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Tenants' Handbook
Linnvale Development
June 2022

We welcome you to our new development. Please find enclosed some instructional information which you should review. Please note, not all of the guides will be applicable to every property.

- Section 1 - General maintenance of windows and patio doors
- Section 2 - Combi boiler operating manual
- Section 3 - Heat recovery unit
- Section 4 - Programmable room thermometer model TP One M
- Section 5 - Programmable room thermometer model TP One B
- Section 6 - Sockets and switches
- Section 7 - Distribution of power
- Section 8 - Ventilation guide
- Section 9 - Your handset user guide
- Section 10 - Smoke alarm instructions
- Section 11 - CO2 monitor
- Section 12 - Level access shower care
- Section 13 - Mira shower guide

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Section 1 - General maintenance of windows and patio doors

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General **Maintenance** Manual

PVC-U Windows, Doors & Conservatories

andrewwright WINDOWS
Established since 1937

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Thank you for choosing products from

Andrew Wright Windows Ltd.

Your investment will last many years.

Your installation has been designed, constructed and fitted to the

highest possible standards

and is virtually free of maintenance.

However, to retain its smart appearance and ease of operation, a small amount of care and attention is necessary.

Please take a few minutes to read this manual.

It will ensure that your **Andrew Wright** installation will always be **as good as new.**

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PVC-U

The pristine appearance of **Andrew Wright** PVC-U frames is maintained by occasional cleaning. The frequency of this cleaning will depend on local conditions.

For instance, products installed in industrially polluted, or coastal areas will need cleaning more frequently – at least every couple of months or so. Under normal conditions, washing down windows and doors with warm soapy water is sufficient. Stubborn marks on white frames may be removed by using the PVC-U cleaner in the **Andrew Wright** product care kit.

Woodgrain effect finishes should only be cleaned with warm soapy water. Never sand or polish woodgrain effect profile since this will destroy the laminated surface. Abrasive cleaners should not be used since they may alter the gloss finish of your window, or destroy the laminated surface.

Particular care should be taken to ensure that nothing which may cause a rust stain comes into contact with PVC-U, as rust stains are not removable. When carrying out cleaning or redecoration, care should be taken not to damage the waterproof mastic seals.

Hardware

When a window has been manufactured and installed, all necessary adjustments should have been made to ensure the window functions correctly. It will, however, be necessary during the lifetime of the window to make periodical adjustments and maintenance checks to the gearing.

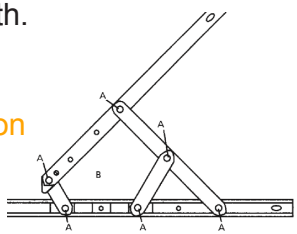
Regular maintenance of exposed metal parts by removing dust and grit for example, will help them perform at their best. As a result of normal operating and atmospheric conditions, moving mechanical parts of doors and windows will also require occasional lubrication. The application of **Andrew Wright** lubricant to hinges, lock and handles will maximise their life.

It is important to note that oils should not be confused with products such as WD40 whose use can have the effect of thinning the grease in gear mechanisms which can be detrimental to their operation. Some oils contain additives which can have adverse effects on some plastic bearing parts.

Casement Windows
Oiling and adjusting furniture. (Friction Stays)

Lubricate hinging points occasionally with an **Andrew Wright** lubricant. Adjust the small screw on the hinge to increase or decrease friction when opening and closing the sash (opening part of window). Wipe down the hinge and the slider channel occasionally with a suitable acid and resin free grease or a light oil applied with a cloth.

A. Oiling Points
B. Adjustment screw to increase friction



Opening sashes on windows requires an even push or pull when being opened or closed. Sashes left open for long periods may sometimes result in an accumulation of wind blown dirt on the hinges leading to clogging and restricted action. If this should occur do not use force, but remove the dirt and free the action using a penetrating oil.

Tilt and Turn Windows

1. Check for smooth window operation

a. If the handle is too stiff, take the following steps:

i. Lubricate gearing.

b. If the sash (opening part of a window) is catching, you are advised to contact your **Andrew Wright** installer since inappropriate adjustments may effect the security of your window.

2. Check drainage Slots (Frame)

a. Remove debris from drainage slots.

3. Lubrication

Petroleum Jelly:

i. All striker plates, locking points and guide slots.

ii. Also striker plates and locking points on the scissor stay.

Andrew Wright Lubricant

i. Oil all guide slots plus behind the face plate where the slide moves up or down.

ii. Oil safety catch.

iii. Oil stay hinge pin and corner hinge pin.

It is recommended that to keep the fittings free from problems, you should lubricate the parts mentioned above at least once per year.

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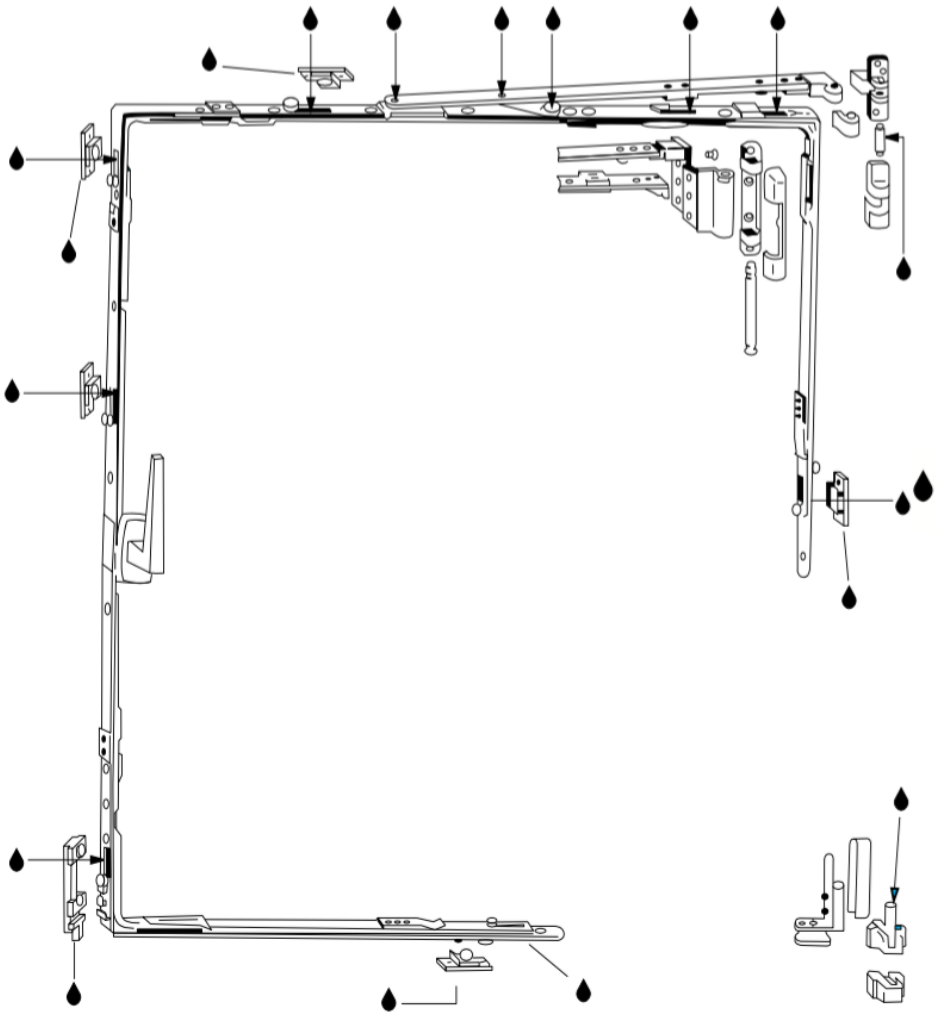
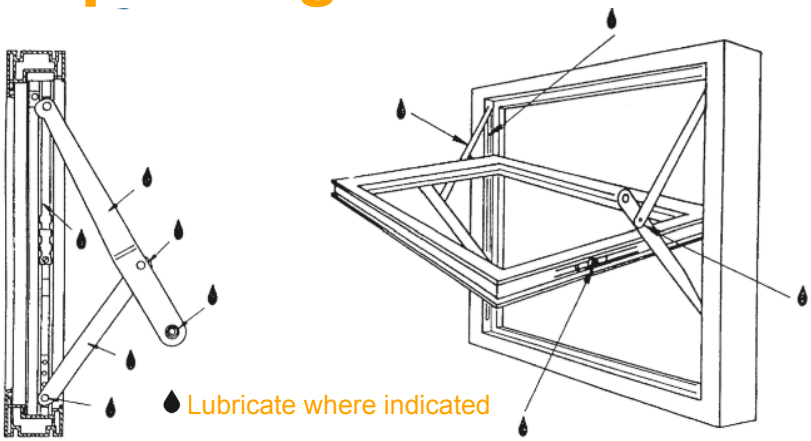
Established since 1937

Tilt and Turn Gear for Windows



Lubricate where indicated

Top Swing Windows



Hinges maintained in accordance with these guidelines are covered by the **Andrew Wright** guarantee for 10 years from the date of installation. Buckled hinges or stays, as a result of force or misuse are not covered by the **Andrew Wright guarantee**.

Fixing and Fasteners - the hinge may be secured to the window using either screws or peelback rivets.

Screws – Check periodically that none of the screws have worked loose for any reason. If any screws are found to be loose they should be tightened with a hand held screwdriver, usually with a Philips P2 head. If any screws are stripped, then repair screws should be used. These screws have a larger diameter and thread pitch.

Peel Back Rivets – If the rivet becomes loose, it shall be drilled out with a 4.8mm drill and replaced. The rivets should be drilled out and replaced separately so as to maintain the hinge position. No general maintenance should be required with screws and fasteners although light oiling will never go amiss. Contact with domestic or industrial ammonia based solvents should be avoided. However, several factors can cause screws to rust each of which can be accelerated depending upon the situation, and the following points should be noted.

Silicone Sealants – avoid acetic acid cured high and low modular sealants. The vapour alone is sufficient to cause corrosion. Therefore, a neutral curing sealant is recommended.

Acrylic Filters – contact with any carbon steel component will cause severe corrosion.

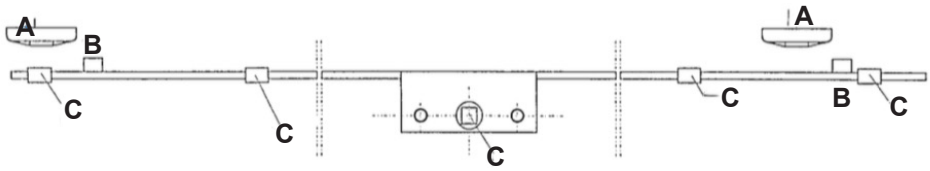
Cleaners – aggressive cleaning substances, especially those containing ammonia, chlorine etc. can have a severe effect and should not be used where screws are situated.

New-build – screws should not come into contact with wet plaster or cement, as the lime content combined with moisture will cause corrosion. Also, the acid wash often used to clean new brickwork is highly corrosive and should be completely avoided.

Locks

Espagnolette Locking Gear

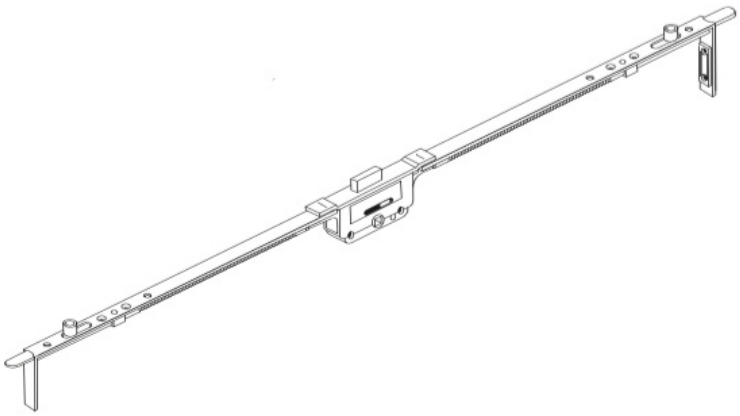
Wipe down the exposed face plate occasionally with an oiled cloth. Spray all moving parts including the drive rods with **Andrew Wright** lubricant. The roller/mushroom cam locking points may need adjustment to increase or decrease the “pull in” of the sash to the frame. These are eccentric and are adjusted using a screwdriver or allen key, depending upon the type of gear.



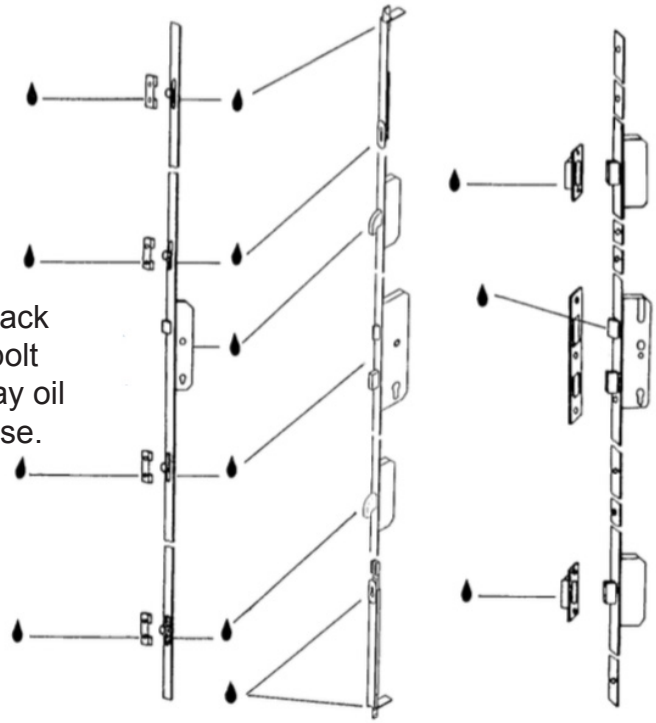
Typical Espagnolette Locking Mechanism

A = Keeper/Striker
B = Roller Cams or Mushroom Cams
C = Oiling Points

Typical Shootbolt Locking Gear Mechanism



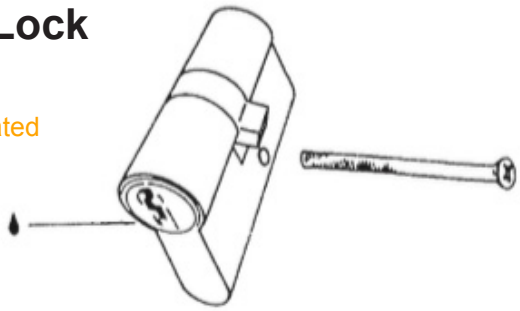
Multipoint Door Locks



Push back latch bolt and spray oil into case.

Cylinder Lock

Lubricate where indicated

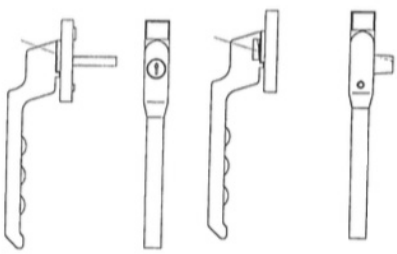


Lubricate where indicated with graphite dust or appropriate silicone. Never use oil.

Handles

To remove dust and grime wipe all window and door furniture with damp cloth and then dry thoroughly. DO NOT use liquid cleaner or abrasive on any hardware. Take care not to scratch the surface. Handles should be checked periodically to ensure that the screws holding them to the sash (opening part of window) are tight. If tightening is required, use a Philips screwdriver. Handles should not be over tightened as this may impair the operation of the locking mechanism. The handle can be lubricated at the joint between the handle and the fixing rose.

Espagnolette **Cockspur**



Patio Doors
Tracks should be kept clean for smooth running and drainage channels kept clear.

Cleaning of Gasket
The cleaning of gaskets should be done periodically using hot water with a mild non abrasive detergent solution.

If required the glazing gasket can be brought back to its original lustre by recoating with a silicone spray, allied to the gasket with a cloth. This should be done in moderation as over-application can result in the attraction of dust and grit, thus necessitating more frequent cleaning.

Condensation

In itself double glazing cannot cause condensation. By acting as a heat barrier and providing an inner pane which is considerably closer to room temperature than the outer pane, the risk of condensation is reduced.

Modern buildings are designed to eliminate draughts and do not have the natural ventilation that some older houses have with their chimneys and ill-fitting doors and windows. Houses which have been completely sealed by the installation of cavity wall insulation, loft insulation, double glazing and draught proofing throughout are likely to become moisture traps. In such cases, condensation is caused by insufficient ventilation.

Provided the rooms are heated normally, the solution will probably be found by providing controlled ventilation. In the case of older “unsealed” buildings, the dominant factor is likely to be indoor temperature, and additional heat, or the introduction of localised heat near the windows, will probably provide the answer.

Lead Work

As with any new lead work, when exposed to rain it will start an oxidisation process which appears as white or mottled staining on the leadwork. This process can take a few months to complete but when it has, the lead will be dark grey in colour and no longer stain.

Types of Dirt

	A	B	C	D	E
Aluminium Dust	-	-	-	X	-
Bitumen	-	-	-	-	X
Pencil	-	-	-	X	-
Dispersion Colour	X	-	-	-	-
Felt Pen	-	-	-	X	-
Organic Grease	-	-	-	X	-
Inorganic Grease	-	-	-	X	-
Gypsum	-	-	X	-	-
Rubber	-	-	-	X	-
Heating Oil	-	-	-	-	X
Wood Stain	-	-	X	-	-
Impregnation of Wood	-	-	-	-	X
Lime Mortar	-	-	X	-	-
Putty	-	-	-	-	X
Adhesives	-	-	-	-	X
Linseed Oil Cement	X	-	-	-	-
Ball Point Pen	-	-	X	-	-
Varnish	X	-	-	-	-
Oil Chalk	-	-	-	X	-
Oil Varnish	-	-	-	-	X
Rust	-	-	-	X	-
Soot	-	-	-	-	X
Shellac	-	-	-	-	X
Blackboard Chalk	-	X	-	-	-
Wax(Floor Wax, Candles)	-	-	-	-	X
Wax Pencil	-	-	-	-	X
Souble Glass	-	X	-	-	-
Cement Mortar	-	-	X	-	-

Types of Dirt

(A) Remove dirt with a semi-hard spatula and rub with a dry cloth;

(B) Wipe with a dry cloth;

(C) Wash with water;

(D) Wash with non scrubbing detergents;

(E) Use chemical cleaning and polishing means.

Notes

Notes

Service Record

Name of customer:

Installation Address:

Date of Installation:

Service	Date	Screws Checked	Gaskets Checked	HardWare Lubricated	Signed	Name	Company
-1.							
-2.							
-3.							
-4.							
-5.							
-6.							
-7.							
-8.							
-9.							
-10.							

It is advised that if remedial work is required, or if you are unsure advice should be sought from

Andrew Wright Windows Ltd

9 Telford Place

South Newmoor Industrial Estate

KA11 4HW

Tel:01294 221 227

Fax: 01294 213064

2016

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Section 2 - Combi boiler operating manual

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User Instructions

Gas-fired condensing combi appliance

Greenstar 4000

GR4700iW C

6 720 891 170 (2020/09) UK/IE

Preface

Dedicated to heating comfort.

Thank you for purchasing a Worcester product. We pride ourselves on manufacturing appliances to the strictest quality control standards throughout every stage of production.

Worcester, Bosch group has led the field in innovative product design and performance for over 50 years. This heritage means all our products are of exceptional quality and proven reliability.

Our products employ the latest technologies and they are reliable, extremely energy efficient, offering you economical running costs and value for money. They are amongst the top energy rated appliances available.

There is also the reassurance of our parts and labour guarantee. Our Customer Service team is here to help you get the best from your Worcester product throughout its lifetime. Whatever your enquiry, our specially trained team is available at our Worcester based contact centre and online via the website. For contact details see the back cover.

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1 Explanation of symbols and safety instructions

1.1 Explanation of symbols

Warnings

In warnings, signal words at the beginning of a warning are used to indicate the type and seriousness of the ensuing risk if measures for minimizing danger are not taken.

The following signal words are defined and can be used in this document:

DANGER

DANGER indicates that severe or life-threatening personal injury will occur.

WARNING

WARNING indicates that severe to life-threatening personal injury may occur.

CAUTION

CAUTION indicates that minor to medium personal injury may occur.

NOTICE

NOTICE indicates that material damage may occur.

Important information

The info symbol indicates important information where there is no risk to people or property.

Additional symbols

Symbol	Meaning
▶	a step in an action sequence
→	a reference to a related part in the document
•	a list entry
–	a list entry (second level)

Table 1

1.2 General safety instructions

⚠ Notices for the target group

These operating instructions are intended for the heating system operator.

All instructions must be observed. Failure to comply with instructions may result in material damage and personal injury, including danger to life.

- ▶ Read and retain the operating instructions (heat source, heating controller, etc.) prior to operation.
- ▶ Observe the safety instructions and warnings.

⚠ Determined use

The product may only be used for the heating of boiler water and for DHW heating.

Any other use is considered inappropriate. We assume no liability for damage occurring due to non-permitted use.

⚠ If you smell gas

A gas leak could potentially cause an explosion. If you smell gas, observe the following rules:

- ▶ Prevent flames or sparks:
  - – Do not smoke, use a lighter or strike matches.
  - – Do not operate any electrical switches or unplug any equipment.
  - – Do not use the telephone or ring doorbells.
- ▶ Turn off the gas at the meter or regulator.
- ▶ Open windows and doors.
- ▶ Warn your neighbours and leave the building.
- ▶ Prevent anyone from entering the building.
- ▶ Move well away from the building: call the National Gas Emergency Service on 0800 111 999.
- ▶ L.P.G. boilers: Call the supplier's number on the side of the gas tank.

⚠ Danger to life from poisoning by flue gas

There is a danger to life from escaping flue gas.

- ▶ **Never modify any parts through which flue gas is routed**.

If flues are damaged or leaking, or if you smell flue gas, observe the following rules.

- ▶ Switch off the heat source.
- ▶ Open doors and windows
- ▶ Warn your neighbours and leave the building immediately.
- ▶ Prevent third parties from entering the building.
- ▶ Notify an approved contractor.
- ▶ Have any defects rectified.

⚠ Danger to life from carbon monoxide

Carbon monoxide (CO) is a poisonous gas, which arises during the incomplete combustion of fossil fuels such as oil, gas or solid fuels.

Dangers arise, if carbon monoxide escapes from the heating system due to a fault or a leak and collects unnoticed in enclosed spaces.

You can neither see, taste nor smell carbon monoxide.

To avoid danger from carbon monoxide:

- ▶ Have the heating system inspected and serviced regularly by an approved contractor.
- ▶ Use a CO detector, which gives an alarm in good time if CO escapes.
- ▶ If you suspect a CO leak:
  - – Warn your neighbours and leave the building immediately.
  - – Call an approved contractor.
  - – Have any defects rectified.

⚠ Inspection, cleaning and maintenance

The user is responsible for ensuring the heating system is safe and environmentally compatible.

Non-existent or improper inspection, cleaning and maintenance may result in personal injury, including danger to life or material damage.

We recommend that you enter into a contract covering an annual inspection and responsive cleaning and maintenance with an approved contractor.

- ▶ Have work carried out only by an approved contractor.
- ▶ Have the appliance and heating system inspected by an approved contractor at least once a year.
- ▶ Have any required cleaning or maintenance work carried out immediately.
- ▶ Have any defects in the appliance and heating system remedied immediately, independent of the annual inspection.

⚠ Fittings and modification

Only a competent engineer can remove the appliance case and carry out any work, in accordance with the relevant Installation Regulations.

Any misuse or unauthorised modifications to the appliance, flue or associated accessories and heating system will invalidate the guarantee.

- ▶ Do not modify the appliance or flue system in any way.

Worcester, Bosch Group accepts no liability arising from any such actions. This does not affect your statutory rights.

⚠ Combustion air/ambient air

The air in the installation location must be free of flammable or chemically aggressive substances.

- ▶ Do not store or use any flammable or explosive materials (paper, petrol, thinners, paints, etc.) in the vicinity of the heat source.
- ▶ Do not store or use any corrosive substances (solvents, adhesives, chlorinated cleaning agents, etc.) in the vicinity of the heat source.

⚠ General considerations

- ▶ The boiler must be installed in a well ventilated area. The openings must be kept in good condition.
- ▶ The vents or any other component contributing to the functioning of the boiler must not be reduced or sealed.
- ▶ We recommend an annual service of the appliance by an approved engineer to ensure reliable and efficient operation.

⚠ Safety of electrical devices for domestic use and similar purposes

The following requirements apply in accordance with EN 60335-1 in order to prevent hazards from occurring when using electrical appliances:

“This appliance can be used by children of 8 years and older, as well as by people with reduced physical, sensory or mental capabilities or lacking in experience and knowledge, if they are supervised and have been given instruction in the safe use of the appliance and understand the resulting dangers. Children shall not play with the appliance. Cleaning and user maintenance must not be performed by children without supervision.”

“If the power cable is damaged, it must be replaced by the manufacturer, its customer service department or a similarly qualified person, so that risks are avoided.”

⚠ Please read these instructions carefully

- ▶ These instructions are applicable to the Worcester appliance model/s stated on the front cover only.
- ▶ These instructions apply in the UK/IE only and must be followed except for any statutory obligation.

2 Product Information

2.1 Appliance identification and serial number

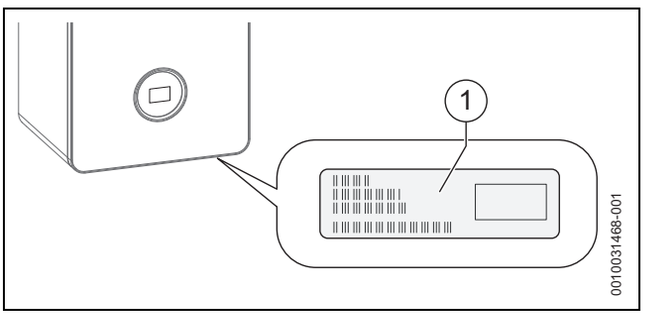

Fig. 1 Position of data label

The data label [1] contains information of the appliance model and serial number. This is located centrally on the bottom of the appliance in line with the control panel.

For your own records

Please ensure that the Commissioning Checklist has been completed by your installer or service engineer.

Model:	
Serial number:	
Date of installation:	

Table 2 Appliance details

The appliance model and serial number can be found on the appliance data label.

2.2 Servicing

Ensure that the service engineer completes the Service Record in the Benchmark Checklist after each service.

The Service Record can be found at the rear of the appliance's Installation and Maintenance Instructions. It will be required in the event of any guarantee work and may be required by the local Building Control Inspector.

- ▶ To ensure the continued safe, reliable and environmentally optimum operation of the boiler, it must be thoroughly serviced annually by a competent, qualified person, such as a Worcester service engineer, British Gas engineer or other Gas Safe registered engineer. In the Republic of Ireland servicing work must be carried out by a Worcester service engineer or other Registered Gas Installer (RGII).
  - – Having a contract covering annual servicing, cleaning and maintenance is a good way to ensure this is not missed.
  - – It is important that any required maintenance or repairs are carried out without delay.
- ▶ Ensure that the service engineer completes the Service Record, at the rear of the Installation and Maintenance Instructions manual, after each service.
- ▶ Have any work carried out by a competent, qualified person, Worcester service engineer, British Gas engineer or other Gas Safe registered engineer. In the Republic of Ireland servicing work must be carried out by a Worcester service engineer or other Registered Gas Installer (RGII).
- ▶ Always use original spares, to help maintain the efficiency, safety and reliability of the appliance.

2.3 Maintaining your appliance

Your new appliance represents a long term investment in a reliable, high quality product.

Wipe the appliance casing with a soft clean cloth. Please do not use chemical cleaning products which may damage the paint finish.

In order to realise the appliance's maximum working life, and to ensure the appliance continues to operate at peak efficiency and performance, it is essential that servicing and maintenance checks are performed at least once a year by a competent engineer in accordance with the current Gas Safe Regulations.

If you would like to know more about servicing options from Worcester, Bosch Group, please visit **worcester-bosch.co.uk**.

Please tick the appropriate box on your warranty registration card for further details of the Worcester, Bosch Group Service Contract.

When your appliance requires servicing please contact a Worcester, Bosch Group contact centre (see rear cover, appointments).

In addition to the service contract we are pleased to offer a one-off annual service or breakdown call out for your appliance.

Maintenance tips

- Appliances on a sealed heating system:
  - – Regularly check the system pressure.
- Do not obstruct the flue outlet or the air inlet.
- Use in hard water areas:
  - – In exceptionally hard water areas a device to prevent scale formation may be fitted. Installation of a salt based water softener should be in accordance with the requirements of the local water company. A bypass valve must be fitted and used to fill/top up the heating system with untreated water.

Important note:

▶ If you have to add water regularly in your heating system, call a competent, qualified person.

2.4 Benchmark standard

The Benchmark initiative is a code of practice to encourage the correct installation, commissioning and servicing of domestic central heating appliances and system equipment.

A "checklist" is dispatched with every appliance and can be found towards the back of the Installation, Commissioning and Servicing Instructions. This is a vital document that needs to be completed by the installer at the time of installation. It confirms that the appliance has been installed and commissioned according to the manufacturer's instructions.

The service record provides space for the recording of regular servicing of the appliance/heating system and this can become a valuable document when, for example, you wish to sell the property. The service record will show a potential purchaser that the heating system has received regular professional maintenance and servicing during its lifetime.

The Benchmark initiative aims to:

- Raise standards among professional installers.
- Build and maintain high safety standards in the industry.
- Improve customer satisfaction levels.
- Make a contribution to the nation's commitment to climate change.

3 Prepare for operation

3.1 Sealed heating system

Appliances that can be connected to sealed heating systems are pre-pressurised before operation, this pressure must be maintained for safe use of the appliance.

- ▶ Check regularly that the pressure is maintained.
- ▶ Re-charge the system if the pressure indicator reads less than 0.8 bar.
- ▶ If a permanent significant decrease or increase in pressure is shown on the pressure indicator, contact your installer or maintenance engineer.

Pressure indicator

- ▶ Type of pressure indicator for the system pressure.
  - – Pressure gauge (an analogue dial showing the pressure)
  - – Pressure menu (a digital readout of the pressure)
- ▶ Your appliance may have one or both types of methods to indicate the system pressure. The type of method used on this appliance will be detailed in the following section.

3.1.1 Checking the system pressure

The appliance pressure menu indicates the pressure within the heating system during standby and operating periods.

Your installer will advise you of the optimum operating pressure.

- ▶ Check the system pressure on the pressure menu.
  - – **Static pressure** is when appliance is cold and has not fired for heating or hot water. This will generally be 0.8 - 1.7 bar.
  - – **Operating pressure** is when the appliance is firing for a heating or hot water demand. This will generally be 1 - 2 bar.

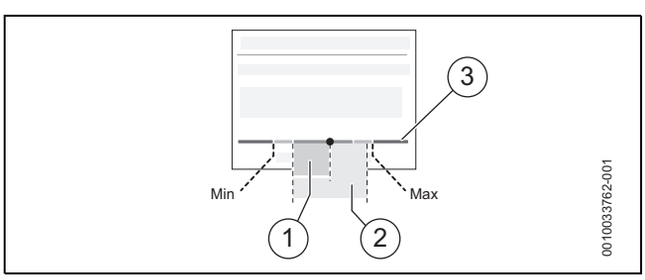

Fig. 2 Checking the operating pressure

[1] Static pressure range.
[2] Operating pressure range.
[3] Pressure menu indicator.

The pressure menu can be accessed via the **Boiler status** screen.

- ▶ Press the menu key (☰). Select and confirm **Boiler status**. The screen **Boiler status** with a pressure menu indicator appears.
- ▶ Check the system pressure on the display.
  - – **Indicator in red zone**: pressure is too low or too high.
  - – **Indicator in yellow zone**: pressure is low or slightly too high.
  - – **Indicator in green zone**: pressure is normal.
- ▶ Top up the heating water, if the pressure is low or too low.

3.1.2 Low pressure indication

Low pressure (shaded area [A]) will be indicated on the appliance:

- The pressure indicator is within the area between 0 and 0.79 bar in the pressure menu display (left hand yellow and red zone).
- Additionally there is a message displayed.

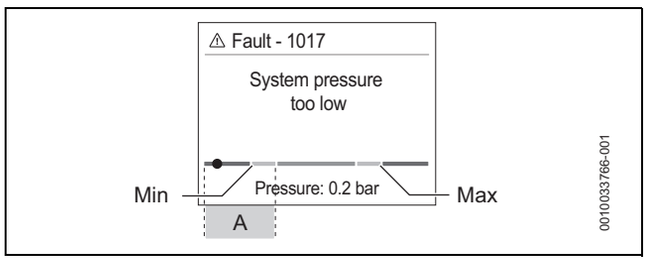

Fig. 3 Low pressure indication

[A] Low pressure area

3.1.3 Constantly re-pressurising the system

Constantly having to re-pressurise the heating system should be investigated as it is an indicator of potential leaks and the concentration of inhibitor protection in the system will be reduced; this can result in corrosion within the heating system, reducing efficiency and increasing contaminates.

- ▶ Check for leaks on heating system (pipework and radiator valves).
- ▶ Contact your installer or maintenance engineer if a recurring significant decrease or increase in pressure is indicated on the pressure screen.

System pressure increasing:

- ▶ If the system pressure repeatedly increases and you need to vent air from the radiators, refer to → section 8.3 "System gassing troubleshooting", page 17.

3.2 Topping up the system pressure

Your installer should have informed you where to find the filling system and instructed you in its use.

NOTICE

System fill method

- You must remove the “filling key” or disconnect the external filling loop after re-pressurisation, to comply with the Water Authority regulations.

To aid in filling the system.

- Ensure the Central Heating is on.

(optional accessory)

Automatic filling facility

The automatic filling device refills the water into the heating system as required. Your installer programmes the filling device according to your heating system. Have your installer explain the function of the automatic filling device to you.

Automatic refilling keeps the pressure in the heating system at the programmed value.

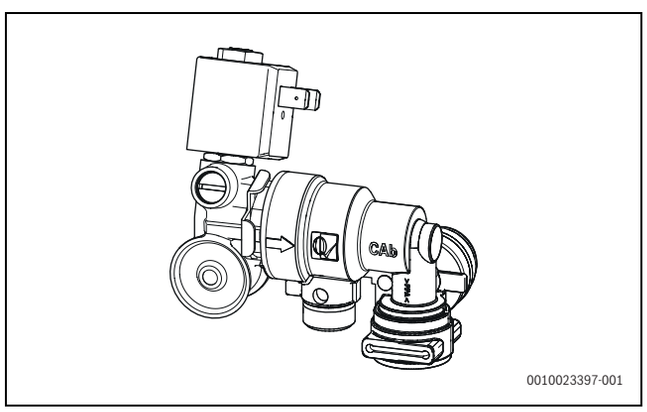

Fig. 4 Automatic filling facility

Removal and replacement of bottom panel

To gain access to the filling link, remove the bottom panel.

Press in the tabs [A] and pull the bottom panel down to remove.

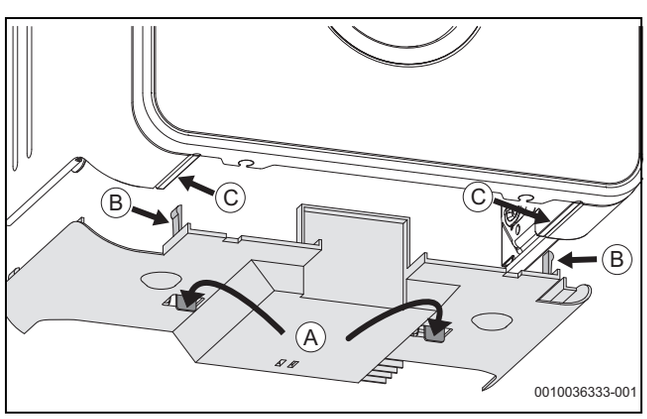

Fig. 5 Bottom panel

To replace the bottom panel, ensure that the tabs [B] line up with the edges of the boiler [C] and push into place until the tabs [A] click into place.

(optional accessory)

Keyless filling link

Locate the filling link (underneath the appliance on the right hand side) and follow the instructions for re-pressurising the system.

Re-pressurise the system.

- To start the filling process, pull the lever [1] down.
  - The pressure menu indicator moves, the displayed message may change.
- To stop the filling process, Release the lever [1] when the:
  - Pressure menu [2] indicates the pressure is ok and the pressure menu indicator is in the green zone.
- Top up the system pressure, if as a result of the air bleeding, the pressure drops off.

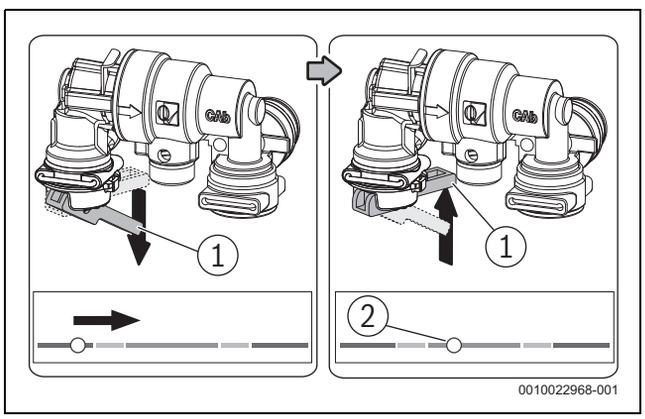

Fig. 6 Keyless filling link

(optional accessory)

Keyed filling link

Remove the bottom panel to locate the filling key and filling link (underneath the appliance on the right hand side), follow the instructions for re-pressurising the system.

Refer to figure 7.

- Locating the filling key into position.
  - Push the filling key [3] firmly into the body of the filling link, ensuring the arrow [4] on the key shaft lines up with the open padlock [1] symbol.
  - Turn the filling key [3] to the right, to the stop, ensure the key is locked and that it cannot still turn. The arrow [4] should line up with the closed padlock [2] symbol.

Re-pressurise the system.

Do not over-tighten the white knob [6] when closing.

- To start the filling process, turn the white knob [6] to the left.
  - The pressure menu indicator moves and the displayed message may change [5].
- To stop the filling process, turn the white knob [6] to the right to close the valve when:
  - The pressure menu reads OK and the pressure menu indicator is in the green zone [7].
- Top up the system pressure, if as a result of the air bleeding, the pressure drops off.

Once the pressure has settled between 0.8 and 1.7 bar.

- Ensure the valve is closed.
- Remove the filling key.
  - Turn the filling key [3] to the left, to the stop, so that the arrow {4] lines up with the open padlock symbol [1].
  - Pull the key straight down to remove. Please remember to store the key in a safe place.

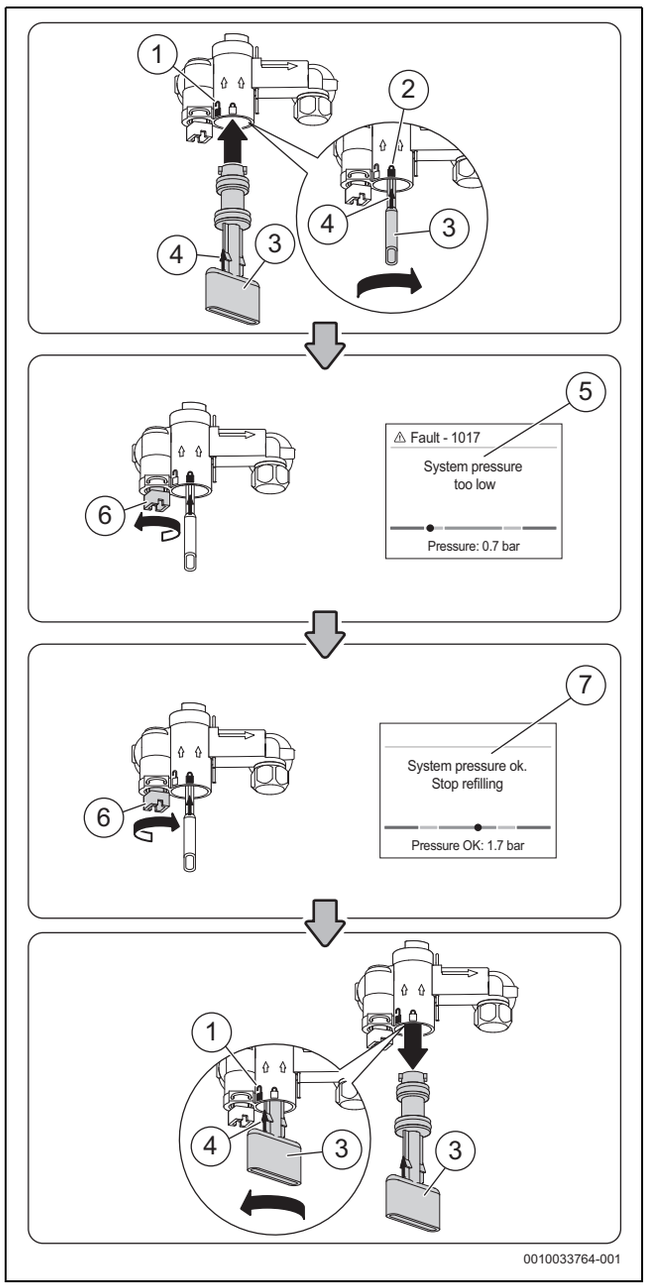

Fig. 7 Keyed filling link

External filling loop

Once the external filling loop and pressure menu has been located, follow the instructions for re-pressurising the system.

Refer to figure 8.

- ▶ Unscrew the blanking cap [1].
- ▶ Attach the hose [2] to the valve.
  - – Usually one end of the hose is already connected to one of the system fill isolation valves.
- ▶ Ensure both ends [3] of the hose are screwed on hand tight.
- ▶ Monitor the pressure menu.
  - – The system fill isolation valves [4] are in a closed position (the handle/screwdriver slot is across the valve).
- ▶ Turn the handle/screwdriver slot through 90° to open valves and slowly fill the system.
  - – The system fill isolation valves [5] are opened (the handle/screwdriver slot is in-line with the valve).
  - – The pressure menu indicator moves and the displayed message may change [6].
- ▶ Turn the handles/screwdriver slots back, through 90°, to close the valves when the:
  - – The pressure menu reads OK and the pressure menu indicator is in the green zone [8] .

  The system fill isolation valves [7] are in a closed position (the handle/screwdriver slot is across the valve).
- ▶ Top up the system pressure, if as a result of the air bleeding the pressure drops off.
- ▶ Remove the hose [2] and replace the blanking cap [1].

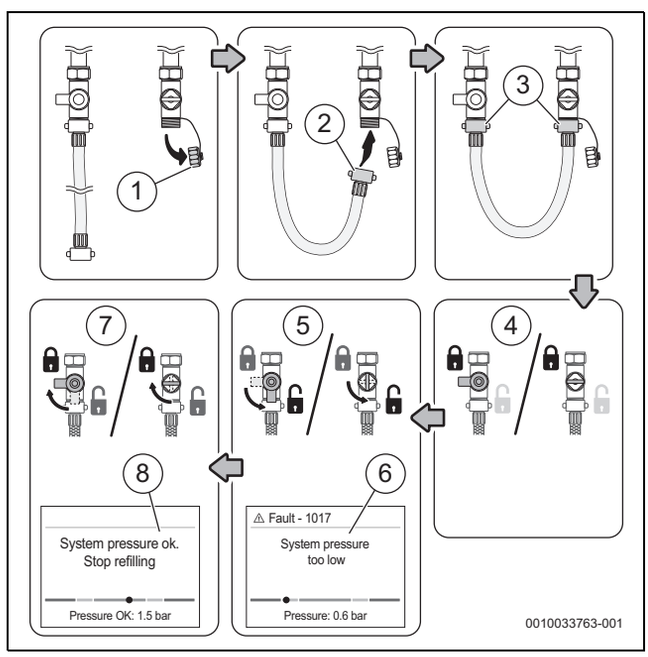

Fig. 8 External filling loop

If the pressure gauge reads more than 1.7 bar as a result of over filling:

- ▶ Bleed one radiator until the pressure gauge returns to between 1 and 1.7 bar.
- ▶ It is good practice to bleed any excess air that has entered the heating system due to pressure loss. Locate and open the radiator's bleed/vent point, closing the valve when water begins to flow.
- ▶ If, through normal boiler operation, the PRV pipe starts to leak, it could be a sign of system pressure being too high. In this instance please bleed a radiator as described above.

4 Operation

These operating instructions describe the operation of the gas-fired condensing boiler. Therefore please also observe the operating instructions for the user interface.

4.1 Control panel overview

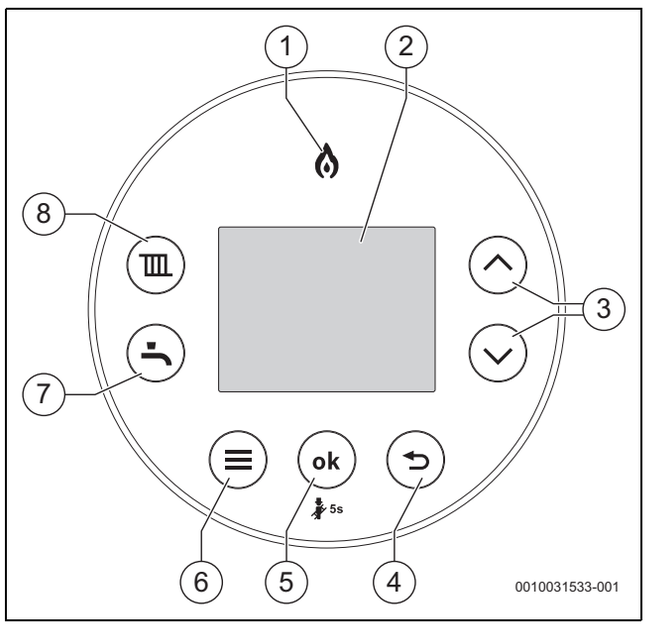

Fig. 9 Overview

[1] Burner display: Illuminates when the burner is alight.
[2] Display.
[3] ▲ and ▼ buttons: To navigate through menus and increase/decrease settings.
[4] ⮌ button: Return/back.
[5] **ok** button: Selection/save settings.
[6] Menu button.
[7] Hot water button: Hot water mode on/off, adjusting the hot water temperature.
[8] Heating button: Heating mode on/off, set the maximum flow temperature.

4.2 Overview of keys

Key	Function
	Heating • Heating mode
	Domestic Hot Water (DHW) • DHW mode
	Menu • Access to menus
ok	**Select/save** • Confirm a selection • Save setting • DHW eco/preheat
	Back arrow • Exit menu (without saving changes)
∧	**Up arrow** • Menu navigation • Increase values
∨	**Down arrow** • Menu navigation • Reduce values

Table 3 Overview of keys

4.3 Symbols on the display

Symbol	Explanation
	Connection with the Wi-Fi network (only available with accessories)
	Connection with Radio Frequency (RF) transmitter, e.g. Comfort+ I RF room thermostat (only available with Key accessories)
	Central heating adjustment [1] **On**: Heating is on. **auto**: Heating is switched on and off according to programmed times for heating. **Once**: Move to the next on or off time and directly switch on or off heating. **Off**: Heating is off.
	Central heating off
	Domestic Hot water adjustment **On**: Hot water preheat is on **auto** [1]: Hot water is switched on and off according to programmed times for hot water. **Once** [1]: Hot water heating on, from the first programmed switched-on time to the last programmed switch-off time. **Off (eco)**: Hot water preheat off (boiler in eco mode)
	Hot water off
	Displays with the appliance status code and diagnostic code during a fault condition.
	Cleaning mode, locks the screen for 15 seconds to enable cleaning.
	Central heating or hot water can be switched either permanently on or off.
kWh	Energy consumption [2] - Gas consumption

1) This feature is available the timer Key accessories

2) The displayed energy values are estimated based on the internal data of the appliance. Under real conditions many factors influence the energy consumption and the displayed energy values differ from the energy values of an energy meter. The energy values are for information and should not be used for billing purposes. The energy values can be used to compare the energy consumption between different days / weeks / months.

Table 4 Symbols on the display

The heating and hot water system has been set up by the installer to its optimum settings.

- ▶ It is advised to make a note of these settings before adjusting so that you can return to these optimum settings in the future.

4.4 Adjusting the appliance flow temperature

4.4.1 Setting the flow temperature

With underfloor heating systems observe the maximum permissible flow temperature.

The maximum flow temperature can be adjusted between 30 °C and 82 °C [1].

- ▶ Press the key.
  The set maximum flow temperature appears.
- ▶ Press the ▲ or ▼ keys to set the desired maximum flow temperature.

Flow temperature	Sample application
Approx. 50 °C	Underfloor heating system
Approx. 65 °C [1]	Radiator heating system

1) In certain cases, for example, where radiators are undersized or homes are poorly insulated higher flow temperatures may be required, however, please refer to the relevant scalding risk advice in this manual.

Table 5 Maximum flow temperature

- ▶ The setting is saved automatically after two seconds.
  Then the ✓ symbol is briefly displayed.

WARNING

Risk of scalding!

- ▶ This appliance is supplied with the CH control set at approximately 65 °C, a temperature that should be suitable for most installations that comply with current Building Regulations. When the boiler switches from CH to DHW, the temperature of the hot water may briefly exceed the DHW set point if the CH temperature is set higher than the DHW temperature. If the CH temperature is changed to above 65 °C, it is advisable to fit a thermostatic mixing valve (TMV) at the point of use (e.g. before the bath hot tap or shower) to protect vulnerable people from scalding.

Heating On/Off

- ▶ Press the key.
  The set maximum flow temperature appears.
- ▶ Where a Comfort+ or Comfort+ I RF timer key is fitted the Central Heating can be turned on with the **ok** key during an off period

4.5 Setting the DHW heating

Hot water functions are only available when an optional integral diverter valve kit is fitted.

Setting the DHW temperature

- ▶ Press the key.
  The set DHW temperature appears.
- ▶ To set the desired DHW temperature, press the ▲ or ▼ keys.
- ▶ The setting is saved automatically after two seconds.
  Then the ✓ symbol is briefly displayed.

WARNING

Risk of scalding!

- ▶ This appliance is supplied with the CH control set at approximately 65 °C, a temperature that should be suitable for most installations that comply with current Building Regulations. When the boiler switches from CH to DHW, the temperature of the hot water may briefly exceed the DHW set point if the CH temperature is set higher than the DHW temperature. If the CH temperature is changed to above 65 °C, it is advisable to fit a thermostatic mixing valve (TMV) at the point of use (e.g. before the bath hot tap or shower) to protect vulnerable people from scalding.

1) The maximum value can be reduced by the service technician.

Setting preheat mode or eco mode

Press the **ok** key to switch between **Eco**/**Preheat**.

In **Preheat** mode, the hot water heat exchanger is kept pre-heated to reduce the time taken to deliver hot water at the tap.

Eco mode is an energy saving feature which disables the Preheat function. **Eco** mode is enabled by default, during the initial appliance start up.

4.6 Setting the heating control device

Observe the operating instructions of the heating controller. This shows you:

- ▶ how to set the room temperature.
- ▶ how to heat economically and save energy.

Heating/DHW via time program (Key control accessories)

Time programs are available with Key control accessories fitted. If a time program is available and the heating/DHW mode is set on **Auto** press the **ok** key to select **Once**.

Auto: Heating/DHW mode is switched on and off according to programmed times.

Once: Switch to **Once** to move to the next central heating/DHW on or off time.

4.7 Operating the menu

Opening and closing the menu

- ▶ To open the menu, press the ☰ key.
- ▶ To exit the menu, press the ☰ key again.

-or-

- ▶ Press the ⮌ key.

Changing the setting values

- ▶ To highlight a menu item, press the ▲ key or the ▼ key.
- ▶ Select the menu item with the **ok** key.
- ▶ To change the value, press the ▲ or ▼ key.
- ▶ Press the **ok** key.
  The new value is saved.

Exiting the menu without saving values

- ▶ Press the ⮌ key.

4.8 Settings in the menu

The factory settings are **highlighted** in the following table.

Menu item	Function definition
Heating mode[1)]	• **On** • Auto: Activate time program. • Once: Heating is on from the first programmed on time to the last programmed off time without off periods. • Off
Heat. time prog.[1)]	Timer for heating: Weekday(s) selection, day program and timer adjustment (→ 5.1 "Setting the time program", page 13).
DHW preheat	• On • Auto[1)] • Once[1)] • **Off**
DHW time prog.[1)]	Timer for hot water: Weekday(s) selection, day program and timer adjustment (→ 5.1 "Setting the time program", page 13).[1)]
Boiler status	Current system values including the pressure indicator.
Information	The current system values and the active operating conditions can be called up in the Information menu. Changes are not possible. • System pressure • Hot water Temp. (DHW temperature) • Weather comp. (where fitted) • System Fill (automatic filling) [2)] • Key (Type of installed key is shown, e.g. "Comfort + RF Key") • Internet connect.
Energy consump.	Display Gas consumption • Last 24h • Last 30 days
Settings	• Time: Set the current time.[1)] • Date: Set the current date.[1)] • DST: enable automatic time shift change summer/ winter time • Parental lock – On – **Off** • Display – Switch off after: Set the time after which the display is switched off. – Brightness: Set the display brightness. • Key illum. (Key illumination) • Language: Change the language of the menu and the menu items. • Units [1)]
Cleaning funct.	Boiler keypad is disabled for 15 seconds.
Emergency mode[3)]	• On: Set the desired heating flow temperature by pressing back or menu key after selecting On. • **Off**
Start filling[2)]	• On – Are you sure there is no leak in your heating system? – Cancel now? – Start filling • **Off**

1) Only available with installed Key (accessories)

2) Only available with automatic filling facility (accessory)

3) Allows manual control of heating during loss of Radio Frequency (RF) Key signal

Table 6 Settings Menu

5 Key (control accessories)

Key LED status

The LED on the Key displays different states with flashing or constant colours.

Description of the LED displays	Example
Flashing red: Fault, e.g. no communication between the Key and appliance: ▶ Install the Key again, restore the last functioning status.	
Flashing yellow: No fault, user please wait.	
Flashing green: No fault, initialisation process is running.	
Constant red: Temporary fault: ▶ Wait for normal operating condition to be resumed.	
Constant yellow: No fault, time and date not available: ▶ Set the time and date on the appliance. **-or-** ▶ Key with touch-sensitive indicator: Press touch-sensitive indicator on Key to start pairing.	
Constant green: No fault, normal operating condition.	
LED Off: No fault, power-saving mode or appliance without power.	

Table 7 LED status

5.1 Setting the time program

Time program

The same method for setting the time program for heating is used to set the time program for hot water.

- ▶ Press the ☰ key.
- ▶ Select and confirm the **Heat. time prog.** or **DHW time prog.**menu.
- ▶ Select and confirm the **Time program** menu.
  The menu items **Mon - Fri**, **Sat - Sun**, **Mon** ... **Sun** are displayed.

Possible items to change:

- **Mon - Fri** to change switching times for all weekdays together
- **Mon** ... **Sun** to change switching times for individual days
- **Sat - Sun** to change switching times for weekends

- ▶ Select and confirm item you want to change.
- ▶ Select and confirm time entry you want to change.
- ▶ To change the time, press the ▲ or ▼ key.
- ▶ Press the **ok** key.
  The new time is saved. Next time entry is selected.

Add one additional switching time block by selecting +. Delete an existing switching time block by selecting 🗑.

6 Shutdown

6.1 Setting frost protection

NOTICE

Risk of damage to the system from frost!

The heating system can freeze up after a prolonged period (e.g. during a power failure, switching off the power supply, faulty fuel supply, boiler fault etc.).

- ▶ Ensure that the heating system is in constant use (particularly when there is a risk of frost).

If you are leaving your property unoccupied during cold weather, please leave your external programmer on constant and your room thermostat set to 12 °C.

7 Clearances and ventilation information

7.1 Appliance clearances

Your installer will have provided adequate space around the appliance for operation, safety and servicing/maintenance access.

- The following detail the necessary clearance around the appliance for service and maintenance.

CAUTION

Risk of damage to appliance or property

The appliance will overheat if the clearance space around the appliance is restricted by objects.

- ▶ Do not restrict this space with the addition of cupboards, shelves etc. next to or around the appliance.
- ▶ Do not store any combustible materials on or next to the appliance, such as clothes, towels, paper or plastic bags.

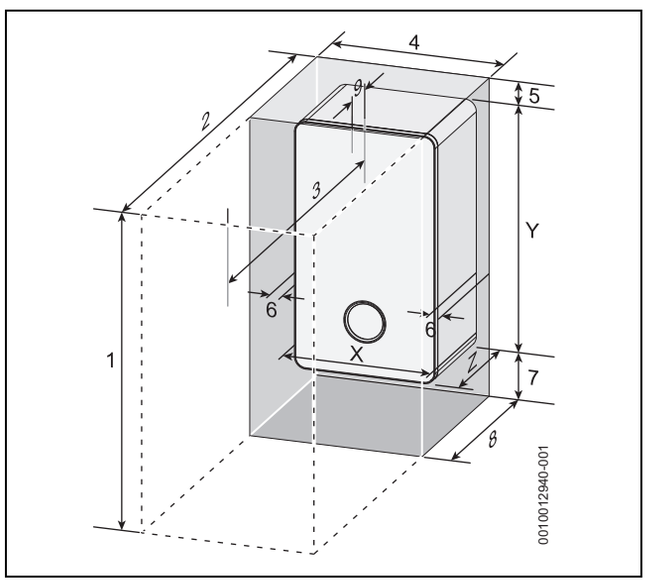

Fig. 10 Appliance minimum clearances

	Minimum clearance	
	Description	**Dimensions (mm)**
X	Appliance width	400
Y	Appliance height	724 [1]
Z	Appliance depth	310
Maintenance		
1	Overall clearance height	1,080/1,120 [2]
2	Overall clearance depth	760/910 [3]
3	In front of appliance	450/600 [3]
4	Overall clearance width	410
5	Above the appliance	170/210 [2]
6	Either side of appliance	5
7	Below the appliance	186
8	Compartment depth	330
9	Appliance to removable door	20

1) 724mm to middle of top panel.
710mm side panel height.
Bottom panel is removable and not part of minimum clearance height requirements.

2) Height for either 60/100 flue or 80/125 flue

3) Front clearance can be reduced by 150mm, refer to the advice given in Reduced front maintenance minimum clearances.

Table 8 Appliance minimum clearances

Reduced front maintenance minimum clearances

The front servicing clearance for this appliance can be reduced to 450mm.

For installations with a front servicing clearance less than 600mm (minimum of 450mm), the following additional criteria must be achieved.

- The bottom of the appliance case must be between 1000mm and 1500mm from the floor.
- There must be at least 450mm clearance in front of the appliance to floor level. Anything sited below the appliance must not protrude into this clear space.
- There must be at least 186mm clearance to any structure which is sited below the appliance.
- There must be at least 300mm clear space to either the left hand or right hand side of the appliance. This clear space must be from the required clear height above the appliance to floor level.
  - This clearance will not apply if the appliance is sited within 300mm of a door way and the door frame is the only obstruction.

Minimum clearances must be observed to any obstruction/ surface, (dark shaded areas, figures 11 and 12).

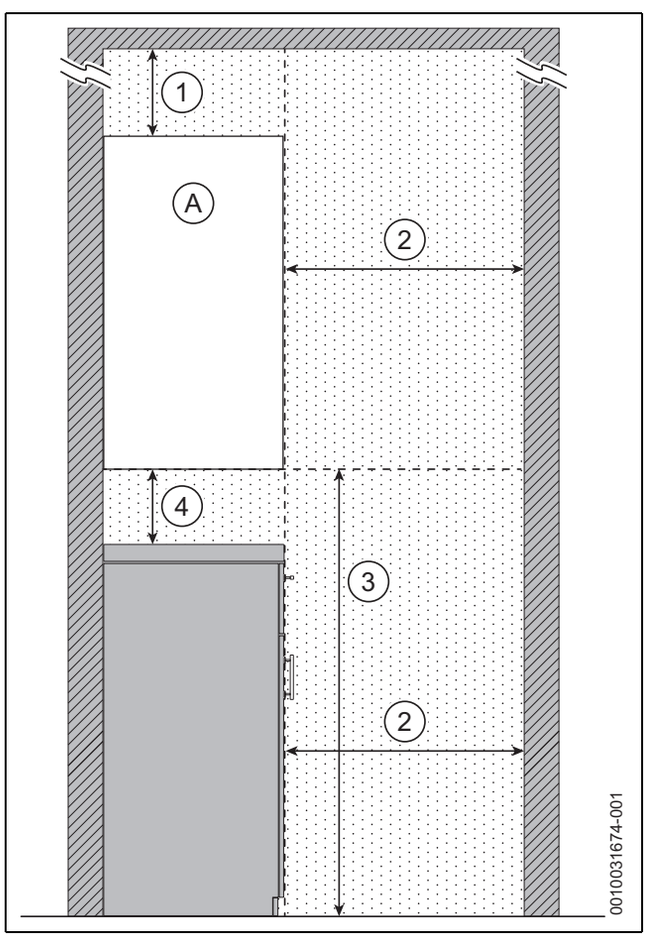

Fig. 11 Reduced front maintenance clearances - Side view

[A] Appliance.
[1] Above appliance - Same clearance required as for standard clearances of 60/100 flue or 80/125mm flue.
[2] In front of appliance - Minimum 450mm.
[3] Bottom of appliance to the floor - 1,000 - 1,500mm.
[4] Below appliance - 186mm

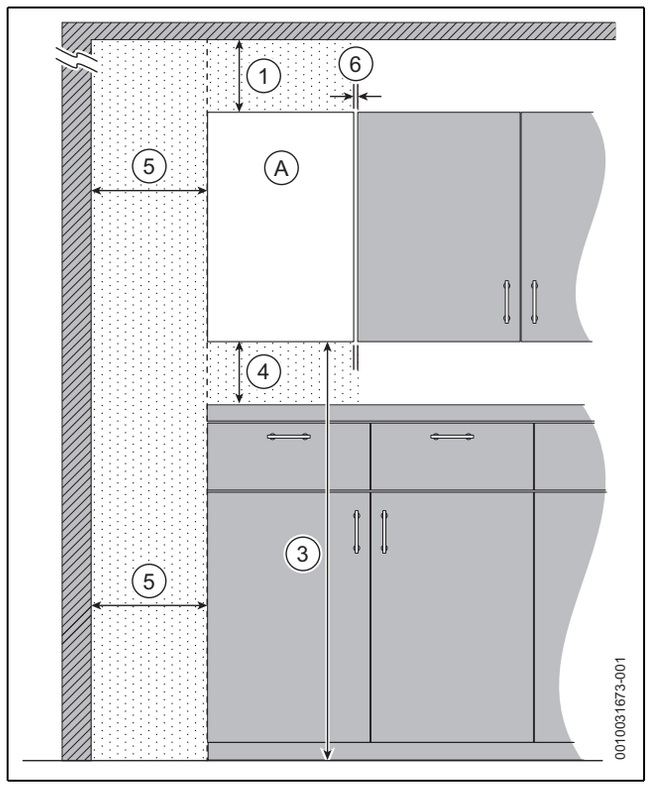

Fig. 12 Reduced front maintenance clearances - Front view

[A] Appliance.
[1] Above appliance - Same clearance required as for standard clearances of 60/100 flue or 80/125mm flue.
[3] Bottom of appliance to the floor - 1,000 - 1,500mm.
[4] Below appliance - 186mm
[5] One side of appliance - Minimum 300mm.
[6] One side of appliance - Minimum 5mm.

7.2 Ventilation information

The air supply must not be restricted or contaminated.

Ventilation considerations

- ▶ Do not place objects to hinder the air circulation required by the appliance.
- ▶ The installation premises may require ventilation to be fitted according to its features or use.

8 Malfunction or failure

If you believe there is a problem with your central heating or hot water supply, before you contact your installer/maintenance engineer and report the error and appliance type carry out the following checks.

Basic checks

Some items to check before placing a call are:

- Is the electrical power switched on to the appliance?
- Is the programmer/timer set to ON or in an ON period?
- Is the room thermostat set too low?
- Is the cylinder thermostat (if fitted) set too low?
- Is the cold water main turned on?
- Sealed heating system:
  - Is the static system pressure (when appliance is cold) between 1 and 1.5 bar?
- Do you have gas?
  - Are other gas appliances working, gas cooker/hob for example?
  - Has your credit run out on your gas pre-payment meter?

Details of your installer should be available in the Commissioning Checklist or can be recorded in the following section.

Installer/maintenance engineer

Installer/maintenance engineer details	
Engineer name:	
Company name:	
Company address:	
Telephone:	
Email:	

Table 9

Worcester, Bosch Group

The appliance is supported in the UK and Eire by Worcester, Bosch Group.

Specialist service engineers are available to attend an appliance breakdown.

Invoices for attendance and repair work carried out on this appliance by any third party will not be accepted.

- No charge will be made for parts and/or labour providing:
  - The appliance fault is found and the appliance is within the guarantee period. Reasonable evidence of this must be supplied on request. i.e. a completed Commissioning and service record and has been regularly serviced at least once a year.
- A call-out charge will be made where:
  - The appliance is outside the guarantee period or has not been serviced in accordance with the manufacturers instructions.
  - Our Field Service Engineer finds no fault with the appliance.
  - The cause of breakdown is misuse or with other parts of your plumbing/heating system, or with equipment not supplied by Worcester, Bosch Group.

No appliance fault is found on over 30% of all service calls.

▶ In the case of a suspected fault, refer to the basic checks earlier in this section.

In the event of an appliance fault or breakdown please contact Worcester, Bosch Group appointments team on 0330 123 9339. Your advisor will arrange for an engineer to call with the minimum of delay; under normal circumstances this will be from 1–3 working days (excluding weekends and bank holidays) for priority breakdown situations (no hot water and/or heating).

8.1 Troubleshooting (fault reset)

If there is fault in the system, there will be a message shown on the display with an icon on the right up corner. The color of this icon depends on the severity of the fault in the system. The cause of the fault is coded (e.g. fault code 232) and displayed as text.

▶ Press the ▲ and ▼ keys until **Reset** is displayed.
The appliance starts up again and the current supply temperature is displayed.

If a fault persists:

▶ Contact the contractor or the customer service.

▶ Provide them with the displayed fault code and the device data (→ table 6).

8.2 Extreme cold weather

In certain instances where the condensate pipe work is run externally or in an unheated area, such as a garage, the condensate pipe work can be at risk of freezing, even if well insulated.

A frozen/blocked condensate pipe will cause the boiler to shut down. Worcester, Bosch Group have available helpful videos on thawing frozen condensate pipe work on our website in the Customer service section.

WARNING

Falling hazard!

Failure to follow this guidance may result in personal injury.

▶ Only attempt to thaw a condensate pipe that is at ground level and easily accessible.

▶ Never attempt to thaw a condensate pipe that is at height.

CAUTION

Risk of damage to pipe work!

Thermal shock from boiling water can damage plastic pipes.

▶ **DO NOT** use boiling water to thaw the condensate pipe!

CAUTION

Slip hazard

▶ Ensure that the subsequent freezing of any water does not result in a slip hazard.

If the condensate pipe has frozen:

▶ Locate the blockage.
  - It is likely that the pipe is frozen at the most exposed point outside the building or where there is an obstruction to flow. This could be the open end of the pipe, at a bend or elbow, or where there is a sag in the pipe in which condensate can collect.
  - The location of the blockage should be identified as closely as possible before taking further action.

- ▶ Thaw the frozen pipe.
  - – The pipe can be thawed by applying a hot water bottle, a microwaveable heating pack (the sort used for muscular aches and pains) or a cloth soaked in hot water to the exterior of the pipe, close to the point of blockage.
  - – Hot water, but not boiling, can also be poured onto the pipe from a watering can or similar container.
  - – Care must be taken at pedestrian areas where this water may freeze and create a slip hazard.
- ▶ Worcester, Bosch Group have available on our website helpful videos in the Customer service section to aid in thawing a frozen pipe.
- ▶ Reset the appliance and wait two or three minutes for the appliance to restart.
- ▶ Contact Worcester, Bosch Group Appointments Team on: 0330 123 9339, if the boiler does not restart.
- ▶ Contact your installer in order to find a permanent solution to the problem.

8.3 System gassing troubleshooting

WARNING

Caution must be exercised when venting radiators or adjusting system pressure after commissioning of your boiler.

Do not repeatedly vent your radiators, if symptoms persist, contact a heating engineer.

- ▶ Do not vent air from radiators whilst the central heating is switched on; turn your boiler off.
- ▶ Whilst venting radiators, do not allow the pressure on the boiler to drop below the pressure at which it is normally set.

CAUTION

If the pressure in your heating system is repeatedly rising (this can be checked via the boilers pressure gauge or digital display and should be checked when the system is cold), and especially if you need to keep venting the radiators, urgent action is required and you must contact a heating engineer. This can indicate that there is corrosion occurring within the heating system

Note: Ensure the reading stays between minimum and maximum operating pressures at all times whilst the boiler is operating

- ▶ This must be properly addressed to prevent serious damage to the entire system.
- ▶ Failure to properly maintain the heating system may affect your warranty.

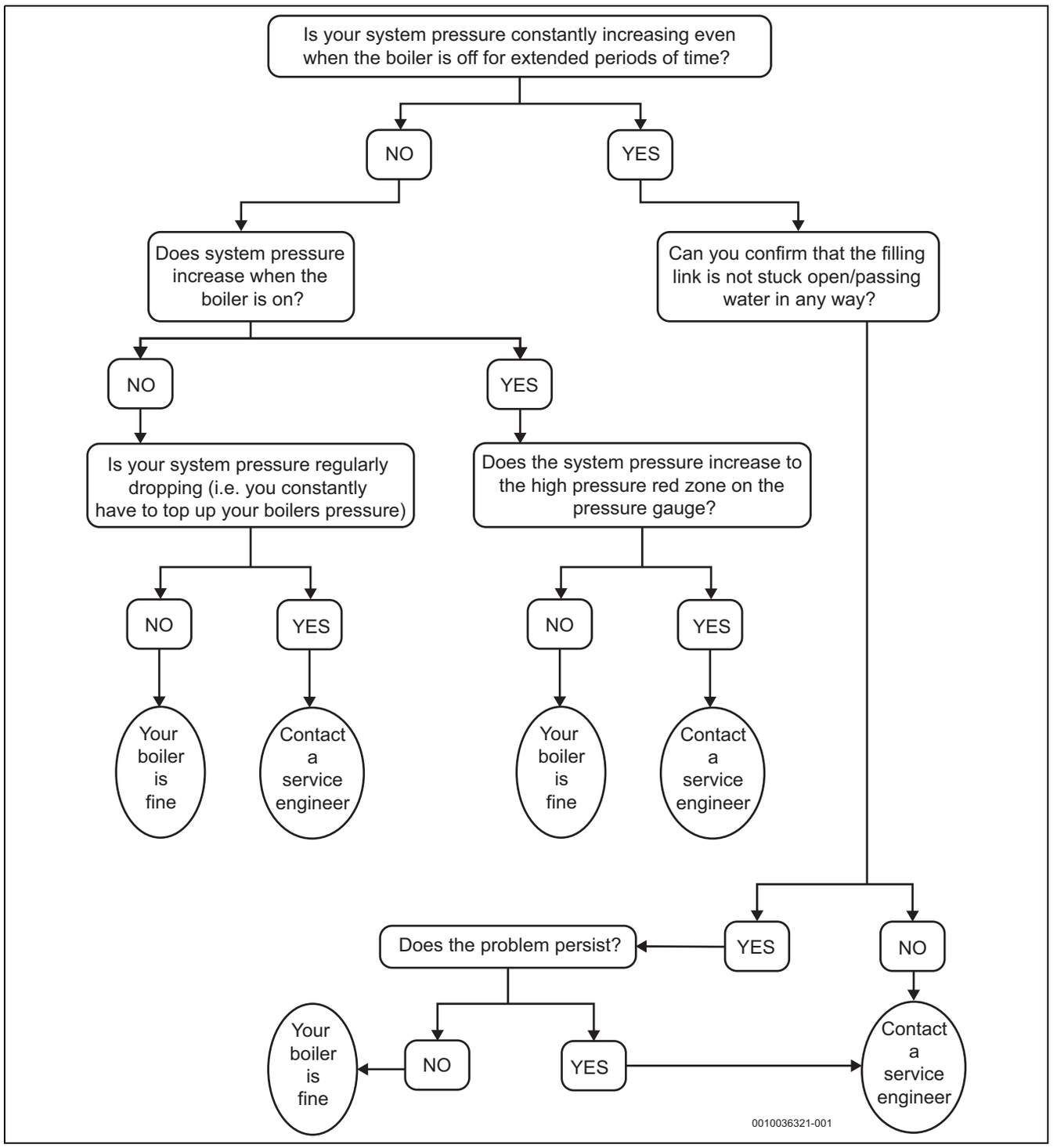

Fig. 13 Gassing flow chart

9 Environmental protection and disposal

Environmental protection is a fundamental corporate strategy of the Bosch Group.
The quality of our products, their economy and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed.
We use the best possible technology and materials for protecting the environment taking account of economic considerations.

Packaging

Where packaging is concerned, we participate in country-specific recycling processes that ensure optimum recycling.

Compostable packaging

Compostable packaging is used wherever possible in an effort to reduce the product's impact on the environment and the overall demand for plastic packaging. Where the following symbol is shown the material is compostable:

Compostable packaging can be disposed of in a number of ways:

- Home compost heap
- Local Authority garden waste collection
- Local Authority food waste collection, ideally as a food waste bin bag
- Local Authority household waste

Please note that compostable materials **cannot be recycled**.

Used appliances

Used appliances contain valuable materials that can be recycled.
The various assemblies can be easily dismantled. Synthetic materials are marked accordingly. Assemblies can therefore be sorted by composition and passed on for recycling or disposal.

Old electrical and electronic appliances

This symbol means that the product must not be disposed of with other waste, and instead must be taken to the waste collection points for treatment, collection, recycling and disposal.

The symbol is valid in countries where waste electrical and electronic equipment regulations apply, e.g. "European Directive 2012/19/EC on old electronic and electrical appliances". These regulations define the framework for the return and recycling of old electronic appliances that apply in each country.

As electronic devices may contain hazardous substances, it needs to be recycled responsibly in order to minimize any potential harm to the environment and human health. Furthermore, recycling of electronic scrap helps preserve natural resources.

For additional information on the environmentally compatible disposal of old electrical and electronic appliances, please contact the relevant local authorities, your household waste disposal service or the retailer where you purchased the product.

You can find more information here:
www.weee.bosch-thermotechnology.com/

Batteries

Batteries must not be disposed together with your household waste.
Used batteries must be disposed of in local collection systems.

10 Tips on energy saving

Quick Tap function

With the boiler in DHW eco mode it is possible to operate the Quick Tap function, designed to save water:

- ▶ Fully open your hot water tap for at least 3 seconds.
- ▶ Turn hot water tap to fully closed.
- ▶ Wait up to 30 seconds[1)] as the boiler continues to prepare hot water.
- ▶ Open your hot water tap; hot water is available[2)]

On average, 3.5 litres of water can be saved when using the Quick Tap function.
Water saving varies depending on user behaviour, pipework design and the time of year, for example, if Central Heating is on during the winter, DHW will heat up quicker than in the summer, reducing the potential for water saving. Savings are calculated based on average mains water pressure, a heat-up time of 30 seconds and close proximity of the tap to the boiler.

Heating economically

The appliance provides a high level of comfort whilst keeping fuel consumption and the environment effects as low as possible.

The appliance is controlled in such a way that it delivers heat at the correct rate and only if there is a clear demand from the system.

Central heating systems with thermostatic radiator valves

With modern heating systems set around a 20 °C heat loss, the optimum setting for a condensing boiler will be approximately 65 °C for the central heating temperature. This is to ensure a return temperature of less than 52 °C.

The system must be balanced correctly and the radiators may need upgrading. This allows the boiler to condense as much as possible for the central heating system.

The temperature of each room can be set individually (except primary room with the room thermostat) using the thermostatic radiator valves.

Room thermostats

Reducing the setting of the room thermostat by 1 °C can reduce fuel consumption by up to 10%.

New control systems

Upgrade your heating control system if necessary with the latest equipment available.

Roof insulation

Around 30% of the heat loss from a property is through the roof. Replace any old insulation with new insulation, preferably of around 200mm thickness or more.

Window frames

Single glazed windows, particularly those with steel frames, can lose a great deal of heat. Consideration should be given to replacement with PVCu or wooden framed double glazed units.

1) If the hot water reaches the set temperature before 30 seconds has elapsed, the boiler will stop firing
2) Hot water is available at the boiler. Delivery time to the tap will vary on the pipework design and tap distance from the boiler

Radiators

If a radiator is sited underneath a window, its performance will be affected if the curtains are allowed to drape over the radiator. Shelves fitted above or in front of the radiator should also be avoided.

It is advisable to manually adjust all thermostatic radiator valves every 2–3 months to prevent them sticking. Ensure radiator valves are correctly set and not damaged.

Draughts

Try to ensure that draughts around doors, windows, letter boxes and keyholes etc. are reduced by using a suitable draught excluder.

WARNING

Air vents!

- ▶ Do not block or seal any air vents that are installed to ensure that the appliance operates safely.

Curtains

Lined curtains, or heavier full length curtains can provide excellent insulation. However, always ensure that the curtains do not drape over radiators.

11 Your guarantee

This appliance has a guarantee against faulty materials or workmanship from the date of installation subject to the following terms and conditions:

- During the period of this guarantee any components of the appliance that are proven to be faulty or defective in manufacture will be exchanged or repaired free of charge by Bosch Thermotechnology Ltd.
- The householder may be asked to prove the date of installation, that the appliance was correctly commissioned and, where appropriate, serviced to the satisfaction of Bosch Thermotechnology Ltd. These should be documented in the commissioning and service records in the Installation and Maintenance Instructions.
- The appliance has been used only for the normal domestic purposes for which it was designed.

This guarantee does not affect your statutory rights.

Guarantee registration

Your appliance/product carries a guarantee against faulty material or manufacture subject to Terms and Conditions.

To read the full Terms & Conditions please visit us on-line at www.worcester-bosch.co.uk/guarantee.

Your statutory rights are not affected by the manufacturer's guarantee

12 Energy consumption

12.1 Product data on energy consumption

Natural Gas appliance

The following product data comply with the requirements of the EU Regulations No. 811/2013, No. 812/2013, No. 813/2013 and No. 814/2013 supplementing the Regulation (EU) 2017/1369.

Product data	Symbol	Unit	7 733 600 373	7 733 600 371
Product type	–	–	GR4700iW 30 C NG	GR4700iW 25 C NG
Condensing boiler	–	–	✓	✓
Low temperature boiler	–	–	×	×
B1 boiler	–	–	×	×
Co-generation space heater	–	–	×	×
Equipped with a supplementary heater?	–	–	–	–
Combination heater	–	–	✓	✓
Rated heat output	P_{rated}	kW	24	24
Seasonal space heating energy efficiency	η_s	%	94	94
Energy Efficiency Class	–	–	A	A
Useful heat output				
At rated heat output and high temperature regime [1]	P_4	kW	24	24
At 30 % of rated heat output and low temperature regime [2]	P_1	kW	8.1	8.1
Useful efficiency				
At rated heat output and high temperature regime [1]	η_4	%	87.9	87.9
At 30 % of rated heat output and low temperature regime [2]	η_1	%	98.9	98.9
Auxiliary electricity consumption				
At full load	el_{max}	kW	0.039	0.039
At part load	el_{min}	kW	0.013	0.013
In standby mode	P_{SB}	kW	0.002	0.002
Other items				
Standby heat loss	P_{stby}	kW	0.061	0.061
Ignition burner power consumption	P_{ign}	kW	–	–
Emissions of nitrogen oxides (only gas- or oil fired)	NO_x	mg/kWh	40	40
Annual energy consumption	Q_{HE}	kWh	20556	20556
Annual energy consumption	Q_{HE}	GJ	74	74
Sound power level, indoors	L_{WA}	dB	45	45
Additional data for combination heaters				
Declared load profile	–	–	XL	XL [3]
Water heating energy efficiency	η_{wh}	%	85	85
Water heating energy efficiency class	–	–	A	A
Daily electricity consumption (average climate conditions)	Q_{elec}	kWh	0.173	0.180
Annual electricity consumption	AEC	kWh	38	40
Daily fuel consumption	Q_{fuel}	kWh	22.908	22.896
Annual fuel consumption	AFC	GJ	18	18
Indication about ability working only during off-peak hours	–	–	×	×
Other load profiles	–	–	–	–
Standing loss	S	W	–	–
Storage volume	V	l	–	–
Non-solar storage volume (Vbu)	Vbu	l	–	–

1) High-temperature regime means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.

2) Low temperature means for condensing boilers 30 °C, for low-temperature boilers 37 °C and for other heaters 50 °C return temperature (at heater inlet).

3) XL tapping cycle declared in accordance with EN 13203-2, clause 5.2

Table 10 Product data on energy consumption Greenstar 4000

LPG appliances

The following product data comply with the requirements of the EU Regulations No. 811/2013, No. 812/2013, No. 813/2013 and No. 814/2013 supplementing the Regulation (EU) 2017/1369.

Product data	Symbol	Unit	7 733 600 374	7 733 600 372
Product type	–	–	GR4700iW 30 C LPG	GR4700iW 25 C LPG
Condensing boiler	–	–	✓	✓
Low temperature boiler	–	–	×	×
B1 boiler	–	–	×	×
Cogeneration space heater	–	–	×	×
Equipped with a supplementary heater?	–	–	–	–
Combination heater	–	–	✓	✓
Rated heat output	P_{rated}	kW	24	24
Seasonal space heating energy efficiency	η_s	%	94	94
Energy Efficiency Class	–	–	A	A
Useful heat output				
At rated heat output and high temperature regime [1]	P_4	kW	24	24
At 30 % of rated heat output and low temperature regime [2]	P_1	kW	8.1	8.1
Useful efficiency				
At rated heat output and high temperature regime [1]	η_4	%	87.9	87.9
At 30 % of rated heat output and low temperature regime [2]	η_1	%	98.9	98.9
Auxiliary electricity consumption				
At full load	el_{max}	kW	0.039	0.039
At part load	el_{min}	kW	0.013	0.013
In standby mode	P_{SB}	kW	0.002	0.002
Other items				
Standby heat loss	P_{stby}	kW	0.061	0.061
Ignition burner power consumption	P_{ign}	kW	–	–
Emissions of nitrogen oxides (only gas- or oil fired)	NO_x	mg/kWh	40	40
Annual energy consumption	Q_{HE}	kWh	20556	20556
Annual energy consumption	Q_{HE}	GJ	74	74
Sound power level, indoors	L_{WA}	dB	45	45
Additional data for combination heaters				
Declared load profile	–	–	XL	XL [3]
Water heating energy efficiency	η_{wh}	%	85	85
Water heating energy efficiency class	–	–	A	A
Daily electricity consumption (average climate conditions)	Q_{elec}	kWh	0.173	0.180
Annual electricity consumption	AEC	kWh	38	40
Daily fuel consumption	Q_{fuel}	kWh	22.908	22.896
Annual fuel consumption	AFC	GJ	18	18
Indication about ability working only during off-peak hours	–	–	×	×
Other load profiles	–	–	–	–
Standing loss	S	W	–	–
Storage volume	V	l	–	–
Non-solar storage volume (Vbu)	Vbu	l	–	–

1) High-temperature regime means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.

2) Low temperature means for condensing boilers 30 °C, for low-temperature boilers 37 °C and for other heaters 50 °C return temperature (at heater inlet).

3) XL tapping cycle declared in accordance with EN 13203-2, clause 5.2

Table 11 Product data on energy consumption Greenstar 4000

13 Data Protection Notice

We, **Bosch Thermotechnology Ltd., Cotswold Way, Warndon, Worcester WR4 9SW, United Kingdom** process product and installation information, technical and connection data, communication data, product registration and client history data to provide product functionality (art. 6 (1) sentence 1 (b) GDPR), to fulfil our duty of product surveillance and for product safety and security reasons (art. 6 (1) sentence 1 (f) GDPR), to safeguard our rights in connection with warranty and product registration questions (art. 6 (1) sentence 1 (f) GDPR) and to analyze the distribution of our products and to provide individualized information and offers related to the product (art. 6 (1) sentence 1 (f) GDPR). To provide services such as sales and marketing services, contract management, payment handling, programming, data hosting and hotline services we can commission and transfer data to external service providers and/or Bosch affiliated enterprises. In some cases, but only if appropriate data protection is ensured, personal data might be transferred to recipients located outside of the European Economic Area. Further information are provided on request. You can contact our Data Protection Officer under: Data Protection Officer, Information Security and Privacy (C/ISP), Robert Bosch GmbH, Postfach 30 02 20, 70442 Stuttgart, GERMANY.

You have the right to object, on grounds relating to your particular situation or where personal data are processed for direct marketing purposes, at any time to processing of your personal data which is based on art. 6 (1) sentence 1 (f) GDPR. To exercise your rights, please contact us via **privacy.ttgb@bosch.com** To find further information, please follow the QR-Code.

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Section 3 - Heat recovery unit

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Allia

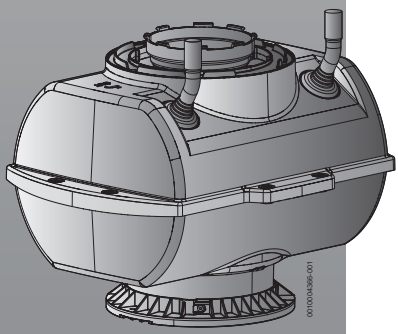
CAF Bank

Installation instructions

Passive flue gas heat recovery device

Greenstar Xtra

For use with Greenstar CDi Compact, Si Compact and i combi boilers



WORCESTER
Bosch Group

6 720 830 021 (2014/12) UK, IE

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1 Key to symbols and safety instructions

1.1 Key to symbols

Warning symbols

Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

DANGER:

DANGER indicates a situation that will result in severe injury or death.

WARNING:

WARNING indicates a situation that could result in severe injury or death.

CAUTION:

CAUTION indicates a situation that could result in minor to medium injury.

NOTICE:

NOTICE indicates a situation that could result in damage to property or equipment.

Important information

This symbol indicates important information where there is no risk to people or property.

Additional symbols

Symbol	Meaning
1.	a numbered step in an action sequence
▶	a step in an action sequence
→	a reference to a related part in the document or to other related documents

Symbol	Meaning
(1)	a reference number to identify or refer to a part or item
•	a list entry
–	a list entry (second level)

Table 1 Additional symbols

Examples of additional symbols used

A numbered step in an action sequence

A sequence of numbered steps or actions carried out in a specific order to complete a task.

1. First action
2. Second action
3. Third action
   etc.

A step in an action sequence

A sequence of defined actions or steps carried out in order to complete a task.

- ▶ Action
- ▶ Next action
- ▶ etc

A reference to a related part in the document or to other related documents.

To refer the reader to a specific figure/table/section within the manual.

→ e.g. figure 1.

A reference number to identify or refer to a part or item.

In a related figure, items or parts identified by a sequential number.

List entries, first and second levels

- A single component/item
- A component/list, made up of multiple parts/items.
  - Sub component or sublist of main component/list.
  - etc.

1.2 General safety instructions

These installation instructions are intended for gas fitters, plumbers, heating engineers and electricians.

- ▶ Read any installation instructions (boiler, heating controls, etc.) carefully before starting the installation.
- ▶ Observe the safety instructions and warnings.
- ▶ Observe national and regional regulations, technical rules and guidelines.
- ▶ Record all work carried out.

⚠ If you smell gas

A gas leak could potentially cause an explosion. If you smell gas, observe the following rules.

- ▶ Prevent flames or sparks:
  - Do not smoke, use a lighter or strike matches.
  - Do not operate any electrical switches or unplug any equipment.
  - Do not use the telephone or ring doorbells.
- ▶ Turn off the gas at the meter.
- ▶ Open windows and doors.
- ▶ Warn your neighbours and leave the building.
- ▶ Prevent anyone from entering the building.
- ▶ Well away from the building: call the National Gas Emergency Service on 0800 111 999.

⚠ Intended use

This unit must only be used as a heat appliance in a sealed hot water heating system for domestic purposes.

Any other use is considered inappropriate. Any damage that results from such use is excluded from liability.

⚠ Installation, commissioning and servicing

Installation, commissioning and servicing must only be carried out by a competent, Gas Safe registered engineer.

- ▶ Carry out a gas tightness test after completing work on gas-carrying components.
- ▶ Only use original spares.

The Greenstar Xtra unit can be installed by a competent, Gas Safe engineer without the need for any additional training.

⚠ Handover to the user

When handing over, instruct the user how to operate the heating system and inform him about its operating conditions.

- ▶ Explain how to operate the heating system and draw the user's attention to any safety-relevant action.
- ▶ Explain that modifications and repairs must only be carried out by an authorised contractor.
- ▶ Advise the user to have the system serviced annually by a competent, Gas Safe registered engineer.
- ▶ Leave the installation instructions with the completed Benchmark Checklist (or a certificate confirming compliance with IS 813, Eire only) and the operating instructions with the user or at the gas meter.

2 General Information

The Greenstar Xtra is a PFGHRD (Passive Flue Gas Heat Recovery Device) designed to help further reduce fuel consumption in conjunction with our Worcester gas-fired condensing combination wall hung boilers.

This appliance uses the latent heat energy from the flue exhaust gases produced by the condensing combi boiler when it fires, to preheat the domestic cold water. By preheating the domestic cold water before it enters the boiler it reduces the energy needed by the boiler to raise the temperature to the required level.

The Greenstar Xtra unit is listed in SAP in the FGHR database as "Worcester Greenstar Xtra".

This unit is intended for use with Greenstar CDI & Si Compact, i combi LPG and natural gas fired appliances

2.1 Standard Package

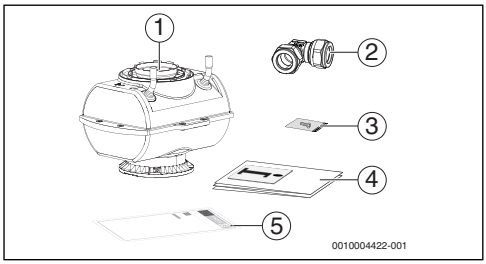

Fig. 1 Standard package contents

[1] Greenstar Xtra PFGHRD unit with adaptor
[2] 15 mm Brass connection elbows (2x)
[3] Screw pack for flue pipe connection
[4] Installation manual
[5] Greenstar Xtra label for boiler control panel

2.1.1 Technical data

Technical data - Greenstar Xtra

Description	Unit	Value
DHW System		
Water connections	mm	15
Maximum water pressure	bar	10[1)]
Minimum mains inlet pressure (working)	bar	0.25
Minimum mains inlet pressure (working) for maximum flow	bar	2.4
Weights		
Empty	kg	3.0
Full	kg	3.4
Boiler Applications		
Condensing boilers only		Combi
General		
DHW HE-core		Stainless steel and copper
Inner casing		FPP 30 GF-C
Outer casing		FPP 30 GF-C
Water content	litres	0.4
Flue Outlet		
Flue size	mm	60/100 or 80/125

1) If necessary fit a pressure reducing valve

Table 2 Technical data Greenstar Xtra

2.1.2 Appliance information

Dimensions

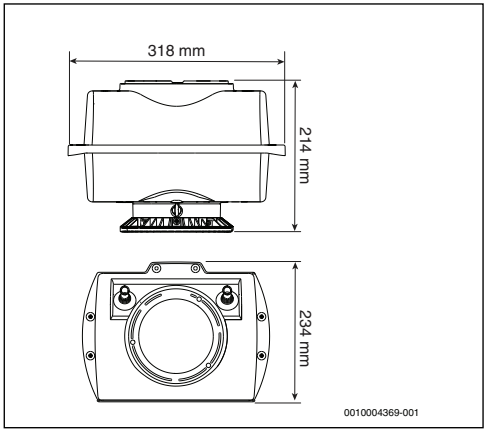

Fig. 2 Dimensions

Domestic water connections

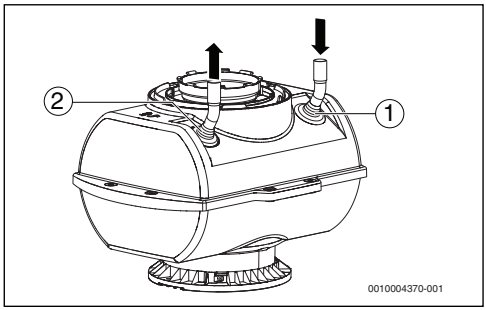

Fig. 3 Inlet & outlet connections

[1] Inlet connection (In)
[2] Outlet connection (Out)

There is a DHW filter assembled inside the inlet connection.

▶ Do not put the unit into operation without it.

Use in hard water areas:

In areas where temporary water hardness exceeds 200 ppm, consideration may need to be given to the fitting of a scale prevention device. In such circumstances, the advice of the local water authority should be sought.

Layout example

Non return, back flow prevention devices (including those associated with water meters) fitted to the mains water supply can cause a pressure build up which could damage the boiler, the Greenstar Xtra unit and other household appliances.

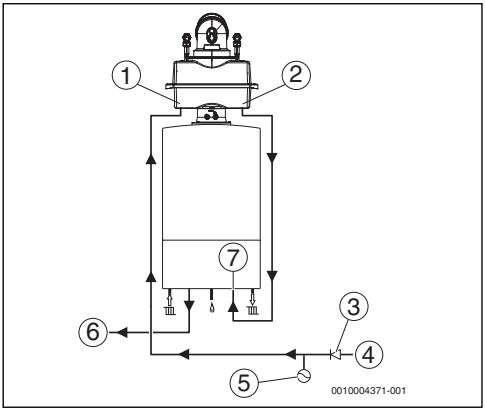

Fig. 4 Example layout

[1] Greenstar Xtra DW inlet connection
[2] Greenstar Xtra DW outlet connection
[3] Non-return valve (may be present, see notice below)
[4] Cold mains supply
[5] Mini expansion vessel (may be required, see notice below)
[6] Boiler DHW outlet
[7] Boiler DW inlet

Where the mains water supply has a non-return, back flow prevention valve fitted, a mini expansion vessel [5] (part number 7 716 192 105) should be connected to the mains water inlet pipe [4] as shown above.

2.1.3 Installation and servicing clearances

Clearances of the Greenstar Xtra FGHR unit

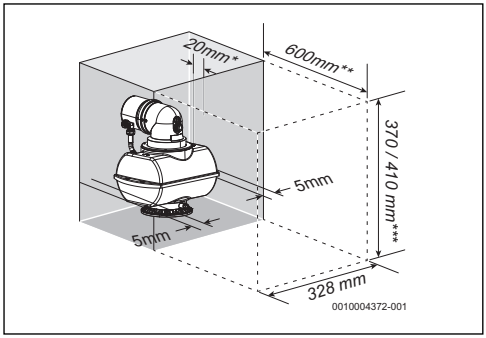

Fig. 5 Clearances

* Minimum clearance to removable door
** Minimum clearance required for servicing (flue access)
*** Height for either 60/100 flue or 80/125 flue from the top of the boiler

Clearances boiler

The templates provided show the side, bottom and top clearances (grey shaded area) for the installation of the boiler with the Greenstar Xtra.

▶ Refer to the Installation Commissioning and Servicing Instructions of the boiler being installed for the full installation and servicing clearances.

Compartments

Follow the requirements of BS6798 and BS5440 Part 2 and note:

- Minimum clearances must be maintained.
- An access door is required to install, service and maintain the boiler and any ancillary equipment.
- If the installation is in an airing cupboard use a non-combustible material to separate the appliances from the airing space.
  The material can be perforated up to a maximum hole size of 13mm.

3 Installation

3.1 Template

WARNING:

Damage to property!

Damage caused by drilling into pipes, electrical cables, damp proof course or other hazards.

▶ Before drilling ensure that there are no obstructions.

▶ Select the boiler template from the boiler literature pack.
▶ Fix the template onto the wall in the desired position [1].
▶ Drill the fixing holes for the boiler.

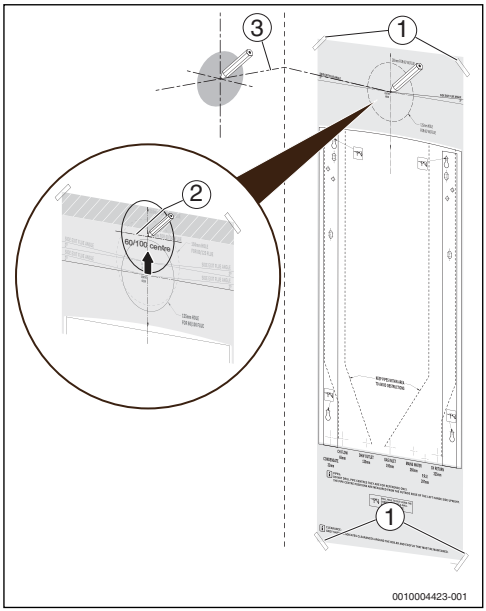

Fig. 6 Marking the flue position

Rear flue outlet

The Greenstar Xtra unit will raise the flue.

To mark the centre for the flue:

▶ Fix the boiler wall template to the wall [1].
▶ Measure an additional height (a in table 3) for the flue above the centre line, depending on the flue size that you are installing.
▶ Mark the centre line [2].

Alternatively the flue centre can be measured from the top of the boiler. In this case use measurements b in table below:

Flue size	Unit	Above wall template flue centre (a)	Above top of boiler (b)
60/100	[mm]	214	308
80/125	[mm]	282	376

Table 3 Measurements of rear flue outlet

- If a 100 mm diameter flue is to be used, a 125 mm diameter hole is required. However, if using the weather sealing collar by pushing it through from inside the property, then a 150 mm diameter hole is required to accommodate this.
- The flue turret of the 100 mm flue has an in-built 3° angle. If extensions are to be added then the complete flue must rise at an angle of 3°. Drill the hole, preferably using a core drill.

Side flue outlet

- Mark from the centre line [3] of the wall mounting template to the wall that the flue will pass through. (see installation manual of the boiler for dimensions).
- Allow for a rise of 52 mm per metre length of flue, to give a 3° angle.

In order to allow the Greenstar Xtra unit to raise the flue:

- Measure an additional height above [3] (see table 3, page 7).
- Mark this as the centre point for drilling the hole for the flue.

3.2 Boiler installation

- Hang the boiler following the installation section of the boiler manual.

For optimum performance of the Greenstar Xtra please ensure that the boiler and unit are properly leveled.

3.3 Greenstar Xtra fitting

Fitting the adaptor

NOTICE:

Flue integrity!

Flue integrity failure if “O” ring seal seatings are disturbed during connection.

- Take care when making flue connections not to disturb “O” ring seals.

- Disassemble the adapter from the Greenstar Xtra by removing the front fixation screw [1].

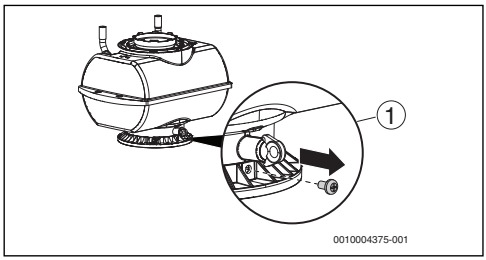

Fig. 7 Disassembling the adaptor

- Using the 3 screws provided [1], secure the adaptor [2] to the boiler [3].

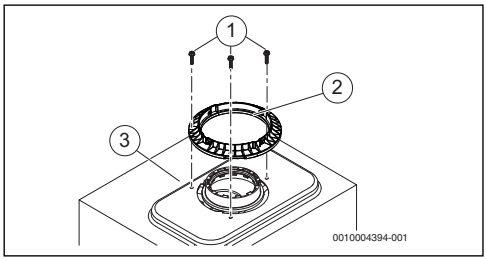

Fig. 8 Securing the adaptor to the boiler

Connecting the Greenstar Xtra to the boiler

- Slide the Greenstar Xtra into the adapter and rotate counter clockwise to correctly position it on the adapter.

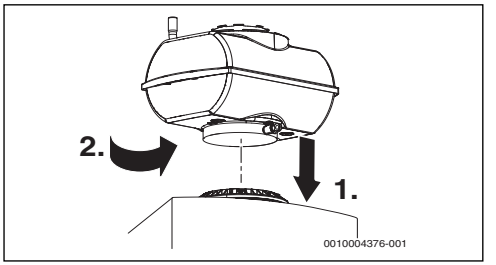

Fig. 9 Fitting Greenstar Xtra

- Attach the Greenstar Xtra to the adaptor using the included unit fixing screws [1].
- Connect the water pipes using the 90° compression joint elbows provided. Cold [1] (inlet) and hot [2] (outlet).

Use the compression fittings provided to enable easy removal of the unit for maintenance. Do not use soldered fittings due to the risk of damaging the unit during soldering.

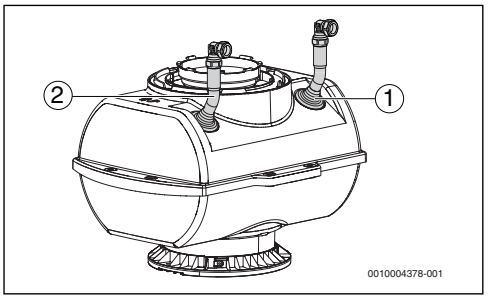

Fig. 10 Water connections

Flue connections

Maximum flue length is defined in Table 2 - Technical Data, page 4, this includes the effective flue length of the Greenstar Xtra FGHR unit.

NOTICE:

Flue supports

- Flues require adequate support throughout their entirety. It is advised to support the flue at every one metre and changes of direction.

NOTICE:

Flue integrity!

Flue integrity failure if “O” ring seal seatings are disturbed during connection.

- Take care when making flue connections not to disturb “O” ring seals.

The Greenstar Xtra is compatible with Worcester standard horizontal and vertical Condensfit II flue kits.

- Fit the horizontal or vertical flue adaptor [1] into the Greenstar Xtra unit flue connection point [2].
- Using the 3 screws provided, secure the flue adaptor to the Greenstar Xtra unit.

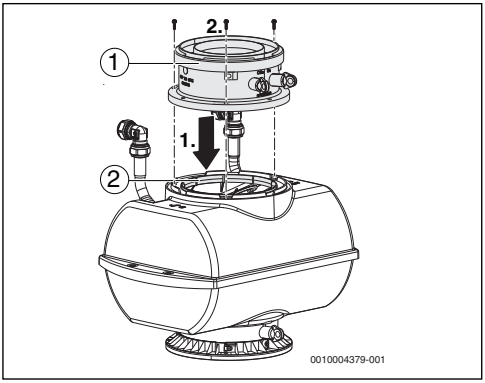

Fig. 11 Flue connection

Flue connection examples

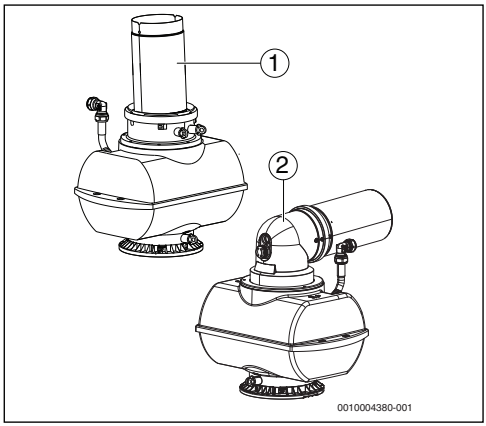

Fig. 12 Example flue options

[1] Vertical flue option
[2] Horizontal flue option

3.3.1 Plume management

The lengths for both plume and flue are the effective lengths, which include the effective length of any bends plus the straight lengths.

The graph (→ figure 13) can be used to calculate:

- **Effective flue length** if a specific effective plume length is required.
- **Effective plume length** if a specific effective flue length is required.

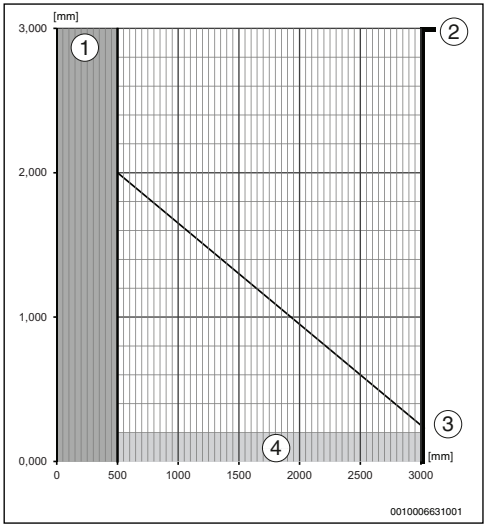

Fig. 13 Effective flue lengths versus plume management lengths

[1] Minimum plume kit length 500 mm
[2] Maximum plume length for all boilers
[3] Greenstar i combi data and Greenstar CDi & Si Compact combi data
[4] Minimum flue length 200 mm (cut terminal section in elbow)

	Horizontal		Vertical	
	60/100	80/125	60/100	80/125
Greenstar Compact ErP with Xtra	3000	12000	3000 plus terminal	12000 plus terminal
Greenstar i ErP with Xtra	2300	10000	4000 plus terminal	12000 plus terminal

Table 4 Maximum flue length [mm]

3.4 Commissioning

- ▶ Open the cold water supply and check all connections for leaks.
- ▶ Open the hot water supply and flush the Greenstar Xtra until it is completely filled with water and no noise is audible.
- ▶ Fit the Greenstar Xtra sticker to the boiler control panel.

The Greenstar Xtra is ready to use.

An information sticker is provided to inform energy assessors that a Greenstar Xtra is fit to the boiler.
The label should be stuck somewhere easily visible, for example on the control panel.

4 Servicing

Annual inspection

- ▶ An annual visual check of the Greenstar Xtra must be carried out in addition to the checks stated in the appliance Installation, Commissioning and Servicing Instructions.

When the inner flue has been opened and reassembled during maintenance on the Greenstar Xtra, a flue gas analyser can be inserted into the air intake sample point [1] on the bottom front of the unit, in order to check that there is no cross leakage of flue gas into the air intake.

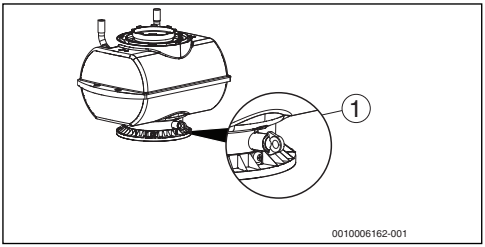

Fig. 14 Flue analyser measurement position

All seals that are removed during a service action should be replaced to ensure the performance and safety of the Greenstar Xtra unit.

The heat exchanger is not serviceable and does not require cleaning.

- ▶ Do not use any cleaning solvents on the flue gas or water paths!

5 Replacement of parts

Ordernumber	Name of the item
8-718-643-837-0	PHE Replacement kit
8-718-647-079-0	Pipe Replacement kit
8-718-644-038-0	Side cover replacement kit
8-718-646-950-0	Recuperator adaptor replacement kit
8-718-644-033-0	Upper outer case replacement kit
8-718-644-039-0	Bottom outer Casing replacement kit
8-716-763-266-0	0_2 measurement hole plug
2-912-451-152-0	Screw M5 x 10 Pan Head Pozi ZP
8-718-644-814-0	Outer Case Sealing
8-711-004-232-0	Seal
8-716-113-906-0	Filter DCW
8-716-109-363-0	Screw No. 10 x 20 Lg Hex. Flange (3x)
8-713-401-061-0	Screw DIN 6900 M5X20 4.8 (10x)
8-718-647-266-0	90 degree elbow
6-720-812-478-0	Document set
8-722-880-163-0	PHE inlet/outlet O-ring (10x)
8-718-642-146-0	Clip (10x)
8-713-401-061-0	Screw (10x)
8-716-116-508-0	Literature pack

Table 5 Replacement of parts

WORCESTER, BOSCH GROUP:
TECHNICAL SUPPORT:0330 123 3366
APPOINTMENTS:0330 123 9339
SPARES:0330 123 9779
LITERATURE:0330 123 9119
TRAINING:0330 123 0166
SALES:0330 123 9669

Worcester, Bosch Group
Cotswold Way, Warndon, Worcester WR4 9SW.
Tel. 0330 123 9559
Worcester, Bosch Group is a brand name of
Bosch Thermotechnology Ltd.
worcester-bosch.co.uk

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clydebank housing association

Section 4 - Programmable room thermometer model TP One M

Scottish Government
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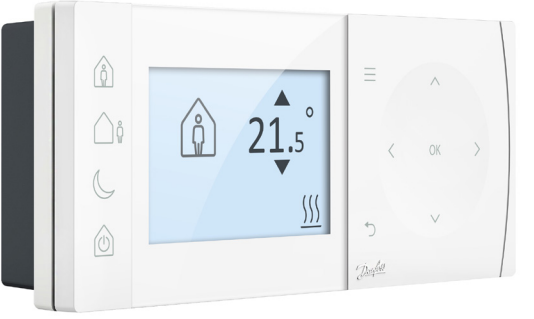
ENGINEERING
TOMORROW



TPOne-M

Electronic Programmable Room Thermostat
including Domestic Hot Water Timer

Installation Guide

Danfoss Heating

TPOne is an intelligent programmable heating control made easy. TPOne includes features which are designed to save energy. Look out for the leaf symbol throughout this guide for settings which can directly influence the energy saved.

This product complies with the following EU Directives:
Electromagnetic Compatibility
2014/30/EU
Low Voltage
2014/35/EU
Restriction of the use of certain Hazardous Substances
2011/65/EU)

CE

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Installation Instructions

Specifications	TPOne-M
Operating Voltage	230Vac, 50/60Hz
Output 1 (Heating)	Volt Free
Setting temperature range	5-35°C
Operating temprature range	0-45°C
Switch rating 1	3A (1) at 230Vac
Switch type 1	1 x SPDT Type 1B
Output 2 (Domestic Hot Water)	230Vac
Switch rating 2	3A (1) at 230Vac
Switch type 2	1 x SPDT Type 1B
IP rating	IP20
On/off control	Yes
Chrono-proportional control	Yes
Operating mode	Heating
Construction	EN 60730-2-9
Control pollution situation	Degree 2
Rated impulse voltage	2.5kV
Ball pressure test	75°C
Dimensions (mm)	H67 x W154 x D30
Software Classification	A

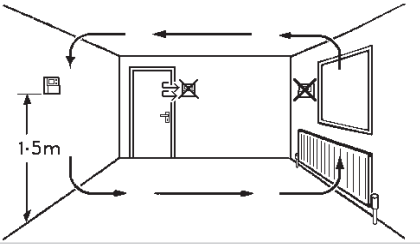
ErP Class

The products represented within this document are classified according to, and allow completion of, the Energy Related Product (ErP) Directive System Package fiche and the ErP system data label. ErP Labelling obligation is applicable from 26th September 2015.

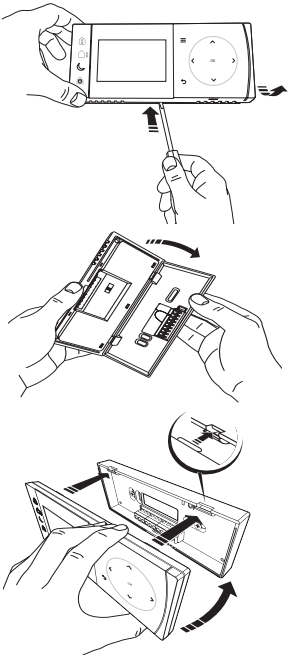
ERP Class	Product Function and ErP Description	Additional efficiency gain
IV 	**TPI Room Thermostat, for use with on/off output heaters** An electronic room thermostat that controls both thermostat cycle rate and in-cycle on/off ratio of the heater proportional to room temperature. TPI control strategy reduces mean water temperature, improves room temperature control accuracy and enhances system efficiency.	2%

Mounting

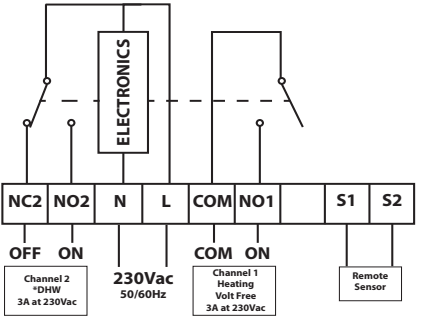
Thermostat or Remote Room Sensor positioning:



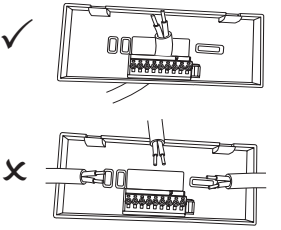
Please note: This product should only be installed by a qualified electrician or competent heating installer and should be in accordance with the local wiring regulations.



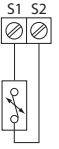
Wiring



*** Domestic hot water, optional timed output only**



Remote sensor inputs



Remote room or limit sensor

Window switch contact

NOTE:
Remote Sensor to be wired with 1mm 2 core double insulated cable only. Cable length should not exceed 10 metres. Sensor cable should NOT be run parallel to mains cable.

User Interface

Comfort Modes

Heating made easy: TPOne Comfort Modes simplify the way you plan your heating day to day. You define your comfort modes in the user schedule and manually override when you need, allowing you to adapt your schedule to the way you live.

The Home, Away and Asleep comfort modes are linked to your defined comfort temperatures. The schedule follows the daily routine you have set or you just choose the comfort mode required and TPOne will recall the settings you have defined.

The TPOne Standby Mode allows you to switch your heating off when not required although the thermostat continues to monitor the room temperature and call for heating should there be a risk of frost damage.

NOTE:
TPOne has been designed with touch sensitive user interface buttons. To avoid accidental setting changes the interface buttons stay in an idle state during which time the first button press needs to be made for 1sec, this will place the TPOne into an active setting state. While active the TPOne will respond immediately to any valid key press. If no key presses are made for 30secs the buttons will go back to an idle state.

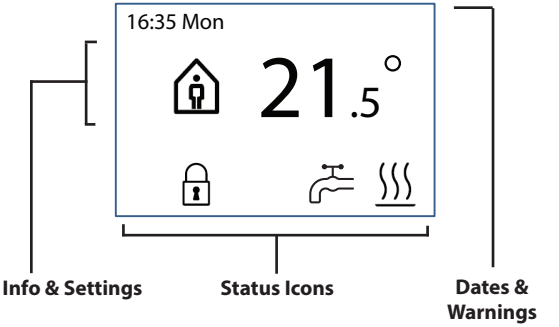
Comfort Modes

	Home	**Home Mode** selects the home comfort temperature typically when the home is occupied during the day. The required temperatures for Home mode are selectable in the Temperature setting (see User Menu > Temperatures.) A separate Home AM and Home PM temperature can be chosen and these are automatically set according to the time of the day. ***Note: When in Home mode if the home button is pressed again a 1, 2 or 3 hour heating boost is selected and the current home period is extended by the chosen time period. The chosen boost period is displayed under the Home icon on the display.***
	Away	**Away Mode** selects the away comfort temperature typically when the home is unoccupied during the day. The required temperature for Away mode is selectable in the Temperature setting (see User Menu > Temperatures).
	Asleep	**Asleep Mode** selects the nightime comfort temperature which is set between the end of the last home period of the day and the beginning of the first home period of the following day. The required temperature for Asleep mode is selectable in the Temperature setting (see User Menu > Temperatures).
	Standby	The TPOne can be placed in **Standby Mode**. While in Standby the TPOne will not control the heating system other than to protect against frost damage (see User Menu > Installer Settings > Frost Protect for information on frost protect). Standby can be cancelled by pressing the Standby button again or by selecting another comfort mode. ***Note: the standby option places the heating control in standby only, if Hot Water is set up this is not affected. To switch Hot Water control off see User Menu > Hot Water > Mode***

Navigation

	Menu	Press **Menu** to access the intuitive text menu. The common feature User Menu will be displayed first. Additional settings can found in the User Setting option and more advance settings can be found in the Installer Setting option.
OK	**Select / Confirm**	Press **OK** to select menu options or confirm settings. OK will be shown on the display when it can be used or is required.
	Menu Back	Press ⮌ to exit a menu option. Pressing ⮌ while in a setting will result in that setting change not be accepted. ⮌ will also exit the menu system. ⮌ will be shown on the display when it can be used
	Naviga-tion	The **Navigation** buttons are used to navigate the TPOne menus and change setting values. The up & down buttons are also used to manually change the required temperature. Navigation arrows will be shown on the display when these buttons can be used.

Display



	Button Lock	Indicates that **Button Lock** has been activated to avoid unintentional setting changes. To activate buttons while button lock is active press the OK button for 5 seconds. The Button Lock setting is found in the Installer Menu.
	Heat Calling	When the current room temperature is below the required room set temperature the TPOne will call for heating from the connected heat source. This is indicated by the **Heat Calling** icon.
	Hot Water Calling	Where the TPOne has been set up for control of domestic hot water the TPOne will call for hot water heating according to the user set schedule. This is indicated by the **Hot Water Calling** icon.

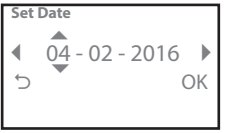
NOTE:
TPOne monitors several conditions and will provide warning or information messages when necessary. Details on these can be found on pages 24 - 26.

Setup Wizard

The setup wizard will run when power is first applied to the TPOne. Once set the further changes can be made in the user and installer setting menus.

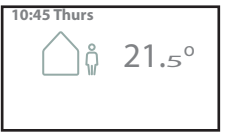
OK

OK



OK

OK

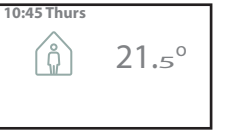


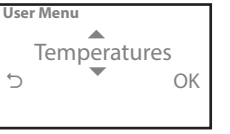
READY

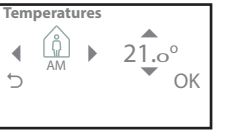
Set Temperatures

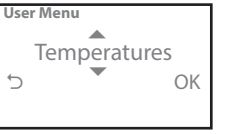
Follow this routine to set required Comfort Mode temperatures. Changes can be made for each mode, once all changes have been made press OK and a confirmation screen will display the new settings.

See page 22 for default temperatures



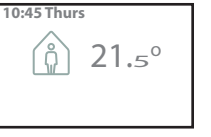




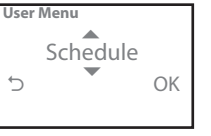


Setup Schedule

Follow this routine to set Heating Schedule. Days can be set individually or grouped and options for weekdays and weekend settings can be selected. All day combinations can then have one, two or three Home Periods selected. TPOne will automatically fill in the gaps with Away and Asleep Periods depending on the time of the day.
Where TPOne is set up to control domestic hot water as well as heating there is a dedicated Hot Water schedule which can be set
See page 22 for default schedule times



OK



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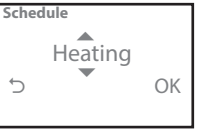

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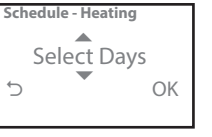
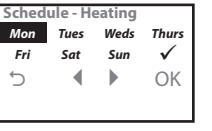
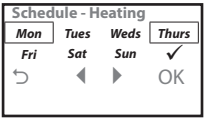


Mon **OK** ***Thurs*** **OK**



Setup Schedule (Continued)

OK OK



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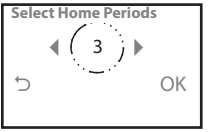
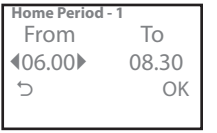
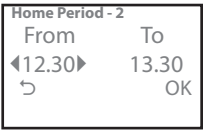
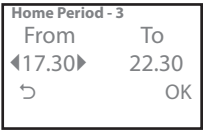
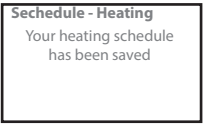
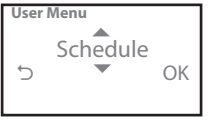












User Menu

Hot Water	User override settings for Domestic Hot Water: **Boost -** choose to extend the current hot water heating period for 1, 2 or 3 hours. Once boost time is finished hot water heating will return to user set schedule. **Mode -** choose between scheduled on or off. Scheduled mode will follow the user set hot water heating schedule. Off mode will switch hot water heating off and will remain off until set back to scheduled. **Default settings:** Boost - Off Mode - Scheduled ***Note: The Domestic Hot Water feature will be set at installation and will require a separate hot water cylinder thermostat and suitable wiring to the boiler. If the TPOne has been installed for heating only this menu option will not be given. The hot water heating feature can be deactivated after installation, see User Menu > Installer Settings > Hot Water Setup***
Click & Save 	Click & Save is an easy access saving function. Switching Click & Save ON will reduce the user set comfort temperatures by 1°C. Switching Click & Save OFF will return TPOne to the user set comfort temperatures. **Default setting:** Off ***Note: Independent tests have shown that a reduction in home heating temperatures by 1°C can save on average 10% energy.***
Heating Mode	Heating Mode will change the TPOne from a thermostat with full user set heating schedule to a manually set temperature only thermostat. In schedule mode the thermostat will follow the user set heating schedule. In manual mode the user set schedule will be ignored, the required comfort mode is then chosen manually. **Default setting:** Scheduled

User Menu (Continued)

Schedule	User set heating schedule option: **Heating -** settings for the daily heating schedule. Choose weekday, weekend or independent daily options and 1,2 or 3 periods per day. Option to reset daily heating schedule to factory defaults. **Hot Water -** settings for the daily domestic hot water schedule. Choose weekdays, weekend or independent daily options and 1,2 or 3 periods per day. (Option only available if TPOne has been configured for domestic hot water control) Option available to reset daily domestic hot water schedule to factory defaults. **Summary -** graphical overview of the set daily heating or hot water schedule **Default settings:** see default heating times later in this guide
Tempertures	User set comfort temperatures (heating), individual comfort temperatures for Home AM, Home PM, Away and Asleep. Home AM and Home PM temperatures will be set during the home periods chosen in the user set heating schedule, see User Menu > Schedule Away temperature will be set during the day between the home periods. Asleep temperature will be set during the night between the home periods. **Default settings:** Home AM - 20°C Home PM - 20°C Away - 15°C Asleep - 15°C
Holiday	Holiday feature allows you to set in advance your holiday dates. TPOne will reduce the heating to your chosen Holiday temperature on the first day set to save energy and will return to your set schedule and mode temperatures on the return date to ensure the home is comfortable for your return. Enter start and end date of your holiday and the required energy saving home temperature..

User Settings

Set Date	Option to set the current date.
Set Time	Option to set the current time and 12 or 24hr clock setting.
Button Click	Button Click is an audible feedback feature to confirm button press. Button Click can be switched On or Off **Default setting:** On
Backlight	When buttons are pressed on the TPOne the display backlight will come on to aid viewing. Where backlight is not required this feature can be switched off. **Default setting:** On
Temperature Scale	Choose between centigrade °C or fahrenheit °F **Default setting:** °C
Language	Choose menu language **Default:** English ***Note: if required a reset menu language feature is available, press and hold OK for 5secs and the option to change language will be given.***
User Reset	User Reset will return user settings only to the TPOne factory default. ***Note: User Reset will not reset settings in the first level user menu or the date and time.***
Information	Information on product type, software level and boiler service interval date if set.

Installer Settings

Hot Water Setup	The TPOne-M can be used as a single channel programmable thermostat to control the temperature regulation of the heating system only or as a two channel programmable thermostat to control the heating and the time schedule of a domestic hot water circuit. The domestic hot water selection will have been chosen in the startup wizard on initial installation. Choose this setting after installation to switch the domestic hot water option on/off. **Default:** Set at startup ***Note: Settings in the menu which are required for domestic hot water are only accessable if the Hot Water Setup is switched on. TPOne-M controls only the time schedule for domestic hot water and should always be used with a suitable hot water cylinder thermostat.***
Control Type	This allows the thermostat to be set to run in On/Off mode or in chrono-proportional 3, 6 or 12 cycle rate. **Default:** Chrono 6 ***Note: for condensing boiler control tests have shown that boiler efficiency is significantly improved when controlled by a chrono-proportional type controller***

Installer Settings (Continued)

Start-up Method	This feature allows the thermostat to start up the heating system in three different ways. **Normal -** Heating is turned up or down at the programmed times. **Delayed start** (or Economy Setting) - Set the period start 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. Delayed Start in TPOne is dynamic and will adjust automatically to the home heating characteristics while maximising energy savings. **Optimised Start** (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. Optimised Start in TPOne is dynamic and will adjust automatically to the home heating characteristics to reach required temperature at the required time. **Default:** Normal
Temperature Limits	This allows the upper and lower temperature of the thermostat setting range to be limited. **Defaults:** Minimum 5°C, Maximum 35°C
Frost Protect	To help protect against damage to the heating system caused by extreme low temperatures the TPOne includes a Frost Protect level. This is the minimum temperature level and is also used when the TPOne is placed in standby mode. **Default:** 5°C
Temperature Override	This establishes the degree of manual temperature override available to the user, No Limit, Limited +/- 2°C or No Override **Default:** No Limit

Installer Settings (Continued)

Daylight Saving	Choose to set automatic daylight saving changes on or off. **Default:** On
Button Lock	Button lock can be set to avoid unintentional setting changes. To activate buttons while button lock is active the user must press the OK button for 5 seconds. **Default:** Off
Display Idle Mode	When the TPOne is in idle mode the display can be set to go off. The display will come on when any button is pressed. **Default:** On
External Sensor	TPOne includes an optional external sensor input. If fitted select the type of external sensor: **None** - No external sensor fitted **Room Sensor** - Remote room sensor fitted. This will take priority over the TPOne internal sensing. *Danfoss part TS2A - sold seperately* **Window Sensor** - Where a window sensor has been fitted the TPOne will go into standby mode while the window is open. Window open feature is activated 60secs after input is made open circuit. Window open feature is deactivated 30secs after input is made closed circuit. **Floor Limit Sensor** - This allows for a thermostat limit sensor to be set, typical application is floor heating. 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. A warning will be shown on the display that the floor limit temperature has been exceeded. Room temperature will be controlled by the TPOne internal sensor. The temperature set for the limit point sensor will be determined by the type of floor. The recommended limits are: Tiles on chipboard and wooden floors 27°C Carpet or vinyl on chipboard 35°C Tiles on concrete floor 40°C Concrete, screed, etc 45°C *Danfoss Part TS3 - sold seperately* **Lockout** - Where a Key lockout switch is fitted the TPOne can be forced into the standby mode remotely. While activated none of the buttons can be used and the TPOne will only call for heat if room temperature falls below set frost protect level. Lockout feature is activated 60secs after input is made open circuit. Feature is deactivated 30secs after input is made closed circuit.

Installer Settings (Continued)

Service Interval	TPOne incorporates a service interval timer where a service due date for the boiler can be set. The service interval timer is passcode protected and must only be set by a qualified heating installation engineer. The installer can set the service due date and select from one of four service due restriction modes: **1 - Warning Only** - visual and audible warnings only, no reduction of heat. **2 - Heat 45min/hr** - visual and audible warnings with reduction of heat to 45 minutes per hour. **3 - Heat 30min/hr** - visual and audible warnings with reduction of heat to 30 minutes per hour. **4 - Heat 15min/hr** - visual and audible warnings with reduction of heat to 15 minutes per hour. **5 - No Heating** - visual and audible warnings with no heating. Once set, the service interval timer can only be reset or deactivated by an installer having the correct access code. Additional information on Service Interval can be found later in this guide ***Note: If the TPOne is fitted to a combination boiler, thefunction only works in conjunction with a heating demand, hot water production is unaffected.***
Service Demo	Choose this feature to provide a demonstation of the audible and visual warning which will be given when service is due.
Installer Lock	TPOne allows the installer to lock all installer settings by means of a passcode. The 3 digit passcode can be chosen and set by the installer and once set will be required to make any installer setting changes.
Installer Reset	Select option to reset all installer settings to factory defaults. ***Note: Service interval will not be reset and can only be reset or deactivated by entering the service interval setup.***

Service Interval

If the property is owned by a landlord he may, for gas safety reasons, have instructed the installer to set the service interval timer. The feature is primarily aimed at the rented property sector where the Landlord has a legal responsibility under gas safety regulations* to ensure that the boiler is serviced every year.

- If set, 28 days prior to the service due date, an audible warning will start each day at noon, the service icon will also be displayed. 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, an audible warning will start each day at noon, the service icon will also be displayed. 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 and Hot Water may operate for a limited amount of time each hour.

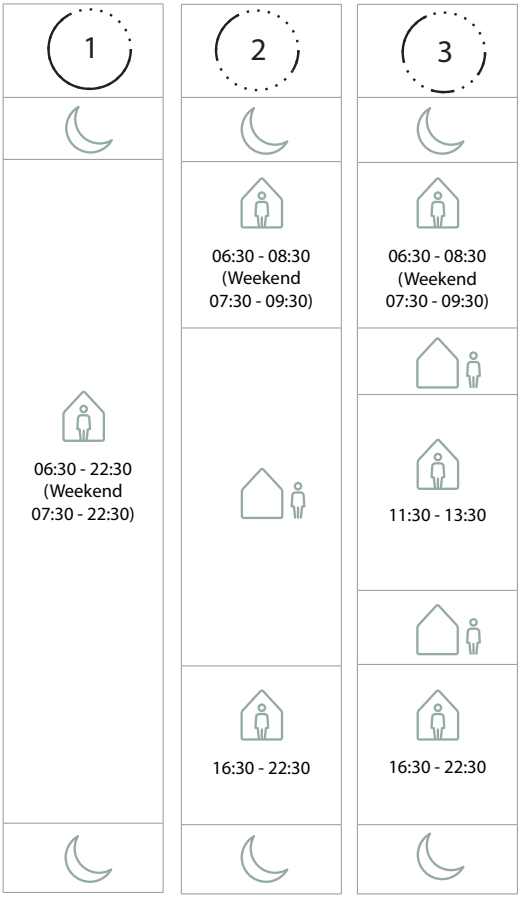
- The installer may cancel or reset the service interval timer as part of the boiler service.

- This is a gas safety feature that can only be accessed by a qualified heating installation engineer.

Gas Safety Regulations may vary according to region

Default tables

SCHEDULE DEFAULTS



Note: Where TPOne has been set up for domestic hot water control the default schedule for hot water is the same as for heating. In schedule set up user can set one, two or three ON periods, TPOne will automatically fill in gaps with OFF periods

Default tables (Continued)

TEMPERTURE DEFAULTS	
AM	20°C
PM	20°C
	15°C
	15°C

Information

TPOne will show information related to current operation, these messages will be shown at the top of the display.
Information messages will be displayed while the operation is active and will automatically reset when operation is completed

Window Open	This will be displayed where a window open switch has been fitted and the window is opened. *see page 19*
Product Lock	This will be displayed where a product lock switch has been fitted and the switch has been activated. *see page 19*
Optimised Start	If the TPOne start up method is set to Optimised Start this message will display while this feature is active. *see page 18*
Delayed Start	If the TPOne start up method is set to Delayed Start this message will display while this feature is active. *see page 18*

Warnings

TPOne monitors several conditions and will provide warnings when necessary, these messages will be shown at the top of the display. If the condition that has created the warning has been corrected then the message can be cancelled by selecting Clear Warnings in the TPOne menu. Where more than one warning has occurred the most recent will be shown on the display. All warnings can be viewed and cleared in the Clear Warnings menu.

Frost Risk	This will be displayed if the TPOne monitors a temperature of below 5°C. TPOne will call for heat if this occurs but if the heat source is faulty then risk of frost damage may still occur. The heating system should be checked to confirm it is operating correctly
Low Heat	If set mode temperature is not reached within 2 hours then TPOne will warn of Low Heat. The heating system should be checked to confirm it is operating correctly
Service Due	Where the TPOne Service Interval timer has been set this warning will be shown when the timer has expired. Contact the property owner or landlord to arrange the boiler safety mainantance. *see page 21*
Heat Reduced	Where the TPOne Service Interval timer has been set this warning will show after the timer has expired and will indicate that heating has been reduced for your safety until a boiler service has been completed. Contact the property owner or landlord to arrange the boiler safety mainantance. *see page 21*
High Floor Temperature	Where a floor limit temperature sensor has been fitted if the floor temperature exceeds the set limit this warning will show. If the floor temperature has reduced to a safe level the TPOne will continue to control heating but the reason for the overheat may still exist. The floor heating system should be checked to ensure overheating does not reoccur.

Warnings (continued)

Sensor Fail	If the TPOne in-built temperature sensor is measuring outside it's operational parameters then it may have failed. If this warning cannot be reset then contact your service provider for advice.
External Sensor Fail	If an external temperature sensor has been fitted and the TPOne is measuring outside it's operational parameters then it may indicate a problem with the external sensor or connecting cable. If this warning cannot be reset then contact your service provider for advice.
Floor Sensor Fail	If a floor temperature sensor has been fitted and the TPOne is measuring outside it's operational parameters then it may indicate a problem with the floor sensor or connecting cable. If this warning cannot be reset then contact your service provider for advice.

ENGINEERING
TOMORROW

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clydebank housing association

Section 5 - Programmable room thermometer model TP One B

Scottish Government
Riaghaltas na h-Alba
gov.scot

BUILDING cruden

Allia

CAF Bank

ENGINEERING
TOMORROW

TPOne-B

Electronic Programmable Room Thermostat

Installation Guide

Danfoss Heating

TPOne is an intelligent programmable heating control made easy. TPOne includes features which are designed to save energy. Look out for the leaf symbol throughout this guide for settings which can directly influence the energy saved.

This product complies with the following EU Directives:
Electromagnetic Compatibility
2014/30/EU
Low Voltage
2014/35/EU
Restriction of the use of certain Hazardous Substances
2011/65/EU)

CE

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Installation Instructions

Specifications	TPOne-B
Operating Voltage	2.5 - 3VDC (2x AA batteries)
Output relay	Volt Free
Setting temperature range	5-35°C
Operating temprature range	0-45°C
Switch rating	3A (1) at 230Vac
Switch type	1 x SPDT Type 1B
Battery lifetime	Min. 2 years
IP rating	IP20
On/off control	Yes
Chrono-proportional control	Yes
Operating mode	Heating
Construction	EN 60730-2-9
Control pollution situation	Degree 2
Rated impulse voltage	2.5kV
Ball pressure test	75°C
Dimensions (mm)	H67 x W154 x D30
Software Classification	A

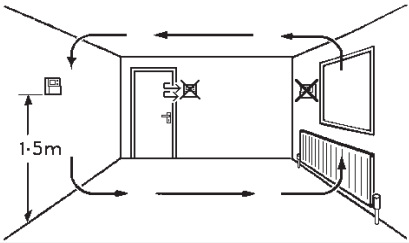
ErP Class

The products represented within this document are classified according to, and allow completion of, the Energy Related Product (ErP) Directive System Package fiche and the ErP system data label. ErP Labelling obligation is applicable from 26th September 2015.

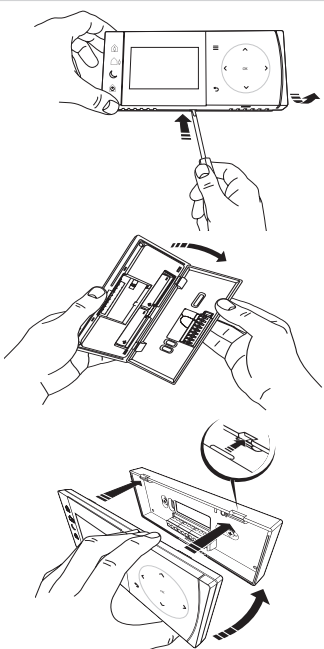
ERP Class	Product Function and ErP Description	Additional efficiency gain
IV 	**TPI Room Thermostat, for use with on/off output heaters** An electronic room thermostat that controls both thermostat cycle rate and in-cycle on/off ratio of the heater proportional to room temperature. TPI control strategy reduces mean water temperature, improves room temperature control accuracy and enhances system efficiency.	**2%**

Mounting

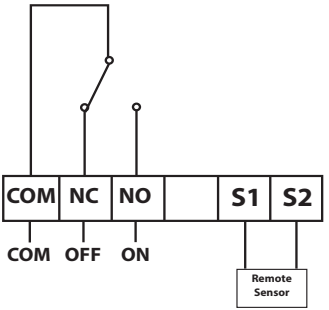
Thermostat or Remote Room Sensor positioning:



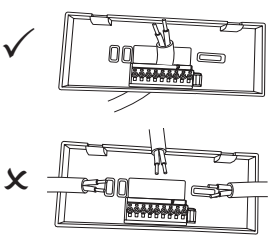
Please note: This product should only be installed by a qualified electrician or competent heating installer and should be in accordance with the local wiring regulations.



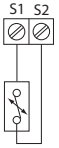
Wiring



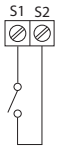
*** Domestic hot water, optional timed output only**



Remote sensor inputs



Remote room or limit sensor



Window switch contact

NOTE:
Remote Sensor to be wired with 1mm 2 core double insulated cable only. Cable length should not exceed 10 metres. Sensor cable should NOT be run parallel to mains cable.

User Interface

Comfort Modes

Heating made easy: TPOne Comfort Modes simplify the way you plan your heating day to day. You define your comfort modes in the user schedule and manually override when you need, allowing you to adapt your schedule to the way you live.

The Home, Away and Asleep comfort modes are linked to your defined comfort temperatures. The schedule follows the daily routine you have set or you just choose the comfort mode required and TPOne will recall the settings you have defined.

The TPOne Standby Mode allows you to switch your heating off when not required although the thermostat continues to monitor the room temperature and call for heating should there be a risk of frost damage.

NOTE:
TPOne has been designed with touch sensitive user interface buttons. To avoid accidental setting changes the interface buttons stay in an idle state during which time the first button press needs to be made for 1sec, this will place the TPOne into an active setting state. While active the TPOne will respond immediately to any valid key press. If no key presses are made for 30secs the buttons will go back to an idle state.

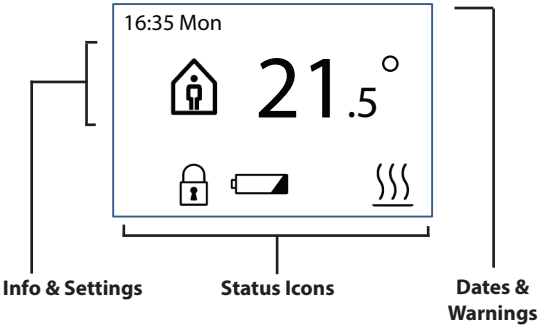
Comfort Modes

	Home	**Home Mode** selects the home comfort temperature typically when the home is occupied during the day. The required temperatures for Home mode are selectable in the Temperature setting (see User Menu > Temperatures.) A separate Home AM and Home PM temperature can be chosen and these are automatically set according to the time of the day. ***Note: When in Home mode if the home button is pressed again a 1, 2 or 3 hour heating boost is selected and the current home period is extended by the chosen time period. The chosen boost period is displayed under the Home icon on the display.***
	Away	**Away Mode** selects the away comfort temperature typically when the home is unoccupied during the day. The required temperature for Away mode is selectable in the Temperature setting (see User Menu > Temperatures).
	Asleep	**Asleep Mode** selects the nightime comfort temperature which is set between the end of the last home period of the day and the beginning of the first home period of the following day. The required temperature for Asleep mode is selectable in the Temperature setting (see User Menu > Temperatures).
	Standby	The TPOne can be placed in **Standby Mode**. While in Standby the TPOne will not control the heating system other than to protect against frost damage (see User Menu > Installer Settings > Frost Protect for information on frost protect). Standby can be cancelled by pressing the Standby button again or by selecting another comfort mode. ***Note: the standby option places the heating control in standby only, if Hot Water is set up this is not affected. To switch Hot Water control off see User Menu > Hot Water > Mode***

Navigation

	Menu	Press **Menu** to access the intuitive text menu. The common feature User Menu will be displayed first. Additional settings can found in the User Setting option and more advance settings can be found in the Installer Setting option.
OK	**Select / Confirm**	Press **OK** to select menu options or confirm settings. OK will be shown on the display when it can be used or is required.
	Menu Back	Press ⮌ to exit a menu option. Pressing ⮌ while in a setting will result in that setting change not be accepted. ⮌ will also exit the menu system. ⮌ will be shown on the display when it can be used
	Naviga-tion	The **Navigation** buttons are used to navigate the TPOne menus and change setting values. The up & down buttons are also used to manually change the required temperature. Navigation arrows will be shown on the display when these buttons can be used.

Display



	Button Lock	Indicates that **Button Lock** has been activated to avoid unintentional setting changes. To activate buttons while button lock is active press the OK button for 5 seconds. The Button Lock setting is found in the Installer Menu.
	Battery Low	The battery low icon indicates when the TPOne batteries should be changed. To avoid loss of heating or damage to your thermostat replace batteries when this icon is displayed.
	Heat Calling	When the current room temperature is below the required room set temperature the TPOne will call for heating from the connected heat source. This is indicated by the Heat Calling icon.

NOTE:
TPOne monitors several conditions and will provide warning or information messages when necessary. Details on these can be found on pages 24 - 26.

Setup Wizard

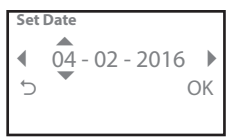
The setup wizard will run when power is first applied to the TPOne. Once set the further changes can be made in the user and installer setting menus.

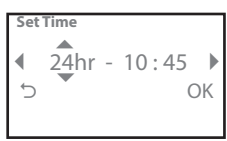
OK

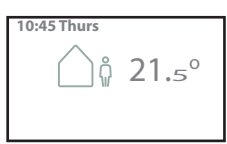
OK

OK

READY



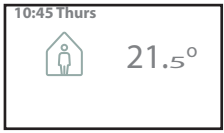




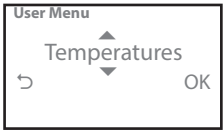
Set Temperatures

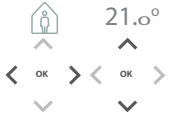
Follow this routine to set required Comfort Mode temperatures. Changes can be made for each mode, once all changes have been made press OK and a confirmation screen will display the new settings.

See page 22 for default temperatures

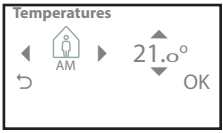


OK





OK



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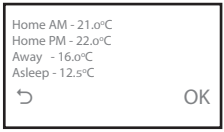
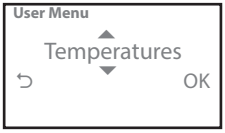
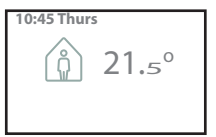




Setup Schedule

Follow this routine to set Heating Schedule. Days can be set individually or grouped and options for weekdays and weekend settings can be selected. All day combinations can then have one, two or three Home Periods selected. TPOne will automatically fill in the gaps with Away and Asleep Periods depending on the time of the day.

See page 22 for default schedule times



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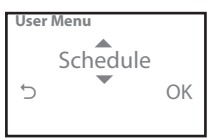

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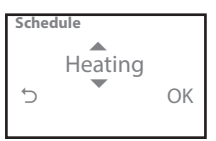

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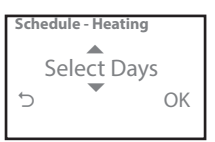

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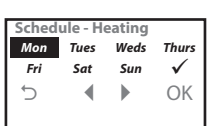
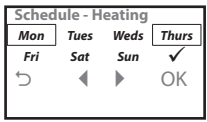
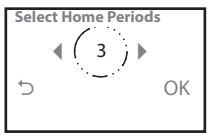
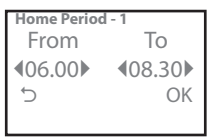
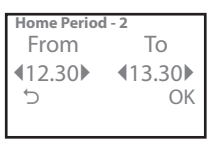


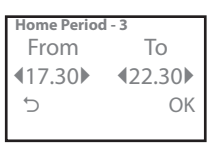
Setup Schedule (Continued)

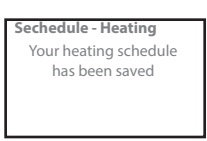


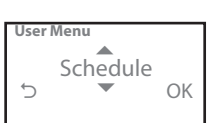












User Menu

Click & Save	Click & Save is an easy access saving function. Switching Click & Save ON will reduce the user set comfort temperatures by 1°C. Switching Click & Save OFF will return TPOne to the user set comfort temperatures. **Default setting:** Off ***Note: Independent tests have proven that a reduction in home heating temperatures by 1oC can save on average 10% energy.***
Heating Mode	Heating Mode will change the TPOne from a thermostat with full user set heating schedule to a manually set temperature only thermostat. In schedule mode the thermostat will follow the user set heating schedule. In manual mode the user set schedule will be ignored, the required comfort mode is then chosen manually. **Default setting:** Scheduled
Schedule	User set heating schedule option: **Heating -** settings for the daily heating schedule. Choose weekday, weekend or independent daily options and 1,2 or 3 periods per day. Option to reset daily heating schedule to factory defaults. **Summary -** graphical overview of the set daily heating or hot water schedule **Default settings:** see default heating times later in this guide

User Menu (Continued)

Tempertures	User set comfort temperatures (heating), individual comfort temperatures for Home AM, Home PM, Away and Asleep. Home AM and Home PM temperatures will be set during the home periods chosen in the user set heating schedule, see User Menu > Schedule Away temperature will be set during the day between the home periods. Asleep temperature will be set during the night between the home periods. **Default settings:** Home AM - 20°C Home PM - 20°C Away - 15°C Asleep - 15°C
Holiday	Holiday feature allows you to set in advance your holiday dates. TPOne will reduce the heating to your chosen Holiday temperature on the first day set to save energy and will return to your set schedule and mode temperatures on the return date to ensure the home is comfortable for your return. Enter start and end date of your holiday and the required energy saving home temperature.

User Settings

Set Date	Option to set the current date. ***Note: if batteries are removed or have expired for more than 2mins a startup wizard will prompt for date to be reset.***
Set Time	Option to set the current time and 12 or 24hr clock setting. ***Note: if batteries are removed or have expired for more than 2mins a startup wizard will prompt for time to be reset.***
Button Click	Button Click is an audible feedback feature to confirm button press. Button Click can be switched On or Off **Default setting:** On
Backlight 	When buttons are pressed on the TPOne the display backlight will come on to aid viewing. Where backlight is not required this feature can be switched off. Switching the backlight off will increase battery life. **Default setting:** On
Temperature Scale	Choose between centigrade °C or fahrenheit °F **Default setting:** °C
Language	Choose menu language **Default:** English ***Note: if required a reset menu language feature is available, press and hold OK for 5secs and the option to change language will be given.***
User Reset	User Reset will return user settings only to the TPOne factory default. ***Note: User Reset will not reset settings in user menu or the date and time.***
Information	Information on product type, software level and boiler service interval date if set.

Installer Settings

Control Type	This allows the thermostat to be set to run in On/Off mode or in chrono-proportional 3, 6 or 12 cycle rate. **Default:** Chrono 6 ***Note: for condensing boiler control tests have shown that boiler efficiency is significantly improved when controlled by a chrono-proportional type controller***
Start-up Method	This feature allows the thermostat to start up the heating system in three different ways. **Normal -** Heating is turned up or down at the programmed times. **Delayed start** (or Economy Setting) - Set the period start 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. Delayed Start in TPOne is dynamic and will adjust automatically to the home heating characteristics while maximising energy savings. **Optimised Start** (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. Optimised Start in TPOne is dynamic and will adjust automatically to the home heating characteristics to reach required temperature at the required time. **Default:** Normal
Temperature Limits	This allows the upper and lower temperature of the thermostat setting range to be limited. **Defaults:** Minimum 5°C, Maximum 35°C

Frost Protect	To help protect against damage to the heating system caused by extreme low temperatures the TPOne includes a Frost Protect level. This is the minimum temperature level and is also used when the TPOne is placed in standby mode. **Default:** 5°C
Temperature Override	This establishes the degree of manual temperature override available to the user, No Limit, Limited +/- 2°C or No Override **Default:** No Limit
Daylight Saving	Choose to set automatic daylight saving changes on or off. **Default:** On
Button Lock	Button lock can be set to avoid unintentional setting changes. To activate buttons while button lock is active the user must press the OK button for 5 seconds. **Default:** Off
Display Idle Mode	When the TPOne is in idle mode the display can be set to go off. The display will come on when any button is pressed. **Default:** On

Installer Settings (Continued)

External Sensor	TPOne includes an optional external sensor input. If fitted select the type of external sensor: **None** - No external sensor fitted **Room Sensor** - Remote room sensor fitted. This will take priority over the TPOne internal sensing. *Danfoss part TS2A - sold seperately* **Window Sensor** - Where a window sensor has been fitted the TPOne will go into standby mode while the window is open. Window open feature is activated 60secs after input is made open circuit. Window open feature is deactivated 30secs after input is made closed circuit. **Floor Limit Sensor** - This allows for a thermostat limit sensor to be set, typical application is floor heating. 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. A warning will be shown on the display that the floor limit temperature has been exceeded. Room temperature will be controlled by the TPOne internal sensor. The temperature set for the limit point sensor will be determined by the type of floor. The recommended limits are: Tiles on chipboard and wooden floors 27°C Carpet or vinyl on chipboard 35°C Tiles on concrete floor 40°C Concrete, screed, etc 45°C *Danfoss Part TS3 - sold seperately* **Lockout** - Where a Key lockout switch is fitted the TPOne can be forced into the standby mode remotely. While activated none of the buttons can be used and the TPOne will only call for heat if room temperature falls below set frost protect level. Lockout feature is activated 60secs after input is made open circuit. Feature is deactivated 30secs after input is made closed circuit.

Service Interval	TPOne incorporates a service interval timer where a service due date for the boiler can be set. The service interval timer is passcode protected and must only be set by a qualified heating installation engineer. The installer can set the service due date and select from one of four service due restriction modes: **1 - Warning Only** - visual and audible warnings only, no reduction of heat. **2 - Heat 45min/hr** - visual and audible warnings with reduction of heat to 45 minutes per hour. **3 - Heat 30min/hr** - visual and audible warnings with reduction of heat to 30 minutes per hour. **4 - Heat 15min/hr** - visual and audible warnings with reduction of heat to 15 minutes per hour. **5 - No Heating** - visual and audible warnings with no heating. Once set, the service interval timer can only be reset or deactivated by an installer having the correct access code. Additional information on Service Interval can be found later in this guide ***Note: If the TPOne is fitted to a combination boiler, thefunction only works in conjunction with a heating demand, hot water production is unaffected.***
Service Demo	Choose this feature to provide a demonstation of the audible and visual warning which will be given when service is due.
Installer Lock	TPOne allows the installer to lock all installer settings by means of a passcode. The 3 digit passcode can be chosen and set by the installer and once set will be required to make any installer setting changes.
Installer Reset	Select option to reset all installer settings to factory defaults. ***Note: Service interval will not be reset and can only be reset or deactivated by entering the service interval setup.***

Service Interval

If the property is owned by a landlord he may, for gas safety reasons, have instructed the installer to set the service interval timer. The feature is primarily aimed at the rented property sector where the Landlord has a legal responsibility under gas safety regulations* to ensure that the boiler is serviced every year.

- If set, 28 days prior to the service due date, an audible warning will start each day at noon, the service icon will also be displayed. 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, an audible warning will start each day at noon, the service icon will also be displayed. 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 and Hot Water may operate for a limited amount of time each hour.

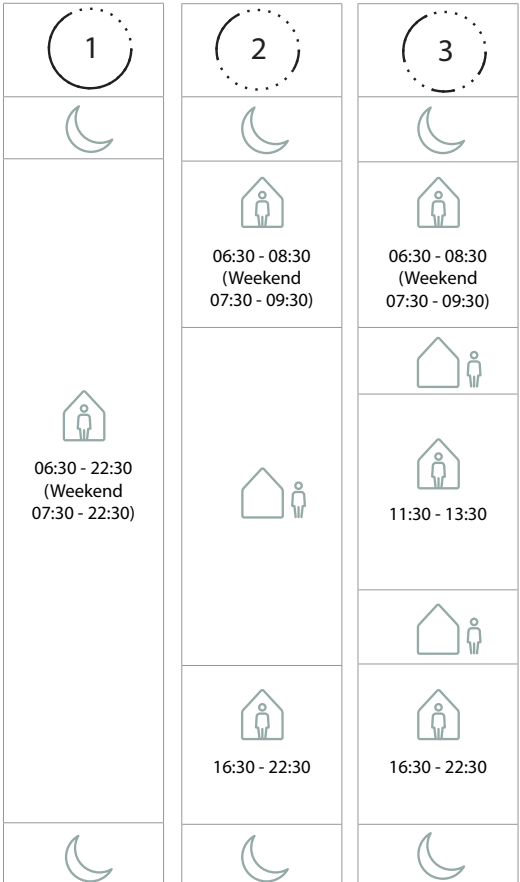
- The installer may cancel or reset the service interval timer as part of the boiler service.

- This is a gas safety feature that can only be accessed by a qualified heating installation engineer.

Gas Safety Regulations may vary according to region

Default tables

SCHEDULE DEFAULTS



Default tables (Continued)

TEMPERTURE DEFAULTS	
AM	20°C
PM	20°C
	15°C
	15°C

Information

TPOne will show information related to current operation, these messages will be shown at the top of the display.
Information messages will be displayed while the operation is active and will automatically reset when operation is completed

Window Open	This will be displayed where a window open switch has been fitted and the window is opened. *see page 19*
Product Lock	This will be displayed where a product lock switch has been fitted and the switch has been activated. *see page 19*
Optimised Start	If the TPOne start up method is set to Optimised Start this message will display while this feature is active. *see page 18*
Delayed Start	If the TPOne start up method is set to Delayed Start this message will display while this feature is active. *see page 18*

Warnings

TPOne monitors several conditions and will provide warnings when necessary, these messages will be shown at the top of the display. If the condition that has created the warning has been corrected then the message can be cancelled by selecting Clear Warnings in the TPOne menu. Where more than one warning has occurred the most recent will be shown on the display. All warnings can be viewed and cleared in the Clear Warnings menu.

Frost Risk	This will be displayed if the TPOne monitors a temperature of below 5°C. TPOne will call for heat if this occurs but if the heat source is faulty then risk of frost damage may still occur. The heating system should be checked to confirm it is operating correctly
Low Heat	If set mode temperature is not reached within 2 hours then TPOne will warn of Low Heat. The heating system should be checked to confirm it is operating correctly
Service Due	Where the TPOne Service Interval timer has been set this warning will be shown when the timer has expired. Contact the property owner or landlord to arrange the boiler safety mainantance. *see page 21*
Heat Reduced	Where the TPOne Service Interval timer has been set this warning will show after the timer has expired and will indicate that heating has been reduced for your safety until a boiler service has been completed. Contact the property owner or landlord to arrange the boiler safety mainantance. *see page 21*
High Floor Temperature	Where a floor limit temperature sensor has been fitted if the floor temperature exceeds the set limit this warning will show. If the floor temperature has reduced to a safe level the TPOne will continue to control heating but the reason for the overheat may still exist. The floor heating system should be checked to ensure overheating does not reoccur.

Warnings (continued)

Sensor Fail	If the TPOne in-built temperature sensor is measuring outside it's operational parameters then it may have failed. If this warning cannot be reset then contact your service provider for advice.
External Sensor Fail	If an external temperature sensor has been fitted and the TPOne is measuring outside it's operational parameters then it may indicate a problem with the external sensor or connecting cable. If this warning cannot be reset then contact your service provider for advice.
Floor Sensor Fail	If a floor temperature sensor has been fitted and the TPOne is measuring outside it's operational parameters then it may indicate a problem with the floor sensor or connecting cable. If this warning cannot be reset then contact your service provider for advice.

ENGINEERING
TOMORROW

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clydebank housing association

Section 6 - Sockets and switches

Scottish Government
Riaghaltas na h-Alba
gov.scot

BUILDING cruden

Allia

CAF Bank

WIRING
ACCESSORIES

LISSE

Schneider Electric

GGBL1012

Curves in all the right places...

The Lisse white moulded range of wiring accessories offers the perfect blend of style and performance.

You no longer have to choose between convenience and efficiency, or compromise on appearance to get the most innovative features. Lisse is packed with a vast array of technical features, providing a high level of quality, reliability and value you can count on.

- Ideally suited for new construction and refurbishment projects
- Future-proofed to cater for the latest demands in consumer technology
- Made from durable, high quality urea with antimicrobial properties
- Cleverly designed to ensure that product ordering is simple and efficient, with many time and space saving solutions
- Crafted with your customer in mind, adding bespoke solutions to make a lasting impact

From all angles.

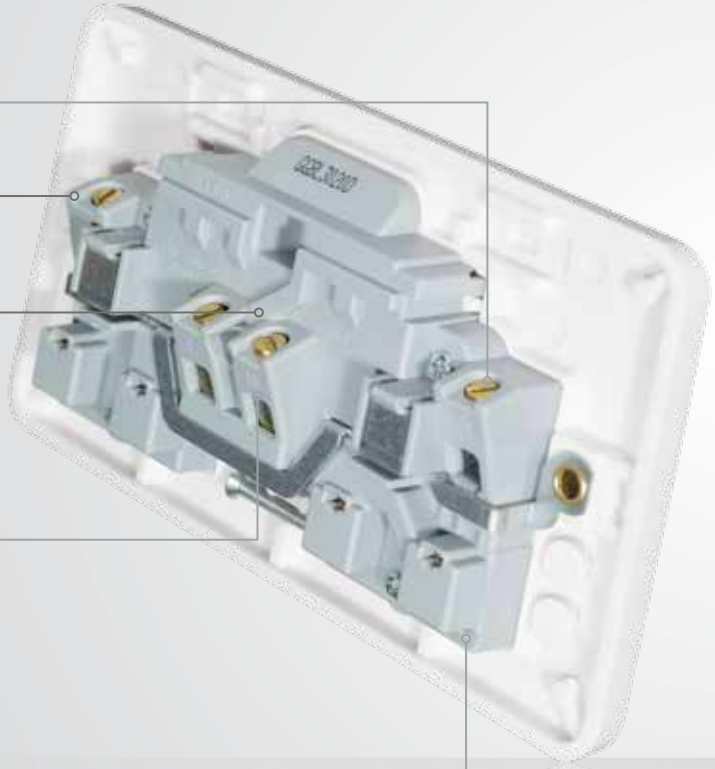
No matter how you look at it - from the front, back, or side - the Lisse range is designed to make your life simpler. Get installation right the first time, every time.

Backed out and captive screw terminals to allow for positive drive and speed of installation

Twin earth terminals on all 2 gang 13A socket outlets, for high integrity earthing

Angled terminals for easier access

Light grey back moulding colour for easier terminal identification



Cable markings on all products with a moulded template to check the wire length

Minimum back projection frees up space in the back box for cabling

One and two gang spacers
available for added installation depth

Gently rounded rockers to
compliment the curved profile

Optional LED status indicator,
which simply & securely clips into
the back of the plate

Two sets of screw cap
covers for a sleek finish

Large plate footprint provides
extra strength and reduces the
need for additional decorating

GGBL3020D

7mm raised edge profile offers easy
installation for new builds and retrofits

Tailored to meet your needs...

Lisse has been cleverly designed to ensure that product ordering is simple and efficient, with many time and space saving solutions.

With indication or without? With flex outlet or without? Lisse simplifies the decision with standard, core part references and optional adaptations to suit individual installation requirements. What does this mean for you? Faster ordering, fewer part references, and greater flexibility for future upgrades.

GGBL2010,
GGBLSIND

A tidy solution

Optional LED status indicators and flex outlet frames offer the flexibility you need on site and in the warehouse, without having to hold stock variations of the same product. This also ensures you always have the right product, exactly when you need it.

GGBL5010,
GGBLSPC1FO

More space

Off to your next remodel or refurbishment? Avoid the time and cost needed to replace old back boxes for your new accessories. One and two gang spacers provide the perfect solution when extra installation depth is needed.

GGBL30202USBS, GGBLSHF2GS

Wiring accessories become home accessories

The Lisse range includes several exclusive accessories that help to make your customer's lives simpler, convenient, and fun! Recharging mobile phones or tablets is made easy with the 2 gang shelf frame for Lisse sockets. Plus, they will never loose their keys or shopping lists again with Lisse hook or clip frames.

Simply beautiful

The smooth, modern lines of Lisse offer an understated elegance to compliment today's interiors. Not only that - every attention to detail has been paid to the design and construction, ensuring the range is built to make your installation faster, smoother, simpler...

Illuminating...

Enjoy the subtle but elegant illumination provided by Lisse LED indicators. This optional feature shines through the front plate moulding when additional location or power indication is needed. With its LED technology, you also can feel confident in the performance and longevity.

Plug and play

Installation couldn't be easier or more flexible, as the LED indicators are simply clipped in to place via a purpose-built holding space on the back of the front plate and connected using the dedicated terminals.

GGBL2011

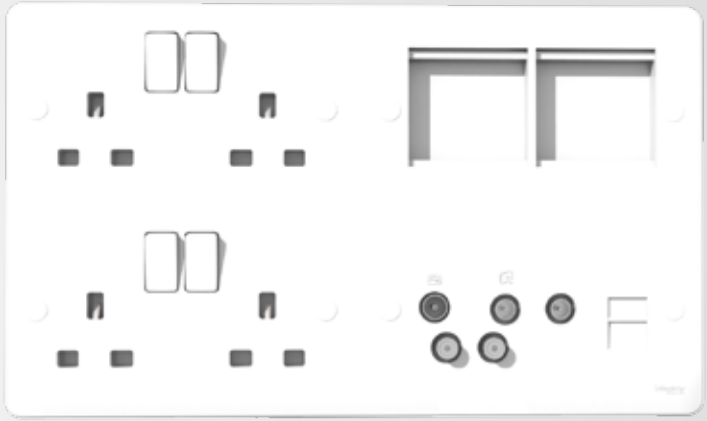
Extended range

for bespoke requirements

With such a comprehensive product range, Lisse white moulded allows you to find everything that you need to meet the demands of today's modern installations.

GGBL6012CS

GGBL6012LS



GGBL3020D4MP

Dimming capability.

Enjoy a comprehensive selection of dimming solutions with Lisse white moulded, from mains & low voltage through to LED compatibility, as well as the addition of 1-10V control.

Stay connected.

Help your customers stay connected to their TVs, game consoles, computers and sound systems with Lisse.

Choose from a full range of multimedia connectors, USB chargers and combination plates to meet all of your customers' needs.

For every application.

From commercial offices and hotels to residential spaces, Lisse white moulded offers solutions ideally suited to the unique requirements of each installation.

GGBL3050NS

GGBL1022W

GGBL2010LS

Non-standard plug and socket

In communal spaces where energy access needs to be controlled, the Lisse non-standard socket and accompanying plug offer the ideal solution

Improving ease of use

Wide rocker switches and socket outlets with outboard rockers from the Lisse portfolio offer a practical alternative to improve the ease of operation

Added safety and security

Provide peace of mind to a commercial installation or communal space with a lockable switch or socket, as unauthorised energy usage can be restricted

GGBL04G

Grid solutions

In keeping with the sleek, rounded profile throughout the range, Lisse grid plates offer added functionality and flexibility to your installations. Slot headed screws, designed to suit the tools you have with you on site, make installation easier. Additionally, the accompanying mounting frames are provided with each grid front plate for simplified ordering

A full clinical assessment

Schneider Electric have commissioned an external test to assess the resistance of Lisse white moulded wiring devices against:

- MRSA
- E-Coli
- Salmonella
- Klebsiella Penumoniae

GGBL3050

The results:

MRSA	**99.9% kill rate**
E-Coli	**97.5% kill rate**
Salmonella	**97.0% kill rate**
Klebsiella Pneumoniae	**99.4% kill rate**

Combined with the Schneider Electric cable management range, to provide you with a complete solution

Lisse wiring devices can be used seamlessly with the Ultimate or Cableline anti-microbial 3 compartment trunking system.

Clear, useful packaging.

Lisse packaging is offered in both point-of-sale and wholesale options, depending on your needs. Each option offers clear product information and descriptions, helping to minimise errors when preparing orders.

Point-of-sale / display packaging

- Clear descriptions, highlights and pictograms to inform and aid purchasing decisions
- Product reference easily identifiable
- Unobstructed view of front and back of product
- Simply add **S** suffix to wholesale reference

Wholesale packaging

- Optimal dimensions for standard shelves to optimize use of shelf space
- Securely packaged to prevent movement inside the box
- Large, visible labels
- Easy to read in environments with low light levels

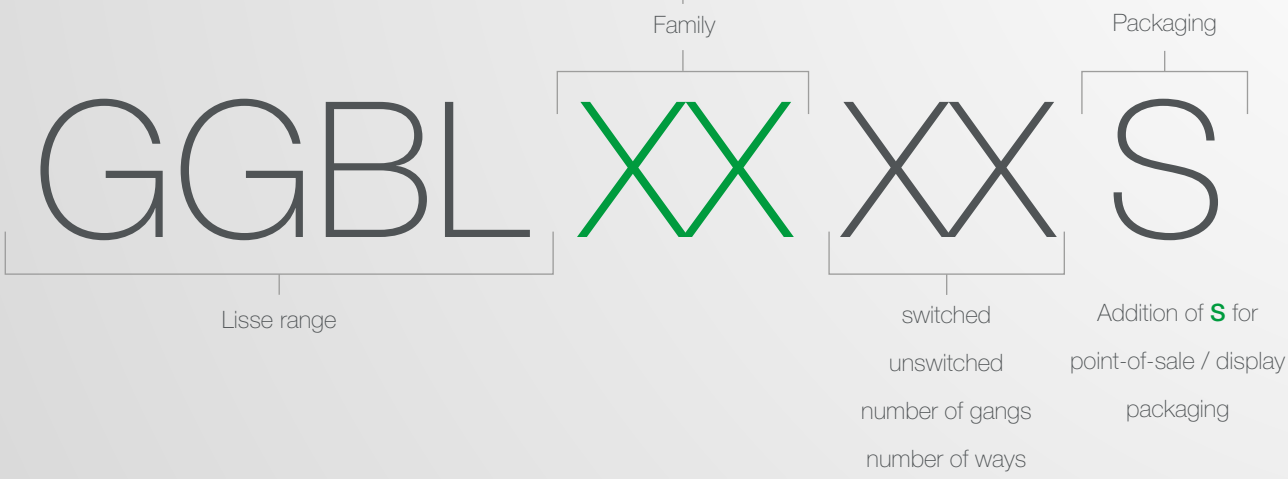
Easy to understand part codes.

Simple ideas...

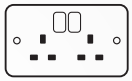
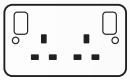
Provide your customers the style and performance that they are looking for, whilst enjoying easier ordering with the Lisse range. Part codes follow a standard, straight forward methodology to save you time.

...with a simple part code structure

10	Plate switches
20	20AX switches & flex outlets
30	Sockets
40	50A switches & 45A control units
50	Fused connection units
60	Dimmers
70	Shaver sockets & data communication
80	Blank plates



Product selector

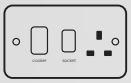
Product family	Description	Part codes	
		Wholesale packaged	Point-of-sale / display packaged
Unswitched sockets	13A 1 gang	GGBL3050	GGBL3050S
	13A 2 gang	GGBL3060	GGBL3060S
1 gang switched sockets	13A 1 gang single-pole	GGBL3010	GGBL3010S
	13A 1 gang double-pole	GGBL3010D	GGBL3010DS
	13A 1 gang single-pole non-standard		GGBL3050NS
	13A non-standard plug top		GGBLTOP13ANS
Sockets with inboard rockers 	13A 2 gang single-pole	GGBL3020	GGBL3020S
	13A 2 gang double-pole	GGBL3020D	GGBL3020DS
Sockets with outboard rockers 	13A 2 gang double-pole	GGBL3030	GGBL3030S
	13A 1 to 2 gang convertor	GGBL30212DS	
Lockable socket	13A 1 gang double-pole	GGBL3060L	
Round pin sockets	2A 1 gang unswitched	GGBL3070	
	5A 1 gang unswitched	GGBL3080	
	5A 1 gang switched	GGBL3081	
	15A 1 gang switched	GGBL3090	GGBL3090S
Wide rocker switches	16A 1 gang unswitched	GGBL1012W	GGBL1012WS
	10AX 1 gang intermediate	GGBL1014W	GGBL1022WS
	10AX 3 gang 2 way	GGBL1032W	GGBL1032WS
Plate switches	10AX 1 gang 1 way	GGBL1011	GGBL1011S
	10AX 1 gang 2 way	GGBL1012	GGBL1012S
	10A 1 gang 1 way retractive	GGBL1012R	GGBL1012RS
	10A 1 gang 1 way retractive printed 'press'	GGBL1012RP	GGBL1012RPS
	10A 1 gang 1 way retractive printed with bell symbol	GGBL1012RB	GGBL1012RBS
	10A 3 pole fan isolator	GGBL1013	GGBL1013S
	10AX 1 gang 2 way & 10A 3 pole fan isolator	GGBL10131L	

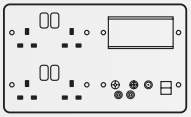
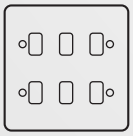
Product family	Description	Part codes	
		Wholesale packaged	Point-of-sale / display packaged
Plate switches	10A 3 pole fan isolator 10AX 1 gang 2 way	GGBL10131R	
	10AX 1 gang intermediate	GGBL1014	GGBL1014S
	10AX 2 gang 2 way	GGBL1022	GGBL1022S
	10AX 3 gang 2 way	GGBL1032	GGBL1032S
	10AX 4 gang 2 way	GGBL1042	GGBL1042S
Architrave switches	10AX 1 gang 2 way	GGBL1012A	GGBL1012AS
	10AX 1 gang 2 way & 16mm pattress		GGBL1012116AS
	10A 1 gang 2 way retractive printed 'press'	GGBL1012ARP	
	10AX 2 gang 2 way	GGBL1022A	
Dimmers	250W 1 gang 1 way		GGBL6011CS
	400W/VA 1 gang 2 way		GGBL6012CS
	1-10V 6A 1 gang 2 way		GGBL6012V4S
	100W/VA 1 gang 2 way LED		GGBL6012LS
	250W/VA 2 gang 1 way		GGBL6022CS
	1-10V 6A 2 gang 2 way		GGBL6022V4S
	100W/VA 2 gang 2 way LED		GGBL6022LS
	250W/VA 3 gang 2 way		GGBL6032CS
	1-10V 6A 3 gang 2 way		GGBL6032V4S
	250W/VA 4 gang 2 way		GGBL6042CS
	1-10V 6A 4 gang 2 way		GGBL6042V4S
Double-pole control switches	20AX 1 gang	GGBL2010	
	20AX 1 gang lockable		GGBL2010LS
	20AX 1 gang with LED indicator	GGBL2011	GGBL2011S
	20AX 1 gang with LED indicator & flex outlet frame engraved 'water heater'	GGBL2014WH	
	32A 1 gang with LED indicator	GGBL4030	
	50A 1 gang with LED indicator	GGBL4011	GGBL4011S
	50A 2 gang with LED indicator	GGBL4021	GGBL4021S
	20AX DP Sink Bath Switch with Neon **Note:** Designed for the Irish market	GGBL2022IMR	

Note: Engraved and printed products are available.

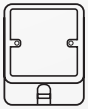
Optional LED indication can be added to the product

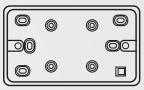
Product selector

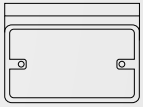
Product family	Description	Part codes	
		Wholesale packaged	Point-of-sale / display packaged
Fused connection units & flex outlet plate	25A side entry flex outlet plate	GGBL2033	GGBL2033S
	13A unswtiched	GGBL5000	GGBL5000S
	13A double-pole switched	GGBL5010	
	13A double-pole switched with LED indicator	GGBL5011	
	13A double-pole switched		GGBL5013S
Cooker control units 	45A double-pole cooker control unit with switched 13A socket & LED indicator	GGBL4001	GGBL4001S
	50A cooker connection unit	GGBL4050	GGBL4050S
Shaver socket	115/230V dual voltage	GGBL7090	GGBL7090S
Telephone & data outlets	1 gang 2 x USB charger outlets	GGBL70042	GGBL70042S
	1 gang 1 x RJ12 outlet	GGBL7051	GGBL7051S
	1 gang 1 x BT master	GGBL7061	GGBL7061S
	1 gang 1 x BT secondary	GGBL7062	GGBL7062S
	1 gang 1 x RJ45 Cat 5e UTP	GGBL7071C5	GGBL7071C5S
	1 gang 1 x RJ45 Cat 6 UTP	GGBL7071C6	GGBL7071C6S
	1 gang 2 x RJ45 Cat 5e UTP	GGBL7072C5	GGBL7072C5S
	1 gang 2 x RJ45 Cat 6 UTP	GGBL7072C6	GGBL7072C6S
TV outlets	TV-R co-axial	GGBL7010	GGBL7010S
	Diplex TV-R/DAB	GGBL7020	GGBL7020S
	Satellite "F" Type	GGBL7030	GGBL7030S
	Quadplex TV-R/DAB & 2 x SAT	GGBL7074	GGBL7074S
	Quadplex RJ45 Cat 5 & TV return	GGBL707445510	GGBL707445510S
	Quadplex RJ45 Cat 5 & RJ12	GGBL707445511	GGBL707445511S
	Quadplex BT secondary & TV return	GGBL70746110	GGBL70746110S
	Triplex TV-R/DAB & SAT	GGBL7081	GGBL7081S
	Triplex TV-R/DAB & RJ45 Cat 6 UTP	GGBL7081456	GGBL7081456S

Product family	Description	Part codes	
		Wholesale packaged	Point-of-sale / display packaged
Combination plate	2 x 2 gang 13A socket, 2 x 2 module euro outlets, Quadplex, BT secondary & TV return	GGBL3020D4MP	
Euro plates	1 gang 1 module	GGBL8050	
	1 gang 2 module	GGBL8060	
	2 gang 4 module	GGBL8080	
Euro modules - 25 x 50mm 	2 x phono socket	GUE7000W	
	2 x loudspeaker socket	GUE7001W	
	Single IEC coax (female)	GUE7011W	
	Single IEC coax (male)	GUE7012W	
	Single F type SAT	GUE7030W	
	RJ11 modem	GUE7051W	
	BT master	GUE7061W	
	BT slave	GUE7062W	
	RJ45 CAT5e (not screened)	GUE7071W	
	RJ45 CAT6 (not screened)	GUE7072W	
	Single 1A USB charger	GUE7073W	
	VGA	GUE7075W	
	Blank module	GUE8010W	
Euro modules - 50 x 50mm	TV/Radio diplex	GUE7010W	
	HDMI	GUE7020W	
	TV/SAT diplex	GUE7040W	
	Twin 2 x 1A USB charger	GUE7074W	
	TV/FM/SAT triplex	GUE7081W	
	TV/FM/SAT1/SAT2 quadplex	GUE7082W	
Grid plates 	1 gang 88 x 88mm	GGBL01G	
	2 gang 88 x 88mm	GGBL02G	
	3 gang 88 x 148mm	GGBL03G	
	4 gang 88 x 148mm	GGBL04G	
	6 gang 156 x 156mm	GGBL06G	
	8 gang 156 x 156mm	GGBL08G	

Note: Engraved and printed products are available. Optional LED indication can be added to the product

Product family	Description	Part codes	
		Wholesale packaged	Point-of-sale / display packaged
Switch grid modules	10AX 2 way	GGBL102W	
	10A 2 way retractive	GGBL102RW	
	10A 2 way retractive & centre off	GGBL202OCW	
	10AX intermediate	GGBL10IW	
	20AX 1 way	GGBL201W	
	20AX 2 way	GGBL202W	
	20AX 2 way center off & on	GGBL2020W	
	20AX double-pole	GGBL20DPW	
	20AX double-pole with neon	GGBLG2011	
Key switch grid modules	20AX 2 way	GGBL202KEPWPW	
	20AX double-pole	GGBL20DPKWPW	
Supplementary grid modules	13A fuse carrier	GGBL13FCUWPW	
	USB charger	GGBLE7004	GGBLE7004S
	Blank	GGBLBW	
Indicator grid modules	Green neon	GGBLINDWG	
	Orange neon	GGBLINDWO	
	Red neon	GGBLINDWR	
Accessories & blank plates 	LED indicator	GGBLSIND	
	1 gang illumination surround ** Product available from September 2015.	GGBLILL	GGBLILLS
	1 gang spacer	GGBLSPC1	GGBLSPC1S
	2 gang spacer	GGBLSPC2	GGBLSPC2S
	1 gang flex outlet frame	GGBLSPC1FO	
	1G Plate Switch Surround with Hook Wh		GGBLH1GS
	1G Plate Switch Surround with Clip Wh		GGBLC1GS
	2 gang surround with shelf		GGBLSHF2GS
	1 gang blank plate	GGBL8010	GGBL8010S
	2 gang blank plate	GGBL8020	GGBL8020S

Product family	Description	Part codes	
		Wholesale packaged	Point-of-sale / display packaged
Surface pattresses 	1 gang 16mm	GGBL9116	GGBL9116S
	1 gang 16mm architrave	GGBL9116A	
	1 gang 25mm	GGBL9125	GGBL9125S
	1 gang 40mm	GGBL9147	GGBL9147S
	2 gang 16mm architrave	GGBL9216A	
	2 gang 25mm	GGBL9225	GGBL9225S
	2 gang 25mm dual	GGBL9D25	GGBL9D25S
	2 gang 40mm	GGBL9247	GGBL9247S

Product family	Description	Part code - display packaged
	2 gang SP switched socket outlet with 2 x USB chargers Can be installed in a 25mm mounting box without spacer	GGBL30202USBS NEW
	2 gang surround with shelf	GGBLSHF2GS

Note: Engraved and printed products are available.

Optional LED indication can be added to the product

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by Schneider Electric™

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As standards, specifications and designs change from time to time, please ask for confirmation of the information given in this publication.

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Section 7 - Distribution of power

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Consumer Unit
Design 10 Split Load 100A (I_{nA}) (Round Knockouts)

For the distribution of power in a residential application, conforming to BS EN 61439-3

The range of consumer units with a 100A rated current (InA) have been designed for installations where the upstream overcurrent protection device (OCPD) is rated at 100A or below.

Design 10 consumer unit is an entry level board designed for all applications and allows compliance with BS 7671:2018;

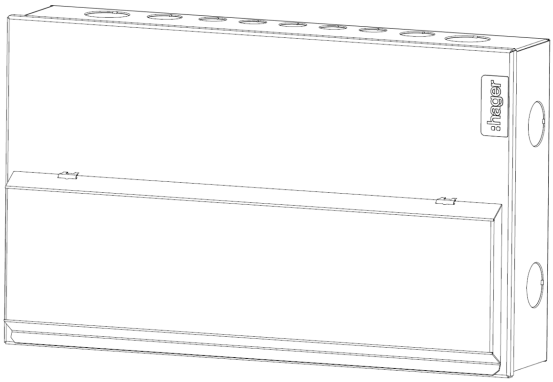
Regulation 421.1.201 within domestics (household) applications consumer units and similar assemblies shall comply with BS EN 61439-3 and shall have their enclosure manufactured from a non-combustible material.

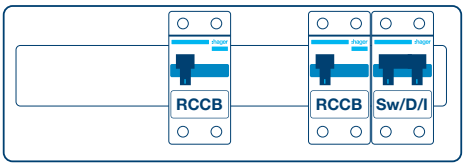
Regulation 411.3.3 additional protection by means of a 30mA RCD.
Regulation 314.1&2 segregation of circuits to avoid danger and minimise inconvenience in the event of a fault.

Regulation 522.6.202 protection of wiring concealed in walls or partitions.
Regulation 531.3.3 Selection of appropriate RCD. Type A RCCBs can detect and respond to both AC and pulsating DC components.

Regulation 536.4.3.2 & 536.4.202 overload protection of switches and RCCBs. For installations where the upstream overcurrent protection is less than or equal to 100 A

A split load board allows circuits to be arranged in a configuration to minimise inconvenience to the householder in case of an earth leakage fault.





VML955RK

Description	Size	Cat ref.
10 Way Split Load 5+5 100A Main Switch 2*100A 30mA Type A RCCB	Size 5	**VML955RK**
12 Way Split Load 6+6 100A Main Switch 2*100A 30mA Type A RCCB	Size 6	**VML966RK**

Features & Benefits

- Type A RCCBs for general purpose circuits and circuits containing equipment incorporating electronic components.
- Square cable entry points top and bottom for use with cable trunking - - Meter tail cable entry plate (VM04CE) provided
- -- Rigid top wall – Enhances rigidity to prevent distortion when removing knockouts
- -- Rear Knockouts for ease of cable entry – Cable protector plate (VM02CE) available as accessory
- Front cover retained screws – Prevents loss during installation
- Full metal DIN rail – Secure and stable attachment of devices
- Quick release clip on MCB – Allows removal of MCB with busbar still in place
- Optimised cabling space – DIN rail position allows maximum cabling space.
- Top mounted terminal rail for each row makes the wiring of the neutral and earth connections neat and simple.
- Torque settings displayed inside front cover – easily accessible to electrician during installation and maintenance.

Technical Characteristics

Standards	BS EN 61439-3
Classification	Consumer Unit
Rated & Operational Voltage (U_n/U_e)	230V a.c 50 Hz
Rated Insulation Voltage (U_i)	320V a.c. 50Hz
Rated Frequency (fn)	50 Hz
Rated impulse withstand voltage (U_{imp})	4kV
Rated Current of the Assembly (I_{na})	100A
Rated Current of an Outgoing Circuit (In_c)	MCB 6A - 63A (Marked Rated Current on Device)
Rated Conditional Short Circuit of the Assembly (I_{cc})	Annex ZB: 16kA rms at 250V, power factor 0.6 with equipment and arrangements specified in Hager's technical documentation/catalogue
Rated Current of Assembly Circuit (I_{nc})	RCCB 100A (marked rated current on device)
Protection against electric shock	Consumer Unit shall be installed in an electrical system conforming to IEC 60364 / BS 7671
Rated Diversity Factor (RDF) / Values of assumed loading	6 way - 9 way = 0.6 10 way 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.	
Pollution Degree	2
Types of System Earthing for which the assembly is designed	TNC-S and TN-S when installed in an electrical system conforming to BS 7671
Intended locations	Indoor use only
Stationary assembly	
Degree of protection	IP2XC with door open / closed and full compliment of devices / blanks fitted. Note: Where cables are installed through the top wall of the 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	Wall mounted, surface type, enclosed assembly.
Mechanical impact protection	IK05
Type of construction	Fixed parts
Incoming Line/Neutral terminal	50mm²
Incoming Earth Terminal	16mm²
Warranty - Hager undertakes to replace or repair at its discretion products should they become inoperable within the time periods as stated. - 2 Years.	

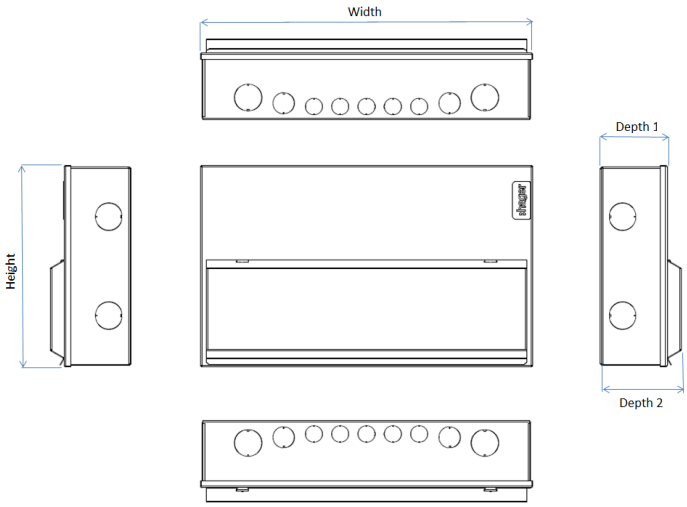
Accessories

Cable clamp	Secures supply cables on entry to main incoming device	**VA10MT**
Top wall cable entry plates	Provide more options for cable entry, when used with 50x50mm trunking IP ratings can be achieved.	**V M03CE**
Blind cable entry plates	A blank plate for drilling which allows the installation of cable glands etc.	**VM04CB, VM03CB**
Grommet strip	For protecting cables against damage when entering board	**VM05GS**
Rear stand off plates	To stand consumer unit off wall allowing surface mounted cables to enter through rear of unit.	**VM01SP**

Design 10 Dimensions (mm)

	Enclosure Size	
	5	6
Height	246	246
Width	370	406
Depth 1	83	83
Depth 2	100	100

	Number of Knockouts	
Top / Bottom Face 20mm Ø	4 (8)	5 (10)
Top / Bottom Face 25mm Ø	2 (4)	2 (4)
Top / Bottom Face 32mm Ø	2 (4)	2 (4)
Side Face 32mm Ø	2 (4)	2 (4)



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Section 8 - Ventilation guide

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Response

CONTINUOUS EXTRACT FAN

Installation and Wiring Instructions

Stock Ref. N°

Response dMEV	404535
Response TP	404876
Response HTP	404877

220-240V~50Hz

Vent-Axia®

PLEASE READ INSTRUCTIONS IN CONJUNCTION WITH ILLUSTRATIONS.
PLEASE SAVE THESE INSTRUCTIONS.

IPX4

CE

Installation and Wiring Instructions for the Response Range of Extractor Fans.

IMPORTANT:
READ THESE INSTRUCTIONS BEFORE COMMENCING THE INSTALLATION

DO NOT install this product in areas where the following may be present or occur:

- Excessive oil or a grease laden atmosphere.
- Corrosive or flammable gases, liquids or vapours.
- Ambient temperatures higher than 40°C or less than –5°C.
- Possible obstructions which would hinder the access or removal of the Fan.

SAFETY AND GUIDANCE NOTES

A. All wiring to be in accordance with the current I.E.E. Regulations, or the appropriate standards of your country and **MUST** be installed by a suitably qualified person.

B. The Fan should be provided with a local isolator switch capable of disconnecting all poles, having a contact separation of at least 3mm.

C. Ensure that the mains supply (Voltage, Frequency, and Phase) complies with the rating label.

D. The Fan should only be used in conjunction with the appropriate Vent-Axia products.

E. The fan should only be used in conjunction with fixed wiring.

F. When the Fan is used to remove air from a room containing a fuel-burning appliance, ensure that the air replacement is adequate for both the fan and the fuel-burning appliance.

G. The Fan should not be used where it is liable to be subject to direct water spray for prolonged periods of time.

H. Where ducted Fans are used to handle moisture-laden air, a condensation trap should be fitted. Horizontal ducts should be arranged to slope slightly downwards away from the Fan.

I. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

J. Young children should be supervised to ensure that they do not play with the appliance.

DESCRIPTION

The Response fan is a continuously running extract fan for kitchens, utility rooms, bathrooms and toilets.

The product incorporates an airflow detection system that detects the installation duct resistance and maintains the correct fan speed to achieve the preset extract flow rate of either 6l/s, 8l/s or 13l/s, minimising energy use and noise (see Section C-Setup for more information).

The incorporated LED display allows the installer to verify the installed flow rate, and also provides feedback for system pressure and days installed (for landlords).

The fan can be wall, panel/ceiling or window mounted.

ACCESSORIES (not supplied)

WALL FITTING KIT

A range of white (stock ref. 254102) or brown (stock ref. 254100) 100mm wall kits are available for installing into most walls using telescopic liners supplied.

WINDOW KIT stock ref. 407927

CEILING KIT stock ref. 407928

150mm COVERSION KIT stock ref. 408680

A. INSTALLATION

PANEL/CEILING MOUNTING

1. Cut a 105mm diameter hole.
2. Remove the front panel by carefully pulling away from the fan.
3. Loosen the two self-retaining screws and remove the inner grille by carefully pulling away from the housing.
4. Mark the screw centres through the holes in the fan back plate. Drill, plug and screw into position. Attach ducting as required for the installation.
5. Wire the fan as described in Section B-Wiring. Adjust any settings as required (see Section C-Setup).
6. After installation, ensure impeller rotates freely.
7. Replace the inner grille and tighten the retaining screws. Replace the front panel.

WALL MOUNTING

1. For wall mounting cut a 117mm diameter hole through the wall and insert the wall sleeve. Slope the sleeve slightly downwards away from the fan. Where necessary cut to length and cement both ends into position flush with the wall faces.
2. Fix exterior grille into position with the louvres positioned downwards.
3. Remove the front panel by carefully pulling away from the fan.
4. Loosen the two self-retaining screws and remove the inner grille by carefully pulling away from the housing.
5. Mark the screw centres through the holes in the fan back plate. Drill, plug and screw into position.
6. Wire the fan as described in Section B-Wiring. Adjust any settings as required (see Section C-Setup).
7. After installation, ensure impeller rotates freely.
8. Replace the inner grille and tighten the retaining screws. Replace the front panel.

WINDOW MOUNTING

1. Refer to window kit instructions supplied with the kit.

B. WIRING.

WARNING: THE FAN AND ANCILLARY CONTROL EQUIPMENT MUST BE ISOLATED FROM THE POWER SUPPLY DURING THE INSTALLATION / OR MAINTENANCE.

IMPORTANT

- The cross - sectional area of supply cord used should be ranged from 1 -1.5mm^2.
- The extraction fan is suitable for connection to 220-240V 50Hz supply.
- The fan is a class ll double insulated product and **MUST NOT** be earthed.

1. Select and follow the appropriate wiring diagram. (Fig. 1, 2 or 3)
2. Check all connections have been made correctly and ensure all terminal connections and supply wires are securely fastened.
3. Ensure the impeller rotates and is free from obstructions.

C. SETUP

WARNING: THE FAN AND ANCILLARY CONTROL EQUIPMENT MUST BE ISOLATED FROM THE POWER SUPPLY DURING THE INSTALLATION / OR MAINTENANCE.

1) Trickle speed selection (6l/s or 8l/s) – (Fig. 5) (dMEV,TP & HTP models)

In normal running mode the fan can extract at either 6l/s (22m^3/h) or 8l/s (29m^3/h) flow rate. The fan will boost to 13l/s (46.8m^3/h) when the LS connection is switched or humidity rises above the set point (see humidity setting below).

- Factory set at **6l/s** (22m^3/h).
- Remove jumper connector (JP1) if **8l/s** (29m^3/h) extract flow rate is required.

2) Airflow detection system – enable/disable (Fig. 5) (dMEV,TP & HTP models)

The airflow detection system will detect the installation duct resistance and also react to external wind conditions to ensure the fan maintains a constant extraction rate. This can cause the fan to ramp up and down and in most applications will not be required. To turn this feature on, complete the following:

- Push dip switch 1 (SW1) into the on position to turn on constant flow mode.
- Push dip switch 1 (SW1) into the off position to turn off constant flow mode. (Factory set)

IMPORTANT – On first power up, the fan will run through its initialisation routine. For the first 15 minutes, the flow rate, pressure and day logger will be displayed. The fan may not be fully functional until this is over. After the first 15 minutes, the fan will calibrate. See Fig.7 for the calibration procedure. Once this is complete the fan will operate normally with the display off.

3) LED Display with prism (Fig. 6) (dMEV,TP & HTP models)

For the first 15 minutes EVERY time the fan is powered off and on (via the isolator), the display will cycle between displaying the actual airflow rate (l/s) being achieved* and system pressure (Pa). They will cycle every 10-20 seconds, where the pressure will flash, and the airflow rate will be on constantly. The day logger feature will only be displayed once, after the first cycle of displaying the flow rate and system pressure.

*Airflow detection system must be enabled to display the calibrated flow rate.

4) Adjustable timer (TP model only)

The TP model incorporates an adjustable overrun timer. This adjusts the time the fan will continue to run on boost after the LS connection has been deactivated. The timer function is factory set at approx 15 minutes but can be adjusted between 1 & 30 minutes. This is also the run time period for the integral pullcord.

- To REDUCE the operating time, use a small screwdriver to turn the adjuster Fig.5. CLOCKWISE. To a minimum setting of 1 minutes.
- To INCREASE the operating time, use a small screwdriver to turn the adjuster Fig.5. ANTI-CLOCKWISE. To a maximum setting of 30 minutes.

5) Fixed timer (HTP model only)

The HTP model incorporates an optional fixed timer – set at 15 minutes. This is the time the fan will continue to run on boost after the LS connection has been deactivated. The integral pullcord timer is fixed at 15 minutes and cannot be disabled.

- To ENABLE the fixed overrun timer, link JP2 as shown in fig. 5.
- To DISABLE the fixed overrun timer, remove the link in fig. 5.

6) Adjustable ambient response humidistat (HTP model only)

The HTP model incorporates an adjustable ambient response humidistat. The fan will increase the extract rate if the humidity rises above the set point – adjustable via the pot shown in fig. 5.

- To LOWER the set-point use a small screwdriver to turn the adjuster Fig.5. CLOCKWISE. This makes the controller MORE sensitive.
- To RAISE the set-point use a small screwdriver to turn the adjuster Fig.5. ANTICLOCKWISE. This makes the controller LESS sensitive.

➔ Note: The ambient response feature will automatically boost the fan to 13l/s if the humidity rises quickly irrespective of the set point and run on for the pre-determined timeout period.

7) Pullcord (TP and HTP models only)

The integral pullcord activates the timer (see 4 and 5 above) and the fan will run at 13l/s for the set time period. If the integral pullcord is pulled for a second time (once activated), the timer will be cancelled and the fan will revert back to the trickle extract rate.

➔ To remove the pullcord, cut the cord and leave the switch in place. There is no need to switch the fan on/off beforehand.

8) **System pressure detection (dMEV, TP & HTP models)**
The fan can detect the system pressure for fault finding. If the fan seems noisy or cannot achieve the desired flow rate, this could be due to a blocked duct or the ducting has not been suitably stretched during installation (if flexible ducting is used). This is displayed during the first 15 minutes EVERY time the fan is powered off and on (via the isolator). The number is displayed in Pascals (Pa) and the higher the number, the more torturous the system (and air path) – i.e. harder for the fan to move the air through the ducting. As a consequence the fan has to use more energy and it will increase the fans noise level.

The fan will maintain the correct airflow rate up to a maximum of 30Pa system pressure. The system pressure will be different for all speeds, but highest on the 13l/s setting.

9) **Fan silent running boost mode:** This feature delays the boost operation for a maximum of 20 minutes to reduce noise and cold drafts while bathing. After LS is disconnected, the fan will look at the amount of time since the LS was activated and then run the fan on boost for that same period or to a maximum of 20 minutes, whichever is shorter.
    a. **Dip switch 2 in the off position – Traditional mode (factory set) (fig. 5):**
        i. Standard running - with LS off, pullcord off. Fan continues to run on the set trickle speed - 6 or 8l/s.
        ii. When the integral pullcord is activated **(TP & HTP model only)**, the fan will run at 13l/s (boost) for a timed period**.(Timer is adjustable on TP model, but fixed to 15 minutes on the HTP model).**
        iii. When the LS is connected, the fan will run at 13l/s until deactivated (plus overrun timed period where applicable).
    b. **Dip switch 2 in the on position:**
        i. Standard running – with the LS off, pullcord off. Fan continues to run on the set trickle speed - 6 or 8l/s.
        ii. When the integral pullcord is activated **(TP & HTP model only)**, the fan will boost as per **"Traditional Mode"** above.
        iii. When the LS is activated, the fan will remain in trickle mode until the LS is disconnected for a maximum of 20 minutes.
        iv. After this 20 minute period or when the LS is disconnected (whichever happens first), the fan will change to 13l/s (boost mode) and continue to run on boost for the same period as between the LS activation and deactivation, up to a maximum of 20 minutes.
        v. However, if the LS is deactivated within 3 minutes of activation, then the fan continues in trickle mode and does not boost.

10) Calibration

The airflow sensor is calibrated at the factory using UKAS accredited equipment. Details of the equipment and certification can be found on the inside of the fan.

D. SERVICING AND MAINTENANCE.

WARNING: THE FAN AND ANCILLARY CONTROL EQUIPMENT MUST BE ISOLATED FROM THE POWER SUPPLY DURING MAINTENANCE.

1. At intervals appropriate to the installation, the fan should be inspected and cleaned to ensure there is no build up of dirt or other deposits.
2. Carefully pull the front panel off the inner grille. (fig. 4)
3. Wipe the inlets and front face with a damp cloth until clean. **Be careful not to push dirt into the airflow sensor.**

The fan has sealed for life bearings, which do not require lubrication.

E. TROUBLESHOOTING

1. **Display shows 999 during calibration**.
    a. Cause:
        i. The fan failed to calibrate due to excessive system pressure
    b. Solution:
        i. Check that the ducting is not blocked and where flexible ducting is used that it is stretched as much as possible. Switch the power off and on again to retry calibration.

2. **Fan continuously speeds up and down:**
    a. Cause:
        i. This usually means the fan cannot stabilise at the desired airflow rate.
        ii. This could be due to the ducting being blocked, or being very windy.
    b. Solution:
        i. If this persists after the ducting has been checked or the property is very exposed to high winds, it is recommended to turn the airflow detection system off. (Section C2)

3. **The fan continuously runs in boost (HTP model only):**
    a. Cause:
        i. The room is damp or recently redecorated.
        ii. The humidity set point is set too low.
    b. Solution:
        i. If the room is damp or has recently been decorated, it could take up to 2 weeks for the humidity levels to stabilise. Please leave the fan to dry out the room and after this period the fan should run normally.
        ii. The humidity set point could be set too low. Adjust the humidity set point to a higher setting. (Section C6)

4. **The fan does not turn to boost when the humidity is high:**
    a. Cause:
        i. The humidity set point is set too high.
    b. Solution:
        i. Adjust the humidity set point to a lower setting. (Section C6)

5. **Water is dripping out of the fan when installed in a ceiling:**
    a. Cause:
        i. This is caused by condensation forming on the inside of the ducting and dripping out of the fan inlet.
    b. Solution:
        i. This is normal and the fan is designed to handle condensation build up. However a condensation trap connected immediately after the fan will help to prevent water dripping into the room.

Siting the fan.

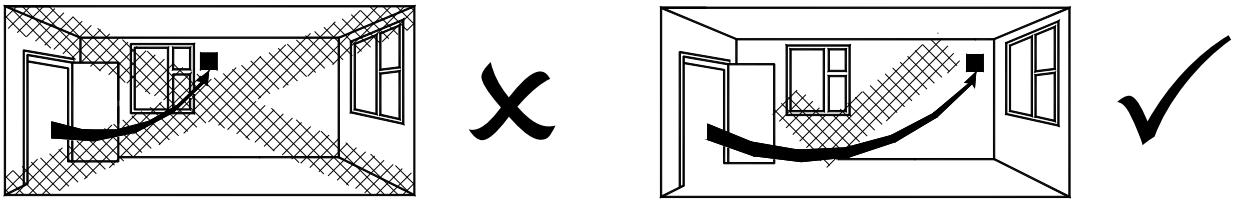


Fig.1 Continuous trickle (6l/s or 8l/s) with no boost facility. (The fan is internally fused)

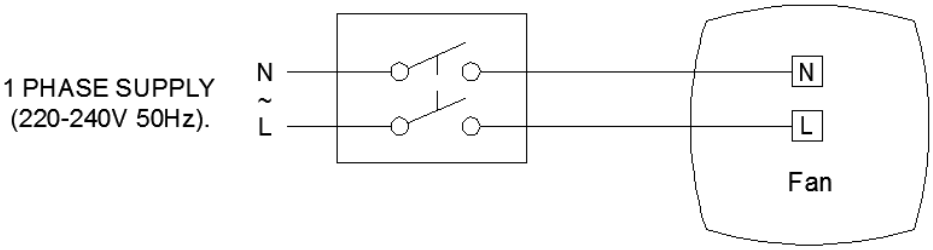


Fig.2 Continuous boost (13l/s) with no trickle facility. (The fan is internally fused)

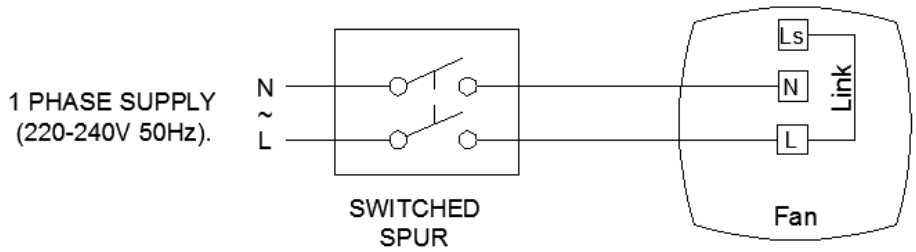


Fig.3 Continuous trickle with boost facility. (The fan is internally fused)

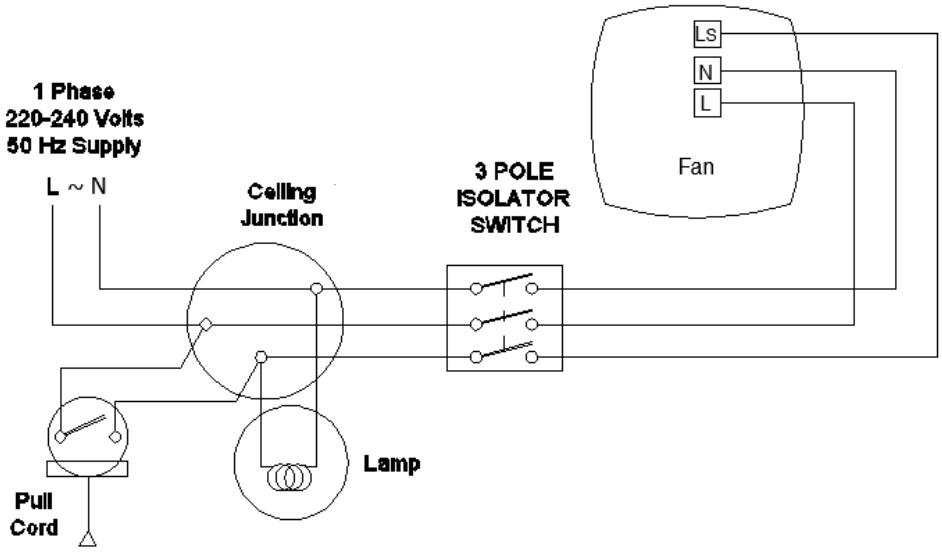
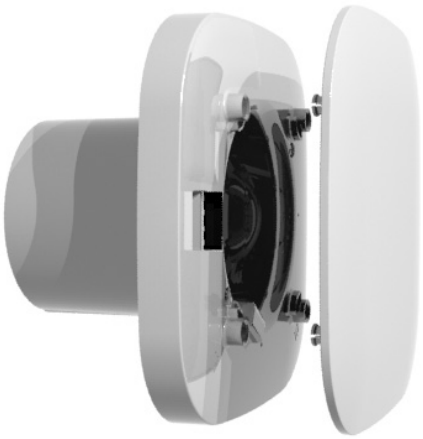
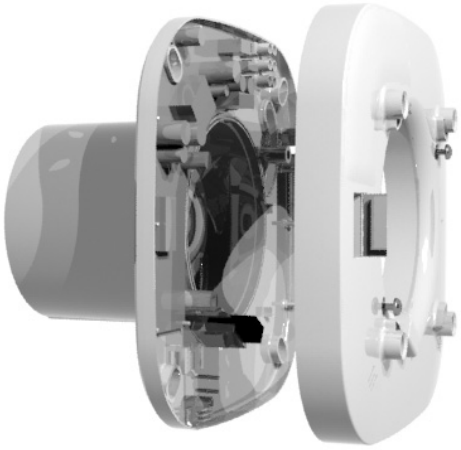


Fig.4. Removing the grille for wiring and setting the controls

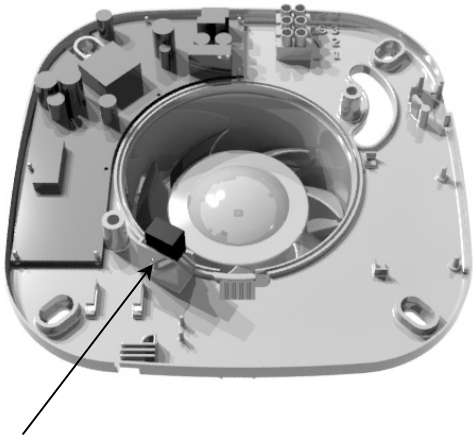


Pull front panel as shown.

Loosen screws – DO NOT REMOVE FROM GRILLE (the screws are self-retaining)



Pull inner grille away from housing as shown.



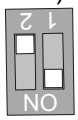
When replacing grille, ensure the flow sensor is aligned with the corresponding slot in the grille.

Fig.5. Controls

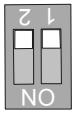
Note:- Before changing any of the dipswitch positions the fan must be isolated from the power supply.

Trickle speed (JP1) (All models)
8l/s = Remove Jumper Connector
6l/s = Replace Jumper Connector (factory set)
(For **13l/s**, permanently link terminal connections L to LS)

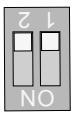
Airflow detection system (All models)
Auto sensing mode = Dip switch 1 (SW1) into the on position to turn on airflow detection system.



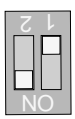
Manual mode = Dip switch 1 (SW1) into the off position to turn off airflow detection system (factory set)



Silent running boost mode **(TP & HTP only)**
Off = Dip switch 2 (SW1) in the off position Traditional mode (factory set)



On = Dip switch 2 (SW1) in the on position This feature will delay the boost operation for a maximum of 20 minutes.
(see C.SETUP section Item 9)



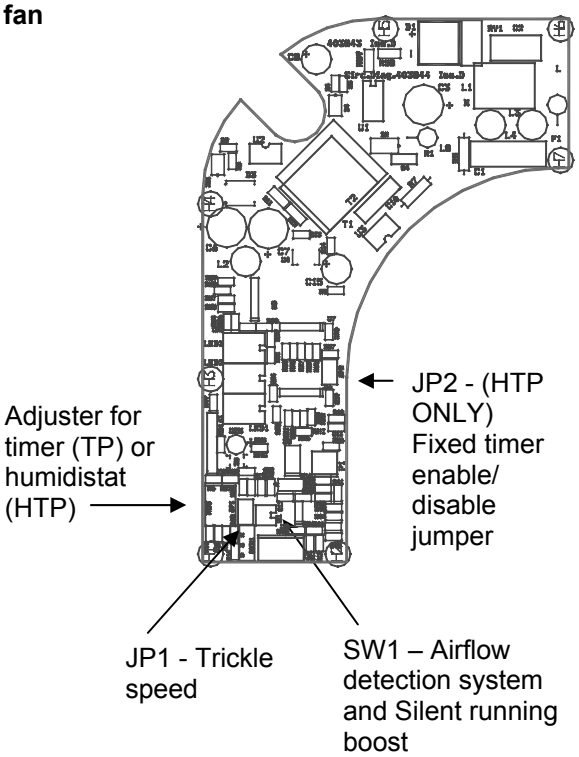
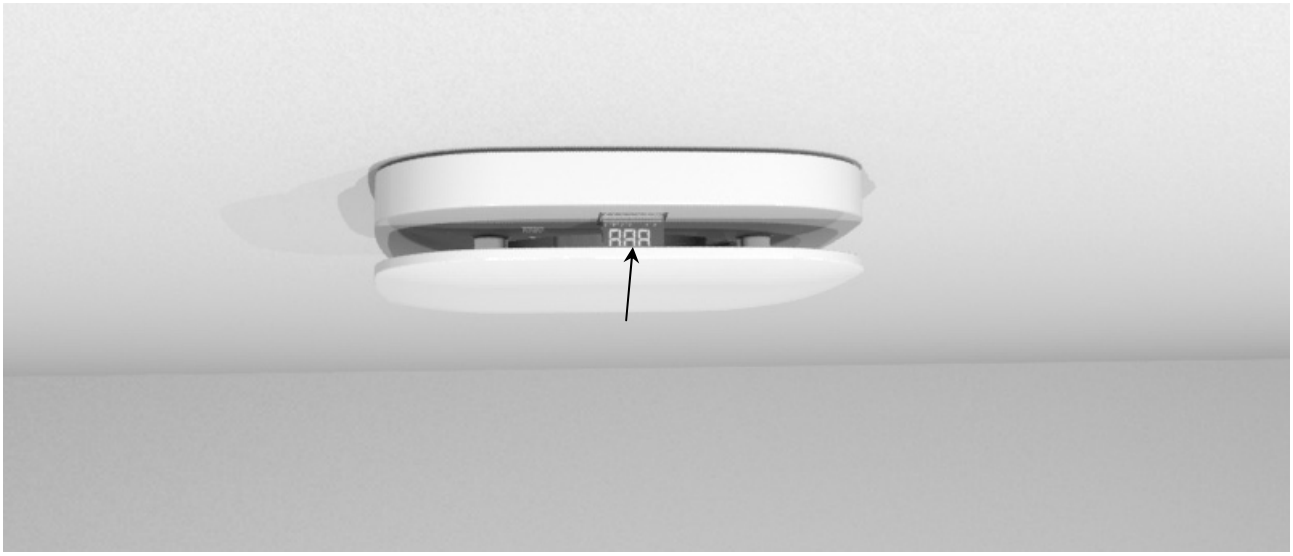


Fig.6. Display and prism



The display can only be seen from the side. This is to allow the installer to view the display with the cover attached as this can affect the airflow through the sensor.

Every 10-20 seconds the display will switch between displaying airflow rate and system pressure. The system pressure will flash.

Airflow will be displayed like this: **13.2** (13.2l/s flow rate)
Pressure will be displayed like this: **17** (flashing – 17Pa system pressure)

Fig.7 Calibration Process

After 15 minutes of run time, from initial start up the fan will enter the calibration process. This process will take a few minutes during which time the fan will speed up and down a number of times. This allows the flow sensor to calibrate the fan for the installation.

Important: The fan will fail to calibrate unless it is installed in a duct or window kit. Do NOT attempt to calibrate before the unit is installed.

To bypass the 15 minute wait for calibration to start, pull the pull cord for at least 6 seconds then release it.

is displayed when calibrating 13l/s

is displayed when calibrating 8l/s

is displayed when calibrating 6l/s

is displayed on calibration completion

is displayed If calibration fails, power cycle the fan in order to retry calibration.

To reset calibration put dip switch 1 (SW1) into the off position, turn the fan on and allow it to run for 30 seconds. Turn the fan off and place dip switch 1 (SW1) to the on position. When the fan is switched back on it will run the start-up procedure and calibrate itself after 15 minutes of running.

The Vent-Axia Guarantee

Applicable only to products installed and used in the United Kingdom. For details of guarantee outside the United Kingdom contact your local supplier.

Vent-Axia guarantees its products for two years from date of purchase against faulty material or workmanship. In the event of any part being found to be defective, the product will be repaired, or at the Company's option replaced, without charge, provided that the product:-

- Has been installed and used in accordance with the instructions given with each unit.
- Has not been connected to an unsuitable electricity supply. (The correct electricity supply voltage is shown on the product rating label attached to the unit).
- Has not been subjected to misuse, neglect or damage.
- Has not been modified or repaired by any person not authorised by the company.

IF CLAIMING UNDER TERMS OF GUARANTEE

Please return the complete product, carriage paid to your original supplier or nearest Vent-Axia Centre, by post or personal visit. Please ensure that it is adequately packed and accompanied by a letter clearly marked "Guarantee Claim" stating the nature of the fault and providing evidence of date and source of purchase.

The guarantee is offered to you as an extra benefit, and does not affect your legal rights

PRODUCT FICHE

For Residential Ventilation Units (Complying Commission Delegated Regulation (EU) No 1254/2014)

Name:	Vent-Axia	Vent-Axia	Vent-Axia
Model ID (Stock Ref.) :	Lo-Carbon Response dMEV - 404535	Lo-Carbon Response TP - 404876	Lo-Carbon Response HTP - 404877
SEC Class	C	C	C
SEC Value ('Average')	26.23	26.23	26.23
SEC Value ('Warm')	11.86	11.86	11.86
SEC Value ('Cold')	51.31	51.31	51.31
Label Required? (Yes/No=Out of scope)	No	No	No
Declared as: RVU or NRVU/UVU or BVU	RVU-UVU	RVU-UVU	RVU-UVU
Speed Drive	Multi-Speed	Multi-Speed	Multi-Speed
Type HRS (Recuperative, Regenerative, None)	None	None	None
Thermal Eff: [(%), NA(if none)]	N/A	N/A	N/A
Max. Flow Rate (m3/h)	46.80	46.80	46.80
Max. Power Input (W): (@Max.Flow Rate)	1.70	1.70	1.70
LWA: Sound Power Level (dB)	50.02	50.02	50.02
Ref. Flow Rate (m3/s)	0.01	0.01	0.01
Ref. Pressure Diff. (Pa)	N/A	N/A	N/A
SPI [W/(m3/h)]	0.05	0.05	0.05
Control Factor & Control Typology: (CTRL/ Typology)			
Control Factor; CTRL	0.65	0.65	0.65
Control Typology	Local Demand Control	Local Demand Control	Local Demand Control
Declared: -Max Internal & External Leakage Rates(%) for BVUs or carry over (for regenerative heat exchangers only), -&Ext. Leakage Rates (%) for Ducted UVUs;	N/A	N/A	N/A
Mixing Rate of Non-Ducted BVUs not intended to be equipped with one duct connection on either supply or extract air side;	N/A	N/A	N/A
Position and description of visual filter warning for RVUs intended for use with filters, including text pointing out the importance of regular filter changes for performance and energy efficiency of the unit	N/A	N/A	N/A
For UVUs (Instructions Install Regulated Supply/Extract Grilles Façade)	In F&W	In F&W	In F&W
Internet Address (for Disassembly Instructions)	www.vent-axia.com	www.vent-axia.com	www.vent-axia.com
Sensitivity p. Variation@+20/-20 Pa: (for Non-Ducted Vus)	N/A	N/A	N/A
Air Tightness-ID/OD-(m3/h) (for Non-Ducted Vus)	N/A	N/A	N/A
Annual Electricity Consumption: AEC (kWh/a)	0.37	0.37	0.37
Annual Heating Saved: AHS (kWh/a)			
AHS: Average	26.23	26.23	26.23
AHS: Warm	11.86	11.86	11.86
AHS: Cold	51.31	51.31	51.31

Vent-Axia®

Head Office: Fleming Way, Crawley, West Sussex, RH10 9YX.

UK NATIONAL CALL CENTRE, Newton Road, Crawley, West Sussex, RH10 9JA
SALES ENQUIRIES: Tel: 0344 8560590 Fax: 01293 565169
TECHNICAL SUPPORT: Tel: 0344 8560594 Fax: 01293 539209

For details of the warranty and returns procedure please refer to www.vent-axia.com or write to Vent-Axia Ltd, Fleming Way, Crawley, RH10 9YX

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clydebank housing association

Section 9 - Your handset user guide

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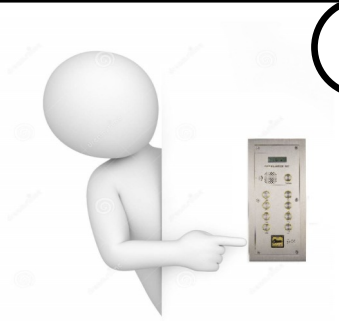
YOUR ENTROVIEW VIDEO HANDSET USER GUIDE

1



THE VISITOR PRESSES THE BUTTON FOR YOUR FLAT NUMBER OR DIALS YOUR NUMBER ON THE MAIN ENTRANCE PANEL.

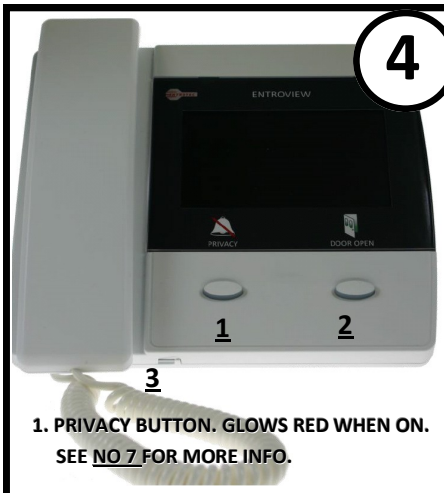
2

THE VIDEO HANDSET WILL RING AND THE VIDEO MONITOR WILL DISPLAY AN IMAGE OF THE CALLER. IF THE CALL IS NOT ANSWERED THE SYSTEM WILL RESET TO ALLOW OTHER CALLS.

3

PICK UP YOUR HANDSET IF YOU WISH TO SPEAK.

4



1. PRIVACY BUTTON. GLOWS RED WHEN ON. SEE NO 7 FOR MORE INFO.

2. DOOR OPEN BUTTON. OPENS MAIN ENTRANCE DOOR AND ALLOWS THE CALLER TO ENTER. GLOWS GREEN WHEN DOOR IS OPEN. WAIT 10 SECS BEFORE PRESSING "DOOR OPEN" AFTER LIFTING HANDSET.

3. YOU CAN ADJUST THE CALL TONE VOLUME BY SLIDING THIS SWITCH. PUSH THE SWITCH ONCE = LOW, TWICE = MEDIUM, THREE TIMES = HIGH.

5

IF YOU PRESS THE "DOOR OPEN" BUTTON THE MAIN ENTRANCE PANEL WILL BEEP. YOUR VISITOR CAN NOW ENTER.

6

PLEASE ASK YOUR VISITOR TO ENSURE THE DOOR CLOSES BEHIND THEM. REPLACE YOUR HANDSET NOW.

7

IF YOU DO NOT WANT TO BE DISTURBED PRESS THE "PRIVACY" BUTTON ONCE AND THE RED LIGHT WILL ILLUMINATE.
PLEASE NOTE: YOU WILL NOT RECEIVE ANY CALLS WHEN THE RED LIGHT IS ON AS THE CALL TONE WILL BE MUTED.
IF YOU WISH TO RECEIVE CALLS AGAIN PRESS THE "PRIVACY" BUTTON ONCE AND THE RED LIGHT WILL GO OUT.

8

REMEMBER: IT IS UPTO YOU TO CONTROL WHO COMES INTO THE BUILDING
ONLY LET PEOPLE IN IF YOU ARE SURE OF THEIR IDENTITY.
IF YOU DO NOT WISH TO SPEAK OR LET THEM IN SIMPLY REPLACE THE HANDSET.

9

FOR YOUR ENTRY INTO THE BUILDING PLACE YOUR TOKEN TO THE READER AND OPEN THE DOOR.

10

FOR YOUR EXIT FROM THE BUILDING PUSH THE EXIT BUTTON AND OPEN THE DOOR.

Entrotec Limited
5 Ashwood Court
Oakbank
Livingston
EH53 0TL

www.entrotec.com
Tel: +44(0) 1506 886230
Fax: +44(0) 1506 886233
saleshq@entrotec.co.uk
Support: 0844 858 6370

ENTROTEC
Security Through Innovation

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Section 10 - Smoke alarm instructions

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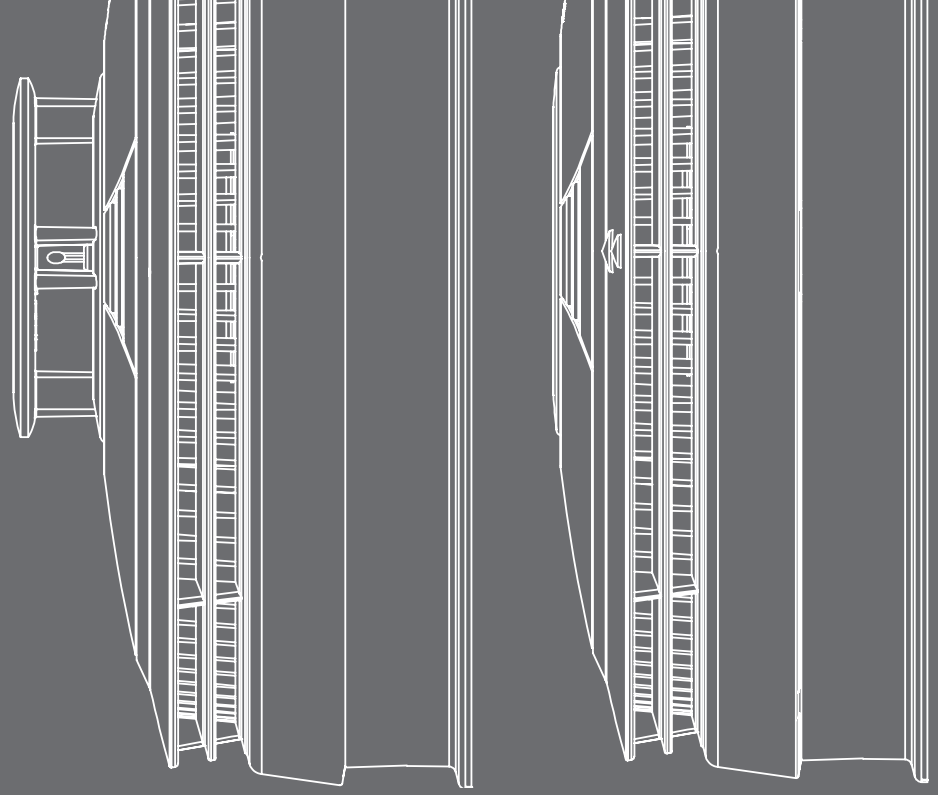

Mains Powered

Ei3024 / 3016 / 3014

Alarms

Instruction Manual

Read and retain carefully for as long as the product is being used. It contains vital information on the operation and installation of your Alarm. The manual should be regarded as part of the product.

If you are just installing the unit, the manual **MUST** be given to the householder. The manual is to be given to any subsequent user.

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1

Introduction

The Ei3024 is a Multi-Sensor Fire Alarm with heat enhanced optical smoke sensor and automatic dust compensation, delivering a faster response to a wider range of fires. It detects both smoke and heat from a fire and is ideal for hallway, landing, living room and bedroom areas.

The Ei3016 is an Optical Smoke Alarm, with a proven optical sensor and automatic dust compensation delivering a fast response to smouldering fires. It is ideal for hallway, landing and living room areas.

The Ei3014 is a Heat Alarm with a Class A1 heat detection sensor. It can only to be used as part of a fire detection system, i.e. interconnected with Aico/Ei Electronics mains powered Multi-Sensor Fire or Smoke Alarms. It is ideal for kitchens, garages, boiler houses and other areas where there are normally high levels of fumes, smoke or dust i.e. places where Smoke Alarms cannot be installed without the risk of excessive nuisance alarms.

Up to 12 Alarms can be interconnected so that if one senses fire, all Alarms sound. It can be a hardwired interconnection, a wireless interconnection or a mixture of both (for the wireless option an Ei3000MRF SmartLINK module needs to be added to each Alarm – sold separately).

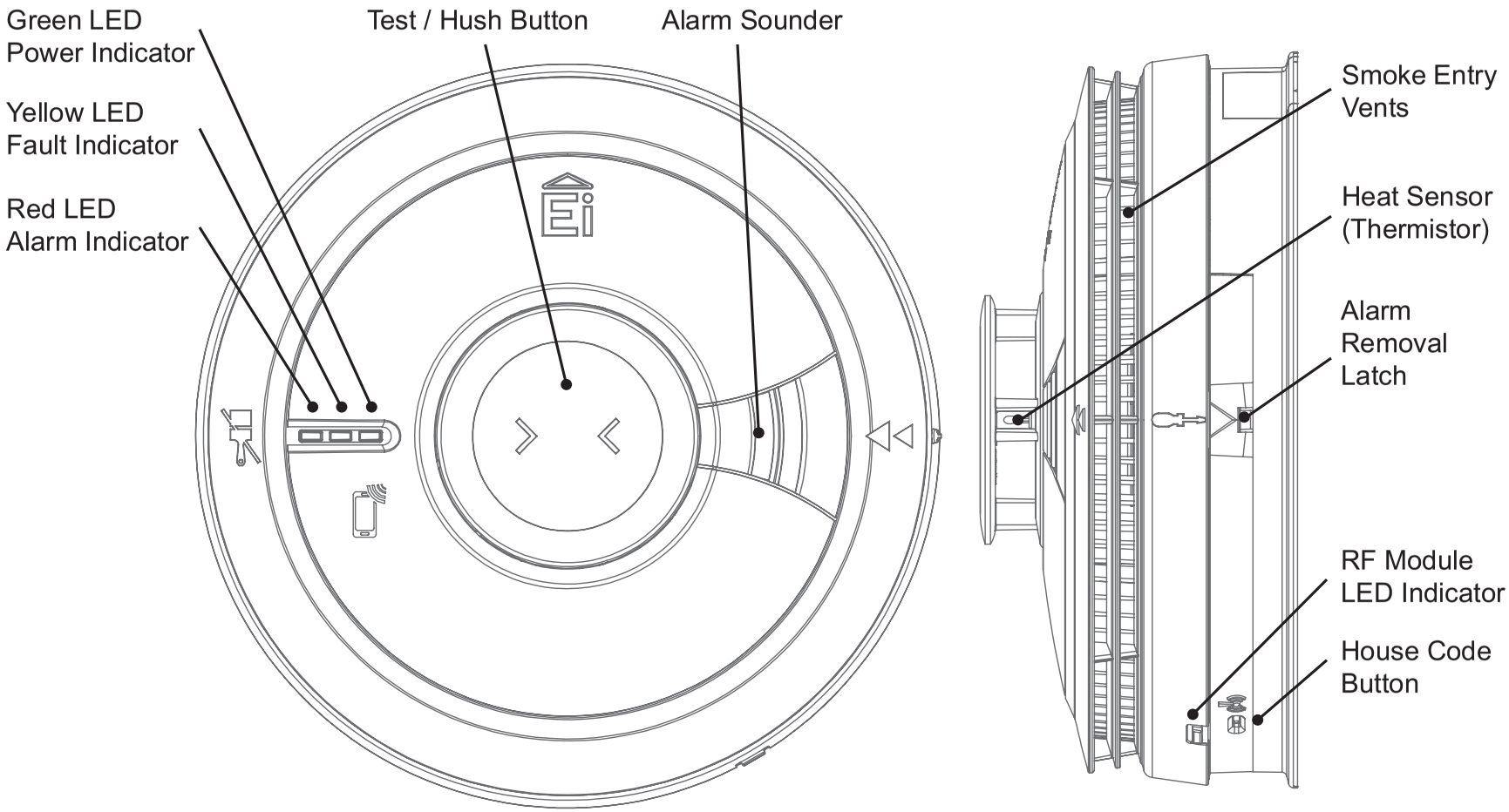
The Ei3000 series is supplied with a mounting plate that allows very quick and simple installation of the Alarm. The mains and battery power is automatically connected as the Alarm slides onto the mounting plate. Each Alarm comes with built-in rechargeable backup batteries to power the Alarm in the event of a mains failure.

AudioLINK

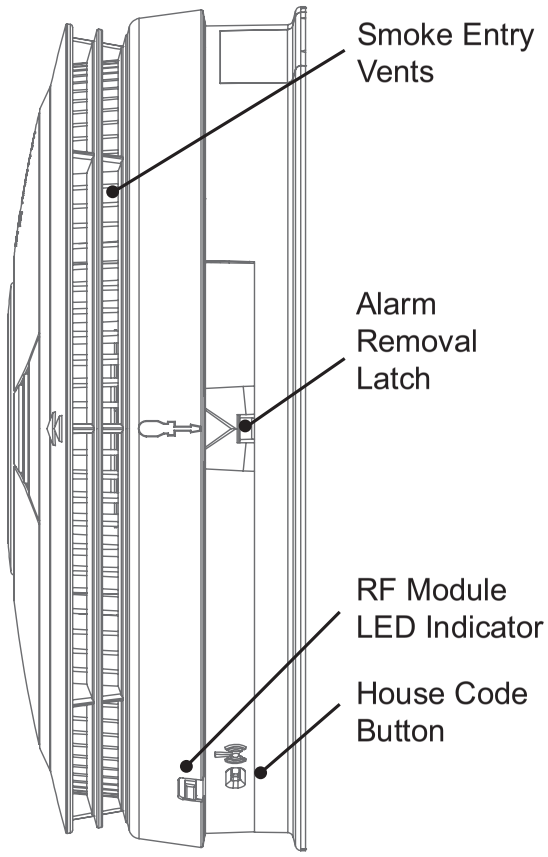
The Ei3000 series Alarms are AudioLINK enabled. This feature allows the user to download information from the Alarm through the use of a smart phone App. For more information on using this feature, please refer to the relevant section on www.aico.co.uk.

1.1 Overview

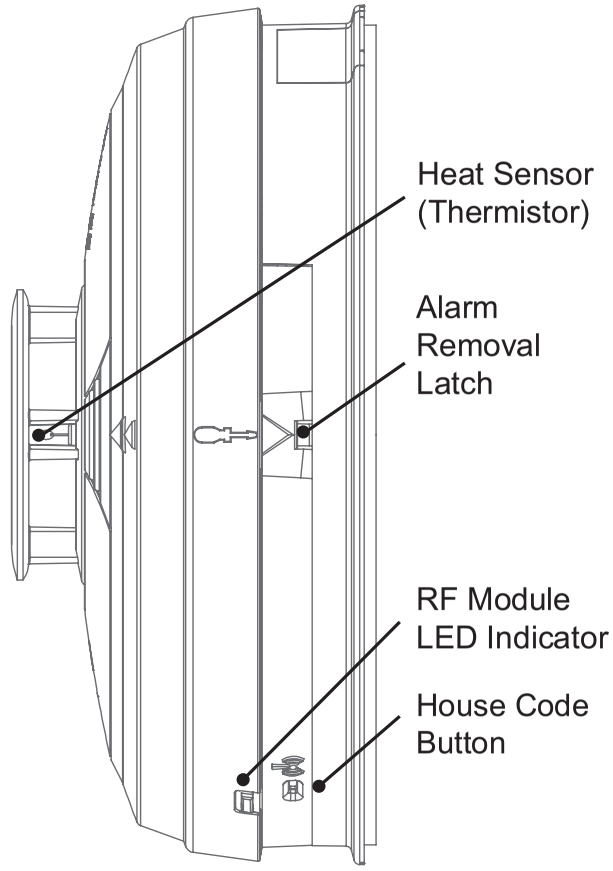
Ei3024 Multi-Sensor Fire Alarm



Ei3016 Optical Alarm



Ei3014 Heat Alarm



1.2 Technical Specifications

Optical Sensor	Optical (Ei3024 and Ei3016)
Heat Sensor	Thermistor Class A1 Detection (Ei3014 and Ei3024)
Power Supply	100-250V AC, 50Hz, 0.25W
Battery Backup	Built-in 10-year rechargeable Vanadium Pentoxide Lithium cells. Fully charged, the battery will provide up to 6 months (without module fitted) or 3 months (with module fitted) back-up without mains power
Alarm Sounder	Piezoelectric
Alarm Sound Level	85dB(A) at 3 meters (min)
Memory Feature	Indicates that the Alarm has previously detected fire
Self Test	Sensors, batteries and electronics are automatically tested periodically
Test/Hush Button	Checks sensors, electronics, interconnection and sounder. If the unit is in alarm when pressed, it silences the alarm for 10min
Visual indicators	Green LED – Power supply Yellow LED – Fault, EOL Red LED – Memory or alarm (if coincides with sounding)
AudioLINK	Enabled
Operational Life	10 years

Interconnection	Up to 12 units can be interconnected via a hardwired or wireless system (using optional Ei3000MRF SmartLINK module)
Fixings	Supplied with Easi-fit anti-tamper mounting plate with integral terminal block and wiring cover, includes screws and wall plugs
Operating & Storage Temperature	-10°C to +40°C*
Humidity Range	15% to 95% RH (non-condensing)
Plastic Material	UL94V-0 flame retardant rated
Dimensions	Ei3024 and Ei3014: Product: - Ø150mm x 66mm Package - 155mm x 155mm x 70mm Ei3016: Product: - Ø150mm x 63mm Package - 155mm x 155mm x 65mm
Weight	350g (including packaging)
Warranty	5 year (limited)
Approvals	KM522831, KM83678, EN14604:2005+AC 2008, BS5446-2:2003

* Temperature and Humidity conditions are for normal operation and storage. Units will function outside these ranges as required by the specific product Standards. Extended exposure to conditions outside these ranges can reduce product life. For advice on prolonged operation outside these ranges consult the manufacturer.

2
Installation

2.1 Important Safety Instructions

Mains operated Alarms should be installed and interconnected by a qualified electrician in accordance with the local appropriate Regulations for Electrical Installations. Failure to install this Alarm correctly may expose the user to shock or fire hazards and damage the product.

The Alarm is designed to be permanently mounted, using its 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 (BS 4662 single gang accessory box). It requires a typical current of 3mA. The Alarm must not be exposed to dripping or splashing. There are important markings on the underside of the Alarm.

Alternative Energy Sources - (Wind, Solar, UPS etc.)
This product is designed to be connected to a Pure or True Sine Wave 230V AC 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.

Do not install Alarms in new or renovated buildings until all work is completed.

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.

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.

(UK) BS 5839-6:2019 gives the following recommendations regarding the mains supply to 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 the supply to a dedicated social alarm control unit); or
(b) a separately electrically protected, regularly used local lighting circuit.
(See BS 5839-6:2019 for further information).

Note: An all-pole mains switch shall be incorporated in the electrical installation of the building.

2.2 Where to locate the Alarm

The advice here follows the guidance in British Standard BS 5839-6:2019 in general (for further information refer to the relevant standards).
The main reason for fitting Smoke/Heat/Multi-Sensor 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 Alarms are not disabled or ignored.

A single Smoke Alarm will give some protection if it is properly installed, but most homes will require two or more to ensure that a reliable early warning is given. For recommended protection you should put individual Smoke Alarms in all rooms where fire is most likely to break out (apart from the kitchen and bathroom).

BS 5839-6:2019 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. It is therefore recommended that a Fire Risk Assessment is undertaken. The Risk Assessment would be 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 needs to be.

LD (**L**ife protection in **D**wellings) Systems define the level of fire protection required for households, depending on the fire risk and regulations. Aico/Ei Electronics recommends that an LD1 system be installed for optimum protection.

Please see following pages for detailed information.

UK Requirements (BS 5839-6:2019)

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

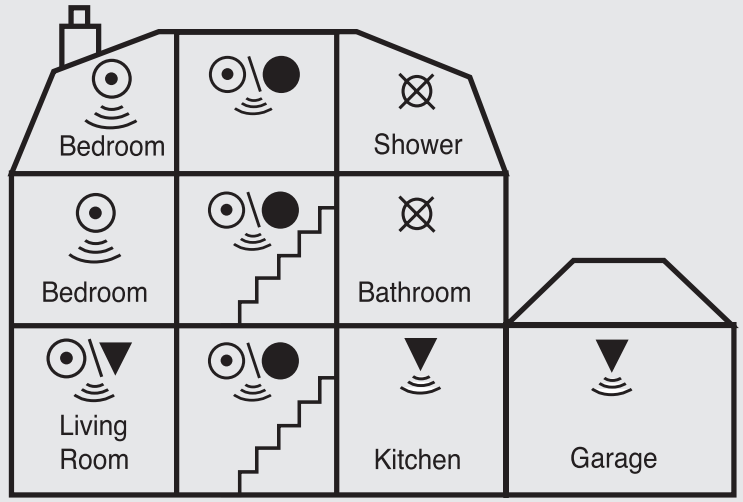
Multi-Sensor or Smoke Alarms located:
- on each storey
- every 7.5 m of hallways and escape routes
- within 3m of all bedroom doors

(apart from toilets & bathrooms ⊠)

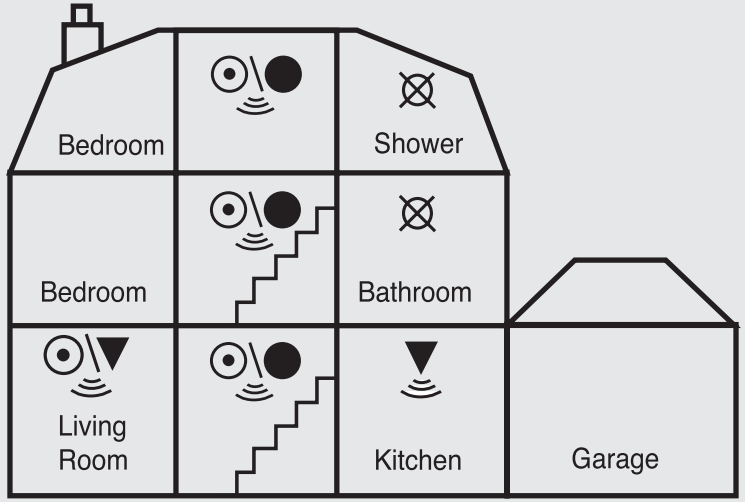
Heat Alarms located in:
- each Kitchen

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

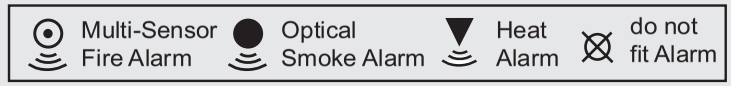
Multi-Sensor or Heat Alarms located in:
- each Living room (i.e. most frequently used daytime room)



Multi Storey Dwelling LD1



Multi Storey Dwelling LD2



2.3 Which Alarm in what room?

Location	Ei3024 Mutil-Sensor Fire Alarm	Ei3016 Optical Smoke Alarm	Ei3014 Heat Alarm (i)
Hall, Corridors, Escape routes	✓	✓	✗
Kitchens / Garages	✗	✗	✓ (iii)
Living Rooms	✓	✓	✓ (ii)
Bedrooms	✓	✓	✗
Shower / Bathrooms	✗	✗	✗

(i) A Heat Alarm should only be used in a room adjoining an escape route, in conjunction with Multi-Sensor Fire Alarms or Smoke Alarms on the escape routes. All the Alarms should be interconnected to ensure the early warning will be heard.

(ii) Some Fire authorities (concerned with the slow response of Heat Alarms) advise that Multi-Sensor Fire Alarms or Smoke Alarms should be fitted in living rooms. This is acceptable according to BS 5839-6:2019 provided there are clearly not going to be problems with nuisance alarms. Fit Heat Alarms only if nuisance 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 Multi-Sensor Fire Alarm or Smoke Alarm sited outside in the corridor.

(iii) In enclosed kitchens with doors closed.

Improved Audibility

The effectiveness of a Category LD2 system can be significantly enhanced if an additional Alarm (interconnected) is installed in the master bedroom. This will help ensure that a responsible person will quickly be alerted to a fire and can arrange for an orderly evacuation of children and other vulnerable occupants.

Grade D System

The mains powered Ei3024 Multi Sensor Fire Alarm, Ei3016 Smoke Alarm and Ei3014 Heat Alarm with rechargeable battery back-up, covered by these instructions are suitable for the requirements for a Grade D System.

A Grade D system is needed for:

- new or materially altered dwellings up to three-storeys, with no floor over 200m^2 in area.
- Existing dwellings with poor structural fire precautions, up to three storeys, with no floor over 200m^2 in area.
- Houses in Multiple Occupation (HMOs) of one or two-storeys, with no floor over 200m^2 in area.
- 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.

2.4 Where in the room?

The locations must comply with applicable building regulations

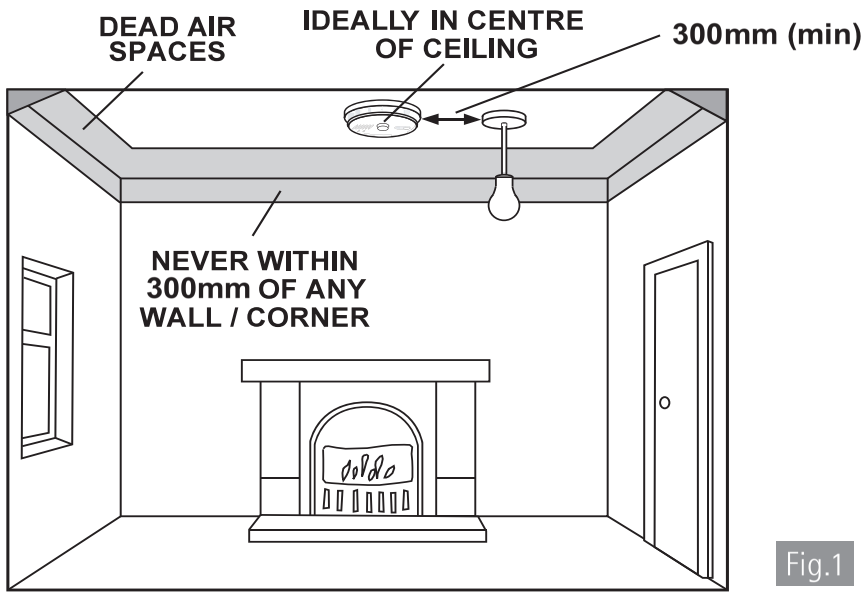


Fig.1

Ceiling Mounting

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 Alarms must be mounted away from corners. Fit the Alarm:

- At least 300mm away from walls (see Figure 1).
- At least 300mm from any light fitting or decorative object which might obstruct smoke / heat entering the Alarm.

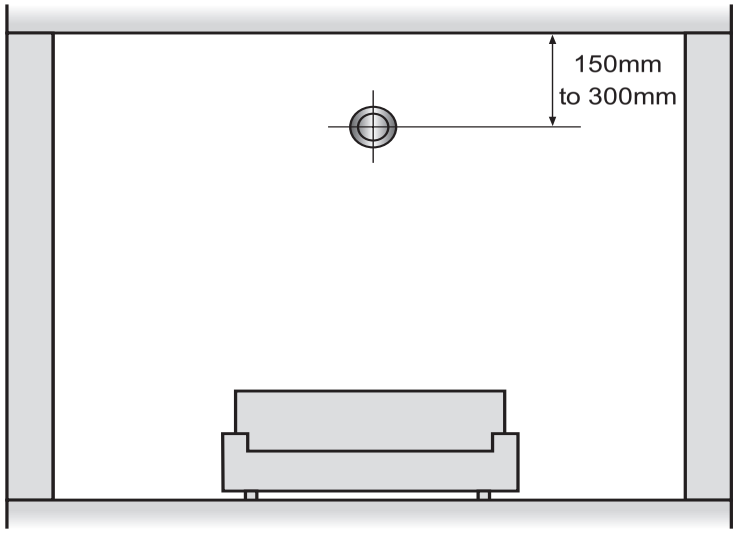


Fig.2

Wall Mounting (Ei3016 only)

If ceiling mounting is impractical, **only** the Ei3016 Optical Smoke Alarm may be mounted on a wall, provided that:

a) the top of the detection element is between 150mm and 300mm below the ceiling (see Figure 2);

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'.

Sloping Ceiling

With a sloping or peaked ceiling install a Smoke or Multi-Sensor Fire Alarm within 600mm of the peak (measured vertically) and a Heat Alarm within 150mm.

If the height of the peak is less than 600mm in the case of Smoke or Multi-Sensor Fire Alarms or 150mm in the case of Heat Alarms, it is regarded as being flat. (see Figure 3).

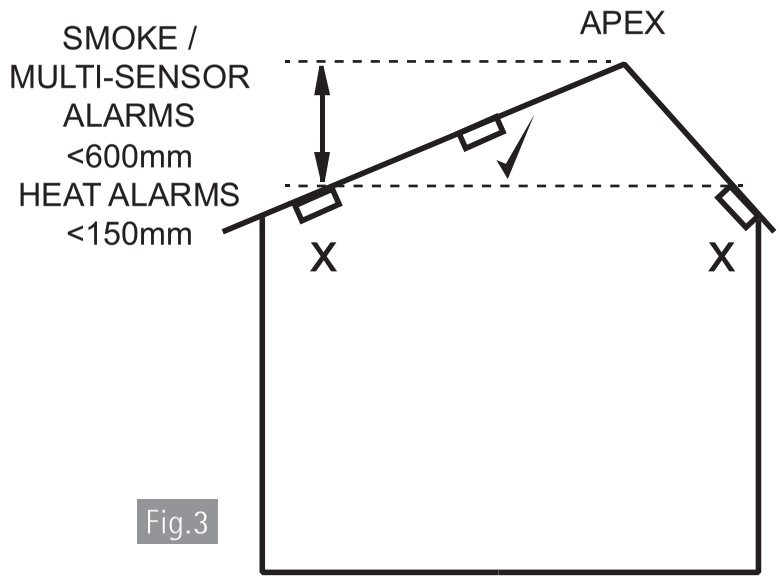


Fig.3

2.5 Locations to avoid

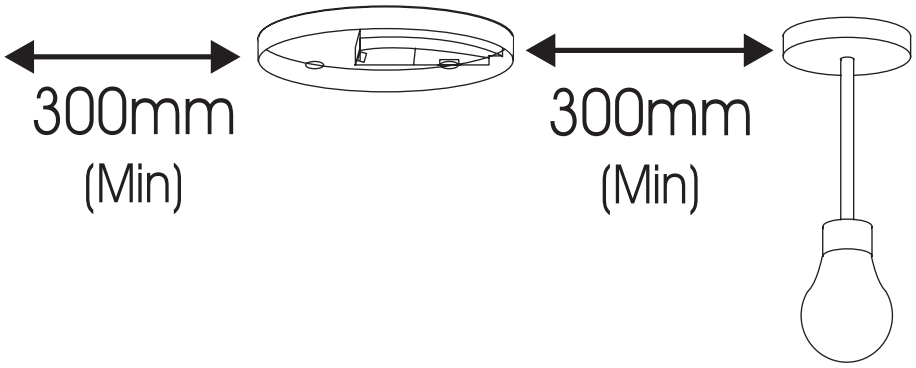
DON'T place Smoke, Heat or Multi-Sensor Fire Alarms in any of the following areas:

- Bathrooms, shower rooms or other rooms where the Alarm may be triggered by steam, condensation.
- Places where the normal temperature can exceed 40°C or be below -10°C (e.g. furnace rooms, directly above ovens or kettles etc.) as the heat/steam could cause nuisance alarms.
- Near a decorative object, door, light fitting, window moulding etc., that may prevent heat or smoke 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 heat or smoke from reaching the Alarm.

- Next to or directly above heaters or air conditioning vents, windows, wall vents etc. where air draughts can change the direction of airflow and cause rapid temperature fluctuations.
- In very high or awkward areas (e.g. over stairwells) where it may be difficult to reach the Alarm (for testing, hushing etc.).
- In or near very dusty or dirty areas as dust build-up on the optical smoke sensor can impair performance. It can block the insect screen mesh and prevent smoke from entering the sensor. Dust build up can also increase the response time of the heat sensor.
- Locate the Alarm at least 1m from dimmer controlled lights and wiring as some dimmers can cause interference.
- Locate the Alarm at least 1.5m and route wiring at least 1m away from fluorescent light fittings as electrical "noise" and/or flickering may affect the Alarm. Do not wire into the same circuit as fluorescent lights or dimmers.
- In insect infested areas. Small insects getting into the optical smoke sensor can cause intermittent false alarms. Insects and contamination on the heat sensor can increase its response time.
- In a damp or humid area.

Do not locate **Heat Alarms** directly above a sink or cooker – Keep at least 1 m horizontal distance between these items and the Alarm.

2.6 Mounting and wiring



1. Select a location complying with the advice in previous sections.

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 4.

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

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

IC: Interconnect - see figures 5 and 6 and further information in Section 2.7.

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

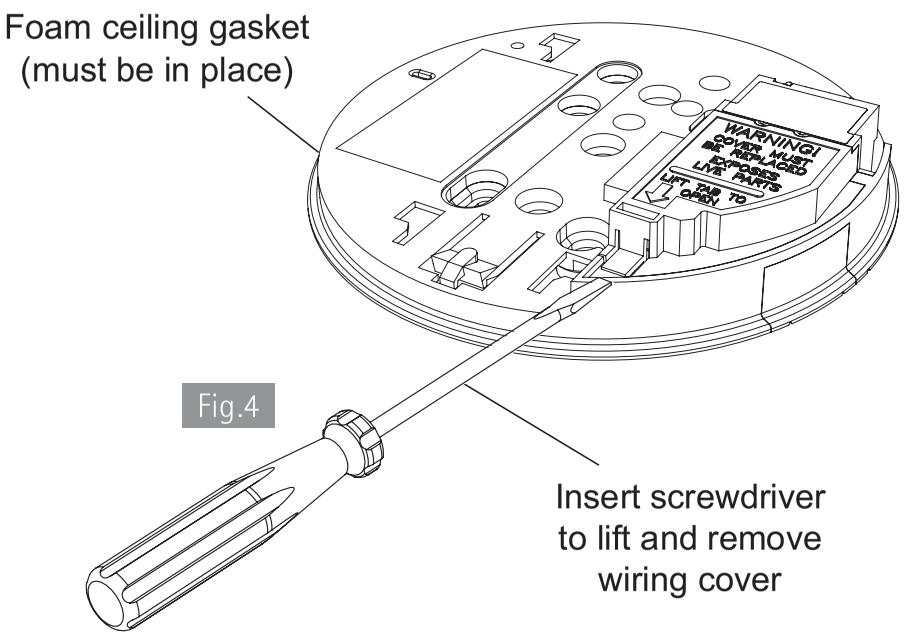


Fig.4

Warning: Mixing (or poorly terminating) the Live and Neutral connections when interconnecting Alarms may damage all the Alarms - ensure that the same colour wires 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 <u>not</u> use an Earth wire for the Interconnect line**.

Note: 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 and yellow, can be safely terminated.

To interconnect Alarms connect all the IC terminals together as shown in Figure 9 (see **Interconnecting Alarms** section).

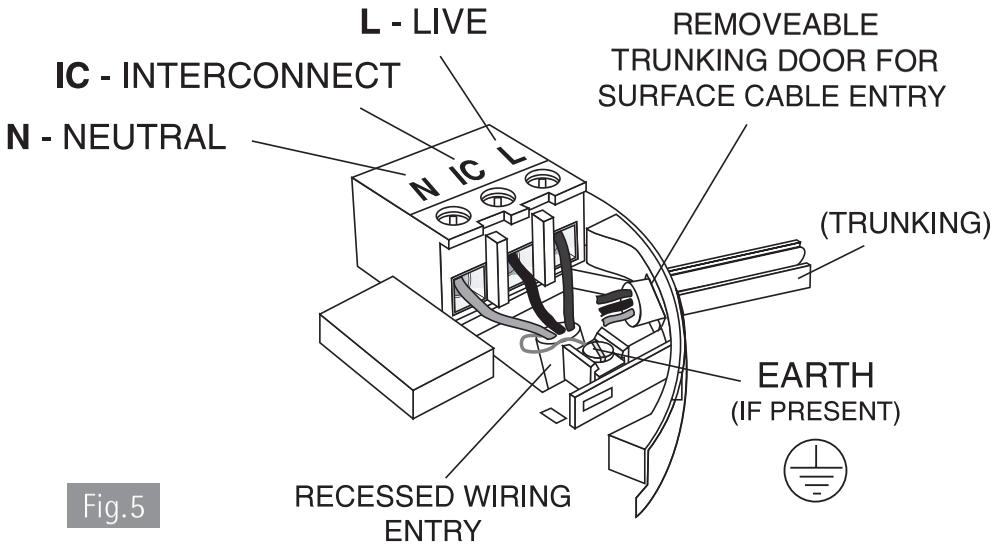


Fig.5

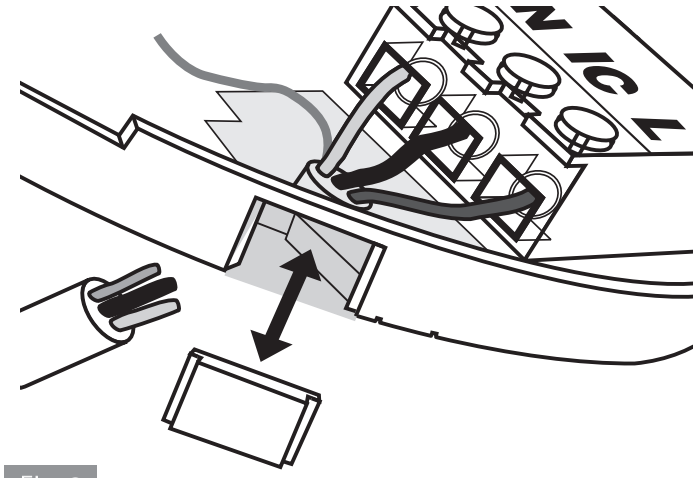


Fig.6

4. If the mains wires are recessed, bring the wires through the rear hole in the mounting plate as shown in Figure 5.

If the mains wires are being brought along the surface:

(a) position the mounting plate so the cable trunking is as shown in Figure 5.

(b) the mounting plate has a removable section, take it out to interface directly with 25mm trunking as shown in Figure 6. If interfacing to 16mm trunking 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).

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.

5. Carefully align the mounting plate and screw into place. If using RF interconnection, ensure that all mounting plates are facing the same orientation as shown in Figure 10 (see Interconnecting Alarms

section). 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. Replace the wiring cover and carefully line up the Alarm on the mounting plate and slide on (see Figure 7).

7. Connect the mains power to the Alarm circuit. Check the green light on the front of the Alarm is on.

8. Press and hold the test/hush button for 10 seconds (see Figure 8). The alarm will sound. Check that any interconnected Alarms also sound within this period. The test/hush button sounds the local alarm and on release this alarm stops immediately, and all the interconnected Alarms can then be heard in the distance as they will continue to sound for a further 3 seconds.

9. Attach the 'fuse board label' provided on or near the distribution board and write in date installed and the number of Alarms on the circuit.

10. Ensure the Alarm operates correctly - see **TESTING and MAINTAINING YOUR ALARM** section.

Fig.7 **Slide on the Alarm**

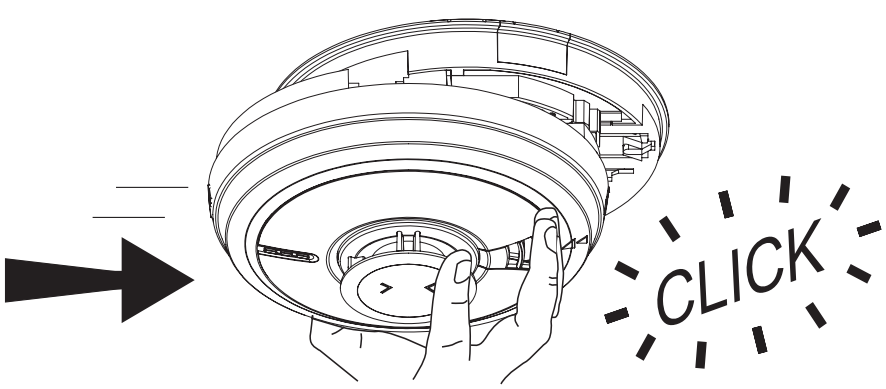
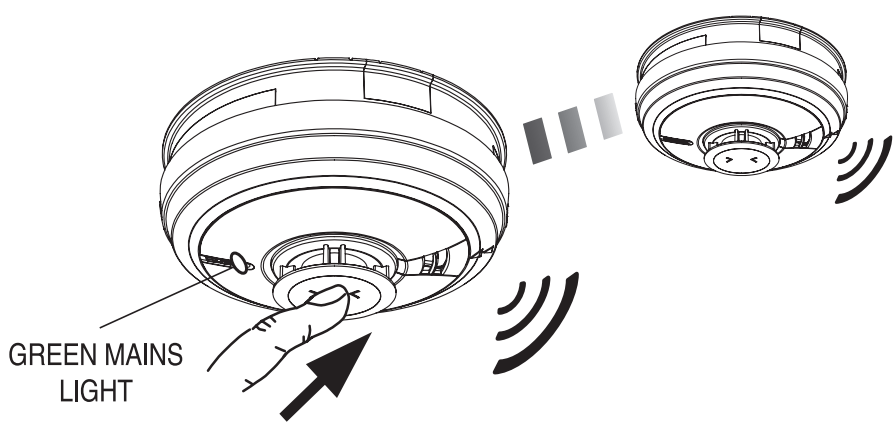


Fig.8 **Test Alarms**



2.7 Interconnecting Alarms

With interconnected Alarms, when one device detects fire, all will sound. All Alarms will sound but only Alarms detecting the emergency event will be flashing their red LED alarm indicator.

Heat Alarms should **always be interconnected** to Smoke or Multi-Sensor Fire Alarms to ensure early warning.

Any Ei3000 series Alarm can be hardwire interconnected with other Aico/Ei Electronics mains Alarms such as Ei2110e, Ei160e and Ei140RC Series.

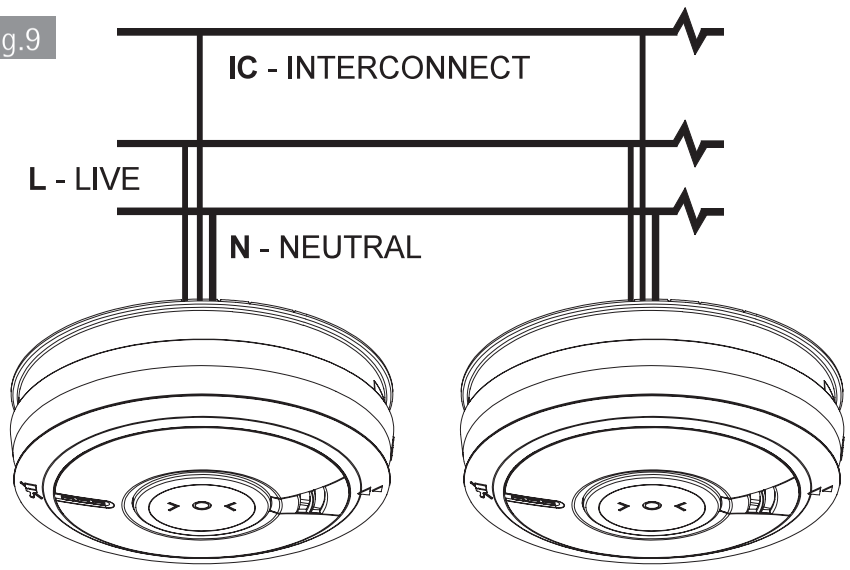
Note: A maximum of 12 Fire / Smoke / Heat / CO Alarms and accessory devices can be interconnected in an Aico/Ei Electronics Alarm system. If you wish to connect more than 12 Alarms, contact the Aico Technical Department on 01691 664100.

WARNING: Do not hardwire interconnect mains powered Alarms with low voltage or battery powered Aico/Ei Electronics Alarms/devices or any other type of Alarm produced by another manufacturer. Doing so may damage the Alarms and could result in a shock or fire hazard.

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

- In an RF system an Aico/Ei Electronics Control Switch (Ei450) should be incorporated and be readily accessible to all occupants so that the source of an alarm can be quickly identified. This is especially important when both Fire and CO Alarms are used in the same system as the occupant will need to open all windows and doors if it is a CO incident but do the opposite to slow down a fire.

Fig.9



Make electrical connections as shown in Figure 9. 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 6243YH cable).

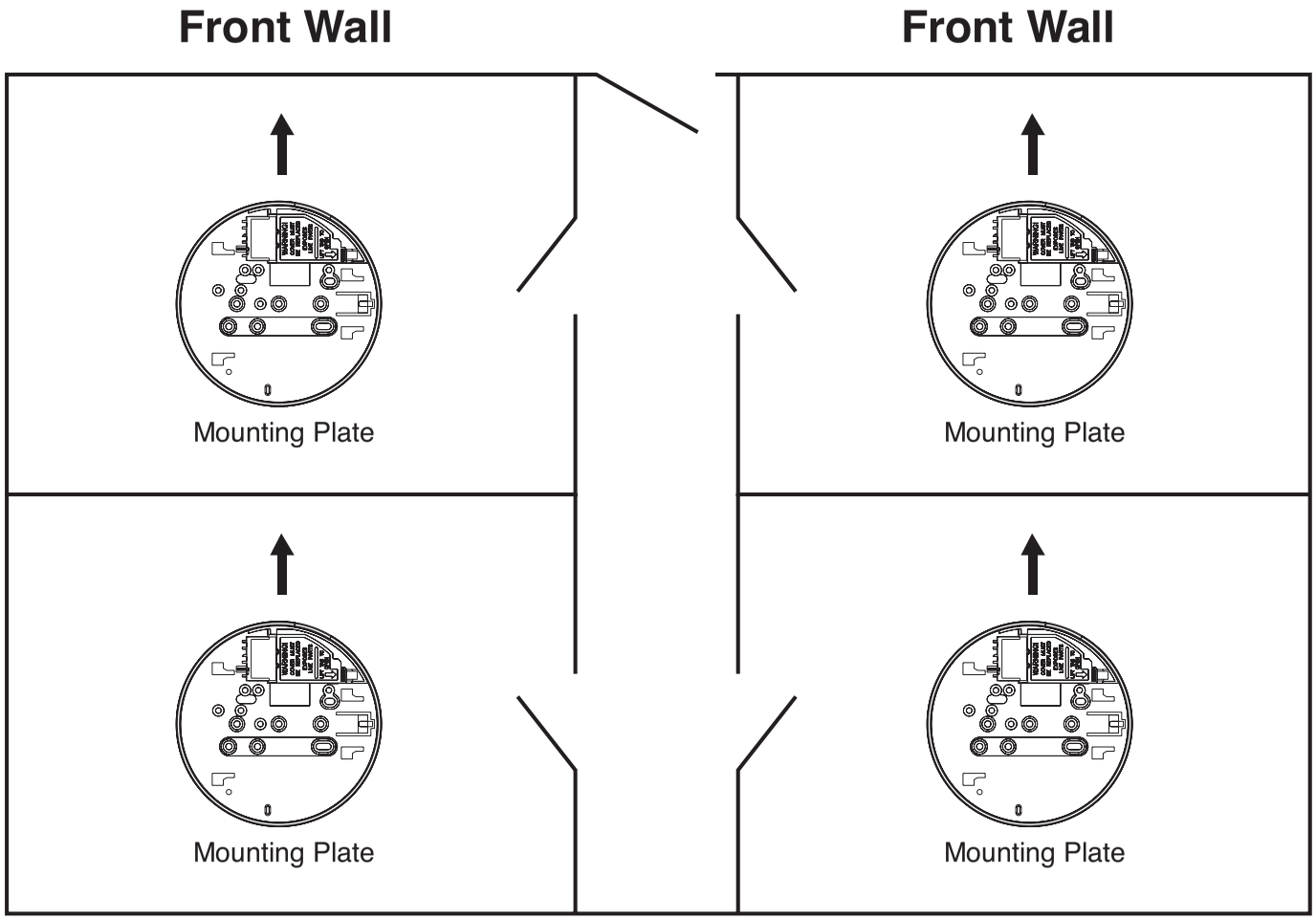
230V supply : Brown
Neutral : sleeved blue at terminations
Interconnect : Black

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).
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 alarms. Everybody may not be aware that they are being tested or that it is a nuisance alarm caused by cooking etc.

The Alarm can also be RF interconnected to other RF Alarms and devices by installing an Ei3000MRF SmartLINK Module. See the User manual for the Ei3000MRF for further details on RF interconnection. For maximum RF signal strength, orientate all mounting plates in the same direction to ensure the antennas of the RF modules are all facing the same way as shown in figure 10.

Fig.10

Orientate all mounting plates in the same direction



It is also equipped to work in a hybrid system (combination of hard-wired and RF interconnected Alarms and devices).

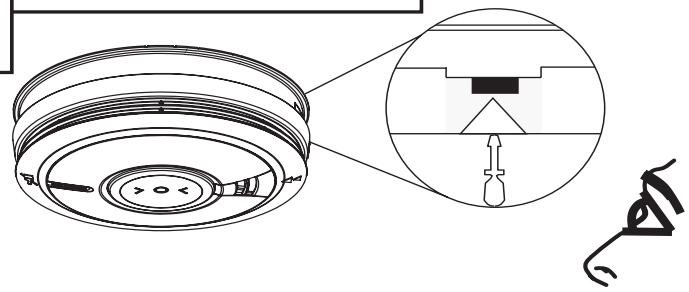
Please note in a hybrid system containing CO / Heat / Fire / Smoke Alarms we recommend using an Ei3000 series Alarm as the hybrid link to the RF section of the system. (Please refer to the Ei3000MRF booklet for further clarification).

Ensure the Alarms operate correctly - see **TESTING YOUR ALARM** in the user section.

2.8 Removing the Alarm

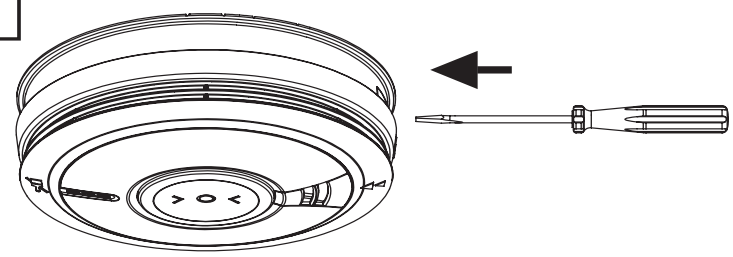
*** Disconnect mains before removal ***

1 Locate removal slot



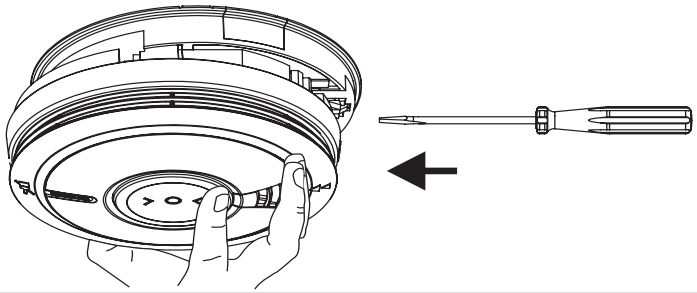
Locate the arrow on the front face of the Alarm. The slot is located directly above

2 Insert screwdriver



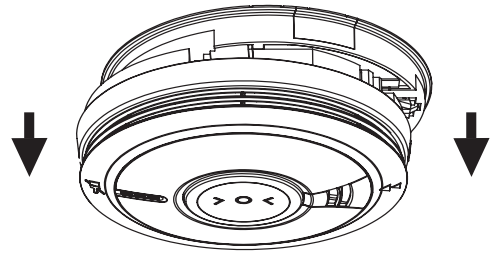
Insert a flat-bladed screwdriver horizontally about 10mm into the centre of the removal slot

3 Slide Alarm off mounting plate



With the screwdriver still inserted, push the lower half of the Alarm away from the screwdriver, it the direction of the arrows on the cover

4 Remove Alarm



Hold the lower half of the Alarm and remove from the mounting plate by lowering the Alarm towards the floor

3

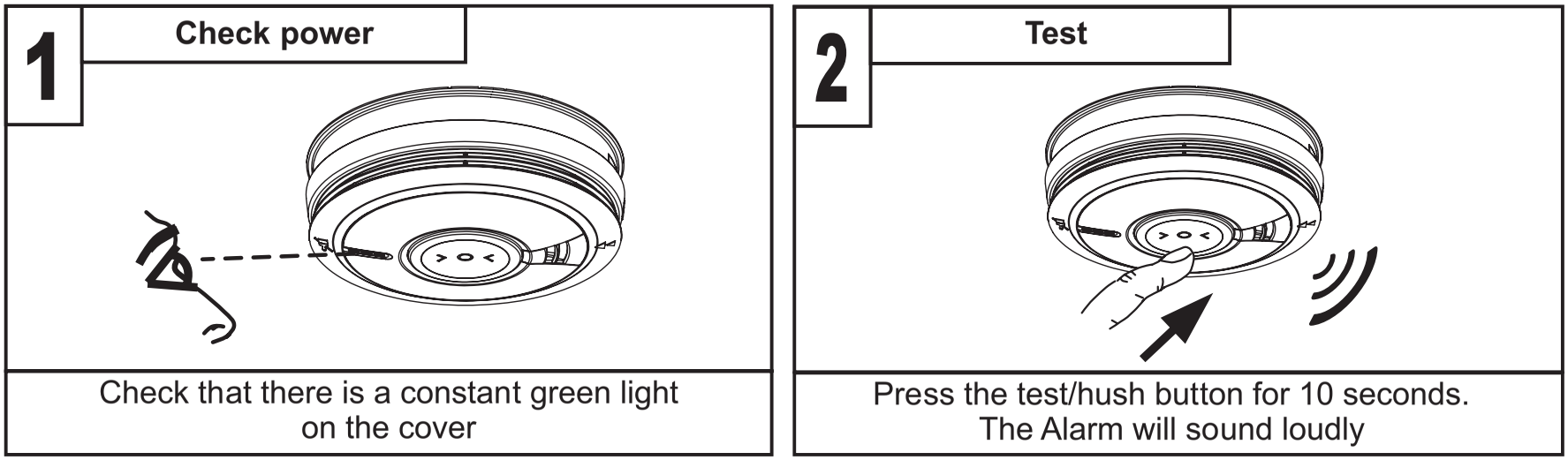
Testing

3.1 Testing and maintaining your Alarm

Frequent testing of all your Alarms is a requirement to ensure they are functioning correctly. Guidelines and best practices for testing are as follows:

1. After the system is installed.
2. Once monthly thereafter.
3. After prolonged absence from the dwelling (e.g. after holiday period).
4. After repair or servicing of any of the systems elements or household electrical works.

Inspecting and Testing proceedure



(i) Check that the **green LED power indicator** is on continuously.

(ii) Check also that there are no faults i.e. NO green, yellow or red LED flashing (if this is the case please see indicator summary table).

(iii) Press the **test/hush button** for up to 10 seconds and ensure that the Alarm sounds. This tests the sensor, electronics and sounder are working. The Alarm will stop when the button is released. Pressing the test/hush button simulates the effect of smoke and/or heat and therefore is the best way to ensure the Alarm is operating correctly. (Refer to indicator summary table if you see Red or Yellow LED flashes).

(iv) **Interconnected Alarms only** - Test the first unit by pressing the test/hush button for 10 seconds. All the Alarms should sound within 10 seconds of the first alarm sounding. After releasing the test/hush button, the local alarm will stop sounding immediately and the interconnected Alarms will be heard sounding in the distance for a further 3-4 seconds. This feature gives an audible verification that the interconnection is OK. Check all the other Alarms in the same way.

(v) 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 now flashing (1 flash every 48 seconds) to indicate the Alarm is on backup battery power.
- Press the Test/Hush button for up to 10 seconds and ensure the alarm sounds loudly.
- Monitor the Alarm over a 3 minute period for any fault chirps and or yellow LED fault indicator flashes (Refer to "**Fault Modes**" table on what to do if this occurs)
- Turn the mains supply at the distribution board back on.

Switching off Mains for long periods

If the premises are regularly being left without mains power for long periods the Alarms should be removed from their mounting plates and the Ei3000MRF modules (if fitted) should be removed to prevent the batteries becoming fully depleted. (This is sometimes done with holiday homes which are only occupied in the summer).

The Ei3000MRF modules (if required) must be re-fitted to the Alarms and the Alarms must be re-attached to the mounting plates when the premises are re-occupied. Ensure to match the original RF module back to the same Alarm head.

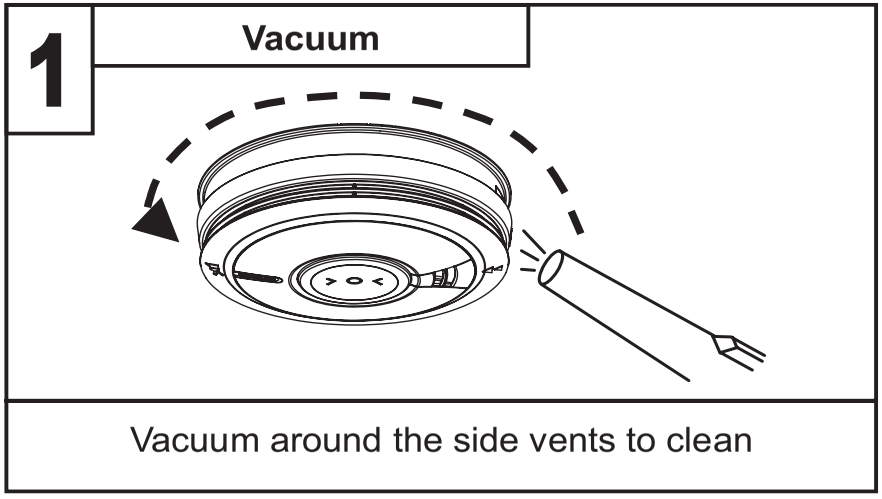
Long term storage (over 1 year) can damage the batteries to the extent that they may not recharge when the Alarms are re-connected to the mains supply.

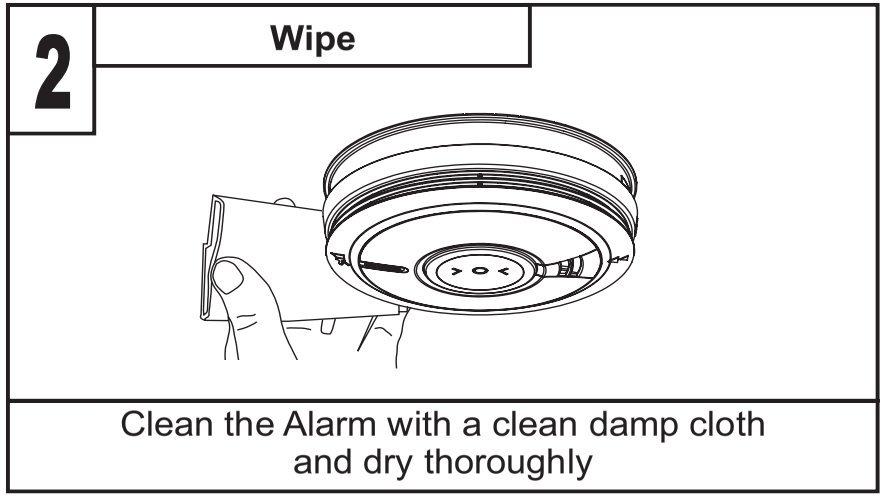
WARNING: DO NOT TEST WITH FLAME

This can set fire to the Alarm and damage the house. We do not recommend testing the Alarm with heat and/or smoke as the results can be misleading unless effective apparatus is used.

3.2 Cleaning your Alarm

Clean your Alarm regularly. In dusty areas it may be necessary to clean the Alarm more frequently.





Use the narrow nozzle attachment of your vacuum cleaner to remove dust, insects and cobwebs from the sides and cover slots where the airflow enters. Clean the outside cover by occasionally wiping with a clean damp cloth then dry thoroughly with a lint free cloth. Do not use any cleaning agents, bleaches, detergents or polishes, including those in aerosol cans.

WARNING: Do not paint your Alarm.

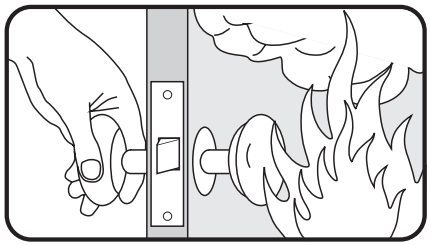
Other than the cleaning described above, no other customer servicing of this product is required. Servicing or repairs, when needed, must be performed by the manufacturer.

All Alarms are prone to dust and insect ingress, which can cause 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. 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.

4

What to do in case of alarm

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



(ii). 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.

(iii). 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.

(iv). 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.

(v). NEVER re-enter a burning house.

5

Indicator Summary Tables & Troubleshooting

Indicator summary table					
Normal mode					
Mode	**Action**	**Green LED (power)**	**Yellow LED (fault)**	**Red LED (alarm)**	**Sound**
Power up	Slide onto mounting plate	x 1	x 1	x 1	—
Standby	—		—	—	—
Testing (monthly)	Press and hold test/hush button	*	—	—	
In alarm mode					
Detecting fire	—		—		
Activated via interconnect	—		—	—	
Pressing Silence Button on Alarm detecting fire	—		—		x 10mins

* With the test/hush button held the green LED will flicker/pulse every second

= LED on solid = LED flashing

Memory mode			
Status	**Action**	**Red LED (alarm)**	**Sound**
0-24h	——	x2 every 48 sec	——
>24h +	Press and hold test/hush button	x2 every 8 sec	
To erase the memory	Keep test/hush button pressed for >20s		Sounds until test/hush button is released

The Alarm memory is an important feature where even if the house is unoccupied during an alarm condition it warns the homeowner that the Alarm has previously detected Fire and been in alarm.
The memory feature also helps identify the unit which has previously triggered an entire alarm system, which can also be very helpful after the entire alarm system has gone into alarm and then stopped, for no obvious reason. Once the source alarm has been identified, appropriate action can be taken e.g. in the case of a fire alarm event in memory, investigate the cause of nuisance / false alarms by ensuring kitchen or bathroom doors are kept closed to prevent very hot air or steam from cookers / showers reaching the heat sensor on the Alarm, locate the Alarm further away from the source of steam or condensation, replace the Alarm if it is thought to be defective or remove the unit in the short term.
The memory feature has two operation modes:
- memory indication for 24 hour period after alarm.
- memory recall on demand

24-hour memory indicators: For 24 hours after alarming, the red LED will flash twice every 48 seconds (approx)
Memory recall on demand: To review the memory status at any time, press and hold the test/hush button, the red LED will flash twice to convey the alarm event in memory, if any.
Reset Memory: Hold down the test/hush button for at least 20 seconds. Cover the sounder with a cloth to muffle the alarm during this time. Clearing of the memory is indicated by a 1-second-long flash of the red LED. Please note that the alarm memory will also be reset if the Alarm is removed from its mounting plate.

Fault modes and Memory indicator					
What you hear / see				What it means	What to do
Green LED [1] (power)	Yellow LED [2] (fault)	Red LED (alarm)	Chirps		
x1 every 48 sec	——	——	——	AC mains off	Reconnect AC mains power
——	x1 every 48 sec	——		AC mains off Low battery backup	Reconnect AC mains power
	x1 every 48 sec	——		Low battery backup	Replace Alarm
	x2 every 48 sec	——	x2	Sensor fault	Replace Alarm
	x3 every 48 sec	——	x3	End of Life	Replace Alarm
	x4 every 8 sec	——	x4	Max Dust Compensation has been reached	see Maximum Dust Compensation section
	Flashes as per fault type	——	——	Fault chirps have been silenced. Rate of the yellow LED flashing indicates fault type	If required chirping can be silenced again by pressing Silence button
	——	when pressing test/hush button	——	There has been an alarm in your absence	Check Alarm memory section

1 ON when AC mains power is switched on, flashes every 48s when on backup battery, OFF when both AC mains and backup battery are off.

2 If you are unsure of the amount of flashes of the Yellow LED you can at any time while a fault condition exists, press the test/hush button. The relevant number of flashes will then be 8s apart.

Note: Fault chirps can be silenced by pressing the Test/Hush button.

The Alarm can communicate its status and history through various Led flashes and chirps/beeps. However, a more comprehensive report of all such events is available through the AudioLINK download via the smart phone App.

Low Battery Backup Fault

If the battery backup supply is depleted, the sounder will give one short chirp with one yellow LED fault indicator flash every 48 seconds. In this case check that the green LED power indicator is on continuously. If it is off, or flashing every 48 seconds, the Alarm is not receiving 230V AC mains power and is being powered by the battery backup. The chirp every 48 seconds indicates that the battery is depleted. The battery is not replaceable. Check fuses, circuit breakers and wiring to determine the cause of the interruption to the mains power. If in doubt, contact a qualified electrician. Once mains power is reinstated, the chirps should cease within 2 hours as the battery charges up. If the chirping persists for over 2 hours with the green light on, there may be some other problem with the Alarm. The Alarm must be returned for repair or replacement - see **GETTING YOUR ALARM SERVICED** section.

Sensor Fault

The Alarm regularly checks the optical smoke sensor and/or thermistor heat sensor for correct operation. If the Alarm has found a fault with the sensor, it will give 2 short chirps with 2 yellow LED flashes every 48 seconds. In this case, the Alarm must be returned for repair or replacement - see **GETTING YOUR ALARM SERVICED** section.

End of Life

Once the Alarm passes its 10th year of installation, it will give 3 short chirps with 3 yellow LED flashes every 48 seconds to indicate it has reached its end of useful life.

The entire Alarm must be replaced (Also check the replace by date on the label on the side of the Alarm). Disconnect the mains first and replace the Alarm - see ‚Removing the Alarm' section.

Maximum Dust Compensation (Ei3016 and Ei3024 only)

The Alarm monitors the dust contamination build-up in the optical smoke chamber and then compensates for it, reducing the possibility of false alarms.
If however, the Alarm gives 4 short chirps with 4 yellow LED flashes when the test/hush button is pressed, it indicates that the Alarm has reached the maximum dust compensation. When this occurs, the Alarm will continue to operate as normal, but there is an increased risk of false alarms caused by dust contamination. If contamination has occurred quickly (e.g. due to dust from carpets being replaced) and the Alarms are sounding, the dust compensation may take some hours to operate. In this situation, remove the Alarm from the ceiling, leave it disconnected for 5 minutes, then reinstall the unit (the air must be clean i.e., dust and smoke free). The dust compensation will now operate quickly, within 60 seconds.

Temporarily Silencing the Fault chirps

If the test / hush button is pressed on an Alarm that is giving fault chirps and yellow LED fault indicator flashes, the Alarm will be silenced (Fault Hush mode) for a period of 12 hours. However, the Alarm will sound / function as normal within that period should it detect Fire (except if the fault detected is a sensor fault). The yellow LED fault indicator will continue to flash as before to indicate the fault is still present. This is a useful feature should the fault occur at night as it keeps the disturbance at a time when people in the building are trying to sleep to a minimum. The fault chirps will return 12 hours later. A low backup battery fault and an end of life fault can be hushed as often as required.
A sensor fault condition can only be hushed once.

Your Alarm does not sound when you press the test/hush button	• Check the Alarm is secured correctly on the mounting plate. • Wait 15 seconds after connecting the power before button testing. • Hold button down firmly for at least 10 seconds. • If the Alarm does not sound, then your Alarm must be returned for repair or replacement - see **GETTING YOUR ALARM SERVICED** section.
Your Alarm sounds for no apparent reason	• If, when the Alarm sounds, 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 for smoke, fumes, steam, very hot air etc. • Locate the Alarm that sounds and has flashing red LED. • If you have thoroughly investigated and are sure that it is just a nuisance alarm, simply press the Test/Hush button briefly to silence the Alarm for 10 minutes. This will also silence any interconnected Alarms for the same period. When the Alarm is in 'Hush' mode the red LED will continue to flash while it detects the presence of smoke or heat. The Alarm will reset to normal functionality at the end of the 10 minute. If additional silenced time is required, simply push the Test/Hush Button again. • If you experience frequent nuisance/false alarms, it may be necessary to re-locate the Alarm away from the source of the fumes or if it continues to sound without smoke or heat being present and cleaning the Alarm does not solve the problem, it needs to be replaced.

Interconnected Alarms do not all sound	• Hold test/hush button for at least 10 seconds to ensure that the signal is transmitted to all the interconnected Alarms. • If this is not the case and you have a hardwired interconnection, we recommend you consult a qualified electrician. • If the Alarm is fitted with an RF module for wireless interconnection, check that all Alarms in the the RF system are powered and are house-coded correctly. (see the Ei3000MRF SmartLINK module manual).
Pressing the Test/Hush button does not silence the Alarm	Always make sure that you are pressing the Test/Hush button on the Alarm that sounds with the red LED flashing.
Your Alarm chirps/beeps/ flashes	In standby mode, the Alarm does not sound, beep, chirp or flash. The only light on is the green power LED. The Alarm automatically monitors the battery, sensor and electronics periodically to ensure that all are satisfactory. If a fault has been found, the Alarm alerts the occupier to this via short chirps from its sounder and its yellow LED fault indicator flashes every 48 seconds. The Alarm will also indicate any faults when the test/hush button is pressed. See indicator summary table on the next pages.

6

Important safeguards

When a fire system is installed, basic safety precautions should always be followed, including those listed below:

- Please read all instructions.
- **WARNING:** Experience has shown that children may not be woken by fire alarm tones. It is important that children are never left alone in a house. Families should have a fire escape plan that is rehearsed, so that everyone knows how to escape when fire occurs. The immediate priority when fire occurs is to ensure that any sleeping children are woken from sleep and are immediately taken to a place of safety outside the property, along with all other occupants. The fire and rescue service should always be called without delay, no matter how small the fire.
- Use the Testing of the Alarm as a means to familiarise your family with the alarm sound and to practice fire drills regularly with all family members. Rehearse emergency escape plans so everyone at home knows what to do in case the Alarm sounds. Further information can be obtained from your local fire prevention officer.
- To maintain sensitivity to Fire, do not paint or cover the Alarm in any manner and; do not allow cobwebs, dust or grease to accumulate.
- If the Alarm has been damaged in any way or does not function properly, do not attempt a repair. Return the Alarm - see Section 7 - '**SERVICE AND GUARANTEE**' section.
- This appliance is only intended for premises having a residential type environment.
- Fire Alarms are not a substitute for insurance. The supplier or manufacturer is not your insurer.
- Do not dispose of your Alarm in a fire.

7

Limitations of Fire Alarms

Limitations of Fire Alarms

Multi-Sensor Fire / Smoke / Heat Alarms can significantly help to reduce the risk of fire fatalities. However independent authorities have stated that these systems may be ineffective in some fire situations. There are a number of reasons for this:

- The Alarms will not work if the mains power supply is off or disconnected and the backup battery is depleted. Test regularly to ensure the power supply is functioning as required.
- The Alarms will not detect fire if sufficient heat/smoke does not reach the Alarms. Heat/smoke 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 drafts carry the heat/smoke away. Installing Heat Alarms and Smoke Alarms on both sides of closed doors and throughout the house or premises as recommended in this leaflet will very significantly improve the probability of early detection.
- The Alarms may not be heard. An Alarm may not wake a person who has taken drugs or alcohol.
- The Alarms may not detect every type of fire to give sufficient early warning.
- The Alarms don't last indefinitely. The manufacturer recommends regular testing and replacement after, at most, 10 years, as a precaution.

8

Service and Guarantee

8.1 Getting your Alarm serviced

If, within the guarantee period, 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, then contact us.

If you are advised to return your Alarm, please ensure that the Alarm is placed in a padded box, not attached to the mounting plate (as the Alarm can give beeps or alarm if the Test/Hush button is pressed during shipping), with the proof of purchase and a note stating the nature of the fault.

8.2 Guarantee

Ei Electronics guarantees this Alarm for five years from the date of purchase against any defects that are due to faulty materials or workmanship. If this Alarm should become defective within the guarantee period, we shall at our discretion repair or replace the faulty unit.

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.

This guarantee does not apply to any product that has been modified in any way by a third party or has been fitted with a third party element.

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.

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.

KM522831
KM83678
EN14604:2005+AC 2008
BS5446-2:2003

CE

2797

Ei Electronics, Shannon, Co. Clare, Ireland

18

DoP No.18-0001

EN14604:2005 + AC:2008

Smoke Alarm Devices:

Ei3016, Ei3024

Fire Safety

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

CE

Heat Alarm Devices:

Ei3014, Ei3024

The Declaration of Performance No. 18-0001 may be consulted at www.eielectronics.com/compliance

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P/N B20224 Rev0

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Section 11 - CO2 monitor

Scottish Government
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gov.scot

BUILDING cruden

Allia

CAF Bank

CO_2 SENSOR AVG

Carbon Dioxide Gas Monitor

User Guide

Please read this guide carefully and retain for future use.

Table of contents

1. About your new CO_2 Sensor AVG device 3
2. CO_2 Sensor AVG Features 4
3. Technical Specification 5
4. Installation & Location 6
5. Power On and Off 7
6. Maintenance 7
7. Manufacturer's Warranty 8

1. About your new CO_2 Sensor AVG device

Your new CO_2 sensor is carefully designed and tested to monitor levels of carbon dioxide (CO_2) in the air and used in areas where CO_2 could be a concern.

The device will measure and display the CO_2 value in ppm (parts-per-million) with digital display indications. This data is refreshed every 3 seconds.

Your device will also monitor, record and display the average concentration of carbon dioxide over an 8 and 24 hour period also giving you the maximum concentration recorded over 24 hours. This data is refreshed every 10 minutes.

The information contained within this guide should be referenced for typical installation and operation only. For site specific requirements that may deviate from the information in this guide – contact your supplier.

Carbon Dioxide Gas
Carbon dioxide (Chemical formula-CO_2) is a colourless gas with a density about 60% higher than that of dry air. It occurs naturally in earth's atmosphere as a trace gas where the natural concentration is about 0.04% (410ppm).

⚠
Important Warning Statements

Please take the time to thoroughly read this user's guide which should be retained for future reference.

It is recommended that this unit be commissioned upon installation and serviced annually.

The expected lifetime of gas sensor elements is 10 years upon initial power up.
The device will display a message to indicate this time and should immediately be replaced.

Do not apply lighter gas or other aerosols to the device – this will cause extreme damage.

This device is designed to detect carbon dioxide.
It is NOT designed to detect smoke, fire or other gases and should NOT be used as such.

This device requires a continual supply of electrical power – it will not work without power.

This unit may not fully safeguard individuals with specific medical conditions.
If in doubt, consult a doctor.

Your device has been fully tested and inspected and with proper use, will provide years of reliable service.

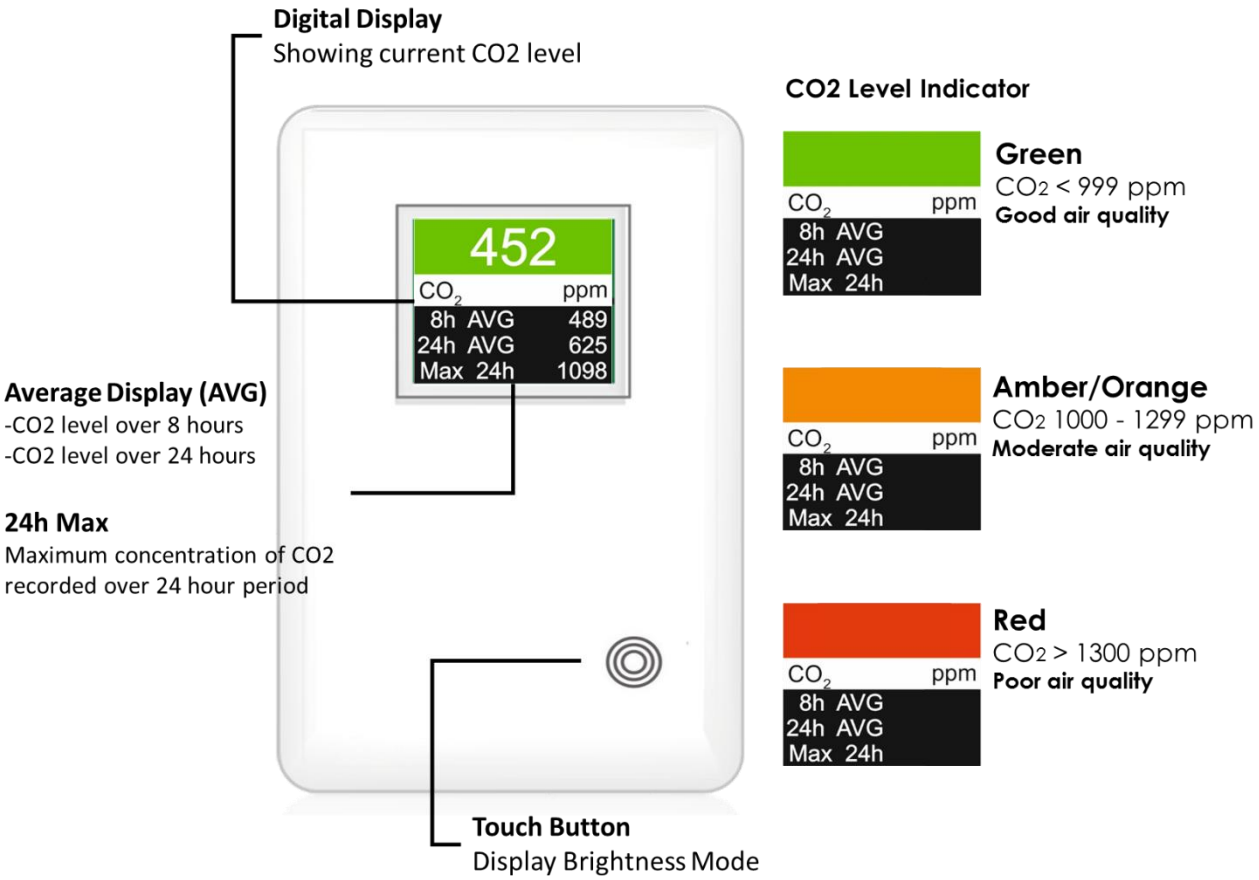
Your product should reach you in perfect condition, if you suspect it is damaged, contact your supplier.

Information on waste disposal for consumers of electrical & electronic equipment. (EEE)

When this product has reached the end of its life it must be treated as Waste Electrical & Electronics Equipment (WEEE). Any WEEE marked products must not be mixed with general household waste, but kept separate for the treatment, recovery and recycling of the materials used.

Please contact your supplier or local authority for details of recycling schemes in your area.

2. CO_2 Sensor AVG Features



BRIGHTNESS MODE

By pressing and holding the touch button for 3 seconds allows the user to select 5 brightness modes.

Press the touch button to switch between the following brightness modes.

Auto-adjustment (device will adjust itself according to the level of light in the area).

Minimum Brightness

Medium Brightness

Maximum Brightness

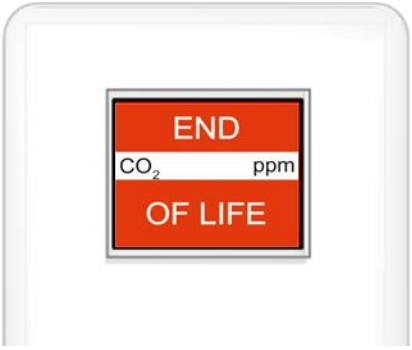
Display screen OFF

- *Press the touch button to illuminate screen for 10 seconds*
- *If air quality reaches moderate or poor CO_2 status, the screen will automatically set to Auto-adjustment mode.*

Simply release the touch button and after 5 seconds the selected mode will be set.

END OF LIFE screen

This indicates that the device requires immediate replacement.



The gas monitoring elements are expected to last for 10 years from initial installation and power up depending on environmental factors.

3. Technical Specification

Power Supply	100-240VAC, 50-60Hz (Max 1.7 VA without load)
Target Gas Sensor Type	NDIR: Intelligent Infrared CO2 Module
Digital Display Type	Thin Film Transistor (TFT)
Typical Sensor Measuring Range Accuracy @ 25℃ (77℉)	400 ~ 5000ppm ± 50ppm ± 3% reading value
CO2 Signal Update	Every 3 seconds
Average/24hr Max Signal Update	Every 10 minutes
CO2 Warm Up Time	One minute / 60 Seconds
Amber/ Orange Screen Indicator (Moderate CO2 Air Quality)	1000-1299 ppm
Red Screen Indicator (Poor CO2 Air Quality)	1300+ ppm
Operating Conditions	-32 - 122℉; (0 - 50℃) 0 - 95%RH, Non Condensing
Storage Conditions	-32 - 122℉; (0 - 50℃)
Net Weight	202.6g 7.15oz
Dimensions	95(W)x140(H)x30(D)mm 3.7(W)x5.5(H)x1.2(D)inch
Installation Standard	Wall mountable
Model No:	CO2 Sensor AVG (TFT)

4. Installation & Location

This device is designed for surface mounting using 2 mounting screws (not supplied) and MUST be installed by a competent person.

Mark the location of the two holes needed on the wall using the back plate as a template. Placing at eye level allows for optimum monitoring of the digital display screen, or as guide, 5 foot (1.5 meters) from ground level.

Back Plate

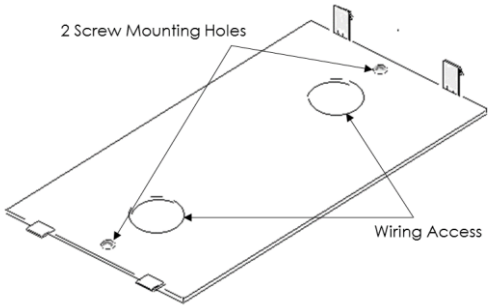
Removing the back plate gives access to the printed circuit board (PCB).

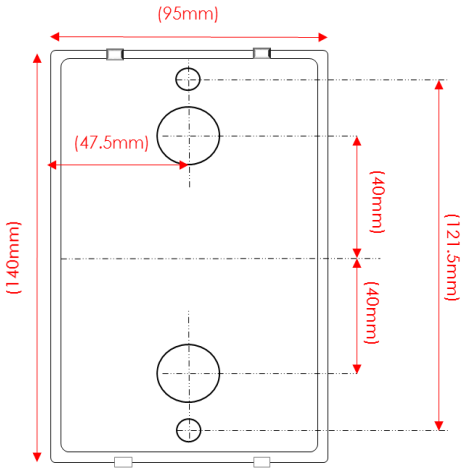
⚠

Do not attempt to remove the Circuit Board!

This will void any warranty you may hold.

There are also two 'knock outs' for electrical wiring access.





Recommended Installation Locations

The device should be mounted in the bedroom at home and any areas where CO2 can generate and potentially cause poor air quality.

✓ **DO** place the device at eye level to optimise monitoring of the digital display.
✓ **DO** place out of reach of children.

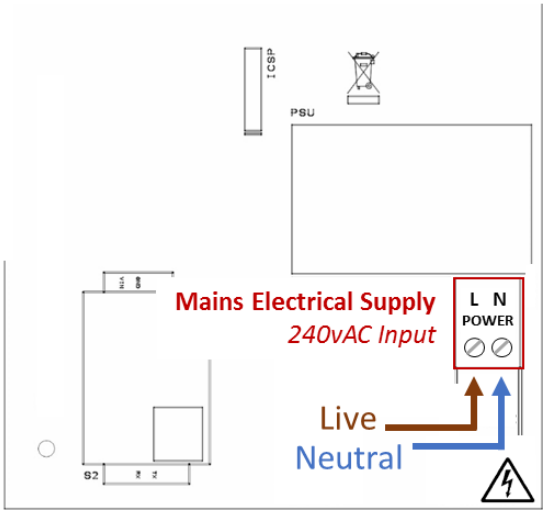
× **AVOID** Installation near any ventilation openings, i.e. vents, chimneys, windows etc.
× **AVOID** installation near ceiling fans, windows or areas exposed to direct weather.
× **DO NOT** obstruct the vents located on the device itself.

5. Wiring

Removing the back plate carefully exposes the circuit board.

A 240-volt electrical supply should be supplied to the panel marked **[L N POWER]** as shown. This should be externally fused at 3 Amps.

When mains supply is connected, the device will power up for 60 seconds and CO2 levels will then be displayed.



6. Power On and Off

How to turn your device ON

- Supply 240VAC mains to the **[L N POWER]** terminal.
- After initial warm up (60 seconds) the screen will show CO_2 level in the area.

How to turn your device OFF

- Remove or Switch Off the mains power supply.

7. Maintenance

To keep your device in good working order, you must follow these steps:

✓ DO carefully remove any accumulated dust from the outer enclosure once a month.

✘ NEVER use detergents or solvents to clean your device – this may permenantly or temporarily damage the gas sensing elements.

✘ NEVER spray air fresheners, hair spray, paint or other aerosols near the device.

✘ NEVER paint the device. Paint will seal vents and interfere with the device.

8. Manufacturer's Warranty

3 Year Limited Warranty

Warranty coverage: The manufacturer warrants to the original consumer purchaser, that this product will be free of defects in material and workmanship for a period of three (3) years from date of purchase. The manufacturer's liability hereunder is limited to replacement of the product with repaired product at the discretion of the manufacture. This warranty is void if the product has been damaged by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material or workmanship. This warranty extends to the original consumer purchaser of the product only.

Warranty disclaimers: Any implied warranties arising out of this sale, including but not limited to the implied warranties of description, merchantability and intended operational purpose, are limited in duration to the above warranty period. In no event shall the manufacturer be liable for loss of use of this product or for any indirect, special, incidental or consequential damages, or costs, or expenses incurred by the consumer or any other user of this product, whether due to a breach of contract, negligence, strict liability in tort or otherwise. The manufacturer shall have no liability for any personal injury, property damage or any special, incidental, contingent or consequential damage of any kind resulting from gas leakage, fire or explosion. This warranty does not affect your statutory rights.

Warranty Performance: During the above warranty period, your product will be replaced with a comparable product if the defective product is returned together with proof of purchase date. The replacement product will be in warranty for the remainder of the original warranty period or for six months – whichever is the greatest.

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Section 12 - Level access shower care

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ADAPTOCARE CARE

Welcome to your new Adaptocare level access shower with enclosure , whether it be a 2 minute morning splash or a soak long enough to sing a few of your favourite songs we hope you thoroughly enjoy the experience !!

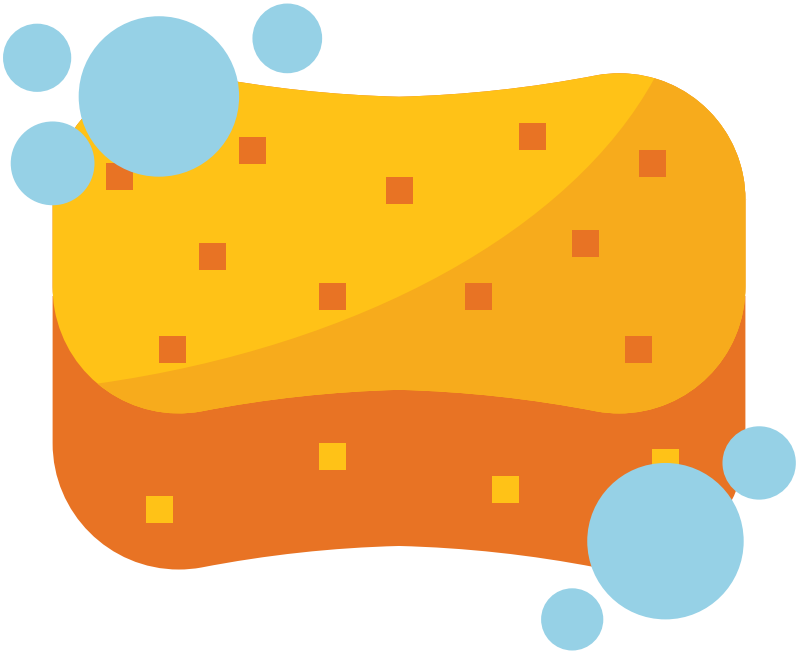
Here are a couple of handy tips which will help keep your new shower in perfect order .

Please be aware that the latches which hold bi-folding doors closed and the handles used to operate doors are not designed to be load bearing supports , as such it is important to refrain from leaning on them, in order for them to remain in good working order.

If there are youngsters in the house and they are assisted while bathing be careful not to lean heavily on the doors while reaching into the shower area as over time this can hurt your tummy, be bad for your back and will put undue pressure on the hinges and they could subsequently fail.

In terms of keeping the shower tray and doors clean….you can't beat hot soapy water. With so many of today's shower products containing dyes its important to give them both a rub down frequently to avoid any staining.

If your shower has a drainage pump fitted….you will know by the gulping noise that starts when the water starts to flow (and you'll know why its called a "gulper pump " !!) you must never use any acidic corrosive cleaning agents such as bleach, Mr Muscle or Domestos as this will corrode essential components in the pump and it will fail to operate leading to water standing in the shower area.



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Section 13 - Mira shower guide

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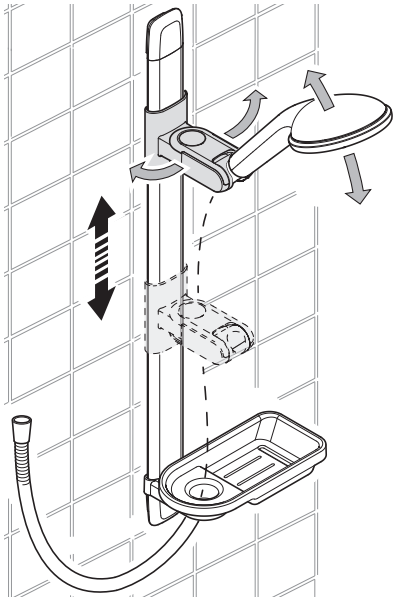
Operation

Spray Settings

1. The handset has three spray settings (Coverage, Soft and Task). Turn the spray adjuster to activate the different spray settings.

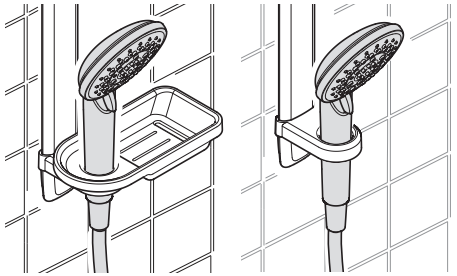
Clamp Bracket Adjustment



2. Slide the Clamp Bracket up and down the Slide Rail until the Showerhead is positioned to your preference.

Parking Socket

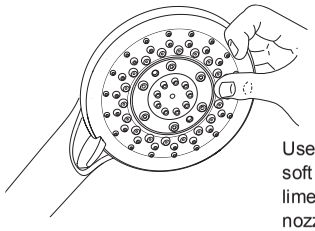
3. The Soap Dish (if fitted) and Hose Retaining Ring / Soap Dish Support can also be used as a parking socket for the Showerhead.



Cleaning and User Maintenance

De-scaling the Showerhead

Important! Keeping the showerhead clean and free from limescale will ensure that your shower and showerhead continue to perform to their maximum. A blocked showerhead can restrict the flow rate and may cause damage to your shower.

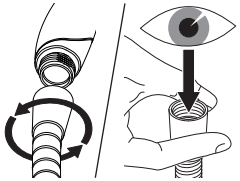


Use your thumb or a soft cloth to wipe any limescale from the nozzles

Inspecting the Hose

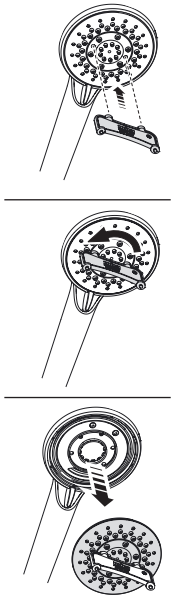
Important! The shower hose should be inspected periodically for damage or internal collapse, internal collapse can restrict the flow rate from the showerhead and may cause damage to the shower.

1. Unscrew the hose from the showerhead and the shower outlet.
2. Inspect the hose.
3. Replace if necessary.

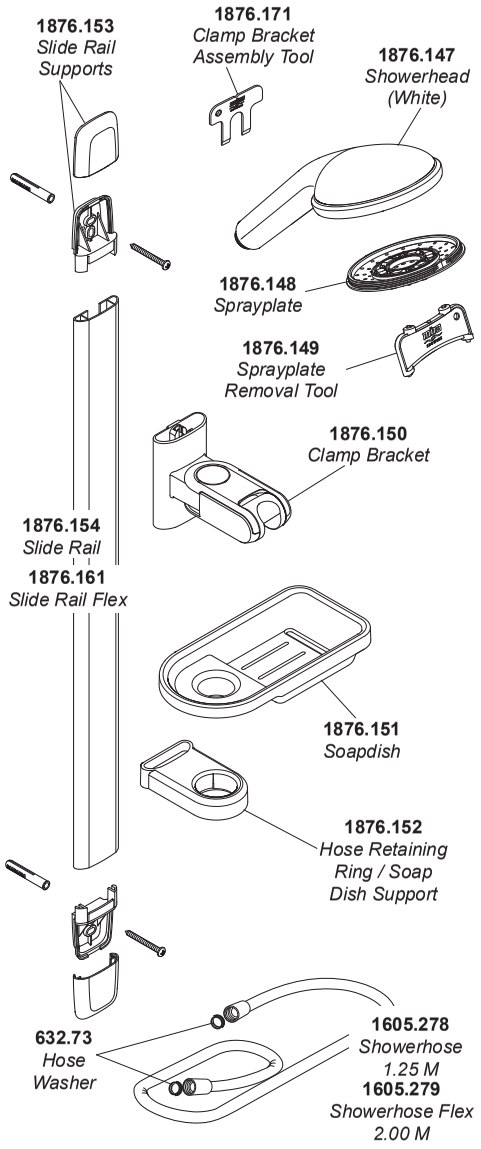


Sprayplate Removal

1. Insert the 2x prongs of the Spray Plate Removal Tool into the corresponding holes in the sprayplate. Turn the removal tool anti-clockwise and unscrew the sprayplate from the showerhead body
2. Clean all the components with a stiff brush. If necessary use a plastic kettle descalent in accordance with the manufacturer's instructions. Flush thoroughly with water before the shower is used.
3. Refit the components in reverse order. Take care not to cross thread the sprayplate.



Spare Parts



To Contact Us: UK

0844 571 5000

Calls cost 7p per minute plus your phone company's access charge

www.mirashowers.co.uk - Full details of the manufacturer's guarantee is available on the website.

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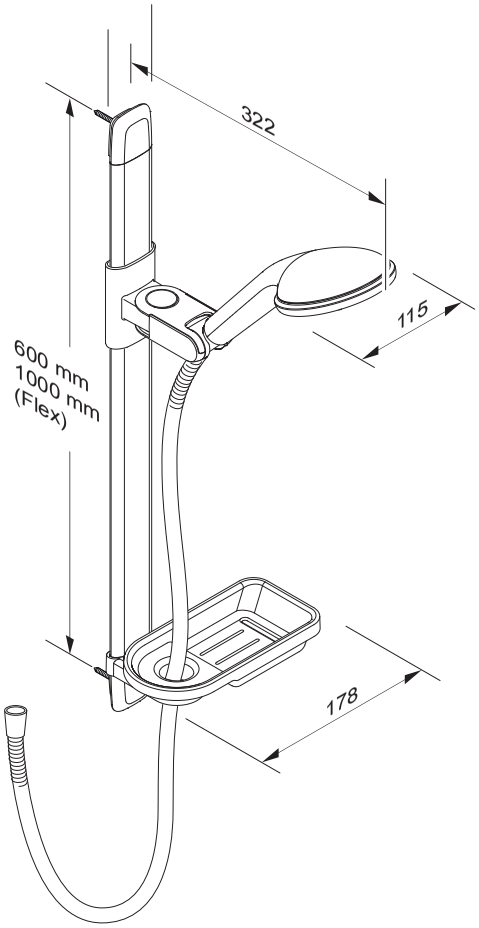
Mira Advance Shower Fittings

Installation & User Guide



These instructions must be left with the user

Showering perfection

mira SHOWERS

1298649-W2-B

Specifications

Minimum maintained water pressure	0.1 bar (10 kPa)
Maximum maintained water pressure	2.0 bar (500 kPa)

General

1. Installation of the shower fittings must be carried out in accordance with these instructions by qualified, competent personnel.

2. The plumbing installation must comply with all national or local water regulations and all relevant building regulations, or any particular regulation or practice specified by the local water supply company.

3. Install the shower fittings over a water catchment area and position so that the water discharges down the centre line of the bath, or across the opening of a shower cubicle. The handset should direct the water away from the shower unit.

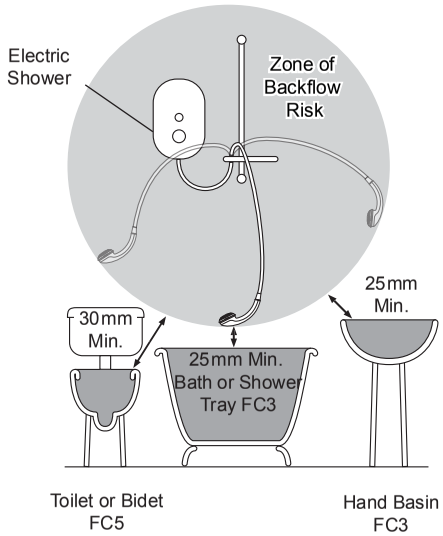
4. Do not fit any form of flow control in the outlet pipe work if the shower fittings are installed in conjunction with a product that requires the fittings to act as a vent (e.g. an electric shower).

5. Do not use excessive force when making connections.

6. Avoid layouts where the shower hose will be sharply kinked. This may reduce the life of the hose.

7. Special consideration should be given to the fixing arrangements when installing onto a dry lined, stud partition, shower cubicle or laminated panel wall structures. Installers may wish to obtain alternative proprietary cavity fixings, or choose other options, however, these methods of fixing are beyond the scope of this guide.

8 . The position of the shower fittings must provide a minimum air gap of 25 mm between the showerhead and the spill over level of any bath, shower tray or basin. There must be a minimum distance of 30 mm between the showerhead and the spill over lever of any toilet, bidet or other appliance with a Fluid Category 5 backflow risk.



Hose Retaining Ring Fitted and Shower Fittings Fixed at a Suitable Height Preventing Dirty Water Backflow

Note! There will be occasions when the hose retaining ring will not provide a suitable solution for Fluid Category 3 installations. In these instances an outlet double checkvalve must be fitted, this will increase the required supply pressure typically by 10 kPa (0.1 bar).

Double checkvalves fitted in the inlet supply to the appliance cause a pressure build up, which affects the maximum static inlet pressure for the appliance and must not be fitted. For Fluid Category 5, double checkvalves are not suitable.

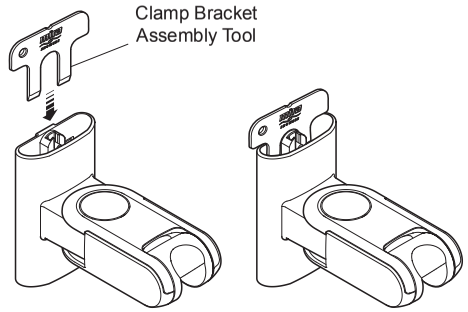
Installation

1. Carefully remove the protective film from the Slide Rail.

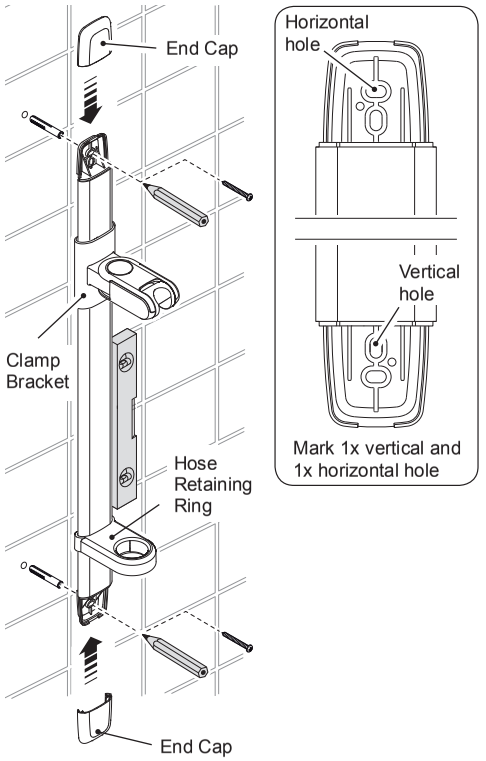
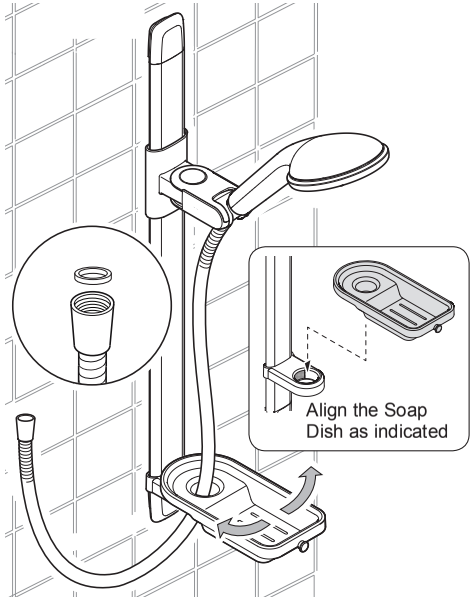
2. Fit the clamp bracket assembly tool into the clamp bracket as shown in the diagram. It should be pushed behind the spring loaded clamping mechanism to allow the bracket to easily push onto the slide bar.
   Note! The clamp bracket assembly tool will only work correctly on the top side of the clamp bracket

3. Push the Clamp Bracket down onto the Slide Rail.
   Note! The Clamp Bracket Assembly Tool will eject as the Clamp Bracket fits onto the rail.

4. Move the clamp bracket assembly up and down the rail several times after fitting to ensure a smooth operation.



5. Slide the Hose Retaining Ring / Soap Dish Support onto the Rail.
6. Push the End Brackets into each end of the Slide Rail. Make sure that each support is pushed home firmly.
7. Hold the Slide Rail Assembly against the wall in the desired position.
   Note! Ensure the Clamp Bracket is fitted in the correct orientation.
8. Using the Slide Rail Brackets as a template, mark the positions of the top and bottom fixing holes. **DO NOT** drill through the Slide Rail Brackets into the wall.
   Note! To allow slight adjustments to the Slide Rail mark one of the vertical oval holes and one of the horizontal oval holes.
   Fit the Slide Rail to the wall and tighten the screws, ensure the rail is vertical.
9. Check that the slide rail is vertical then drill two 8 mm fixing holes.
10. Fit the wall plugs.
11. Fit the End Caps to the Slide Rail.
12. Align the Soap Dish and the Hose Retaining Ring / Soap Dish Support as indicated, then push down to join them together.
13. Twist the Soap Dish to the left or right to lock into position.
    Note! If space is limited, fitting the Soap Dish is optional but the Hose Retaining Ring should always be fitted.
14. Fit the Hose Washer into the hose then screw the hose onto the Showerhead. **DO NOT** overtighten.
    Note! Use the additional Hose Washer if required.
15. Pass the Hose through the Hose Retaining Ring and Soap Dish (if fitted), then attach the Hose to the outlet of the shower control. Make sure the Hose Washer is fitted.
16. Place the Showerhead into the Clamp Bracket.



Handset Installation