezel.

Recycling Advice

Do not dispose of this product or bulbs with household waste. Please contact your local authority for recycling advice and use recycling facilities where they exist.

30, 60 & 90 Minutes Fire Protection

Max 35w, 240v, GU10 Mains Halogen, IP65

IP65

PREMSPEC

LIGHTING PRODUCTS

Shower Fire Rated Downlighters

Max 35w, 240v, GU10 Mains Halogen, IP65

Available in: Chrome, Satin Silver and White.

www.premspecelectrical.com

Thank you for purchasing this downlighter.
To ensure product satisfaction, please read these instructions thorougly before downlighter installation.

Warning ⚠

Do:

- Earth this **Class 1** product.
- Have this product fitted by a qualified electrician to IEE and current building regulations.
- Switch off mains supply before installing this product or changing lamp.
- Connect this product to a fused circuit.
- Make a careful note of connections when replacing this product.
- Use the correct type of bulb and wattage with this product.
- Allow bulb to cool before replacing.
- Check the compatibility of dimming with the lamp manufacturer before using this product with a dimmer.

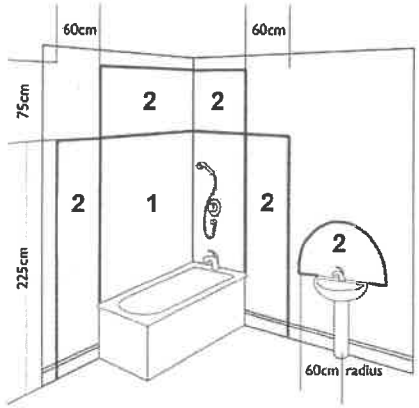
Don't:

- Mount this product on flammable surfaces. Only mount on non combustable surfaces.
- Exceed the stated wattage for this product.
- Dispose of this product with general household waste. Please contact your local authority for recycling advice and use recycling facilities where they exist.

Positioning

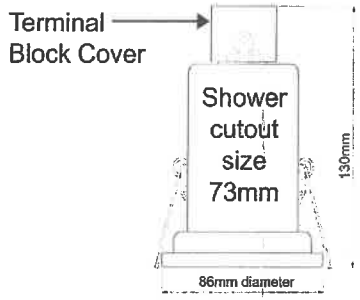
- Plan the positioning of this product before fitting to ensure cables will span the distance between the junction box and the product.
- Place cables and outdoor rated junction boxes where they will not be cut, trapped or damaged.
- Mains supply cables must have a minimum 1.0mm² cross section area.
- Protect cables in walls with conduit or plastic trunking.
- Spotlights must not be closer then 20cm to illuminated surface.

- This product can be placed in any zone of a bathroom.
- This product is resistant to water ingress and is rated as IP65.
- The mains supply must be fitted to a 30mA RCD.

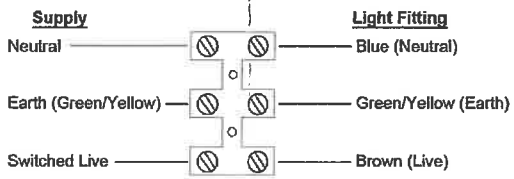


Installation

1. Ensure all cables are long enough to connect the product to the chosen positions.
2. Maintain a distance of no less than 500mm between each downlight when using multiple products.
3. A minimum ceiling void of 175mm must be available.
4. Cut a mounting hole clear of any pipes, mains cables and joists etc. Cut the hole slightly smaller than required and file to ensure a snug fit.

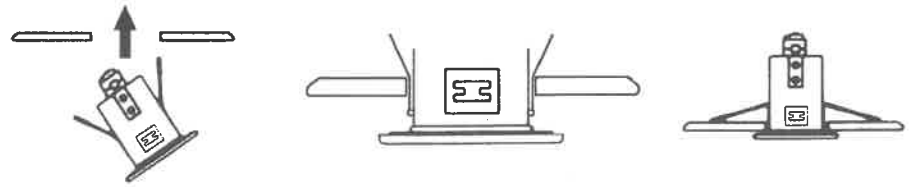


5. Ensure the product has at least 150mm of free space around it to ensure correct ventilation. There must be no insulation or similar materials covering the product.
6. Identify the correct wires and pull through the hole. Remove terminal cover and wire the product connector block as indicated in the diagram below:



7. For best results, make sure that the ceiling surface is smooth to allow a flush fit.
8. Push spring clips back and slide product body firmly into hole.

a. b. c.



9. Adjust the cable to ensure it does not get caught or snagged.
10. Replace fuse or circuit breaker.
11. Must remove protective cover from bezel **before** use (this can be left on during decorating).

Installation Instructions for Axial Fans for Bathroom, Toilets, Utility Rooms and Kitchens

AXS100, AXS100SELV, AXS125, AXS150 & AXSK

READ ALL INSTRUCTIONS BEFORE COMMENCING INSTALLATIONS

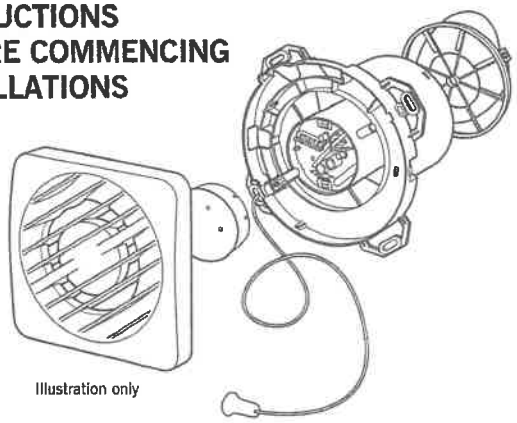


Illustration only

Warning: This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in safe way and understand the hazards involved. Children shall not play with the appliance.

Where an open-flued oil or gas-fuelled appliance is installed, precautions must be taken to avoid a back-flow of gases into the room.

When installing wall mounted fans, ensure that there are no buried cables or pipes in the way. It is recommended that this fan is mounted > 1.8m above floor level.

The fan should not be sited where it would be subject to a direct source of heat in excess of 40°C.

Observe appropriate safety precautions if working on steps or ladders. Wear eye protection when breaking out wall or window materials, etc.

A clearance of 75mm to be allowed on at least one side of the fan for the removal of the internal grille.

AXS100SELV fans shall only be installed by using the supplied Safety Extra Low Voltage (SELV) controller.

Always isolate fan from mains supply before cleaning. Do not use solvents to clean this fan.

Cleaning and user maintenance shall not be made by children without supervision.

To disassemble the unit, disconnect from mains supply and use a screwdriver to segregate the electronic components and motor from the plastic housing. Dispose items in accordance with WEEE.

WEEE Statement

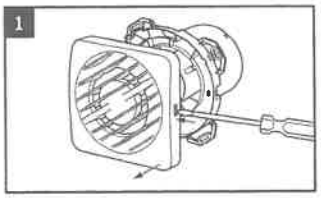
This product may not be treated as household waste. Instead it should be handed to an appropriate collection point for the recycling of electrical and Electronic equipment.

For more detailed information about the recycling of this product, please contact your local council office or your household waste disposal service.

WALL MOUNTING

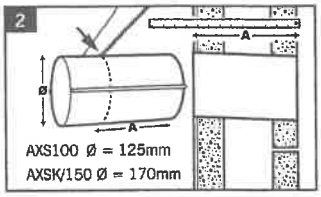
(Using ED wall duct and EG external grille, 100mm and 150mm only)

1



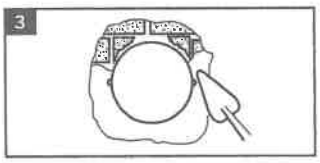
Remove one piece Internal Grille using screwdriver. Push in to free catch then twist to remove grille.

2



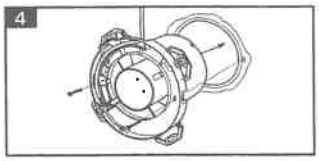
Cut the duct to width of the plasterboard or tiled wall with slight fall to exterior. (Make provisions for cable).

3



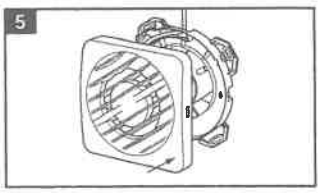
Fill in any gaps with mortar or foam and make good internal and external walls. Make sure that ducting remains circular and screw holes are horizontal.

4



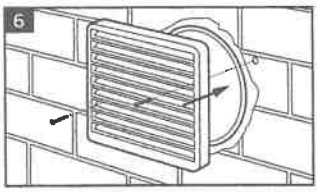
Using No 8 screws, secure fan body to ducting first making sure back draught shutter is fitted, if required, and electrical cable passes through as appropriate. Wire fan (See wiring details).

5



Replace internal grille ensuring no wires are trapped.

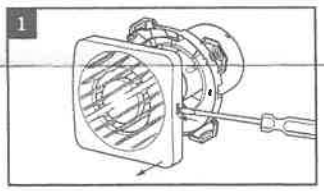
6



Screw the protective wall grille over the external duct opening.

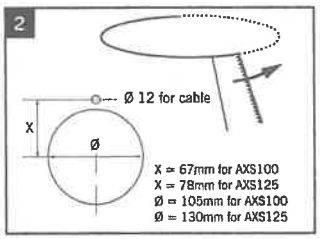
CEILING MOUNTING

1



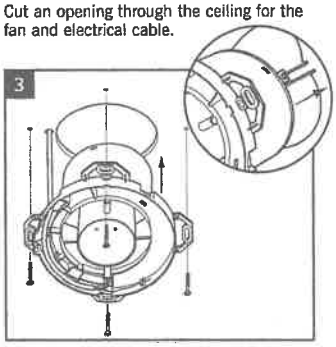
Remove one piece Internal Grille using screwdriver. Push in to free catch then twist to remove grille.

2



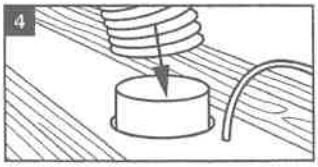
Cut an opening through the ceiling for the fan and electrical cable.

3



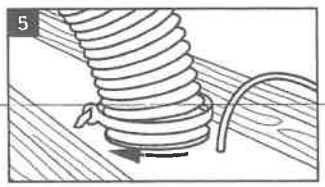
Secure to ceiling using suitable screws first making sure backdraught shutters are removed but shutter spider is left in position. Wire fan (See wiring details).

4



Place flexible ducting over the spigot of the fan.

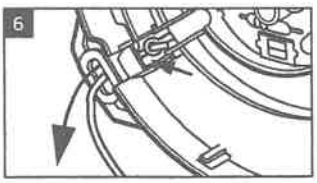
5



Fit ducting to spigot using ties supplied, making sure impeller rotates freely.

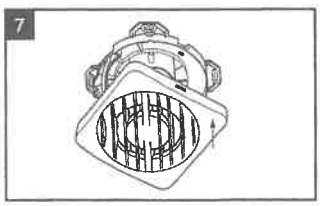
Maximum duct length to comply with Building Regulations:
AXS100: 3m
AXSK/150: Wall mounting only

6



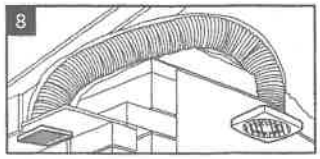
Detach the cord from the PCB by pulling the cord through the pull cord's link.

7



Replace internal grille ensuring no wires are trapped.

8



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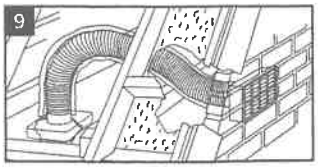
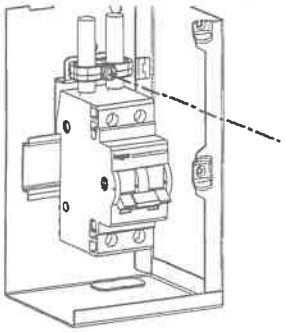
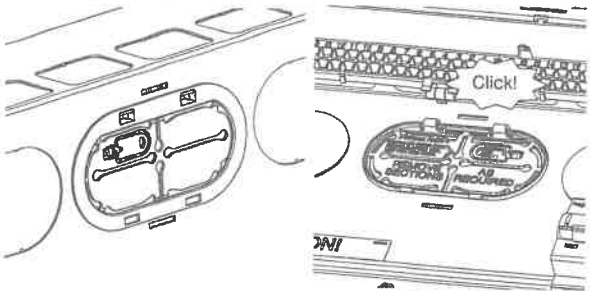


Do not terminate via a tile vent.



Incoming meter tails can be safely secured using the cable clamp system eliminating stress within the switch terminal.



Rear cable entries shall enter thorough selected rear knockout; once the knockout is removed the cable protector frame can be fitted in order to avoid any damage to the cable insulation or sheath during installation.

Guidance Notes:
The total load must not exceed the rating of the incoming device or the assigned assembly rating (InA) whichever is the lower. Each neutral and earth connection must correspond numerically to its outgoing way. Additional blanks (ref. JK01B) are available to cover spare ways.

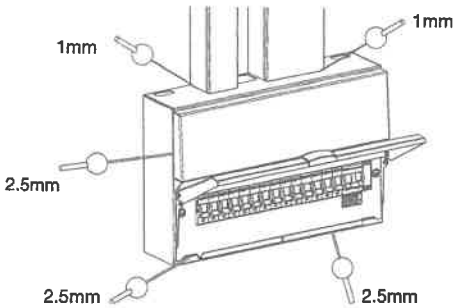
A pack is provided to label this consumer unit, please consult us for spares or replacements.
Operating instruction leaflet is provided overleaf. This leaflet should be left for the end user.
Single conductors below 1.5mm² need to be doubled back in the terminal bar.
Consumer Units incorporating RCDs in TT systems should incorporate an S type (time Delayed) RCCB, e.g. 100 mA s-type RCCB . Alternatively a main switch with RCBO protection on all outgoing circuits should be used.
Precautions need to be taken to prevent faults to earth on the supply side of the RCD (as per BS7671 regulation 531.4.1)

Cable Access:
Cable access into the metal consumer unit must maintain the integrity of the non-combustable consumer unit so far as reasonably practicable. This can generally be achieved by the installer ensuring that cable access holes they make in the enclosure do not to leave gaps greater than:

· 1.0 mm for the horizontal top surface and
· 2.5 mm for all other surfaces of the enclosure that are accessible after installation.

For rear cable access, the minimum number of knockout(s) shall be removed and a cable protector fitted; see illustration above.

Tests on hager consumer units have indicated that there is no specific need for external fire rated cable glands or intumescent sealing in addition to the guidance below, with respect to achieving a non-combustible enclosure. However this does not preclude the designer/installer from using fire rated cable glands or external intumescent sealing should they consider necessary. Internal intumescent pads shall not be used.



Fitting Hager MCBs and RCBOs:
Only equipment and arrangements specified in Hager's technical documentation / catalogue shall be used.

1. Isolate the electrical supply from the consumer unit.
2. Remove the front cover.
3. Fully slacken the lower terminal of the device.
4. Fully open the bottom device clip (fig 1.)

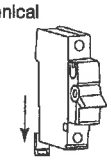


fig 1.

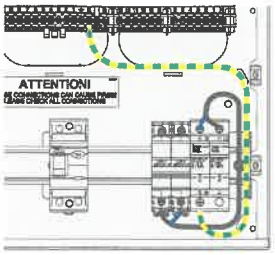
5. Locate the device onto the din rail, and busbar. Ensure that the busbar tooth is within the device terminal cage.
6. Close the bottom device clip.
7. While holding the device firmly onto the busbar, fully tighten the lower terminal screw.
8. After fitting all outgoing devices and connecting all outgoing cables, please check the tightness of all cable connections. This should include all factory made connections, which may have loosened during installation or transit.

Warranty
This distribution board is offered with a 24 month warranty against defective material or manufacture. If a warranty claim is necessary, please call the technical support number given at the bottom of the page and we will be pleased to help.

For dimensional information and weights please consult the Hager catalogue.

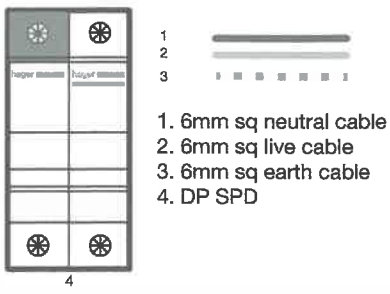
Hager Technical Help Line: 01952 675 689
Hager Technical Fax: 01952 675 557
Hager Technical E-mail: technical@hager.co.uk

Website: www.hager.co.uk



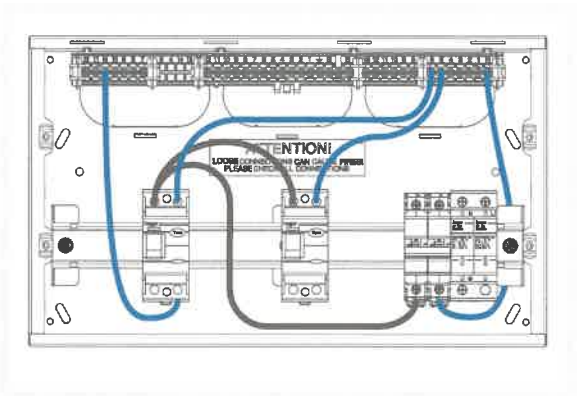
VM02SPD

User instructions

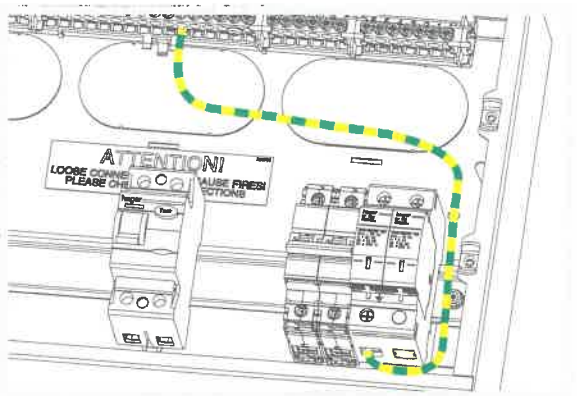


1. 6mm sq neutral cable
2. 6mm sq live cable
3. 6mm sq earth cable
4. DP SPD

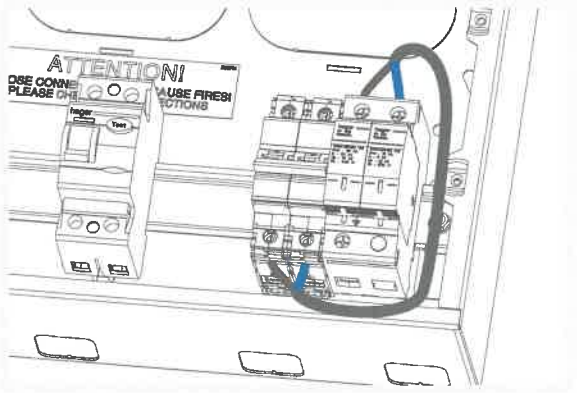
Surge Protection Kit



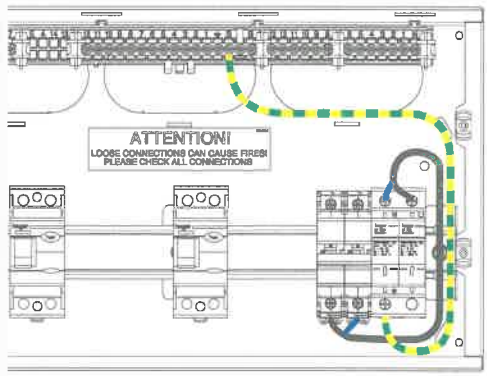
Move the main switch over 2 modules and clip the SPD cable set to the DIN rail.



Feed the 6mm earth cable around the side of the main switch as shown and terminate in the earth bar. Torque to 3.6Nm.



Loosen the L&N screws on the main switch and terminate the spade terminals in the Bi connect.



Make sure all cables are secure and torque back to 3.6Nm.

The phase is protected by a Metal Oxide Varistor (MOV) and the neutral by a spark gap device. The Metal Oxide Varistor will degrade each time it deals with high voltage or electromagnetic disturbance, when it is end of life the flag will turn red and the cartridge will require to be changed. At this point the cartridge will fail open circuit. When the flag turns red the device no longer provides surge protection. Simply remove the cartridge and replace with a new cartridge (SPD015D).

DETA

L2832	6 Panel Coach Lantern
L2833	6 Panel Coach Lantern with PIR

Polycarbonate 6 Panel Coach Lanterns

To be read in full before installation and kept for future reference

Safety Instruction

- Ensure the power supply is switched off before fitting, servicing
- This lantern is for outdoor use only
- This lantern must be mounted on a non-flammable surface
- Ensure adequate ventilation is allowed between the lantern and any object above, in front or to either side. Minimum distance: 0.5m above, 0.3m to either side and 1.0m in front.
- This lantern is of Class II construction.
- This lantern must be installed in accordance with the current edition of the IEE Wiring Regulations.

If in doubt, contact a qualified electrician.

Installation Instructions

- Remove the rear cover by releasing the 2 retaining nuts on the front of the base
- Feed the supply cable through the grommet and secure the rear cover to the mounting surface via the mounting holes using appropriate fixings, noting the correct "up" orientation
- Terminate the supply conductors into the terminal block ensuring the correct polarity is observed (L = Live (brown), N = Neutral (blue), ⏚ = Earth (green/yellow)).
- Ensure the 2 pole locking connector is properly secured. For PIR models, ensure the connecting plug is properly inserted
- Offer the lantern back to the rear cover and secure in position via the 2 retaining bolt removed earlier
- Insert the lamp into the lampholder
- Insert the clear diffuser into the Lantern
- Remove the pineal from under the top cover and replace on top of the top cover. Secure the top cover in position with the 2 retaining nuts.

PIR Control

On the base of the PIR are dials:

- Daylight / Lux Control – Provisionally turn the control fully anti clock wise. In this setting the PIR is inactive during daylight. At dusk, when the light level is at the desired level, adjust the dial clock wise until the Lantern turns on
- Time Control – Turn the dial fully anti-clockwise, the Lantern will stay on for 5secs. Turn the dial fully clock wise, the Lantern will stay on for 8mins.

Manual Override

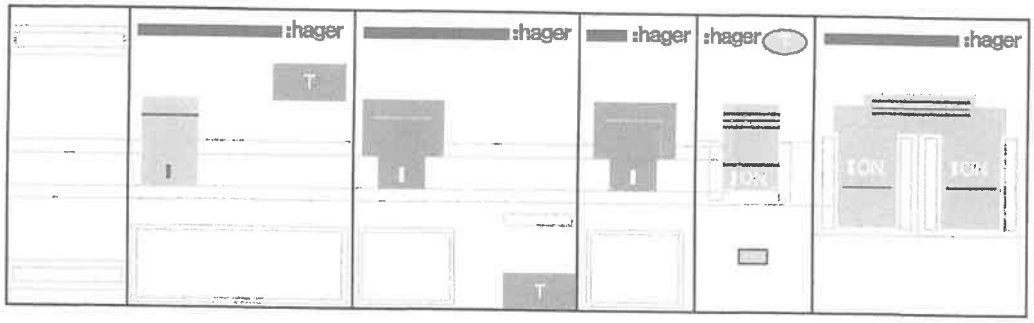
- Manual override – To override the PIR so that the Lantern stays on for an extended time, turn the power to the Lantern off and immediately back on twice (off-on-off-on) within 3 seconds. The Lantern will then stay on for approximately 8 hours. After this 8 hour period, control will automatically be reset to the PIR.
- To return control to the PIR, turn the power to the Lantern of for at least 10 second and then back on again.

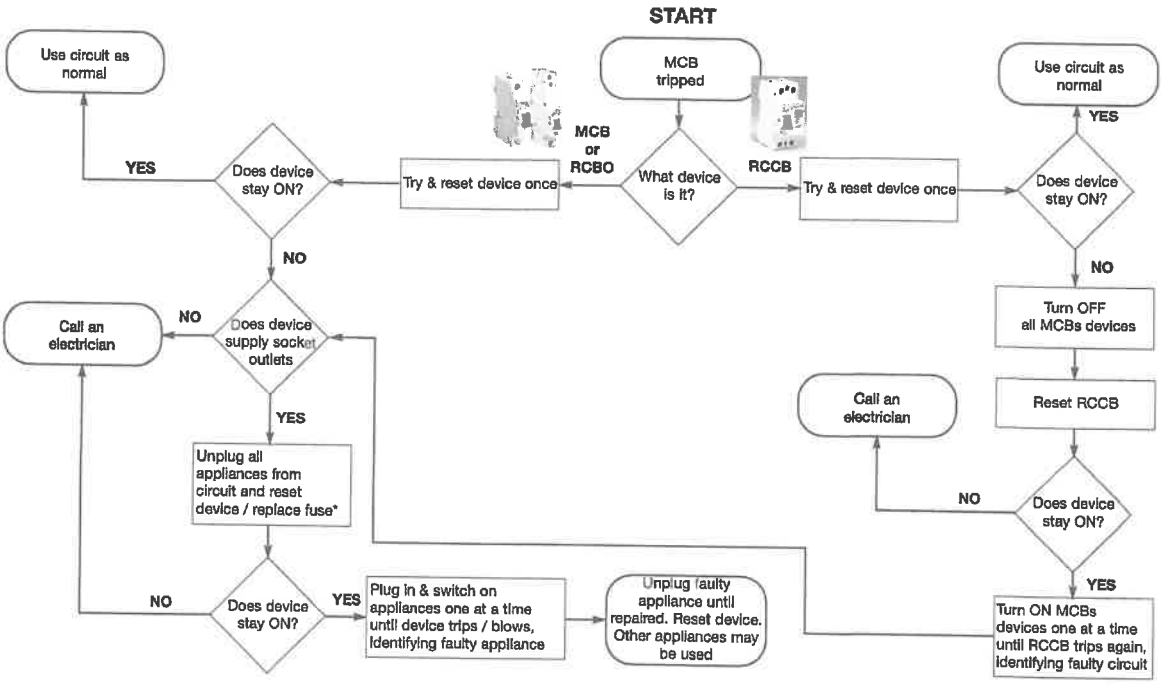
Power Supply	220 - 240V 50Hz	PIR Detection Range & Angle	8 meters @ 120°
Lamp Type	E27	PIR Time range	5 sec – 8 minutes
Lamp wattage	42W max	Lux level range	2 – 2000 lux
IP Rating	IP44	PIR maual overide	Yes
Construction	Class II	Override duration	8 hours max.

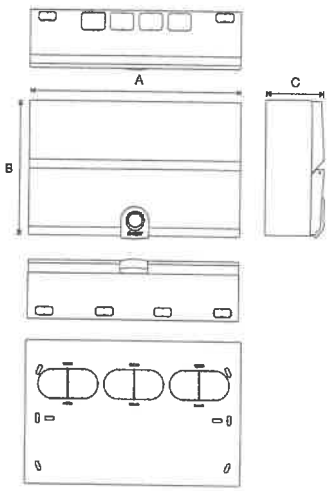
S16 CE RoHS

Deta Electrical Company Ltd.
Kingsway House Laporte way
Luton Bedfordshire LU4 8RJ UK
Tel.: +44 (0)1582 544 544 Technical Helpline: +44 (0)1582 544 548

NPD 0472 0414 V1





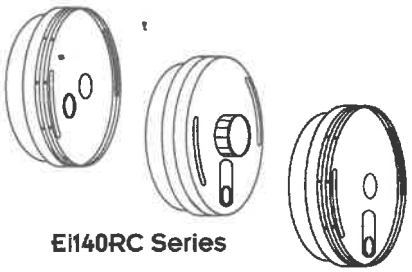


Design 30

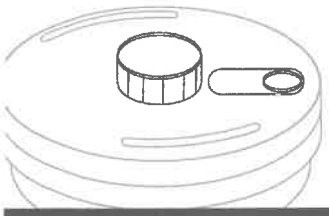
Dimensions (mm)	Enclosure Size					
	2	3	4	5	6	7
A	149	221	293	364	400	472
B	240	240	240	240	240	240
C	102.5	102.5	102.5	102.5	102.5	102.5

Torque Settings	 Pz No.	 (mm)	Cables >1.5mm² Tightening torque (N.m) Single Cable	Cables >1.5mm² Tightening torque (N.m) Multi Cables	Cables ≤1.5mm² Tightening torque (N.m) Single Cable	Cables ≤1.5mm² Tightening torque (N.m) Multi Cable	Cable Stripping (mm)
Consumer unit terminals							
Earth and neutral terminal bars	2	6.5	2	2	1.5	1.5	10
Isolation							
SB switch disconnectors	2	6.5	3.6	3.6	3.6	3.6	15
Circuit protection							
MTN MCB	2	6.5	2.8	2.8	2.8	2.8	13
NBN/NCN/NDN MCB	2	6.5	2.8	2.8	2.8	2.8	13
RCBO	2	5.5	2.1	2.1	2.1	2.1	13
RCCB	2	5.5	2.8	2.8	2.8	2.8	13

Interface characteristics	
Rated & operational voltage (Un / Ue) 230V a.c. 50Hz	
Rated insulation voltage (Ui) 320V a.c. 50Hz	
Rated impulse withstand voltage (Uimp) 4kV	
Rated current of the Assembly (InA) 100A, 63A, 40A Note: Dependent upon rating of main incoming device	
Rated current of an Outgoing circuit (Inc) MCB 6A - 63A (marked rated current on device) RCBO 6A - 50A (marked rated current on device)	**Rated current of outgoing unit (Inc)** RCCB 40A -100A (marked rated current on device)
Rated conditional short-circuit current of the ASSEMBLY (Icc) Annex ZB: 16 kA rms at 250V, power factor 0.6 with equipment and arrangements specified in Hager's technical documentation / catalogue.	
Protection against electric shock Consumer unit shall be installed in an electrical system conforming to the current edition of IEC 60364 / BS 7671	
Rated diversity factor (RDF) / Values of assumed loading 1way = 1.0 2way – 3way = 0.8 4way – 5way = 0.7 6way – 9way = 0.6 10way and above = 0.5	Note: RDF only applies to continuously and simultaneously loaded circuits. In principle, this means adjacent circuit-breakers having a load 'on' time exceeding 30 minutes or where a load not exceeding 30 minutes has an 'off' time less than the 'on' time, will need to have the rated diversity factor applied as indicated.
Rated frequency (fn) - 50 Hz	
Pollution degree - 2	
Types of system earthing for which the ASSEMBLY is designed TNC-S, TN-S when installed in an electrical installation complying with BS 7671 Hager recommends for TT systems a 100A type S time delayed RCCB or a main switch with RCBO protection only on all outgoing circuits.	
Indoor use only	
Stationary ASSEMBLY	
Degree of protection IP2XC with Door Open / closed and full compliment of outgoing devices and or blanks fitted. Note: Where cables are installed through top wall of enclosure, gaps of IP4X to be maintained.	
Intended use Intended for use in domestic (residential) or similar premises.	
Electromagnetic compatibility (EMC) classification EMC Environment B	
External design VM: Wall-mounted, surface type, enclosed assembly.	
Mechanical impact protection IK 05	
The type of construction Fixed parts	
Type A DBO (Distribution board for use by ordinary persons)	



Ei140RC Series



230V~ SMOKE & HEAT ALARMS

with Alkaline Battery Backup

Instruction Manual

Contact Us

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Mile End Business Park, Maesbury Rd, Oswestry,
Shropshire SY10 8NN, U.K.
Tel: 01691 664100
www.aico.co.uk

Ei Electronics
Shannon, Co Clare, Ireland.
Tel: 061 471277
www.eielectronics.com

P/N B18640 *Rev2*

User Section

Introduction to Ei140RC Smoke/Heat Alarms

The Ei140RC series is supplied with an Easi-Fit base that allows very quick and simple installation of the Smoke Alarm, combined with simple detector head removal and replacement. The Easi-Fit base automatically connects both mains power and battery as the detector head slides on to the Easi-Fit base.

Up to 12 Smoke/Heat Alarms can be interconnected so that when one senses fire all the units alarm.

Interconnection can be achieved by hardwire or through a RadioLINK Base, the Ei168RC.

A green LED indicates the presence of mains power. A red LED will flash rapidly in an alarm scenario.

All Alarms feature a combined test/hush button.

The "Test/Hush" button will either silence false alarms or perform a unit self-test.

In "Test" mode the Alarm will perform a self-test and sound the horn.

In "Hush" mode the Alarm will be silenced for a period of approximately ten minutes to overcome false alarm conditions. It will then automatically reset itself.

RF Interconnection

The Ei140RC series may be interconnected with any other Ei Electronics RadioLINK or RadioLINK+ products through fitting onto an Ei168RC RadioLINK Base. This base will enable the Ei140RC series Alarms to communicate RF messages to other Ei Electronics products such as the Ei450 RadioLINK Alarm Controller where you can remotely locate, test and hush your Ei140RC Series Alarms using this wireless controller.

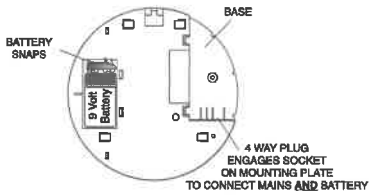
For detailed user instructions on using the RF interconnection base Ei168RC with the Ei140RC series, please consult the Ei168RC instruction manual.

Important Information

Do's	Don'ts
Regularly check green mains indicator is lit	Do not paint your Alarm. Do not allow paint, water or dust to contaminate the Alarm
Test Weekly – See testing and maintenance	Your Alarm is powered by 230VAC. Do not open or insert anything into the Alarm
If nuisance alarms occur – press the test/hush button to silence the Alarm for 10 mins	
Clean your Alarm regularly	
Remove or completely cover your Alarm when decorating to prevent dust or other contamination damaging the unit	

Changing The Battery

1. Switch off mains power to Alarm (green light on cover should go out).
2. Remove unit as shown in "ALARM REMOVAL" section on page 11.
3. Locate battery slot in base of Alarm as shown below.
4. Unclip battery from battery snap connectors.
5. Connect new battery by clipping back on to battery snap connectors. Use only 9V Alkaline batteries Duracell MN1604, Energizer 522. Other batteries can cause problems.
We recommend that the "replace by date" on the battery should still have at least 2 years to go. Older batteries will give beeps prematurely.
6. Slide unit back on to the base. A click should be heard as the Alarm engages. (The unit cannot be replaced on the base unless a battery is installed).
7. Press and hold the test button - horn should sound loudly.
8. Reinstate mains power to Alarm (green light on cover should come on).



Testing and Maintenance

Check all Alarms weekly, especially after initial installation or re-occupation (e.g. following a holiday)

1. Check that the green mains indicator light is on. (if it is off check circuit breakers, fuses and wiring etc.)
2. Check that the red LED on the cover flashes once every 40 seconds to indicate normal operation – If the memory has been set indicating that the Alarm has been activated in the last 24 hours, the red LED will flash twice every 40 seconds. After 24 hours the memory will be cleared.
3. Press the test button for up to 10 seconds to ensure the sensor chamber, electronics and sounder are working. A red light on the cover, will flash while horn is sounding. The alarm will stop when the button is released. Pressing the test button simulates the effect of smoke or heat during a real fire and is the best way to ensure the Alarm is operating correctly. This action will also clear the memory.

WARNING: DO NOT TEST WITH FLAME

This can set fire to the Alarm and damage the house.

We do not recommend testing with smoke or heat as the results can be misleading unless special apparatus is used.

4. Check for any sign of contamination such as cobwebs or dust and clean the Alarm as described in the "cleaning" section if necessary.

5. Interconnected Alarms only - Test the first unit by pressing the button for 10 seconds. All the units should alarm within 10 seconds of the first horn sounding. The red light on the first unit only will flash about once a second. On releasing the button the local Alarm will stop sounding immediately and the remote Alarms will stop sounding approximately 3 seconds later (if testing using RF interconnection this could take slightly longer). This will verify that the interconnect is working. Check all the other units similarly.
6. Check the functioning of the mains battery back-up directly after installation and then at least yearly as follows:

- Turn off the mains power at the distribution board and check that the green indicator light is extinguished.
- Press the test button and ensure the horn sounds loudly for 10 seconds.

Turn on the mains supply at the distribution board only if the unit passes the above test.

Note: If the mains is disconnected and the battery is almost depleted the unit will beep every 40 seconds for at least 30 days.

7. Monitor the Alarm over a short period of time for any beeps.

Switching off Mains for long periods

If the premises are regularly being left without mains power for long periods the Smoke/Heat Alarms should be removed from their mounting plates to prevent the batteries becoming fully depleted. (This is sometimes done with holiday homes which are only occupied in the Summer).

The Alarms must be re-attached to the mounting plates when the premises are re-occupied.

If the unit is beeping: Before replacing the battery, check that the beeps are not due to one of the following:

(i) battery snaps not connected properly.

(ii) On the Optical Smoke Alarm only (Ei146RC) if the unit beeps and the red light does not flash at the same time it indicates a problem with the smoke chamber - see "**Cleaning Your Alarm**" section.

(iii) If the beeps have continued for over 20 minutes (and the other causes of beeps have been ruled out - see "**Troubleshooting**" section) the battery must be replaced.

See "**Changing the Battery**" section.

Cleaning your Alarm

If all of the above possible causes of beeps have been ruled out, but the beeping has still persisted for over 2 hours with the green light on - replace the Alarm. The Smoke / Heat Alarm can be returned to the manufacturer for repair or replacement - see "**Service and Guarantee**" section.

WARNING: Electrical shock hazard. Disconnect the AC mains at the fuse box or circuit breaker powering the Alarm before following the cleaning instructions.

Clean your Alarm regularly, particularly in dusty areas. Use the narrow nozzle attachment of your vacuum cleaner to remove dust, insects and cobwebs from the sides and cover slots where the smoke or heat enters. To clean the cover, wipe with a damp cloth. Dry cover thoroughly with a lint free cloth.

WARNING: Do not paint your Alarm.

Other than the cleaning described above, no other customer servicing of this product is required. Repairs, when needed, must be performed by the manufacturer. All Alarms are prone to dust and insect ingress which can cause nuisance/false alarms or failure to alarm.

In certain circumstances even with regular cleaning, contamination can build up in the smoke sensing chamber causing the Alarm to sound or fail. If this happens the Alarm can be returned to us for servicing or replacement. Contamination is beyond our control, it is totally unpredictable and is considered normal wear and tear.

For this reason, contamination is not covered by the guarantee and a charge is made for servicing such units.

If you experience persistent nuisance/false alarms it may mean that the environment may not be suitable for your particular Alarm type.

Nuisance / False Alarms

When sure that it is just a nuisance/false alarm, simply press the test/silence button briefly on the Alarm to silence the unit for 10 minutes.

If, when the alarm goes off, there is no sign of smoke, heat or noise to indicate that there is a fire, you should get your family into a safe place, before you start investigating.

Check the house carefully in case there is a small fire smouldering somewhere.

Check whether there is some source of smoke or fumes, for example cooking fumes being drawn past the Smoke Alarm by an extractor.

If there are frequent nuisance/false alarms it may be necessary to re-locate the device away from the source of the fumes. If for some reason the Alarm continues to sound without smoke or heat being present (due to insect infestation or contamination build-up for example) the units can be silenced by disconnecting the mains power and removing the unit - see "**ALARM REMOVAL**" section - page 11 (Installer section).

If cleaning the Alarm does not correct the problem it can be returned to the manufacturer for repair or replacement - see "Service and Guarantee" section.

Silence Feature

All the Smoke Alarms have a combined Test/Silence Button to help you control nuisance/false alarms.

1. To silence a nuisance/false alarm, press the Test/ Silence Button located on the cover. The Alarm will automatically switch to a reduced sensitivity condition for a 10 minute period (very large levels of smoke from a nearby fire will override the silence period).

The unit will flash the red light every 10 seconds (instead of the normal 40 seconds) to indicate the sensitivity is reduced.

On interconnected Alarms, pressing the Test/Silence Button on the one sensing smoke (i.e. the one with the red light flashing every second) will silence all alarms.

Pressing the Silence Button on any other Alarm will not silence the alarm.

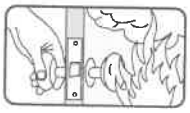
2. The unit will reset to normal sensitivity at the end of the silenced period.

Planning Your Escape Route

Use the Smoke / Heat Alarm Test Buttons to familiarise your family with the Alarm sound and to practice fire drills regularly with all family members. Draw up a floor plan that will show each member at least 2 escape routes from each room in the house.

Children tend to hide when they don't know what to do. Teach children how to escape, open windows, and use roll up fire ladders and stools without adult help. Make sure they know what to do if the alarm goes off.

1. Check room doors for heat or smoke. Do not open a hot door. Use an alternate escape route. Close doors behind you as you leave.



2. If smoke is heavy, crawl out, staying close to floor. Take short breaths, if possible, through a wet cloth or hold your breath. More people die from smoke inhalation than from flames.

3. Get out as fast as you can. Do not stop for packing. Have a prearranged meeting place outside for all family members. Check everybody is there.

4. Call the Fire Brigade immediately on a mobile phone or from a neighbour's house. Make sure to call the Brigade for all fires no matter how small - fires can suddenly spread. Also call the Brigade even if the alarm is automatically transmitted to a remote manned centre - the link may have failed.

5. NEVER re-enter a burning house.

Limitations of Smoke / Heat Alarms

Smoke / Heat Alarms have significantly helped to reduce the number of fire fatalities in countries where they are widely installed.

However independent authorities have stated that they may be ineffective in some circumstances. There are a number of reasons for this:

- NOTE: Constant exposure to high or low temperatures or high humidity may reduce the life of the battery.
- Smoke / Heat Alarms will not detect fire if sufficient smoke / heat does not reach the Alarm. Smoke / heat may be prevented from reaching the Alarm if the fire is too far away, for example, if the fire is on another floor, behind a closed door, in a chimney, in a wall cavity, or if the prevailing air draughts carry the smoke / heat away. Installing Smoke / Heat Alarms on both sides of closed doors and installing more than one Smoke

/ Heat Alarm as recommended in the 'INSTALLER INSTRUCTIONS' section significantly improves the probability of early detection.

- The Alarm may not be heard.
- A Smoke / Heat Alarm may not wake a person who has taken drugs or alcohol.
- Smoke / Heat Alarms may not detect every type of fire to give sufficient early warning.
- Smoke / Heat Alarms don't last indefinitely. For example if there is a build up of contamination, performance will be impaired.

It is recommended that the Smoke / Heat Alarms are replaced after 10 years as a precaution.

Service and Guarantee

If your Alarm fails to work after you have carefully read all the instructions, checked the unit has been installed correctly, and is receiving AC power (green light on) contact Customer Assistance at the address given at the end of this leaflet. If it needs to be returned for repair or replacement put it in a padded box and send it to "Customer Assistance and Information" at the nearest address given on the Alarm or in this leaflet. Do not snap on to the mounting plate as this connects the battery and the unit may beep or alarm in the post. State the nature of the fault, where the Alarm was purchased and the date of purchase.

Ei Electronics guarantees this Alarm for five years from date of purchase against any defects that are due to faulty materials or workmanship. This guarantee only applies to normal conditions of use and service, and does not include damage resulting from accident, neglect, misuse, unauthorised dismantling, or contamination howsoever caused. This guarantee excludes incidental and consequential damage. If this Alarm should become defective within the guarantee period, it can be returned to Ei Electronics, with proof of purchase, carefully packaged, with the problem clearly stated. We shall at our discretion repair or replace the faulty unit.
Do not interfere with the Alarm or attempt to tamper with it. This will invalidate the guarantee, but more importantly may expose the user to shock or fire hazards.

This guarantee is in addition to your statutory rights as a consumer.

Troubleshooting

1. ALARM SOUNDS FOR NO APPARENT REASON:

(1) Identify the alarm source. On interconnected units, the red light on the cover will flash rapidly only on the unit which is the source of the alarm. If an optional Ei1529RC Control Switch or an Ei450 Alarm Controller is installed, press Locate when the system is sounding to identify source of alarm.

(2) Check for fumes, steam etc. from the kitchen or bathroom. Paint and other fumes can cause nuisance/ false alarms.

(3) Press the test/silence button to silence the Smoke/ Heat Alarm for 10 minutes.

(4) If alarm does not stop, switch off mains and remove unit - see "Important Information" section. (Only remove

the alarm with the red light flashing, the others are probably satisfactory).

2. LOW BATTERY & OTHER BEEPS:

(1) If the battery is correctly connected and the unit has beeped for over 20 minutes the battery is probably depleted. Obtain a new battery, disconnect the mains, then remove the Alarm and replace the depleted battery.

(2) If the Ei146RC beeps without the red light flashing at the same time, the chamber is defective. See 'Cleaning your Alarm' section.

(3) If the green mains light is on and replacing the battery or cleaning the unit has not stopped the beeps, a fault may exist. Disconnect the mains first and replace the unit - see "**Alarm Removal**" section.

3. INTERCONNECTED ALARMS DO NOT ALL SOUND:

(1) Hold test button for 10 seconds after first Alarm has sounded to ensure signal is transmitted to all units.

(2) One or more of the connections may not be correctly connected. We recommend you consult a qualified electrician.

The crossed out wheelie bin symbol that is on your product indicates that this product should not be disposed of via the normal household waste stream. Proper disposal will prevent possible harm to the environment or to human health. When disposing of this product please separate it from other waste streams to ensure that it can be recycled in an environmentally sound manner. For more details on collection and proper disposal, please contact your local government office or the retailer where you purchased this product.

CE
0086

Ei Electronics, Shannon, Co. Clare, Ireland
08
DoP No.13-0001

EN14604:2005 + AC:2008

Smoke Alarm Devices:
Ei141RC, Ei146RC

Fire Safety

Nominal activation conditions/ sensitivity, response delay (response time) and performance under fire condition	**Pass**
Operational reliability	**Pass**
Tolerance to voltage supply	**Pass**
Response delay and temperature resistance	**Pass**
Vibration resistance	**Pass**
Humidity resistance	**Pass**
Corrosion resistance	**Pass**
Electrical stability	**Pass**

CE

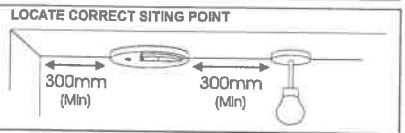
Heat Alarm Devices:
Ei144RC

The Declaration of Performance No. 13-0001 may be consulted at www.eielectronics.com/compliance

Installer Section

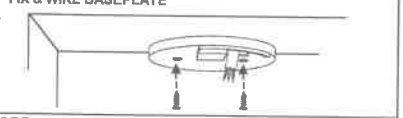
Installation Guide

1 LOCATE CORRECT SITING POINT



ALARM SHOULD BE CEILING MOUNTED AT LEAST 300mm FROM WALLS & OBSTRUCTIONS, IDEALLY CENTRALLY IN ROOM/AREA

2 FIX & WIRE BASEPLATE

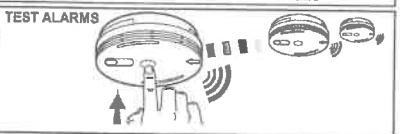


WIRE TO TERMINALS ON THE BASEPLATE AND FIX BASEPLATE TO CEILING USING THE FIXINGS PROVIDED

3 SLIDE ON ALARM

SLIDE ALARM ONTO BASEPLATE. A CLICK SHOULD BE HEARD AS THE TAMPER-PROOF CATCH ENGAGES

4 TEST ALARMS



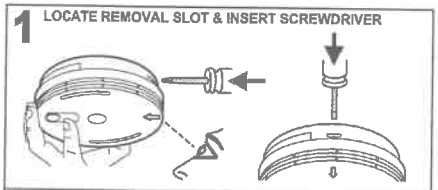
PRESS AND HOLD THE TEST BUTTON ON THE ALARM. THE ALARM AND ANY OTHER INTERCONNECTED UNITS SHOULD SOUND

ATTENTION: THIS SECTION IS ONLY A GUIDE.
PLEASE READ FULL INSTRUCTIONS BEFORE INSTALLATION

Alarm Removal

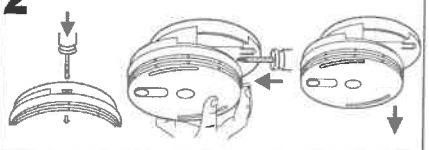
⚠ ***DISCONNECT MAINS BEFORE REMOVAL***

1 LOCATE REMOVAL SLOT & INSERT SCREWDRIVER



LOCATE THE ARROW ON THE FRONT FACE OF THE ALARM
THE SLOT IS LOCATED DIRECTLY ABOVE THE ARROW
INSERT A FLAT-BLADED SCREWDRIVER HORIZONTALLY APPROX. 1cm INTO THE CENTRE OF THE REMOVAL SLOT

2 SLIDE ALARM OFF BASE & REMOVE ALARM



WITH THE SCREWDRIVER STILL INSERTED, PUSH THE LOWER HALF OF THE ALARM AWAY FROM THE SCREWDRIVER, IN THE DIRECTION OF THE ARROW ON THE COVER

How Many Alarms To Install - Categories & Grades

The advice here follows the guidance in British Standard BS 5839-6: 2013 in general (for further information see the BS standard itself).

The main reason for fitting Smoke & Heat Alarms in dwellings is to ensure that when there is a fire, sufficient early warning is given so that everybody can escape safely.

This means that the fire alarms should ideally be located near all potential sources of fires and that the alarm should be heard throughout the house – particularly in the bedrooms.

It is also important that nuisance/false alarms are minimised to ensure the units are not disabled or ignored.

The BS standard gives guidance on:

- how many Alarms to install
- what type of Alarm to use
- where to position Alarms

The above points will depend on the type of dwelling to be protected and the level of fire risk.

Fire Risk Assessment

The 'Grade' and 'Category' of system that should be installed depends on the fire risk. The risk assessment is based on a combination of probabilities:

- fire occurring
- injury or death to occupant
- system operating correctly with a fire
- early detection and warning to occupants in the event of a fire.

The greater the risks, the more comprehensive and reliable systems need to be.

UK Requirements (BS 5839-6:2013)

LD1 OPTIMUM PROTECTION

for dwellings where occupants may be at high risk (e.g. elderly)

Optimum Protection LD1: As LD2, but in addition Smoke or Heat Alarms should be located in all rooms and other areas of the dwelling.
(apart from toilets or bathroom)
Interconnect all Alarms

LD2 BASIC PROTECTION

for new or materially altered dwellings or existing dwellings with poor structural fire precautions

Basic Protection LD2: Smoke or Heat Alarms in all rooms or areas that present a high fire risk to occupants.
(apart from toilets or bathroom)
Interconnect all Alarms

LD3 MINIMUM PROTECTION

Minimum Protection LD3: Alarms in all hallways, stairways and circulation areas that form part of the escape routes from the dwelling.

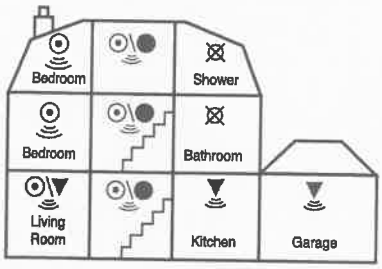
Multi-Sensor or Smoke Alarms located:
- on each storey
- every 7.5 m of hallways and escape routes
- within 3m of all bedroom doors

(apart from toilets & bathrooms ☒)

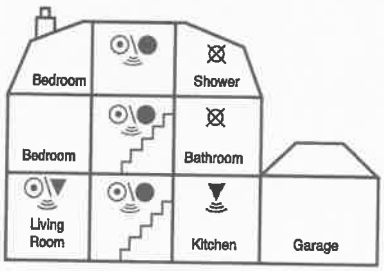
Heat Alarms located in:
- each Kitchen

(Heat Alarms must be within 5.3m of potential fire sources)

Multi-Sensor or Heat Alarms located in:
- each Living room (i.e. most frequently used daytime room)



Multi Storey Dwelling LD1



Multi Storey Dwelling LD2

Multi-Sensor Fire Alarm | Optical Smoke Alarm | Heat Alarm | ☒ do not fit Alarm

ROI Requirements (IS 3218:2013)

LD1 OPTIMUM PROTECTION

for dwellings where occupants may be at high risk (e.g. elderly)

Optimum Protection LD1: As LD2, but also including attics / lofts / other spaces in which a fire might start (apart from toilets or bathroom).
Interconnect all Alarms

LD2 BASIC PROTECTION

for new or materially altered dwellings or existing dwellings with poor structural fire precautions

Basic Protection LD2: all circulation areas that form part of an escaper route within the dwelling, and all high fire risk areas / rooms e.g. kitchen, living rooms, garages and all bedrooms (apart from toilets or bathroom).
Interconnect all Alarms

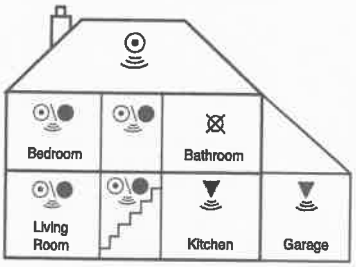
Multi-Sensor or Smoke Alarms located
- on each storey
- every 7.5 m of hallways and escape routes
- within 3m of all bedroom doors

(apart from toilets & bathrooms ☒)

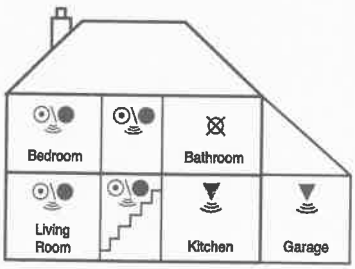
Heat Alarms located in:
- each Kitchen

(Heat Alarms must be within 5.3m of potential fire sources)

Multi-Sensor or Heat Alarms located in:
- each Living room (i.e. most frequently used daytime room)



Multi Storey Dwelling LD1



Multi Storey Dwelling LD2

Multi-Sensor Fire Alarm | Optical Smoke Alarm | Heat Alarm | do not fit Alarm

Selecting Alarm Type

Optical/Ionisation/Heat Alarm Selection
Locations & Performance

	Alarm Type		
	Optical[1]	Ionisation[2]	Heat
Locations			
Hall, Corridors, Escape Routes	✓✓✓	✓✓	X
Kitchens	X	X	✓✓✓
Living Rooms	✓✓✓	✓✓	✓[3]
Bedrooms	✓✓✓	✓✓	X
Shower / Bathroom	X	X	X
Fire Response			
Slow Smouldering Fires (polyurethane foam, ignited bedding etc.)	✓✓✓	✓✓	X
Fast Flaming Fires (chip pans, flaming wood/plastic, oil, solvents etc.)	✓✓	✓✓✓	X
Temperature >58°C (only in areas with cooking fumes, steam, very dirty/dusty)	X	X	✓✓✓[4]
Nuisance Alarm Immunity			
Cooking Fumes	✓✓	✓[5]	✓✓✓
Steam, Condensation & Dust Build-up	✓	✓✓	✓✓✓

✓✓✓ - Best ✓✓ - Good ✓ - Acceptable X - Not Suitable

[1] Optical Smoke Alarms are recommended due to their excellent response to smouldering fires. If there is likely to be problems with steam, contamination or dust build-up, or if there is significant risk of a fast burning clean fire an Ionisation Smoke Alarm should be fitted.

[2] Ionisation and Optical Smoke Alarms should be fitted for the fastest response to all types of fires.

[3] Some Fire authorities (concerned with the slow response of Heat Alarms) advise that Smoke Alarms should be fitted. This is acceptable according to BS 5839-6 provided there are clearly not going to be problems with nuisance/false alarms. Fit Heat Alarms only if nuisance/false alarms are very likely and it is acceptable that a warning will only be given by the Heat Alarm when there is a very significant flaming fire in the room. If the door(s) and windows are not closed to contain the fire and heat, it is extremely unlikely that the Heat Alarm would respond before a Smoke Alarm sited outside in the corridor.

[4] In enclosed kitchens with doors closed.

[5] Greatly depends on ventilation and distance from source of fumes.

Grade D System

The mains powered Smoke and Heat Alarms with battery back-up covered by these instructions are suitable for Grade D System.

A Grade D system is needed for:

- new or materially altered dwellings, up to three-storeys, with no floor over 200m²
- existing dwellings with poor structural fire precautions, up to three storeys, with no floor over 200m²
- Houses in Multiple Occupation (HMOs) of one or two-storeys, with no floor over 200m²
- Individual dwellings units of two or more rooms in HMOs

Check that a Grade D system is adequate for the dwelling into which the system is being installed.

Positioning Alarms

The locations must comply with applicable building regulations.

Hot smoke rises and spreads out, so a central ceiling position is the preferred location. The air is "dead" and does not move in corners, therefore Smoke & Heat Alarms must be mounted away from corners. Place the unit:

- At least 0.3m away from walls. See **Figure 1**.
- At least 0.3m from any light fitting or decorative object which might obstruct smoke / heat entering the Alarm.

Figure 1

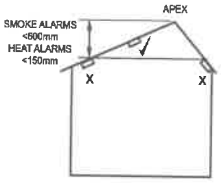


Figure 2

Sloping Ceiling

With a sloping or peaked ceiling install a Smoke Alarm within 600mm of the peak or a Heat Alarm within 150mm of the peak (measured vertically). If this height is less than 600mm for Smoke Alarms or 150mm for Heat Alarms it is regarded as being flat (see **Figure 2**).

Wall mounting of Smoke Alarms (only):

If ceiling mounting is impractical, Smoke Alarms may be mounted on a wall, provided that:

a) the top of the detection element is between 150mm and 300mm below the ceiling;

b) the bottom of the detection element is above the level of any door openings;

Wall mounting should only be considered where close spaced beams or similar obstructions may preclude ceiling mounting. It is considered to be the responsibility of the installer/client to determine if the presence of asbestos in the ceiling material would make ceiling mounting 'impractical'.

Locations To Avoid

DON'T place Smoke Alarms in any of the following areas:

- *Bathrooms, kitchens, shower rooms, garages* or other rooms where the smoke alarm may be triggered by steam, condensation, normal smoke or fumes. Keep at least 6 metres away from sources of normal smoke/fumes.

DON'T place Heat Alarms in any of the following areas:

- *Bathrooms, shower rooms* or other rooms where the unit may be triggered by steam or condensation.

DON'T place Smoke or Heat Alarms in any of the following areas:

- Places where the normal temperature can exceed 40°C or be below 4°C (e.g. *attics, furnace rooms*, directly above *ovens* or *kettles* etc.) as the heat/steam could cause nuisance/false alarms.

- Near a *decorative object, door, light fitting, window moulding* etc., that may prevent smoke or heat from entering the Alarm.
- Surfaces that are normally warmer or colder than the rest of the room (e.g. *attic hatches*). Temperature differences might stop smoke or heat from reaching the unit.
- Next to or directly above *heaters* or *air conditioning vents, windows, wall vents* etc. that can change the direction of airflow.
- In very *high* or *awkward areas* (e.g. over stairwells) where it may be difficult to reach the alarm (for testing, hushing or battery replacement).
- Locate away from very *dusty* or *dirty areas* as dust build-up in the chamber can impair performance. It can also block the insect screen mesh and prevent smoke from entering the smoke detector chamber.
- Locate the unit at least 1m from *dimmer controlled lights and wiring* as some dimmers can cause interference.
- Locate unit at least 1.5m and route wiring at least 1m away from *fluorescent light fittings* as electrical "noise" and/or flickering may affect the unit. Do not wire into the same circuit as fluorescent lights or dimmers.
- Do not locate in *insect infested areas*. Small insects getting into the smoke detector chamber can cause intermittent alarms. Insects and contamination on the Heat Alarm sensor can increase its response time.

Installation

The Alarm is designed to be permanently mounted, using it's own built-in terminal block to connect it to the mains. The mounting plate can be screwed directly to the ceiling. Alternatively it can be screwed to a standard junction box. It requires a current of 40mA. The Alarm must not be exposed to dripping or splashing. There are important markings on the underside of the alarm.

Caution

Alternative Energy Sources - (Wind, Solar, UPS etc.)

This product is designed to be connected to a Pure or True Sine Wave 230 Vac supply.

If connecting to a power source that utilises an inverter, e.g. PV solar panel, the Total Harmonic Distortion (THD) must be less than 5%. If in doubt please check with the manufacturer of the inverter.

This also applies to battery powered UPS (Uninterruptible Power Supply) inverters.

Light Dimmer Circuits – The Alarms **must not** be powered from a light dimmer circuit.

IMPORTANT PRECAUTION: Do not install the Alarms in new or renovated buildings until all work is completed (including floor coverings) and the building has been fully cleaned. The wiring can be installed when appropriate. *(Excessive dust and debris from building work can contaminate the smoke chamber or heat sensor and cause problems, it will also invalidate the guarantee).* If it must be installed, first cover it completely, particularly around the edges, with a dust cover (eg. with the elasticated cover supplied or a plastic bag), until all cleaning is finished.

The Alarm must not be connected when the house wiring insulation is being checked with high voltages. i.e. Do not use a high voltage insulation tester on the alarm.

WARNING: Mains operated Alarms should be installed and interconnected by a qualified electrician in accordance with the Regulations for Electrical Installations published by the Institution of Electrical Engineers (BS7671). Failure to install this Alarm correctly may expose the user to shock or fire hazards.

WARNING: The Alarm must be continuously powered 24 hours a day so it is important that it is not on a circuit that can be turned off by a switch.

Note: BS 5839-6: 2013 gives the folowing recommendations regarding the mains supply to be used in a Grade D system (The Ei141RC, Ei146RC Smoke Alarms and Ei144RC Heat Alarms can be used in a Grade D system). The power supply for the Alarms should be derived from the public electricity supply to the dwelling. The mains supply to the Alarms should take the form of either:

(a) an independent circuit at the dwelling's main distribution board, in which case no other electrical equipment should be connected to this circuit (other than a dedicated monitoring device installed to indicate failure of the mains supply to the Alarms); or

(b) a separately electrically protected, regularly used local lighting circuit.

Alarms should be connected on a single final circuit, unless the means of interconnection is by radio signals (e.g. RadioLINK).

(See BS 5839-6: 2013 for further information)

Note: The Ei168RC RadioLINK Base can be used to eliminate interconnect wiring, make system extensions and provide simple and cost effective compliance with BS 5839-6: 2013.

Mounting & Wiring Alarms

1. Select a location complying with the advice in the (Positioning Alarms section).

2. Disconnect the AC mains supply from the circuit that is going to be used.

3. Lift off the wiring cover as shown in **Figure 3**.

The house wiring must be connected to the terminal block on the mounting plate as follows:

L: Live - connect to the house wires coloured brown or marked L.
N: Neutral - connect to the house wires coloured blue or marked N.

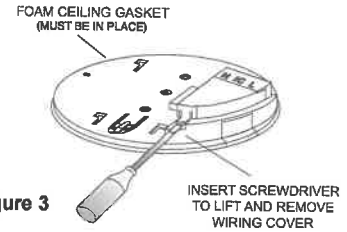


Figure 3

See page 20 for information on interconnection.

***Note:** Wiring must be installed in compliance with local regulations.*

Warning: Mixing the Live and Neutral connections when interconnecting alarms will damage all the alarms - ensure that the same colours are used throughout the premises for Live, Neutral and Interconnect wires.

We strongly recommend that you check for the following **before connecting the Alarm**:

- check for Live and Neutral using a two probe tester.
- check for Live using a neon tester.

- check that the Interconnect wire is NOT connected to Live, Neutral or Earth. **Do not use an Earth wire for the Interconnect line.**

N.B. The Alarm does not need to be earthed. However the terminal marked ⏚ is provided for the convenience of the installer so that any copper Earth wire or cable coloured green & yellow, can be safely terminated.

To interconnect the Alarms connect all the IC terminals together as shown in **Figure 6**.

4. If the mains wires are recessed, bring the wires through the rear hole in the mounting plate as shown in **Figure 4**.
If the mains wires are being brought along the surface:

(a) position the mounting plate so the cable trunking is as shown in **Figure 4**.

(b) the mounting plate has a removable section, take it out to interface directly with 25mm conduit as shown in **Figure 5**. If interfacing to 16mm conduit carefully cut around the marked section, leaving the top intact and replace the section. (If you are not using surface wiring, the removable section must be left in place for electrical safety reasons).

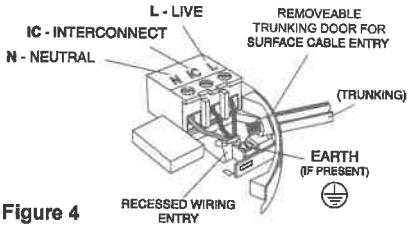


Figure 4

There are two other positions which are also suitable for the surface wiring to enter (and exit) the alarm, one next to the removable section and another directly opposite.

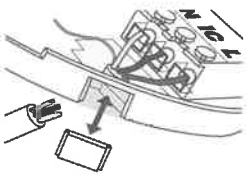


Figure 5

5. Carefully align the mounting plate and screw into place. Connect the wires to the terminal block. With recessed wiring, ensure the rear gasket seals around the edge of the hole in the ceiling or wall. This is to prevent air draughts affecting the smoke/heat entering the Alarm. If the hole is too large or the Alarm does not seal it, it should be sealed with silicone rubber or equivalent.

6. Attach the battery to the battery snaps. Carefully line up the unit on the base and slide on.

7. Press and hold the test/hush button for 10 seconds. The horn will sound. On release of the test button the local alarm will stop sounding immediately and the interconnected Alarms will stop sounding a few seconds later.

8. Connect the mains power to the Alarm circuit. Check the green light is on.

9. Attach the *'Smoke Alarm'* identification label provided to the distribution board to identify the alarm circuit.

10. Attach the *'Mains Smoke / Heat Alarms'* label provided on or near the distribution board and write in date installed and the number of Alarms on the circuit.

Ensure the alarm operates correctly - see "**TESTING & MAINTENANCE**" section on page 3.

Interconnecting Alarms

Note: A maximum of twelve Ei141RC / Ei144RC / Ei146RC Smoke or Heat Alarms may be interconnected. Up to 8 additional accessories may also be connected. *If you wish to connect more than 12 Alarms contact your local distributor.*

Systems using more than 3 or 4 Alarms must be very carefully planned to ensure nuisance/false alarms are not excessive. e.g. from cooking fumes or steam. The following is suggested:

- An Alarm Control Switch (model Ei1529RC) or a Fire/CO Alarm Controller (model Ei450) should be incorporated into the system and be readily accessible to all occupants so that the source of an alarm can be quickly identified.
- All Alarms must be cleaned and maintained regularly.
- A qualified person must be on call to quickly remove any nuisance units (i.e. units with red light flashing rapidly) which are causing all the other Alarms to sound.

WARNING: Do not connect these Alarms to any other model produced by another manufacturer. Doing so may damage the Alarms and could result in a shock or fire hazard.

Wiring must be installed in compliance with local regulations.

In the UK it is recommended that the following coloured cores are used (for example with triple flat 6243Y cable).

230V supply	*Brown*
Neutral	*Grey - sleeved blue at terminations*
Interconnect	*Black*

The interconnect wire (minimum 0.75mm^2 cable) must be treated as if it was Live. It should be insulated and sheathed.

A maximum of 250 metres of wire can be used (maximum resistance between detectors 50 Ohms).

These Smoke/Heat Alarms should be interconnected only within the confines of a single family living unit. If they are connected between different units there may be excessive nuisance/false alarms. Everybody may not be aware that they are being tested or that it is a nuisance/ false alarm caused by cooking etc.

Note: Heat Alarms **must** be interconnected to other Smoke Alarms. They are not suitable as a fire safety device unless they are part of a fire safety system i.e. when interconnected to one or more Smoke Alarms.

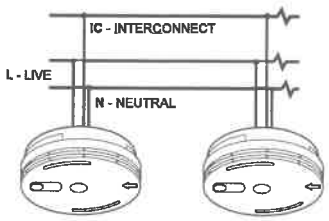


Figure 6