

Installation and Servicing Instructions

Pre-Plumb 200

Pre-Plumbed cylinder with Hydro heat pump

For Technical help or for Service call ...
ALPHA HELPLINE Tel: 0344 871 8764
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Alpha
HEATING INNOVATION

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Leave these instructions with the User

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1 INTRODUCTION

The Alpha range of factory built pre-plumbed and wired unvented heat pump cylinders are designed for use with the Alpha Hydro range of monobloc air source heat pumps.

The cylinder is manufactured in high grade stainless steel with manifold, pump, and zone valves pre-fitted. The unit also has a pre-wired control panel for all connection and settings according to the system requirements.

The cylinder is fitted with a built-in immersion heater for hot water back up and legionella protection when required.

The cylinder is supplied with all the necessary safety devices to conform with G3 building regulations for unvented cylinders.

High grade insulation is fitted to the cylinder to meet the highest possible heat loss standard.

The unvented cylinder is supplied with an expansion vessel for the domestic water system to be mounted adjacent to the cylinder in a suitable position.

A separate primary heating expansion vessel must be used according to the overall volume of the primary system. This is normally calculated when the system heat loss requirements are designed, and the design flow temperature is calculated. A primary circuit pressure relief valve is pre-fitted to the cylinder.

2 SAFETY SYMBOLS



GENERIC HAZARD

Strictly follow all of the indications next to the symbol. Failure to follow the indications can generate hazard situations resulting in possible harm to the health of the operator and user in general, and/or property damage.



ELECTRICAL HAZARD

Strictly follow all of the indications next to the symbol. The symbol indicates the appliance's electrical components or, in this manual, identifies actions that can cause an electrical hazard.



HOT SURFACES

The symbol indicates the appliance's very hot components that can cause burns.



SHARP SURFACES

The symbol indicates the appliance's components or parts that can cause cuts if touched.



WARNING FOR INSTALLER

Read the instruction manual carefully before installing the product.



LOW FLAMMABILITY MATERIAL

The symbol indicates that the appliance contains low flammability material.



WARNINGS

Strictly follow all of the indications next to the symbol. Failure to follow the indications can generate hazardous situations resulting in possible minor injuries to the health of both the operator and user in general, and/or slight material damage.



ATTENTION

Read and understand the instructions of the appliance before carrying out any operation, carefully follow the instructions given. Failure to observe the instructions may result in malfunction of the unit.



INFORMATION

Indicates useful tips or additional information.



EARTH TERMINAL CONNECTION

The symbol identifies the appliance's earth terminal connection point.



The user must not dispose of the appliance at the end of its service life as municipal waste, but send it to appropriate collection centres.

PERSONAL PROTECTIVE EQUIPMENT



SAFETY GLOVES



SAFETY GOGGLES



SAFETY FOOTWEAR

3 SAFETY NOTICES

3.1 Mechanical work

The Pre-plumbed cylinder must be connected to a correctly specified Hydro heat pump to achieve the required output and performance for the building.



The cylinder and heat pump must be installed by a correctly qualified installer with all the necessary certification for the individual units. If the package is incorrectly installed there is a risk that water leaks, shock or fire may result.

Both the outdoor heat pump and the Pre-plumbed cylinder must be correctly mounted on a base suitable of withstanding the final weight.

The outdoor unit must be mounted on anti-vibration mounts and the base or bracket correctly selected to prevent noise and vibration transfer.

The outdoor heat pump **must be** connected to the primary circuit using insulated flexible connecting hoses.

The position of the outdoor unit must be suitably selected to comply with the regulations in force and be at least 1 m away from a neighbouring boundary.

The pipework distance between the Pre-plumbed cylinder and the outdoor heat pump should be kept to the minimum distance possible and not be more than 10 m total pipe distance for either flow or return pipes. All pipework between the outdoor heat pump and the Pre-plumbed cylinder must be a minimum of 28 mm diameter to allow the correct volume and flow rates required.

All safety devices and discharge pipework must be correctly installed according to the required regulations for unvented hot water and sealed heating systems.

Only use accessories and replacement parts approved by Alpha for suitability with the package.

All exposed pipework and fittings **must be** insulated with suitable 19 mm thickness insulation.

Outdoor pipe and fittings **must have** UV and water resistant insulation.

3.2 Electrical work

All electrical work must be undertaken by a suitably qualified electrician. All wiring must be in accordance with the relevant regulations and the guidance within these instructions.

The necessary DNO approval must be sort and a dedicated electrical supply with MCB installed for the outdoor heat pump unit.

The Pre-plumbed cylinder can be fitted on a 13 A fused spur connection or dedicated MCB connection with 16 A rating.

3.3 General

Keep children and pets away from both the outdoor heat pump unit and the Pre-plumbed cylinder.

Carry out the correct annual maintenance checks to maintain correct function and warranty of the units. All checks must be undertaken by a suitable qualified engineer.

All external pipework **must be** fully insulated including fittings and valves to prevent heat loss and freezing in extreme cold conditions.

The package **must be** correctly commissioned after final installation to enable correct operation and maintain the warranty.

All parts of the system must be correctly maintained and serviced to ensure correct operation and maintain the warranty.

This appliance is classified as not accessible to the general public. Operation is only permitted through the user interface.

All internal connections and components must only be serviced by a suitable qualified engineer.

4 TECHNICAL DATA

4.1 TECHNICAL DATA



Technical Data	Ref.	Value
Cylinder water storage capacity		207 l
Domestic water main maximum pressure		12 bar (1.2 MPa)
Domestic water maximum pressure		6 bar (0.6 MPa)
Domestic water maximum temperature		90 °C
Domestic water temperature range		30-60 °C (65°C during legionella protection)
Primary heating maximum temperature		65 °C
Primary heating maximum pressure		3 bar (0.3 MPa)
Standing energy loss of the cylinder	EN 12897	56 W
Standing energy loss of the cylinder	EN 12897	1.344 kWh/24h (Class B)
Maximum volume of mixed water available at 40°C	EN 12897	290.3 l
Domestic hot water expansion vessel capacity		12 l
Vessel pre-charge		2.5 bar (0.25 MPa)
Empty cylinder package weight		65 Kg
Cylinder weight when full		272 Kg
Electrical supply		230 V ~ 50 Hz
Electrical max power input		2400 W
Electrical power consumption - Standby		5 W
Electrical power consumption - Pump		130 W
Nominal power absorption		10.5 A
Degree of protection		IPX4D
Cylinder dimensions (h x w x d)		1330 x 762 x 772 mm
DHW connections		1" BSP - 22 mm
Cylinder material		AISI316L
Cylinder thickness		1.5 mm
Maximum ambient temperature		+35 °C
Primary Coil		
Coil material		AISI316L
Coil diameter		25 mm
Coil thickness		0.8 mm
Coil length		19.34 m
Coil exchange surface		1.52 m ²
Coil capacity		8.7 l
Maximum primary coil pressure		6 bar (0.6 MPa)
Coil exchange power	EN 12897	44.5 kW
Coil design flow rate	EN 12897	2100 l
Coil design Δ T	EN 12897	18.3 °C

4.2 DATA PLATE - Located on the cylinder on the heat pump flow/return connection plate

Alpha <small>HEATING INNOVATION</small>		Alpha Therm Ltd, Nepicar House London Road, Wrotham, Kent TN15 7RS	
Md. Pre-Plumb 200	Cod.Md. 3.033315	Sr N° XXXXXXX	CHK X
Max main inlet pressure: 12 bar	DHW connections: 1" BSP - 22 mm		
Exp. relief valves setting: 6 bar	Cylinder dimensions (mm): 1330 h x 762 w x 772 d		
Vessel pre-charge: 2.5 bar	Standing energy loss: 56 W		
Cylinder store capacity: 207 L	Electrical supply: 230 V ~ 50 Hz 2400 W		
Store weight (full): 272 kg	TM 90°C		
Store weight (empty): 65 kg			

5 GENERAL PACKAGE INFORMATION

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



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

WARNING: Do not switch on if there is a possibility that the water in the heater is frozen

5.1 COMPONENT CHECK LIST

Before commencing installation check that all the components for your Air Source Heat Pump cylinder are contained in the package. The following components are supplied with your unit :

Factory fitted

- Temperature and Pressure Relief Valve (set at 90°C/7 bar)
- Immersion heater and over-temperature cut-out
- Expansion relief valve (comprises expansion valve and check valve)
- Primary circulating pump
- Primary circuit filling loop
- Primary circuit pressure gauge
- Automatic air vent
- Control panel assembly
- DHW zone valve
- Flow meter
- CH zone valve
- Drain valve

Supplied loose

- Potable water expansion vessel and bracket
- Cold water combination valve (comprises pressure reducing valve, strainer and check valve)
- Tundish, cold inlet and safety valve group

5.2 STORAGE AND HANDLING

Prior to installation the Pre-plumbed cylinder unit must be stored vertically upright on a secure, level surface in a dry, frost free environment. Take note of the weight of the product and follow safe working practices when lifting, moving or manipulating into position. **DO NOT** lift by the Pre-plumbed pipework manifold.



5.3 SITING THE UNIT

The Pre-plumbed cylinder unit must be vertically floor mounted. It can be placed anywhere convenient provided the discharge pipe(s) from its safety valves can be correctly installed and all pre-fitted ancillary parts can be accessed for servicing and/or maintenance. Areas that are subject to freezing must be avoided. Ensure that the floor is of sufficient strength to support the 'full' weight of the unit (Section 4, Technical Data). Pipe runs should be kept as short as possible for maximum economy.



Additional automatic air vents (AAV) (not supplied) may be required at high points in the primary system where pipework is located above the level of the cylinder. After filling the system (primary circuit), release all trapped air using air vents during and following heating period and top up with water as necessary. After removing the air, automatic air vent(s) **MUST** be closed.

5.4 WATER SUPPLY

Bear in mind that the water supply to the property will be supplying both the hot and cold water requirements simultaneously.



It is recommended that the maximum water demand is assessed and the water supply checked to ensure this demand can be satisfactorily met.

Note: A high water pressure will not always guarantee high flow rates.

Wherever possible the cylinder supply pipe should be 22 mm We suggest the minimum supply requirements should be 1.5 bar pressure and 20 litres per minute flow rate. However, at these values outlet flow rates may be poor if several outlets are used simultaneously. The higher the available pressure and flow rate the better the system performance.

The cylinder has an operating pressure of 3 bar which is controlled by the cold water combination valve assembly. The cold water combination valve assembly can be connected to a maximum inlet pressure of 12 bar.

Where mixing taps and thermostatic or mixing showers are installed a balanced pressure cold supply **must be** used.

6 CONNECTIONS AND CLEARANCES

6.1 DIMENSIONS

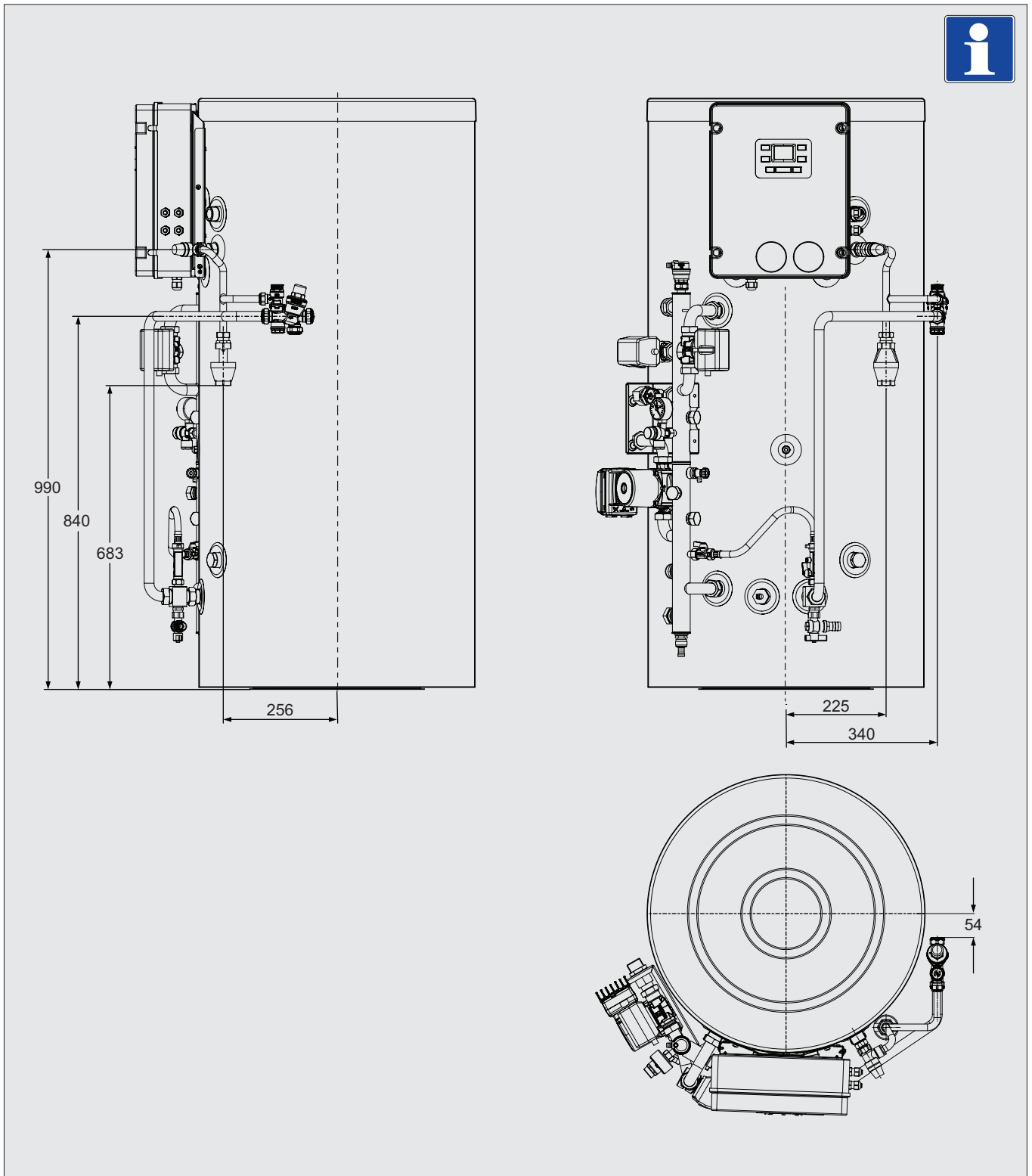
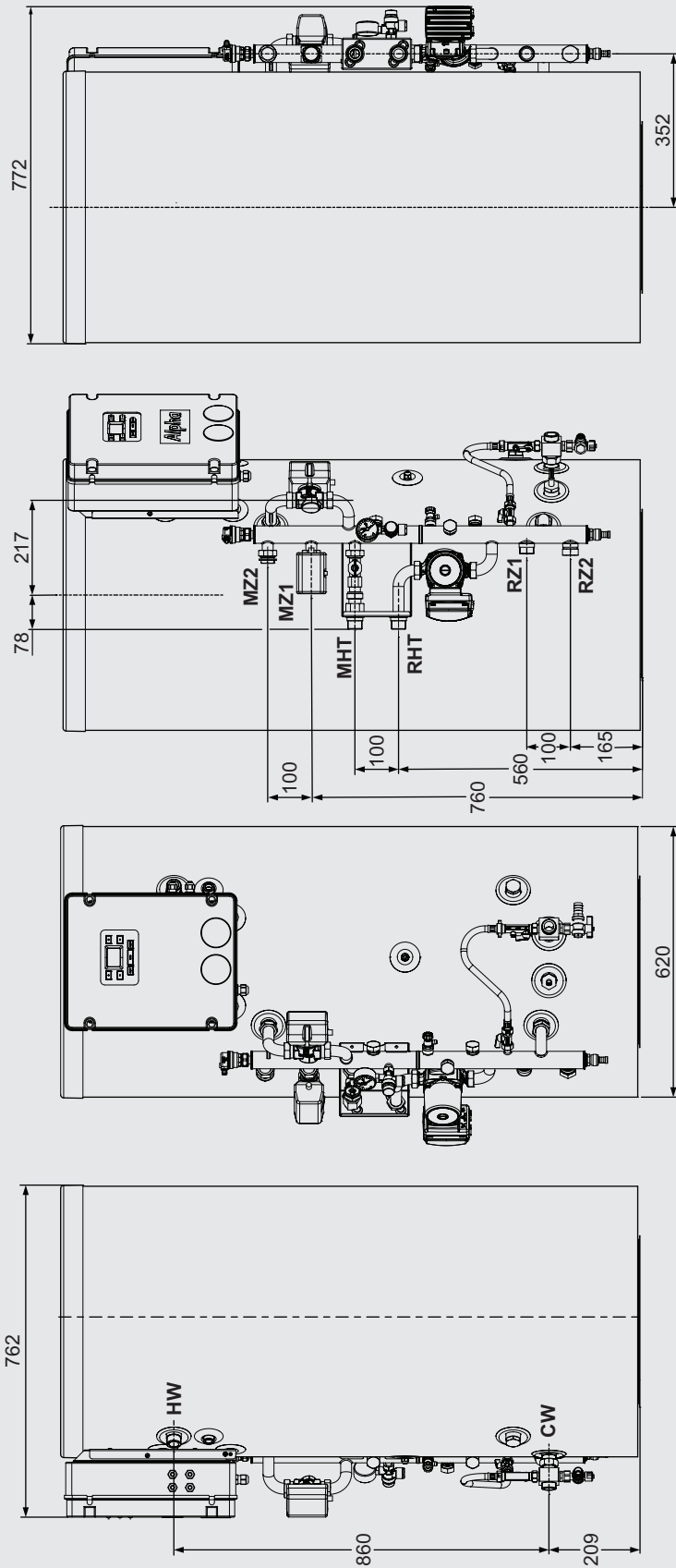


Fig. 6.1

6.2 CONNECTIONS



- | | |
|-----|--|
| MHT | Heat pump flow |
| RHT | Heat pump return |
| MZ1 | Main zone 1 heating circuit flow |
| MZ2 | Zone 2 heating circuit return (optional - remove blanking cap) |
| RZ1 | Main zone 1 heating circuit return |
| RZ2 | Zone 2 heating circuit return (optional - remove blanking cap) |
| CW | Cold water in |
| HW | Hot water out |

Fig. 6.2

6.3 CLEARANCES REQUIRED

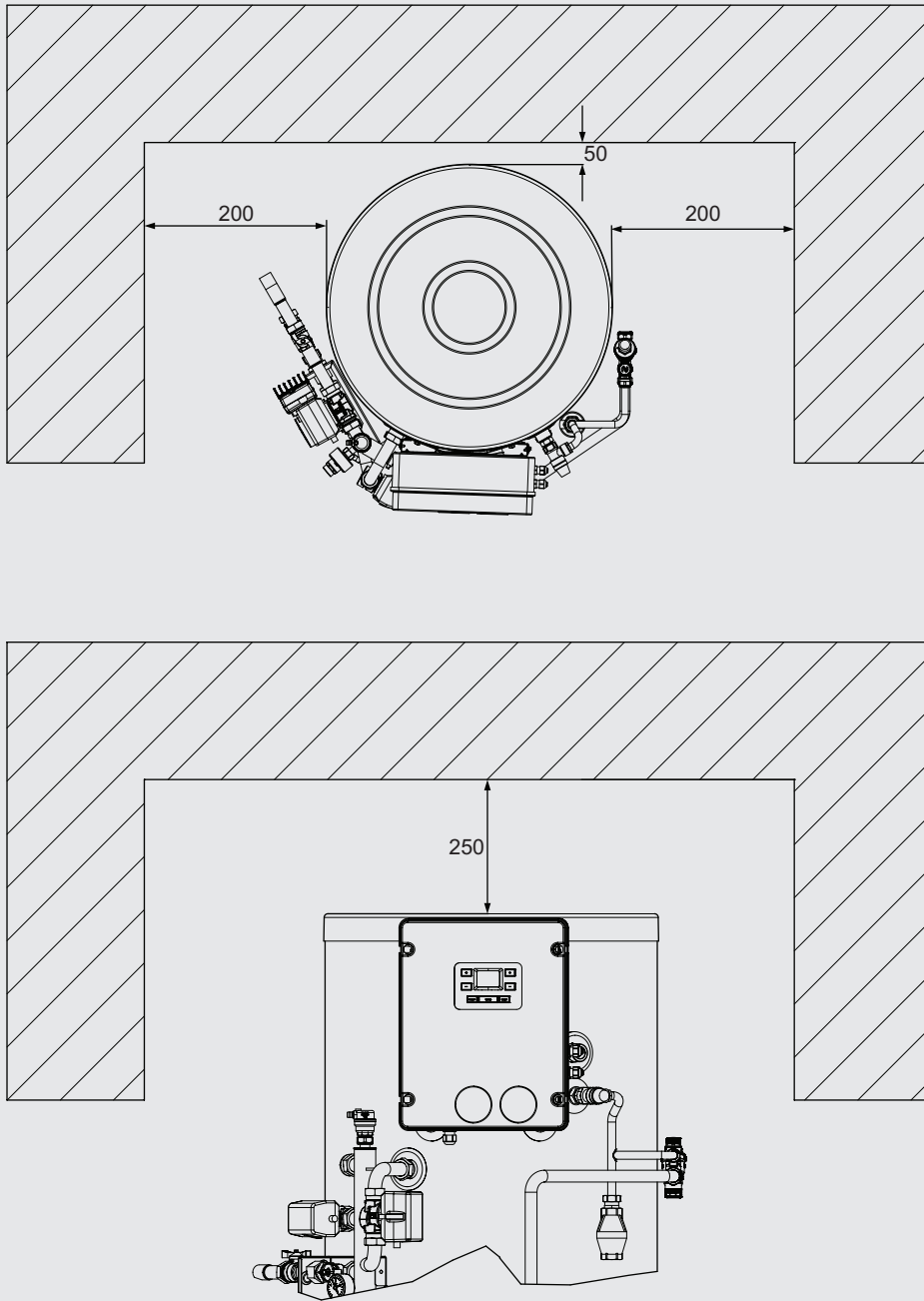


Fig. 6.3

7 ELECTRICAL CONNECTION

7.1 ELECTRICAL CONNECTION

The manufacturer declines any responsibility for damage or physical injury caused by failure to connect the indoor unit to an efficient earthing system or failure to comply with the IEC reference standards.



The pre-plumbed cylinder unit has IPX4D degree of protection - electrical safety of the appliance is achieved only when it is connected to an earthing circuit as specified by current safety standards.

Remove the screws securing the front control panel cover to access the electrical connections

Follow the electrical connection diagrams in Section 17 for connection details.

Connect a dedicated power supply to the pre-plumbed cylinder using 2.5 mm² flexible heat resistant cable.

Connect the BUS communication cable from the outside heat pump using 0.75 mm² twin core cable.

Where the cable run is close to power cables or other cables, shielded type cable is recommended.

Connect the thermostat controls according to the control type. Refer to the relevant wiring diagram in Section 17.

The power supply cable must be connected to a 230V \pm 10% / 50Hz mains supply respecting L-N polarity and earth connection, this network must also have a multi-pole circuit breaker with class III overvoltage category in compliance with installation regulations.



To protect from possible dispersions of DC voltage, it is necessary to provide a type A differential safety device.



If the power cable is damaged, contact a qualified company (e.g. the Authorised Technical Assistance Centre) for its replacement to avoid a hazard.

It is recommended to contact a qualified company (e.g. the Authorised After-Sales Technical Assistance Centre) for replacement to avoid a hazard.



The power cable must be connected as shown (Fig. 17.3 or 17.4).

If the fuses on the circuit boards need to be replaced, this must also be done by a qualified person, use a F3.15A H250V fuse on the PCB.

For the main power supply to the appliance, never use adapters, multiple sockets or extension leads.

Make the various electrical connections according to your needs (Section 17).

Outdoor unit electrical connection

The indoor unit must be coupled to an outdoor unit by connecting terminals F1 and F2 as shown in the wiring diagrams (Figs. 17.5 and 17.6). The indoor unit is powered at 230 V, regardless of the outdoor unit.

Configure the indoor unit parameters as indicated in paragraph (Section 14).

7.2 EXTERNAL TEMPERATURE PROBE (OPTIONAL)

The outdoor unit has a standard external probe that can be used as an external probe of the heat pump.

If the outdoor unit is positioned in an area that is not suitable for temperature reading, it is advisable to use an additional external probe (Fig. 7.1) which is available as an optional kit.

Refer to the relative instruction sheet for positioning of the external probe.

For the proper operation of the optional probe it must be connected and then it must be enabled (Parameter R01).

Once the probe is enabled, switch the appliance off and back on.



The presence of the external probe allows the system flow temperature to be set automatically based on the outdoor temperature.

The system flow temperature is determined by the setting on the 'Heat regulation' menu and by the 'User' menu for the offset values based on the curves shown in Fig. 7.2.

If the system is divided into two or three zones, the flow temperature is calculated based on the zone with the higher temperature in central heating mode.



The electric connection of the external probe must be made on terminals 38 and 39 on the terminal board on the indoor unit control panel.

The outdoor temperature is automatically detected by the external probe on the outdoor unit with the unit powered back on and the parameter R01 set to IU..

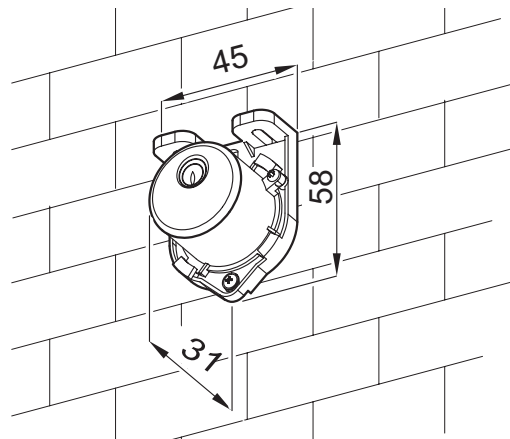
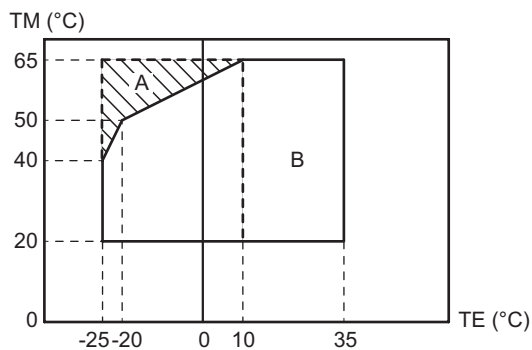


Fig. 7.1

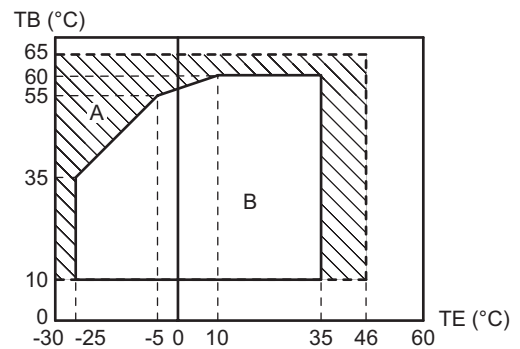
7.3 OPERATING LIMITS

The system was designed to work in a specific range of temperatures and at a specific maximum flow temperature. The charts (Fig. 7.2) shows these limits.

Heat pump operating limits in CH mode



DHW mode operating limits



- TE = External temperature
- TM = Flow temperature
- TB = Storage tank temperature
- A = With integration electrical resistance (optional)
- B = DHW

Fig. 7.2

8 SAFETY DISCHARGE

It is a requirement of Building Regulation G3 that any discharge from an unvented system is conveyed to where it is visible, but will not cause danger to persons in or about the building. The tundish and discharge pipes should be fitted in accordance with the requirements and guidance notes of Building Regulation G3. The G3 Requirements and Guidance section 3.50 - 3.63 are reproduced in the following sections of this manual. For discharge pipe arrangements not covered by G3 Guidance advice should be sought from your local Building Control Officer. Any discharge pipe connected to the pressure relief devices (Expansion Valve and Temperature/Pressure Relief Valve) must be installed in a continuously downward direction and in a frost free environment. Water may drip from the discharge pipe of the pressure relief device. This pipe must be left open to the atmosphere. The pressure relief device is to be operated regularly to remove lime deposits and to verify that it is not blocked.



8.1 G3 REQUIREMENT

"...there shall be precautions...to ensure that the hot water discharged from safety devices is safely conveyed to where it is visible but will not cause danger to persons in or about the building."

Notes:

Discharge pipe-work D2 can now be a plastic pipe but only pipes that have been tested to a minimum 110 °C must be used, Discharge pipe D2 can now be plumbed into the soil stack but only soil stacks that can handle temperatures of 99 °C or greater should be used.

The following extract is taken from the latest G3 Regulations.

Discharge pipe D1

3.50 Safety devices such as temperature relief valves or combined temperature and pressure and pressure relief valves (see paragraphs 3.13 or 3.18) should discharge either directly or by way of a manifold via a short length of metal pipe (D1) to a tundish.

3.51 The diameter of discharge pipe (D1) should be not less than the nominal outlet size of the safety device, e.g. temperature relief valve.

3.52 Where a manifold is used it should be sized to accept and discharge the total discharge from the discharge pipes connected to it.

3.53 Where valves other than the temperature and pressure relief valve from a single unvented hot water system discharge by way of the same manifold that is used by the safety devices, the manifold should be factory fitted as part of the hot water storage system unit or package.

Tundish

3.54 The tundish should be vertical, located in the same space as the unvented hot water storage system and be fitted as close as possible to, and lower than, the valve, with no more than 600 mm of pipe between the valve outlet and the tundish (Fig. 8.1 & Table).

Note: To comply with the Water Supply (Water Fittings) Regulations, the tundish should incorporate a suitable air gap.

3.55 Any discharge should be visible at the tundish. In addition, where discharges from safety devices may not be apparent, e.g. in dwellings occupied by people with impaired vision or mobility, consideration should be given to the installation of a suitable safety device to warn when discharge takes place, e.g. electronically operated.

Discharge pipe D2

3.56 The discharge pipe (D2) from the tundish should:

(a) have a vertical section of pipe at least 300 mm long below the tundish before any elbows or bends in the pipework (see Diagram 1, G3), (Fig. 8, page 21); and

(b) be installed with a continuous fall thereafter of at least 1 in 200.

3.57 The discharge pipe (D2) should be made of:

(a) metal; or

(b) other material that has been demonstrated to be capable of safely withstanding temperatures of the water discharged and is clearly and permanently marked to identify the product and performance standard (e.g. as specified in the relevant part of BS 7291-1:2006 Thermostatic pipes and fittings for hot and cold water for domestic purposes and heating installations in buildings, General requirements).

3.58 The discharge pipe (D2) should be at least one pipe size larger than the nominal outlet size of the safety device unless its total equivalent hydraulic resistance exceeds that of a straight pipe 9 m long, i.e. for discharge pipes between 9 and 18 m the equivalent resistance length should be at least two sizes larger than the nominal outlet size of the safety device; between 18 and 27 m at least 3 sizes larger, and so on; bends must be taken into account in calculating the flow resistance.

Sizing of copper discharge pipe D2 for common temperature relief valve outlet sizes from G3 requirements.

Valve outlet size	Minimum size of discharge pipe D1	Minimum size of discharge pipe D2 from tundish	Maximum resistance allowed, expressed as a length of straight pipe (i.e. no elbows or bends)	Resistance created by each elbow or bend
G 1/2	15 mm	22 mm	Up to 9 m	0.8 m
		28 mm	Up to 18 m	1.0 m
		35 mm	Up to 27 m	1.4 m
G 3/4	22 mm	28 mm	Up to 9 m	1.0 m
		35 mm	Up to 18 m	1.4 m
		42 mm	Up to 27 m	1.7 m
G 1	28 mm	35 mm	Up to 9 m	1.4 m
		42 mm	Up to 18 m	1.7 m
		54 mm	Up to 27 m	2.3 m

Note: The above table is based on copper tube. Plastic pipes may be of different bore and resistance. Sizes and maximum lengths of plastic should be calculated using data prepared for the type of pipe being used.

Fig. 7.1 shows a typical discharge pipe arrangement (extract from the latest Building Regulation G3 Guidance section 3.5)8

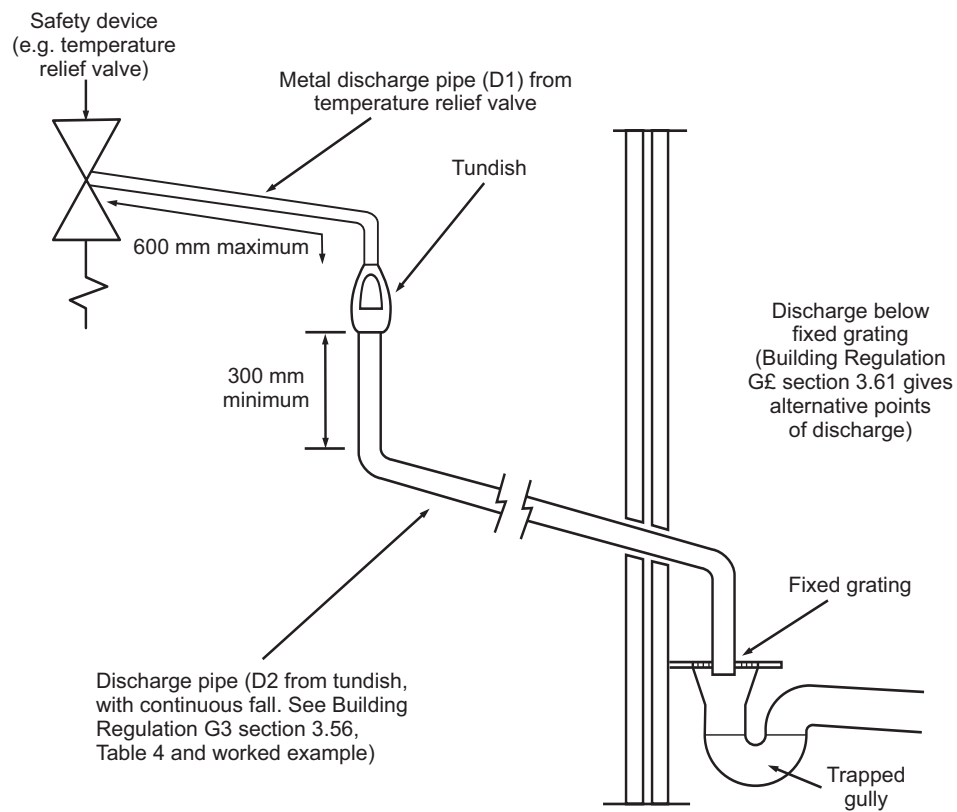


Fig. 8.1

9 HEAT PUMP PRIMARY CIRCUIT

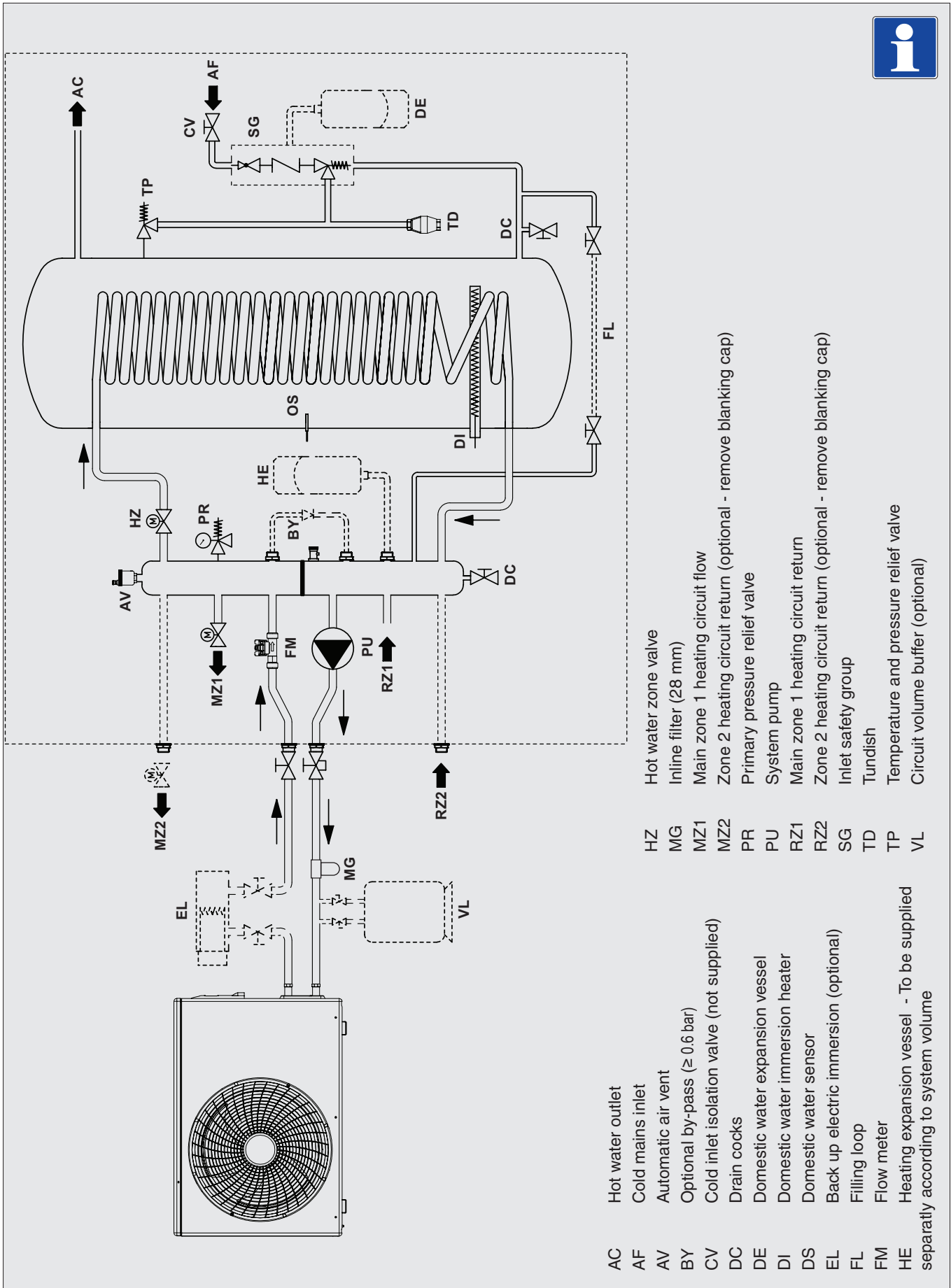


Fig. 9.1

10 PUMP PERFORMANCE

10.1 CIRCULATION PUMP

The appliance is supplied with a variable speed pump which operates as follows:

Fixed ('A 05' = 0): The pump speed is fixed and corresponds to parameter 'A 04'.

ΔT constant ('A 05' = 5 K): The pump speed varies to maintain the $\Delta T = 5K$ constant between the system flow and return. Also, you can adjust the pump operating range, by setting the maximum speed 'A 04' and the minimum speed 'A 03'.

For proper system operation, make sure that the minimum flow rate in operating conditions never drops below 500 l/h.



10.2 PRE-PLUMBED WITH HYDRO 5-8 PUMP PERFORMANCE

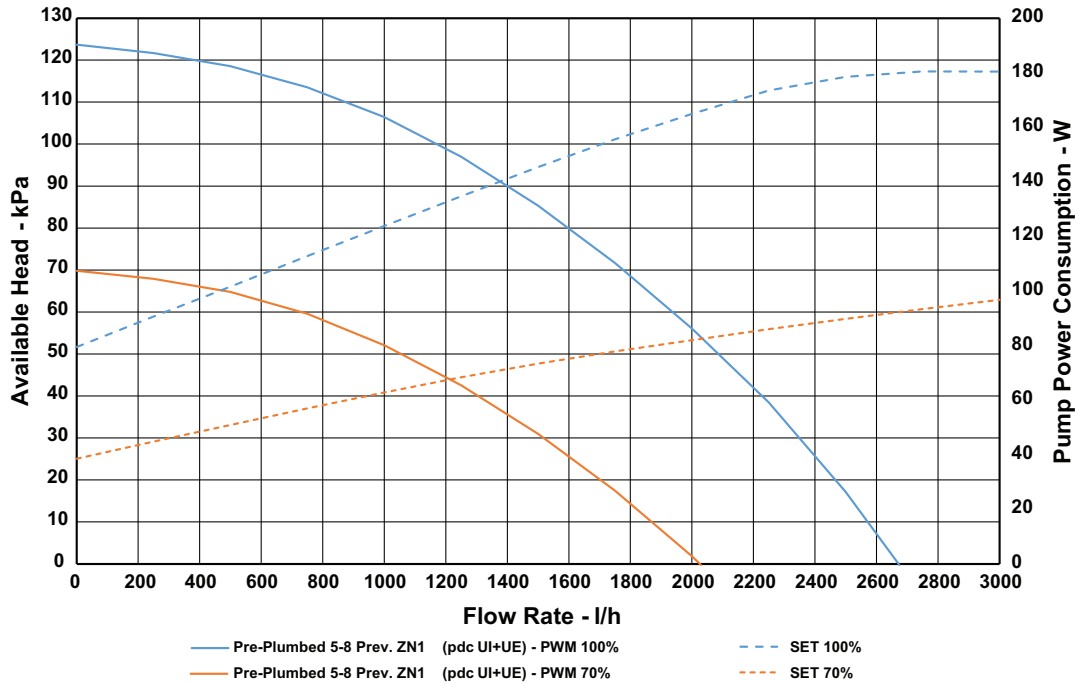


Fig. 10.1

10.3 PRE-PLUMBED WITH HYDRO 12-16 PUMP PERFORMANCE

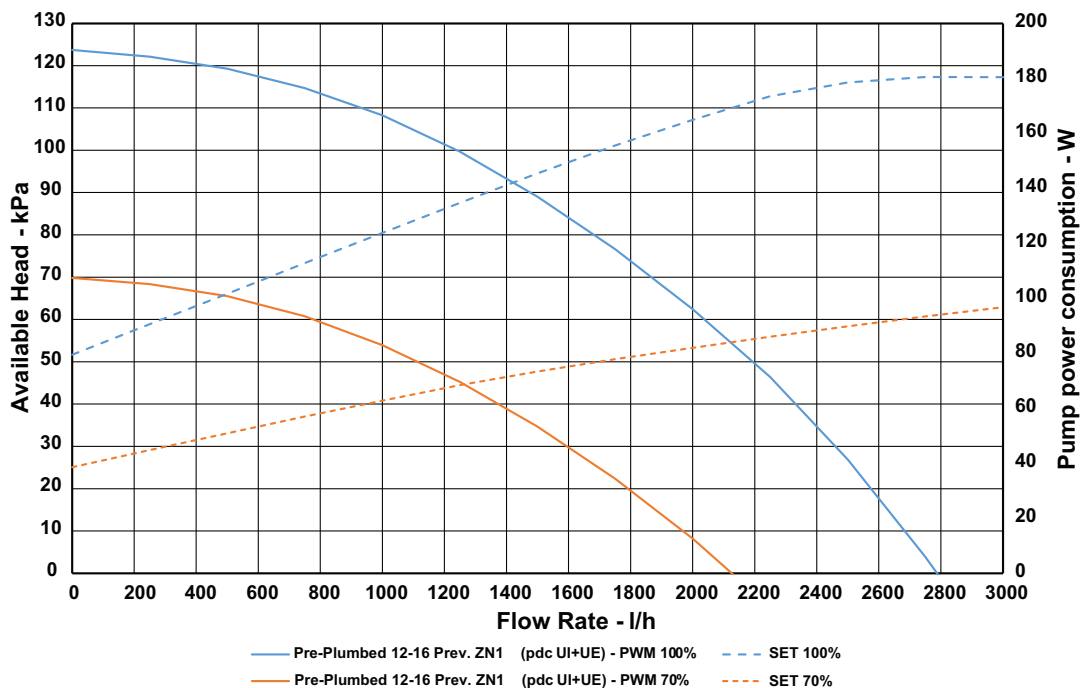


Fig. 10.2

11 COMMISSIONING

At the time of commissioning, please ensure a Commissioning Checklist is completed for the installation.

11.1 Installation Checks

- The heat pump is positioned correctly with the required clearances and within permitted development rules.
- The heat pump is installed using suitable insulated flexible connection hoses (28 mm – 1").
- System flushed and Glycol (Anti-Freeze) with Inhibitor added at the correct concentration.
- Primary expansion vessel is fitted for the required volume of the system (1 Litre expansion for every 10 L of system volume).
- In-line filter connected to the return of the heat pump (28 mm filter must be used).
- Insulation fitted to all external pipes and internal cylinder pipes and connections.
- System has been correctly set and commissioned.
- Customer has been shown on the system operation.
- All safety valves are connected according to the G3 unvented requirements.
- There is an open circuit in the heating system (radiator without TRV) and a system bypass fitted.
- The heating system has a minimum of 30 L water content (If not a volumizer is required).
- A building heat loss has been established and correctly sized emitters for the flow temperature are installed.
- The heat pump is correctly supported on anti-vibration mounts.
- The heat pump is positioned to allow easy access for service and maintenance.

11.2 FILLING THE UNIT WITH WATER

Before filling check and tighten all mechanical joints and connections in case these have loosened during transit.

- Check expansion vessel pre-charge pressure. The vessel is supplied pre-charged to 2.5 bar to match the control pressure of the pressure reducing valve. The pre-charge pressure is checked using a car tyre gauge by unscrewing the plastic cap opposite the water connection
- Check all connections for tightness including the immersion heater.
- Ensure the drain cock is CLOSED.
- Open a hot tap furthest from the cylinder.
- Open the cylinder isolating valve to fill the unit. When water flows from the tap, allow it to run for a few minutes to thoroughly flush through any residue, dirt or swarf, then close the tap.
- Open successive hot taps to purge the system of air.
- Make sure the cylinder and system are filled and vented before switching on the power supply.

11.3 SYSTEM CHECKS

- Check all water connections for leaks and rectify as necessary.
- Turn off the water supply to the cylinder.
- Manually open, for a few seconds, each relief valve in turn, checking that water is discharged and runs freely through the tundish and out at the discharge point.
- Ensure that the valve(s) re-seat satisfactorily.

11.4 PRIMARY CIRCUIT

Fill the primary circuit following the Air Source Heat Pump commissioning instructions. Vent any trapped air and, if necessary, re-pressurise the system. After removing the air, check the primary system for leaks and rectify as necessary. Thoroughly cleanse the primary pipework to remove any debris, solder, fluxes, etc. using a suitable chemical cleansing agent. Flush the system to remove the chemical cleanser. Add a combined inhibitor and anti-freeze solution to prevent damage to the pipework and system components. A corrosion inhibitor should always be used. When using chemical cleansers and inhibitors always follow the manufacturer's instructions and ensure the product is appropriate for the materials used in the water circuit.

Switch on the electrical supply to the Air Source Heat Pump and cylinder. Programme the Air Source Heat Pump controller as detailed in Sections 12 and 13. Set the controller for hot water operation only. After a short delay the primary pump on the return to the Heat Pump should run and the Heat Pump operate. The temperature of the primary flow to the cylinder should increase, if it does not, check for a wiring or piping error.

Allow the unit to heat up.

Select the heating only function on the controller. The primary pump should run and the Heat Pump operates. The primary flow to the cylinder primary pipe work manifold and the radiator circuit should become hot, if it does not check for a wiring or piping error.

The recommended minimum hot water setting is 40 °C and the maximum hot water setting is 60 °C. In hard water areas a maximum of 50 °C is recommended.

When the heating and hot water temperatures are reached, the pumps should stop running and the Heat Pump stop operating.

Check that no water is discharged from either the expansion valve or temperature and pressure relief valve during the heating cycle. If the user temperatures or 'On' and 'Off' times have been adjusted for commissioning purposes, the controller should be reset to the desired settings.

The operation of the controller should be demonstrated to the user and the controller installation and user instructions left with them for future reference.

11.5 TEMPERATURE CONTROL SETTING

By setting the parameters in the 'Heat regulation' menu, you can adjust how the system operates.

The curves (Fig. 11.1 and 11.2) show the default settings in the various operating modes available both with external probe and without.

These parameters must be set according to the building heat loss design.

**Flow temperature in central heating mode
with external probe
(default setting - recommended)**

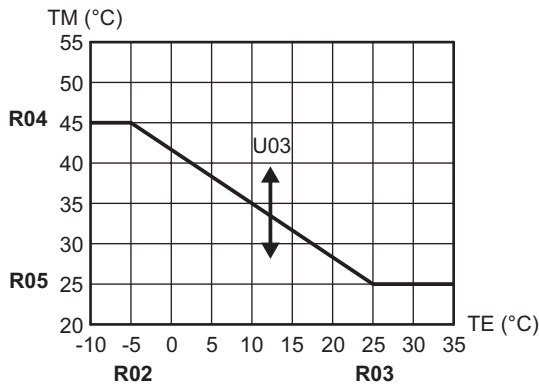


Fig 11.1

**Flow temperature in central heating mode
without external probe
(not recommended)**

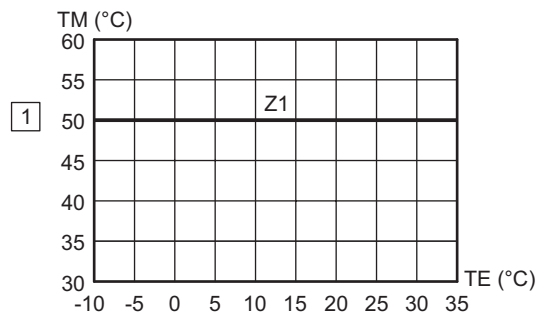


Fig 11.2

11.6 SETTING THE HEAT PUMP FOR HEATING AND HOT WATER

Heat pumps operate most efficiently when maintaining a steady temperature. Turning a heat pump off when the property is unoccupied or at night can use more energy than leaving it on. It is recommended to have a set back temperature during the night and when the property is unoccupied.

A typical set back temperature for the property should be 16 °C with a comfort temperature of around 19 °C.

It is also recommended to time the hot water heating during periods when comfort heating is not essential to enable the heat pump to heat the hot water cylinder without interruption to heating.

Therefore, during the day when the property is empty or during the night are the recommended times to heat the hot water.

12 INSTRUCTIONS FOR USE

12.1 GENERAL RECOMMENDATIONS

Never expose the indoor unit to direct vapours from a hob.



The device can be used by children at least 8 years old as well as by persons with reduced physical, sensory or mental capabilities, or lack of experience or required knowledge, provided that they are under surveillance, or after they have been instructed relating to the safe use and have understood the potential dangers.



Children must not play with the appliance.

Cleaning and maintenance destined to be performed by the user can not be carried out by unsupervised children.

If temporary shutdown of the indoor unit is required, proceed as follows:

- drain the heating system if antifreeze is not used.
- shut off the electrical and water supply.



Never clean the appliance or connected parts with easily flammable substances.



Never leave containers or flammable substances in the same environment as the appliance.



Do not open or tamper with the appliance.



Do not climb on the appliance, do not use the appliance as a support base.



Only use the user interface devices listed in this section of the booklet.



The use of components involving use of electrical power requires some fundamental rules to be observed such as:

Do not touch the appliance with wet or moist parts of the body.

Do not touch when barefoot.

Never pull electrical cables or leave the appliance exposed to atmospheric agents (rain, sunlight, etc.).

The appliance power cable must not be replaced by the user.

In the event of damage to the cable, switch off the appliance and contact exclusively qualified staff for replacement.

If the appliance is not to be used for a certain period, disconnect the main indoor unit external switch.



Water at a temperature of more than 50 °C can cause serious burns.

Always check the water temperature before any use.



The temperatures indicated by the display have a tolerance of +/- 3°C due to environmental conditions that cannot be blamed on the indoor unit.



At the end of its service life, the appliance must not be disposed of like normal household waste nor abandoned in the environment, but must be removed by a professionally authorised company as required by current legislation. Contact the manufacturer for disposal instructions.

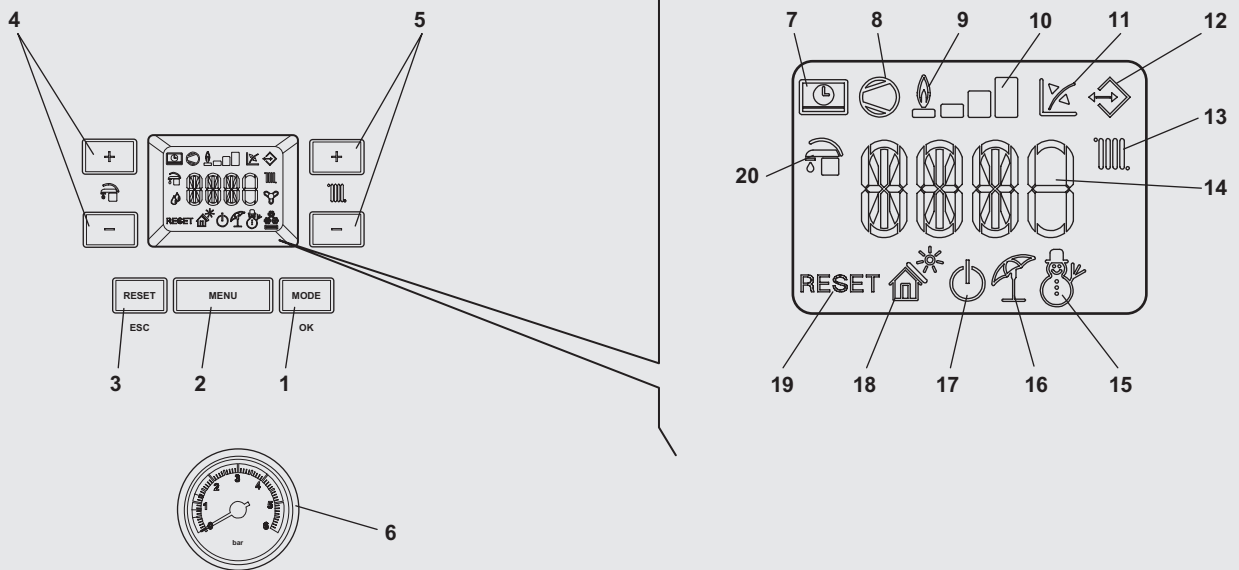


12.2 CLEANING AND MAINTENANCE

To preserve the integrity of the system and keep the safety features, performance and reliability, unchanged over time, you must complete maintenance operations on a yearly basis in compliance with the instructions given in Section 14 'Maintenance and Checks', in compliance with national, regional, or local standards in force.



12.3 CONTROL PANEL



- | | |
|--|---|
| 1 - Operating mode (Winter - Summer - Stand-by - Off) and parameter confirm button | 12 - Connection to other Alpha units |
| 2 - Menu selection button | 13 - Central heating mode function active |
| 3 - Reset and exit menu button | 14 - Temperature indicator, indoor unit info and error codes |
| 4 - Domestic hot water temperature selection buttons | 15 - Operation in winter mode |
| 5 - Heating system temperature selection buttons | 16 - Operation in summer mode |
| 6 - Primary unit pressure gauge (located on cylinder manifold) | 17 - Stand-by mode |
| 7 - Remote control connection (optional) | 18 - Not used on this model |
| 8 - Outdoor unit in operation | 19 - Blocked indoor unit, it needs to be unblocked by pressing the 'RESET' button |
| 9 - Not used on this model | 20 - DHW production phase operating mode active |
| 10 - Dispensed output level | |
| 11 - Operation with external temperature probe active (optional) | |

Fig. 12.1

12.4 SYSTEM USE - Refer to Figs. 12.1 to 12.3 as necessary for item numbers and symbol

Before operation, make sure the system is full of water, checking that the pressure gauge needle (item 6) points to a value between 1 and 1.2 bar and make sure that the heat pump circuit has been filled as described in the outdoor unit instructions booklet.



- Press the button (item 1) until the display switches on. The system now goes back to the state prior to switch-off. (During start up, the display shows in sequence: display segments all lit, parameter A011, parameter A013).
- If the indoor unit is in stand-by, press the button (item 1) again to activate it. If this is not the case, go to the next point.
- Then press the button (item 1) in sequence and set the system to summer ☀, winter ❄.

Summer ☀

In this mode, the system only works to produce domestic hot water, the temperature is set using the buttons (item 4) and the corresponding temperature is shown on the display by the indicator (item 14).

Summer and DHW heating in progress mode

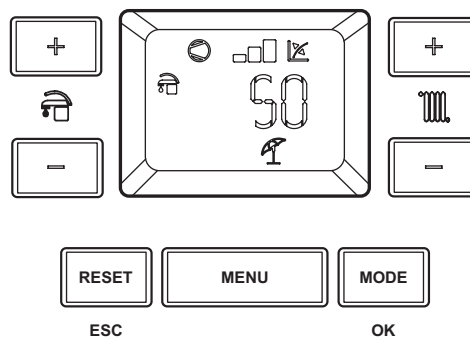


Fig. 12.2

Winter ❄

In this mode, the system works both to produce domestic hot water and room central heating.

The temperature of the DHW is always regulated via buttons (item 4), the central heating temperature is regulated via buttons (item 5) and the relative temperature is shown on the display by the indicator (item 14).

Winter and central heating in progress mode

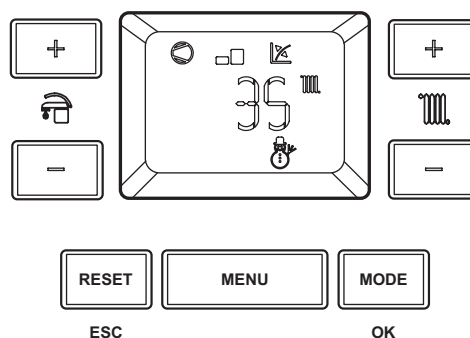


Fig. 12.3

Operation with external probe ❄


The system is set up to use the outdoor unit external probe or an optional external probe.

With the external probe connected, the system flow temperature for room heating is managed by the external probe based on the outdoor temperature measured.

You can change the flow temperature by choosing the offset value in the specific user menu.

Refer to Fig. 12.1 to 12.3 as necessary for item numbers and symbols

Stand-by mode

Press button (item 1) repeatedly until the symbol  appears. The system remains off in this mode, although the antifreeze, pump anti-block, valve function and signalling of any anomalies are maintained.

In these conditions the system must still be considered powered.



OFF mode

By holding the button (item 1) down for 8 seconds, the display switches-off and the indoor unit is off completely. In this mode, the safety functions are not guaranteed and the remote devices are disconnected.

In these conditions the indoor unit is considered still live even if there are no functions active. There is no anti-freeze or defrost options available.



Automatic vent mode

Every time the indoor unit is electrically powered, the system automatic vent function is activated (lasting 8 minutes). This function is displayed via a countdown signalled by the indicator (item 14).

During this period the DHW and CH functions are not active.

The 'Automatic vent' function can be annulled by pressing the 'Reset' button (item 3).

Display operation

The display lights up while the control panel is being used; after a set inactivity period, the brightness drops until only the active symbols are displayed. The lighting mode can be varied via parameter T08 in the PCB programming menu.

12.5 INDOOR UNIT SHUTDOWN

Switch off the indoor unit, putting it in 'OFF' mode. Switch off the isolator switch outside for the outdoor unit.

12.6 RESTORE CENTRAL HEATING SYSTEM PRESSURE

Periodically check the system water pressure (the indoor unit's pressure gauge hand must indicate a value between 1 and 1.2 bar).

If the pressure is less than 1 bar (with the system cold), you must restore it using the filling loop located at the bottom of the unit.

Close the filling loop valves after the operation and disconnect the hose.

If the pressure reaches values around 3 bar, there is a risk of tripping the safety valve (in this case, remove water from a radiator air vent valve until a pressure of 1 bar is achieved, or ask for assistance from professionally qualified personnel).

In the event of frequent pressure drops, contact qualified staff for assistance to eliminate the possible system leakage.

If the pressure repeatedly increases to 3 bar or above, the expansion vessel pressure may need checking.

12.7 DRAINING THE SYSTEM

Ensure that the filling valve is closed.
Open the drain valve.
Open all vent valves.
At the end, close the drain valve.
Close all previously opened vent valves.

If fluid containing glycol was added to the system circuit, make sure it is recovered and disposed of in accordance with standard EN 1717.



12.8 ANTIFREEZE PROTECTION

In order to guarantee the integrity of the appliance and the domestic hot water heating system in areas where the temperature drops below zero, we recommend protecting the central heating system using anti-freeze liquid.



12.9 PROLONGED INACTIVITY

In case of prolonged inactivity (e.g. second home), we recommend:

To switch off the power supply.

Completely empty the central heating circuit and the indoor unit domestic hot water circuit (if paired with a storage tank unit). In systems that are drained frequently, filling must be carried out with suitably treated water to eliminate hardness that can cause lime-scale.

12.10 CLEANING THE CASE

Use damp cloths and neutral detergent to clean the indoor unit casing.

Never use abrasive or powder detergents.



12.11 PERMANENT SHUTDOWN

Should the system be shut down permanently, have a professional carry out the procedures, making sure that the electrical and water supply lines have been previously shut off.

13 PROGRAMMING PARAMETERS

Refer to Fig. 12.1 as necessary for item numbers

13.1 PROGRAMMING PARAMETERS - ENGINEERS SETTINGS

The water heater is set up for possible programming of several operation parameters. By modifying these parameters as described below, the system can be adapted according to specific needs.

To access the programming phase, press the 'MENU' button (item 2) until the 'Password' menu appears. Enter the password (1122), modify the numerical values using the 'central heating regulation' buttons (items 5) and confirm with the 'OK' button (item 1).

Once you have accessed programming, you can scroll through the parameters in the 'System' menu.

Using the 'central heating regulation' button, select the parameter and edit the value.

To save the parameter change, press the 'OK' button.

Wait for 1 minute or press the 'ESC' button (item 3) to exit programming mode.

Id Parameter	Parameter	Description	Range	Default	Value
A03	Minimum speed	Defines the minimum operating speed of the system circulator pump	0 - 100%	70	
A04	Maximum fixed speed	Defines the maximum operating speed of the system circulator pump	45 - 100%	100	
A05	Circulator mode	0 = Fixed (See Section 10.1 'Circulation pump')	0 - 25 °C	0	
		5 - 25 K = ΔT constant (See Section 10.1 'Circulation pump')			
A11	Outdoor unit model	Establishes the outdoor unit model paired with the indoor unit If set to OFF, only the integrated generators are activated	OFF 5 - 8 - 12 - 16	8	
A12	System vent	Enables the automatic vent function (8 min. cycle) This function activates as soon as the unit is powered	OFF - ON	ON	
A13	Number of zones	Defines the number of zones in the heating system	1 - 2	1	
A21	BMS communication address	Defines the communication protocol between the indoor unit and the outdoor unit	1 - 247	11	
A22	BMS communication setting	OFF = BMS communication protocol on 485; use if connected to optional devices. 485 = Do not use	OFF - 485	OFF	
A45	-	Not used on this model	-	-	

Only the following settings in the parameter menus should be adjusted for normal operation.

See available settings and details in the relevant parameter table.

A11 Connected heat pump model

P15, P16 and P17 Legionella cycle settings

R08 and R05 Heating zone temperature settings

U21, U22, U23, U24, U25 and U26 Date and time settings



Id Parameter	Parameter	Description	Range	Default	Value
P 07	External probe correction	If the reading of the external probe is not accurate, it is possible to correct it in order to compensate any environmental factors	-9 to 9 K	0	
P 11	Gen. DHW setpoint offset	The DHW flow setpoint of the generator is calculated by adding P11 to the DHW set point	2 - 30 °C	10	
P 12	DHW electric resistance integration	Dometic hot water integration below set temperature if set temperature is not achieved	5 - 50 °C	5	
P 13	T max anti-Legionella	Maximum time to perform anti-Legionella function	1 - 24 hours	3	
P 14	T max DHW	Maximum time to perform DHW function	1 - 24 hours	5	
P 15	Anti-Legionella function enable	Enable running of anti-Legionella function	OFF - ON	OFF	
P 16	Anti-Legionella start time	Allows to set when anti-Legionella function starts	0 - 23	2	
P 17	Anti-Legionella activation day	Allows to set the weekday on which to activate the anti-Legionella function. You can activate the function continuously every day	Mo-Tu-We- Th- Fr-Sa-Su	Mo	

Id Parameter	Parameter	Description	Range	Default	Value
T02	DHW thermostat differential	Establishes the switch-on and switch-off mode in DHW mode It is enabled when the water in the storage tank goes below the DHW set value and is disabled when the temperature exceeds the DHW set value	0 - 20 °C	4	
T05	Re-start timer	The indoor unit has an electronic timer that controls restarting the compressor of the outdoor unit (anti-cycling)	0 - 10 minutes	3	
T07	Delay request from TA	For special systems (e.g. zone systems with motorised valves, etc.), it may be necessary to delay ignition	0 - 240 seconds (10 sec step)	0	
T08	Display lighting	Establishes the display lighting mode AU: The display lights up during use and lowers after 15 seconds of inactivity. In the event of an anomaly, the display flashes OFF: The display lighting is always off ON: The display lighting is always on	AU - OFF - ON	AU	
T09	Display	Establishes what the indicator displays (item 14 in Fig. 12.1) 'Summer' mode: ON: Active circulator, this displays the flow temperature, with circulator off the indicator is off OFF: The indicator is always off ON: Circulator pump active displays the flow temperature, pump off displays the value set on the central heating selector OFF: Always displays the value set on the central heating selector	ON - OFF	ON	

13.2 HEAT REGULATION MENU - ENGINEERS SETTINGS

Id Parameter	Parameter	Description	Range	Default	Value
R01	External probe	Defines if and which external probe is used to manage the system OFF: No external probe used OU: External probe on outdoor unit IU: Optional external probe connected to the indoor unit	OFF - OU - IU	OU	
R02	Outdoor temperature for max CH flow zone 1	Establishes the outdoor temperature at which to have the maximum flow temperature of zone 1	-15 to 25 °C	-5	
R03	Outdoor temperature for min CH flow zone 1	Establishes the outdoor temperature at which to have the minimum flow temperature of zone 1	-15 to 25 °C	25	
R04	Zone 1 maximum central heating	Defines the maximum flow temperature in zone 1 room central heating mode	20 - 65	55	
R05	Zone 1 minimum central heating	Defines the minimum flow temperature in zone 1 room central heating mode	20 - 65	25	

13.3 INTEGRATION MENU - ENGINEERS SETTINGS

Id Parameter	Parameter	Description	Range	Default	Value
I01	DHW integration enabling	Allows cylinder immersion heater (AL) to integrate domestic hot water heating	OFF - AL	AL	
I02	System integration enabling	Using this function, you can enable an alternative (AL) or simultaneous (CO) power source to integrate heating system central heating	OFF - AL - CO	OFF	
I03	DHW max wait time	Establishes the maximum amount of time before activating DHW integration with (I01 in AL)	1 - 255 minutes	240	
I04	Central heating max wait time	Establishes the maximum amount of time before activating central heating integration (with I02 in CO and heater fitted)	1 - 255 minutes	120	
I08	Simultaneous DHW	Enables the simultaneous operation in DHW mode and CH mode (in this mode DHW uses immersion heater)	OFF - ON	OFF	
I09	DHW activation temperature	Establishes the outdoor temperature under which DHW integration is enabled (I01 in AL)	-25 to 35°C	-15	
I10	System activation temperature	Establishes the outdoor temperature under which system integration is enabled (with I02 in AL and heater fitted)	-25 to 35°C	-15	
I11	Outdoor unit operating hours	Displays the hours of operation performed by the outdoor unit	-	-	
I12	Heating integration resistance hours of operation	Displays the hours of operation of the central heating integration resistance (optional)	-	-	
I13	DHW integration resistance hours of operation	Displays the hours of operation of the DHW integration resistance (optional)	-	-	
I15	Pre-heat function	Activation temperature of pre-heat function (with I02 in AL and heater fitted)	14 - 25°C (LWT)	20°C	

13.4 MAINTENANCE MENU - ENGINEERS SETTINGS

Accessing this menu, the unit goes into stand-by. By selecting every single parameter, you can activate a specific function for each load.

Id Parameter	Parameter	Description	Range	Default	Value
M02	System circulator pump speed	Establishes the system circulator pump speed	0 - 100%	0	
M08	Zone 1 valve	Enables the zone 1 valve	OFF - ON	OFF	
M09	Zone 2 valve	Enables the zone 2 valve	OFF - ON	OFF	
M11	DHW electrical resistance	Enables the DHW integrated electrical resistance	OFF - ON	OFF	
M12	Central heating electrical resistance	Enables the room central heating integrated electrical resistance	OFF - ON	OFF	
M30	DHW test	Test the activation of the DHW zone valve	OFF - ON	OFF	

13.5 FIRST ACTIVATION PARAMETER SETTING

See Section 13.1

During the first activation of the appliance, it is necessary to customise the following parameters, which concern the generator operation, the type of outdoor unit and the type of system connected to the appliance.

Heat pump power:

Set parameter A11 according to the model of outdoor unit connected (5, 8, 12 or 16).

Circulator speed:

Set parameter A05 to define the operating mode of the pump.

Set parameters A03 and A04 to define the maximum and minimum speed of the pump.

It is necessary to adjust the pump speed according to the appliance power, to improve the operating efficiency of the machine.

It is suggested to set the values indicated in Section 9.1.

Number of zones:

Set parameter A13 according to the number of zones in the system that are directly controlled by the machine.

13.6 PUMP ANTI-BLOCK FUNCTION

The indoor unit has a function that starts the pump at least once every 24 hours for the duration of 30 seconds in order to reduce the risk of the pump becoming blocked due to prolonged inactivity.

13.7 PHOTOVOLTAIC FUNCTION

If the photovoltaic contact (contact 'S 39' Section 17 Fig. 17.7) is closed, any DHW (Domestic hot water) stored is heated to a temperature of 55°C by means of heat pump operation in the absence of system requests (limited to the calculated flow temperature).

In central heating mode the heat pump will operate according to the calculated flow temperature.

13.8 ANTI-LEGIONELLA FUNCTION (IF PAIRED WITH A STORAGE TANK UNIT)

See Section 12.1

The indoor unit is equipped with a function to perform a thermal shock on the storage tank.

This function brings the generator temperature to the maximum allowed with DHW integrative resistance enabled.

The function is enabled with parameter "P 15".

The function activates at the time set on parameter P 16, on the weekday set on Parameter "P 17"; the function can be activated every day by setting "P 17"="ALL".

The maximum allowed duration of the function is "P 13" hours; if the function is not completed within the maximum allowed time, an alarm will be triggered.

The function can only be activated in the presence of integrative DHW resistance and eventually a thermostatic value must be installed at the DHW outlet to prevent burns.



13.9 AUTOMATIC VENTING FUNCTION

In the case of new central heating systems and in particular for floor systems, it is very important that deaeration is performed correctly.

The function consists of the cyclic activation of the pump and the 3-way valve.

The function is activated in two different ways:

- Each time the heat generator is re-powered.
- Using parameter 'U 50'.

In the first case, the function has a duration of 8 minutes and it can be interrupted by pressing the 'Reset' button (item 3 in Fig. 12.1). In the second case, it has a duration of 18 hours and it can be interrupted simply by switching the heat generator on.

Activation of the function is signalled by the countdown shown on the screen (item 14 in Fig. 12.1).

13.10 PREHEATING FUNCTION

In case of DHW (Domestic hot water) or central heating request, if the water temperature is lower than the value set on parameters I15, the operation of the heat generator is forced until +5°C are reached with respect to the value set on parameter I15.

The function remains active for a maximum of 2 hours.

If needed, the function can be bypassed by disabling the system's electric resistance.

13.11 OUTDOOR UNIT TEST MODE FUNCTION

When test mode is used (see outdoor unit instruction booklet), the indoor unit must be set in a mode other than 'Stand-by'.

The alarm E183 is triggered during the test, meaning 'Test mode' in progress.

13.12 OUTDOOR UNIT PUMP DOWN FUNCTION

If the pump down function is used (see outdoor unit instruction booklet) the indoor unit must be set in 'Stand-by'.

The function can only be activated if the appliance is not under alarm.

13.13 NIGHT MODE FUNCTION

This function can be activated by setting the internal clock of the appliance (parameters U 21 and U 22).

Activating the function allows you to reduce the compressor frequency during the outdoor unit operation in the time slot set in the U 12 and U 13 parameters.

Make sure the additional power sources needed to meet potential requirements that may present themselves during active operation are available (e.g. additional resistances).

14 PARAMETER and INFORMATION MENUS

14.1 PARAMETER AND INFORMATION MENUS - refer to Fig. 12.1 as necessary for item numbers

Pressing the 'Menu' button (item 2), the display cyclically shows the 'Data' menu, 'User' menu and a menu protected by an access code.

To access an individual menu, once it appears, press the 'OK' button (item 1).

To scroll through the menu items and to edit the values, use the heating temperature control buttons (item 5). Pressing the 'OK' button (item 1) confirms the parameter, while pressing the 'ESC' button (item 3) goes back to the previous menu or exits.

A minute after the last operation, the system automatically exits any of the menus.

The menus of the control panel, found in the booklet, refer to rev. 7.0 of the P.C.B. firmware.



14.2 DATA MENU

Parameter ID	Description	Range
D 03	Storage tank unit temperature (if paired with a storage tank unit)	- 10 to 130 °C
D 04	Value calculated for system setting	5 - 65 °C
D 05	Set value for the DHW set (if paired with a storage tank unit)	10 - 65 °C
D 06	Outdoor temperature (if the outdoor unit external probe is connected or if the optional external probe is available)	- 20 to 50 °C
D 08	System return water temperature	- 10 to 130 °C
D 09	List of the last five anomalies (to scroll the list press 'OK' (item 1, Fig. 12.1))	-
D 10	Anomaly list reset. Once 'D 10' is displayed, press 'OK' (item 1, Fig. 12.1)	-
D 14	Circulator pump flow rate	0 - 9999
D 20	System flow temperature	- 10 to 130 °C
D 21	DHW zone valve status	OFF - ON
D 24	Chiller circuit liquid temperature	- 10 to 130 °C
D 28	System circulator pump instantaneous speed	0 - 100%
D 31	DHW integration function (if paired with a storage tank unit)	OFF - ON
D 32	System integration function	OFF - ON
D 35	Solar system inlet	OFF - ON
D 47	Zone 1 circulator pump	OFF - ON
D 48	Zone 2 circulator pump	OFF - ON
D 55	Zone 1 thermostat	OFF - ON
D 56	Zone 2 thermostat	OFF - ON
D 61	System model definition PPS	PPS
D 62	Communication with interface board	OFF - ON
D 63	Communication with Alpha Smartech control	OFF - ON
D 71	External unit operating frequency	0 - 150 Hz
D 72	Compressor temperature	-20 to 200 °C
D 73	Compressor discharge temperature	-20 to 100 °C
D 74	Evaporator coil temperature	-20 to 100 °C
D 75	Outdoor unit compressor absorption (make sure the value reading refers to the inverter and therefore not a value read with an amperometric clamp)	0 - 10 A
D 76	Outdoor unit fan speed	0 - 100 rpm
D 77	Electronic expansion valve position	0 - 2000
D 78	4-way side (CL = cooling, HT = heating)	HT/CL
D 79	Temperature detected by the external probe of the outdoor unit	- 55 to 45 °C

ParameterID	Description	Range
D80	Heat pump status (reserved for Authorised After-Sales Technical Assistance Centre)	-
D91	P.C.B. software version	1 - 99
D97	Heat pump demand status (reserved to Authorised After-Sales Technical Assistance Centre)	0 - 999
D98	Thermal generator demand status (reserved for Authorised After-Sales Technical Assistance Centre)	0 - 999
D99	System status (reserved for Authorised After-Sales Technical Assistance Centre)	0 - 999
D120	Outdoor unit main board firmware version (1/4)	1 - 99
D121	Outdoor unit main board firmware version (2/4)	1 - 99
D122	Outdoor unit main board firmware version (3/4)	1 - 99
D123	Outdoor unit main board firmware version (4/4)	1 - 99
D124	Interface board firmware version (1/4)	1 - 99
D125	Interface board firmware version (2/4)	1 - 99
D126	Interface board firmware version (3/4)	1 - 99
D127	Interface board firmware version (4/4)	1 - 99
D128	Outdoor unit inverter board memory version (1/4)	1 - 99
D129	Outdoor unit inverter board memory version(2/4)	1 - 99
D130	Outdoor unit inverter board memory version (3/4)	1 - 99
D131	Outdoor unit inverter board memory version (4/4)	1 - 99
D132	Outdoor unit inverter board firmware version (1/4)	1 - 99
D133	Outdoor unit inverter board firmware version (2/4)	1 - 99
D134	Outdoor unit inverter board firmware version (3/4)	1 - 99
D135	Outdoor unit inverter board firmware version (4/4)	1 - 99
D140	Internal clock	0 - 23
D141	Internal clock	0 - 59
D142	Day of the week	Mo - Tu - We - Th - Fr - Sa - Su
D143	Current day	1 - 31
D144	Current month	1 - 12
D145	Current year	0 - 99

14.3 USER MENU

Parameter ID	Description		Range	Default	Customised value
U 03	Zone 1 central heating offset	It is possible to correct the flow temperature with respect to the adjustment curve of the external probe in central heating mode	- 15 - +15 °C	0	
U 11	Night function	Activating the function allows you to reduce the compressor frequency during the outdoor unit operation in the time slot set in the U 12 and U 13 parameters Make sure the additional power sources needed to meet potential requirements that may present themselves during active operation are available (e.g. additional resistances)	OFF - ON	OFF	
U 12	Night function enabling time		0 - 23	0	
U 13	Night function disabling time		0 - 23	0	
U 21	Hour setting (internal clock)		0 - 23 hours	-	
U 22	Minutes setting (internal clock)		0 - 59 minutes	-	
U 23	Day of the week		Mo-Tu-We- Th-Fr-Sa- Su	-	
U 24	Current day		1 - 31	-	
U 25	Current month		1 - 12		
U 26	Current year		00 - 99		
U 50	Venting	In the case of new central heating systems and in particular mode for floor systems, it is very important that de-aeration is performed correctly. The function consists of the cyclic activation of the pump (100 s ON, 20 s OFF) and the 3-way valve (120 s D.H.W., 120 s heating system)	OFF - ON	OFF	

15 MAINTENANCE AND CHECKS

15.1 GENERAL RECOMMENDATIONS

Operators who install and service the appliance must wear the personal protective equipment (PPE) required by applicable law.

The list of possible PPE is not complete as they are indicated by the employer.

For service and repair work the engineer must be able to access the units with ease. Any additional access equipment must be provided by the customer.



Before carrying out any maintenance work, make sure that:

You have disconnected the power to the appliance.

You have discharged the pressure from the system and domestic hot water circuit.



Supply of spare parts

The device's warranty shall be rendered null and void if unapproved or unsuitable parts are used for maintenance or repairs. These will also compromise the product's compliance, and the said product may no longer be valid and fail to meet the current regulations. In regard to the above, only use original Alpha spare parts when replacing components.



If additional documentation needs to be consulted for extraordinary maintenance, contact the Authorised After Sales Service.



The appliance operates with R32 refrigerant gas.

This gas is ODOURLESS.

Pay the utmost attention

Strictly follow the instruction handbook of the outdoor condensing unit before installation and any type of operation on the cooling line.



R32 refrigerant gas belongs to the low flammability refrigerant category: class A2L according to standard ISO 817. It guarantees high performance with low environmental impact. The new gas reduces the potential environmental impact by one third compared to R410A, having less effect on global warming (GWP 675).



15.2 INITIAL CHECKS

Check connection to a 230 V ~ 50 Hz power mains, correct L - N polarity and the earthing connection.

Make sure the central heating system is filled with water and the indoor unit pressure gauge reads a pressure of 1-1.2 bar.

Make sure the chiller circuit has been filled according to what is described in the outdoor unit instructions booklet.

Check the activation of the main switch located upstream of the indoor unit.

Ensure activation of all adjustment devices.

Check the production of DHW.

Check the tightness of the hydraulic circuits.

15.3 YEARLY APPLIANCE CHECK AND MAINTENANCE

The following checks and maintenance should be performed once a year to ensure operation, safety and efficiency of the appliance over time.



Check for water leaks or oxidation from/on the fittings.

Check, after discharging the system pressure and bringing it to zero (read on indoor unit pressure gauge), that the expansion vessel charge is at 1.0 bar (primary circuit).

Check that the system static pressure (with system cold and after refilling the system by means of the filling valve) is between 1 and 1.2 bar.

Check the operation of the mains inlet safety group and the mains expansion vessel is set to 2.5 bar when cold.

Visually check that the safety and control devices have not been tampered with and/or short-circuited.

Check the condition and integrity of the electrical system and in particular:

The power supply wires must be housed in the cable glands

There must be no traces of blackening or burning.

Check correct lighting and operation.

Check correct operation of control and adjustment devices and in particular:

Check chiller line connections.

Check mesh filter on system return.

Check the correct flow rate on plate heat exchanger.

Check the integrity of the internal insulation.

In addition to yearly maintenance, one must also check the energy efficiency of the thermal system, with frequency and procedures that comply with the indications of the technical regulations in force.



15.4 MAINTENANCE REQUIREMENTS

Unvented hot water systems have a continuing maintenance requirement in order to ensure safe working and optimum performance. It is essential that the relief valve(s) are periodically inspected and manually opened to ensure no blockage has occurred in the valves or discharge pipe work. Similarly cleaning of the strainer element and replacement of the air in the expansion vessel will help to prevent possible operational faults.

The maintenance checks described below should be performed by a competent person on a regular basis, e.g. Annually to coincide with Heat Pump maintenance.

After any maintenance, please complete the relevant service interval record documentation for the installation.

15.5 INSPECTION

The immersion heater boss can be used as an access for inspecting the cylinder internally.

15.6 SAFETY VALVE OPERATION

Manually operate the temperature/pressure relief valve for a few seconds. Check water is discharged and that it flows freely through the tundish and discharge pipe work. Check valve re-seats correctly when released. **Note:** Water discharged may be very hot!

Repeat the above procedure for the expansion relief valve.

15.7 STRAINER

Turn off the cold water supply, Heat Pump and immersion heater. The lowest hot water tap should then be opened to depressurise the system. Remove the Pressure Reducing Cartridge to access the strainer mesh. Wash any particulate matter from the strainer under clean water. Re-assemble ensuring the seal is correctly fitted. **DO NOT** use any other type of sealant.

15.8 DESCALING IMMERSION HEATER(S)

Before removing the immersion heater, the unit must be drained. Ensure the water, electrical supply and Heat Pump are OFF before draining. Attach a hosepipe to the drain cock having sufficient length to take water to a suitable discharge point below the level of the unit. Open a hot tap close to the unit and open the drain cock to drain the unit.

15.9 EXPANSION VESSEL CHARGE PRESSURE

Remove the dust cap on top of the vessel. Check the charge pressure using a tyre pressure gauge. The pressure (with system de-pressurised) should be 0.25 MPa (2.5 bar). If it is lower than the required setting it should be re-charged using a tyre pump (Schrader valve type). **DO NOT OVER-CHARGE**. Re-check the pressure and when correct replace the dust cap.

15.10 COIL MAINTENANCE

We recommend regularly inspecting the finned air coils to check the level of fouling.



This depends on the environment where the unit is installed.

The level of fouling will be worse in urban and industrial sites, as well as near trees that lose their leaves.

There are two maintenance levels to clean the coils:

If the air heat exchangers are encrusted, clean them gently with a brush in a vertical direction.

Turn off the fans before working on the air heat exchangers.

To perform this type of intervention, stop the unit only if the maintenance considerations allow it.

Perfectly clean air heat exchangers ensure an optimal operation of the unit. When the air heat exchangers begin to encrust, they must be cleaned. The cleaning frequency depends on the season and location of the unit (ventilated, wooded, dusty, etc.).

Do not use pressurised water without a large diffuser. Do not use high-pressure cleaners for Cu/Cu and Cu/Al air coils.

Concentrated and/or rotating water jets are strictly prohibited. Never use fluid with a temperature above 45°C to clean the air heat exchangers.

Proper and frequent cleaning (approx. every three months) prevents 2/3 of corrosion problems.

Clean the air coil using suitable products.

15.11 RE-COMMISSIONING

Check all electrical and plumbing connections are secure.

Close the drain cock.

With a hot tap open, turn on the cold water supply and allow unit to refill. **DO NOT** switch on the immersion heater or Heat Pump until the unit is full. When water flows from the hot tap, allow it to flow for a short while to purge air and flush through any disturbed particles.

Close hot tap and then open successive hot taps in the system to purge any air.

When completely full and purged, check system for leaks.

The heating source (immersion heater and Heat Pump) can then be switched on.

16 FAULT CODES AND DIAGNOSIS

16.1 CARRY OUT INITIAL FAULT FINDING CHECKS



In the event of a suspected functional fault with the system, carry out initial fault finding checks to establish the cause.

1. Check the correct electrical and water supplies are available.
2. Check the system pressure is in the green area when cold.
3. Carry out electrical supply and connection checks and check all fuses.

Where an error code is displayed use the following tables to identify the fault and possible causes.

16.2 FAULT AND ANOMALY SIGNALS

The indoor unit signals any anomalies by flashing a code on the display (item 14 in Fig. 12.1) according to the following table.

Error Code	Anomaly signalled	Cause	Indoor unit status/Solution
E 8	Maximum N° of resets	Number of allowed resets already performed	Attention: the fault may be reset up to 5 times consecutively, after which the function is inhibited for at least one hour. One attempt is gained every hour for a maximum of 5 attempts. By switching the appliance on and off again, the 5 attempts are re-acquired
E 12	Storage tank probe anomaly (optional)	The board detects an anomaly on the storage tank probe	The indoor unit cannot produce domestic hot water (1)
E 15	Configuration error	If the board detects an anomaly or incongruity on the electric wiring, the appliance will not start	If normal conditions are restored, the heat generator restarts without having to be reset (1)
E 24	Push button control panel anomaly	The board detects an anomaly on the pushbutton panel	If normal conditions are restored, the system restarts without having to be reset (1)
E 26	System flowmeter anomaly	The board detects an anomaly on the system flowmeter. Booster pump, if any, always working.	The system does not start (1). Make sure the booster pump (optional) only activates when requested
E 27	Circulation insufficient	This occurs if there is overheating in the indoor unit due to insufficient water circulating in the primary circuit; the causes can be: - low system circulation; check that no shut-off devices are closed on the central heating circuit and that the system is free of air (deaerated) - pump blocked; free the pump - damaged flowmeter	Check system circulation and flowmeter. Press the Reset button (item 1)
(1) If the shutdown or fault persists, contact Alpha After-Sales Technical Assistance Centre			

Error Code	Anomaly signalled	Cause	Indoor unit status /Solution
E 37	Low power supply voltage	This occurs when the power supply voltage is lower than the allowed limits for correct system operation	If normal conditions are restored, the system restarts without having to be reset (1)
E 50	External probe missing or faulty	In the event the external probe is not connected or is faulty, the anomaly is indicated	Check the external probe connection. The system continues to operate with the external probe integrated in the external unit (1). In case of replacement of the external probe, repeat the installation operations
E 139	De-aeration in progress	Deaeration function in progress	No demand can be made until the end of the function in progress (1)
E 177	DHW maximum time block	Domestic hot water production is not met within the pre-established time (see parameter P014)	The system continues to operate with non-optimal performance (1)
E 178	Anti-Legionella cycle block not successful	The anti-Legionella cycle is run without success within the pre-established time (see parameter P013)	Press the Reset button (1)
E 182	Outdoor unit alarm	An anomaly appears on the outdoor unit	The system does not start (1)
E 183	Outdoor unit in test mode	A signal notifies that the condensing unit is in test mode	During this time, room air conditioning and domestic hot water production requirements cannot be met
E 184	Communication error with outdoor unit	A signal notifies an anomaly due to a communication problem between the indoor unit and the outdoor unit	Have the electrical connection between the units checked The system does not start (1)
E 188	Request with temperature out of range	A request is made with the outdoor temperature exceeding the operating limits	The system does not start (1) Wait for the outdoor unit to be restored within operating limits
E 189	Time out alarm with communication board	If communication between the printed circuit boards is lost, an anomaly is signalled	The system does not start (1) Check communication between the P.C.B. and the interface board
E 190	Communication board alarm	An anomaly appears on the communication board	The system does not start (1)
E 193	Appliance in test mode	A signal notifies that the appliance is in test mode	The system continues operating properly
E 195	Liquid phase probe low temperature anomaly	Too low temperature is detected in the liquid phase	Check that the cooling circuit is working properly (1)
E 196	Flow high temperature block	An excessively high temperature is detected on the heat pump flow circuit	Check the hydraulic circuit (1)
E 197	Interface Board Configuration Error	An incorrect interface board configuration has been detected	The system does not start (1)
(1) If the shutdown or fault persists, contact Alpha After-Sales Technical Assistance Centre			

16.3 LIST OF OUTDOOR ANOMALYS

If the outdoor unit is faulty, the error code is signalled on the control panel (item 14 in Fig. 12.1) and on the interface board (see paragraph 'Interface board - 7-segment display'). The failure is signalled in different ways.

On the control panel, the error is displayed with an 'A' + error code.

On the interface board, the error is displayed with an 'E' + error code, showing a sequence of two digits.

For example:

Error 101 is displayed as follows: E1 alternated with 01.

The following is the list of anomalies as displayed on the control panel.

Error Code	Anomaly signalled	Indoor unit status/Solution
A101	Outdoor unit communication error	Check the communication cable to the outdoor unit Check that the interface board works properly (1)
A109	Communication error due to incorrect address of interface board	Check the address on the interface board (1)
A122	MODBUS communication error	Check communication between the management board and interface boards (1)
A162	EEPROM error	Replace the main board of the outdoor unit (1)
A177	Emergency error	(1)
A198	Error of thermal fuse terminal board (open)	(1)
A201	Communication error (failed coupling) between interface board and outdoor unit	Check the communication cable to the outdoor unit Check that the interface board and main board of the outdoor unit work properly (1)
A202	Communication error (failed coupling) between indoor unit and interface board	Check the communication cable to the outdoor unit Check that the interface board and main board of the outdoor unit work properly (1)
A203	Communication error between Inverter and main board of the outdoor unit	Check wiring of communication between the two boards Replace the main board Replace the inverter board (1)
A221	Outdoor unit air temperature sensor error	Check the position of the sensor Check the relative wiring Replace the sensor (1)
A231	Condenser temperature sensor error	Check the position of the sensor Check the relative wiring Replace the sensor (1)
A251	Discharge temperature sensor error	Check the position of the sensor Check the relative wiring Replace the sensor
(1) If the shutdown or fault persists, contact Alpha After-Sales Technical Assistance Centre		

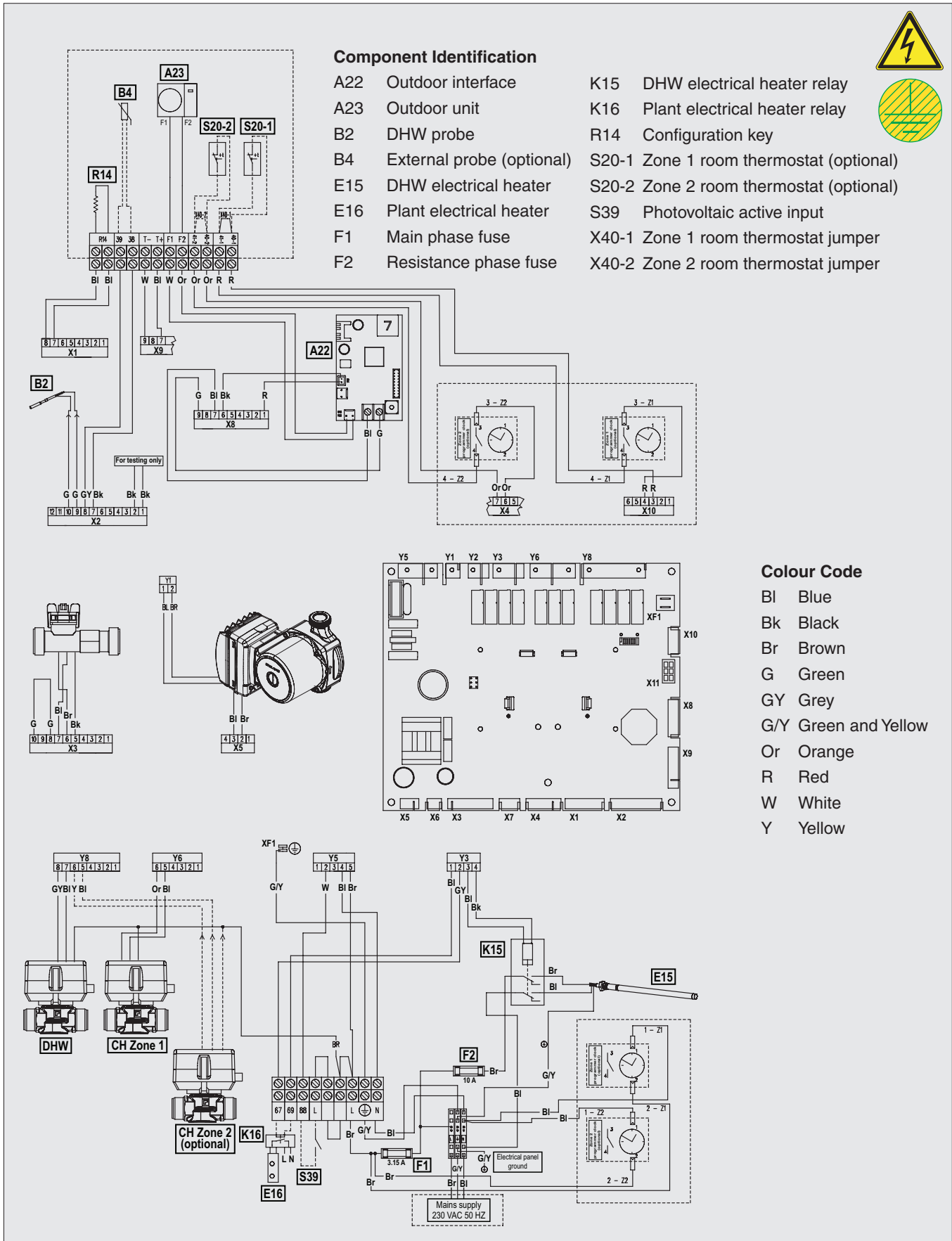
Error Code	Anomaly signalled	Indoor unit status/Solution
A320	Compressor sensor error (overload protection sensor)	Check the position of the sensor Check the relative wiring Replace the sensor (1)
A403	Freezing detection (during cooling operation)	Check the chiller cycle Check the temperatures of the plate heat exchanger (1)
A404	Protection of outdoor unit when in overload (during safety start-up, normal operating status)	Check the chiller cycle Check the compressor connections Check the resistances between the different phases of the compressor (1)
A407	Compressor not working due to high pressure	Check the chiller cycle (1)
A416	The compressor discharge is overheated	(1)
A430	Outdoor unit EEV operation error	(1)
A425	Not used on this model	(1)
A440	Central heating blocked (outdoor temperature beyond 35°C)	(1)
A441	Cooling blocked (outdoor temperature below 9°C)	(1)
A458	Error of outdoor unit fan no.1	(1)
A461	Compressor start-up error (Inverter)	Check the chiller cycle Check the compressor connections Check the resistances between the different phases of the compressor (1)
A462	Inverter total current overload error	Check the inlet current Check the refrigerant charge Check normal operation of the fan (1)
A463	Compressor overheated sensor	Check the compressor sensor (1)
A464	Inverter IPM current overload error	Check the compressor connections and its normal operation Check the refrigerant charge Check whether there are obstacles around the outdoor unit Check whether the service valve is open Check whether the installation pipes are mounted properly (1)
(1) If the shutdown or fault persists, contact Alpha After-Sales Technical Assistance Centre		

Error Code	Anomaly signalled	Indoor unit status/Solution
A465	Compressor overload error	Check the compressor connections and its normal operation Check the resistances between the different phases of the compressor (1)
A466	Low voltage error of DC circuit	Check the input voltage Check the power connections (1)
A467	Compressor rotation error	Check the compressor connections Check the resistances between the different phases of the compressor (1)
A468	Current sensor error (inverter)	Check the main board (1)
A469	Voltage sensor error of DC circuit (inverter)	Check the power connector of the inverter board Check the connectors RY21 and R200 of the inverter board (1)
A470	EEPROM reading/writing error of outdoor unit	Check the main board.(1)
A471	EEPROM reading/writing error of outdoor unit	Check the main board.(1)
A474	Inverter temperature sensor error	Replace inverter board (1)
A475	Error of outdoor unit fan no.2 (where present)	Check the wiring Check that the fan is powered Check the board fuses (1)
A484	PFC overload	Check inductances Replace inverter board (1)
A485	Incoming current sensor error	Replace inverter board (1)
A500	IPM overheated	Check temperature of inverter board Switch the machine off Wait for the inverter to cool down Switch the machine back on (1)
A554	Gas leak error	Check that the coolant is charged Check the liquid sensor of the indoor unit Check whether the service valve is open Check whether the installation pipes are mounted properly (1)
A590	Inverter board error	Check normal operation of the main board Replace the main board (1)
A601	Not present	(1)
(1) If the shutdown or fault persists, contact Alpha After-Sales Technical Assistance Centre		

Error Code	Anomaly signalled	Indoor unit status/Solution
A604	Not present	(1)
A653	Not present	(1)
A654	Not present	(1)
A899	Not present	(1)
A900	Not present	(1)
A901	Not used	Indoor unit error Check indoor unit (1)
A902	Not used	Indoor unit error Check indoor unit (1)
A903	Not used	Indoor unit error Check indoor unit (1)
A904	Not used	Indoor unit error Check indoor unit (1)
A906	Not used	Indoor unit error Check indoor unit (1)
A911	Not used	Indoor unit error Check indoor unit (1)
A912	Not used	Indoor unit error Check indoor unit (1)
A916	Not used	Indoor unit error Check indoor unit (1)
A919	Not used	Indoor unit error Check indoor unit (1)
(1) If the shutdown or fault persists, contact Alpha After-Sales Technical Assistance Centre		

17 WIRING DIAGRAMS

17.1 SCHEMATIC WITH ZONE VALVES



17.2 SCHEMATIC WITH SMARTECH

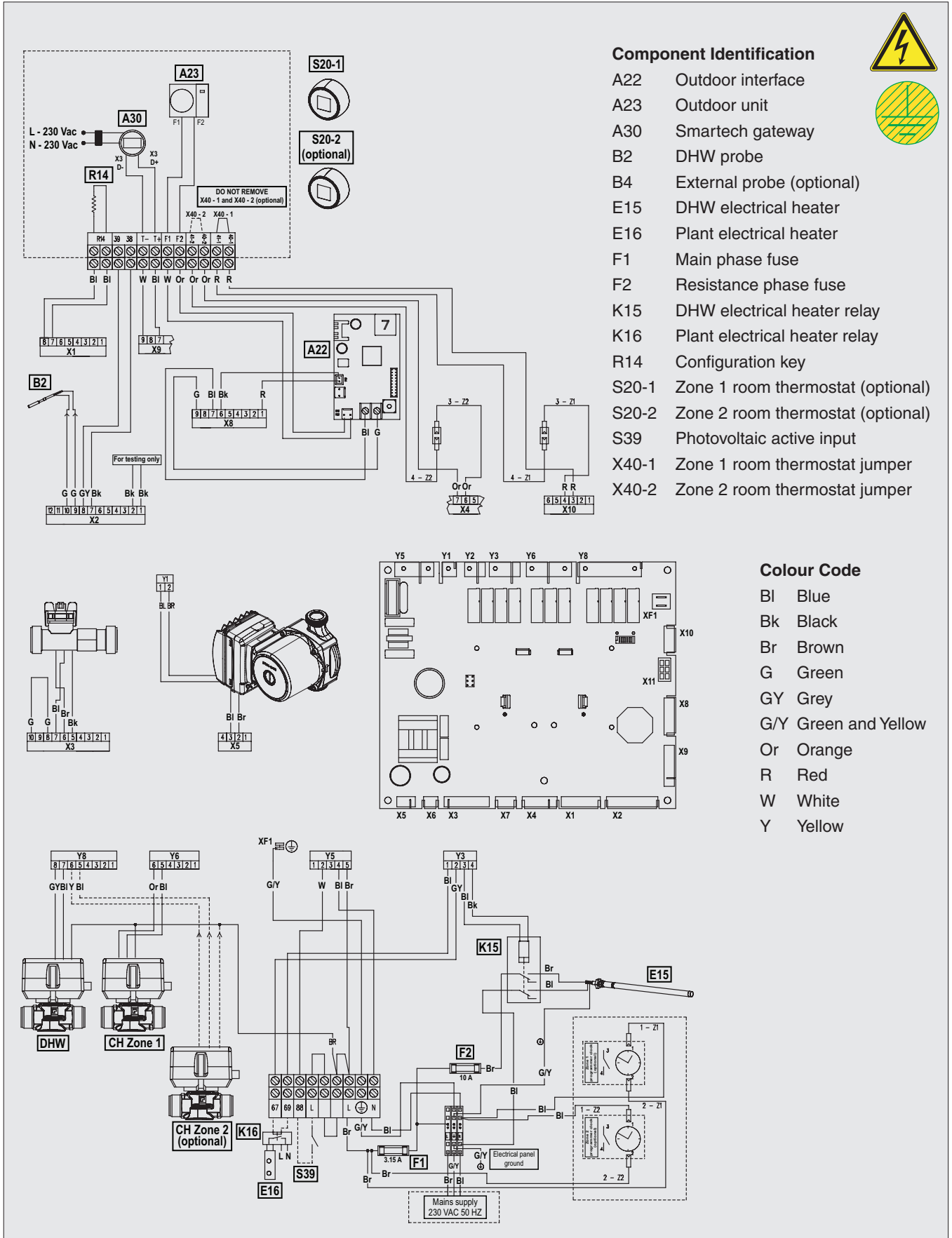
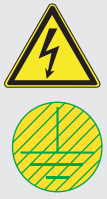


Fig. 17.2

17.3 GENERAL CONNECTIONS - HEAT PUMP AND PRE-PLUMBED CYLINDER

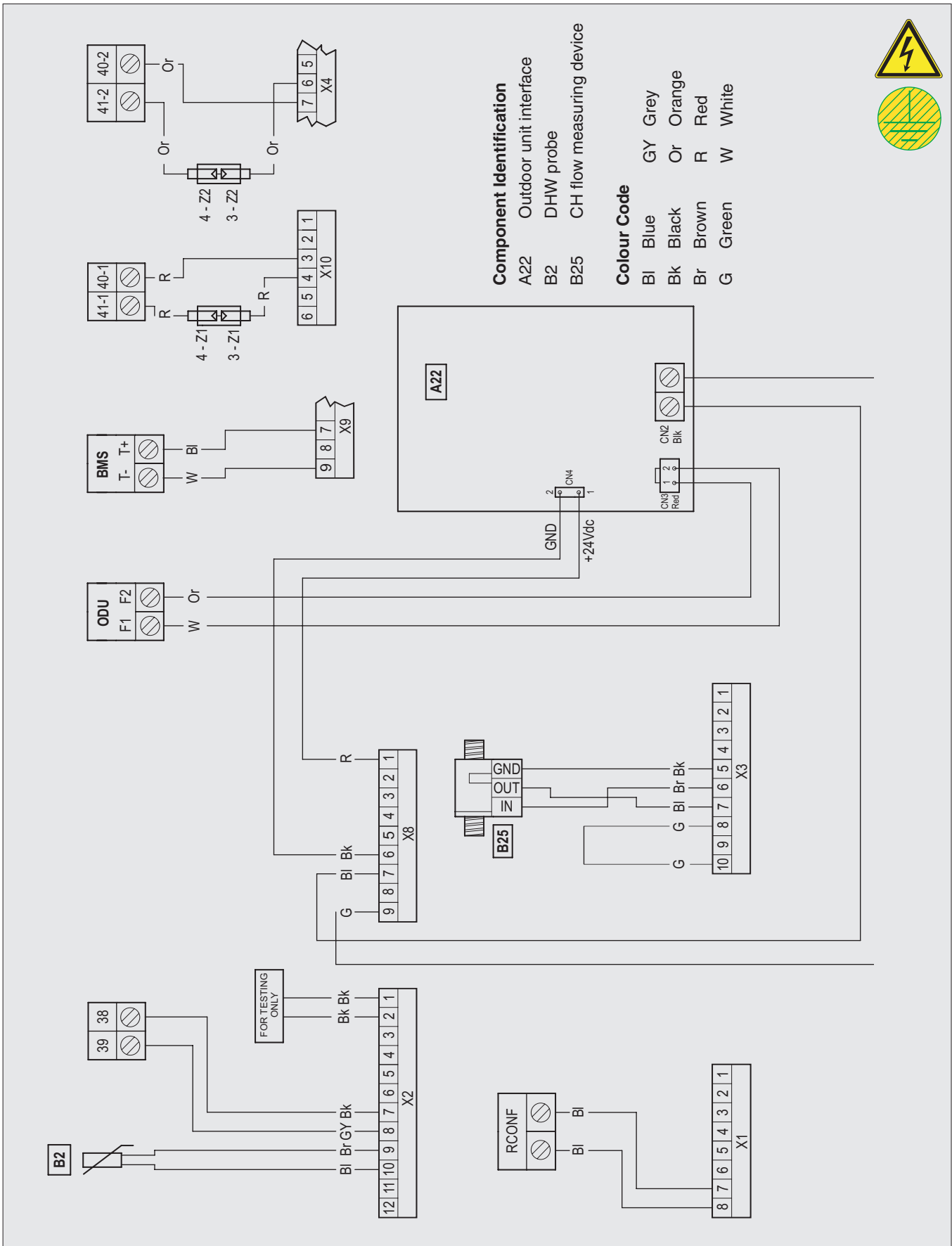


Fig. 17.3

17.4 GENERAL CONNECTIONS - TWO ALPHA CONNECT RELAYS

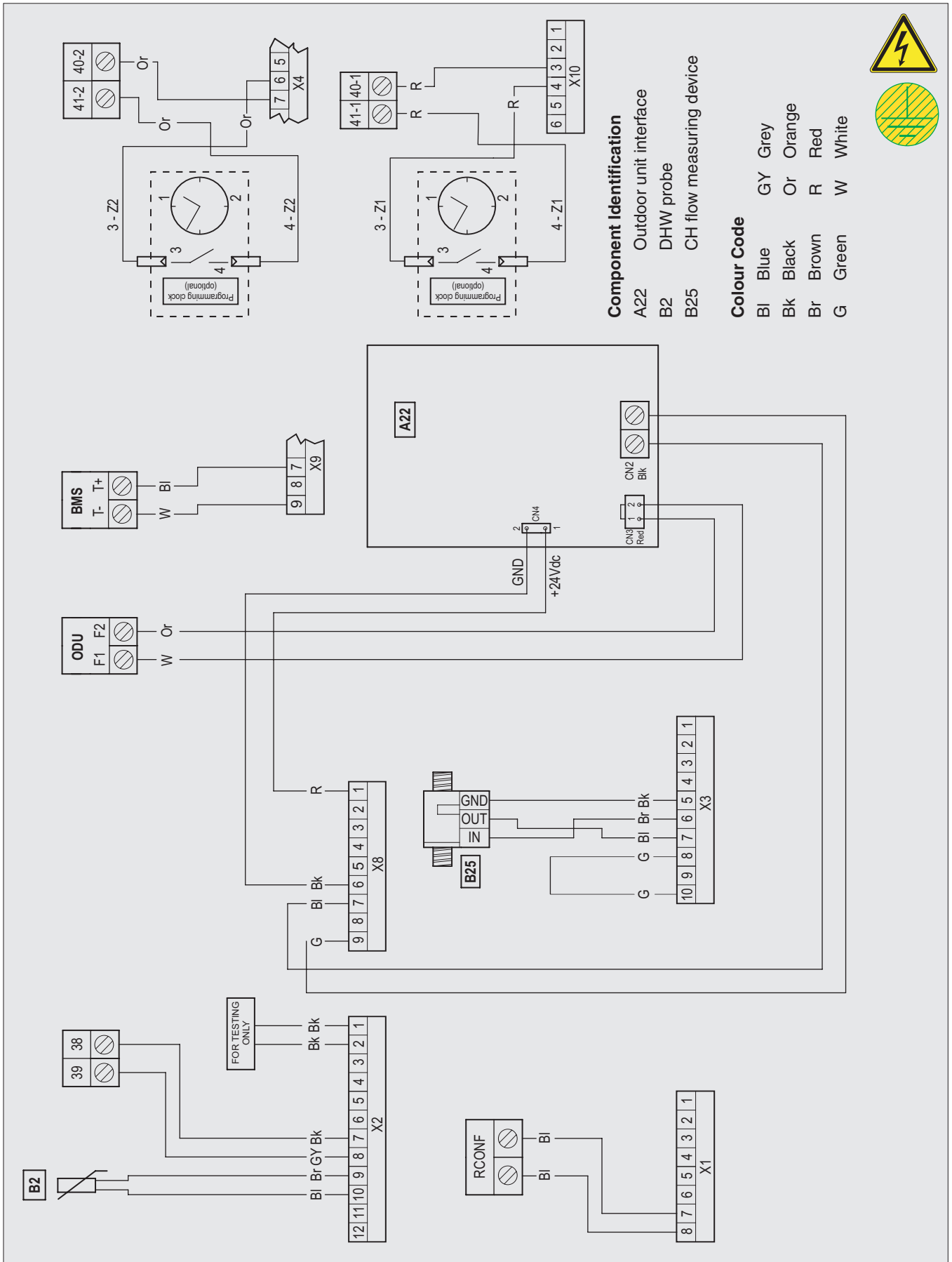


Fig. 17.4

17.5 GENERAL CONNECTIONS - PRE-PLUMBED CYLINDER

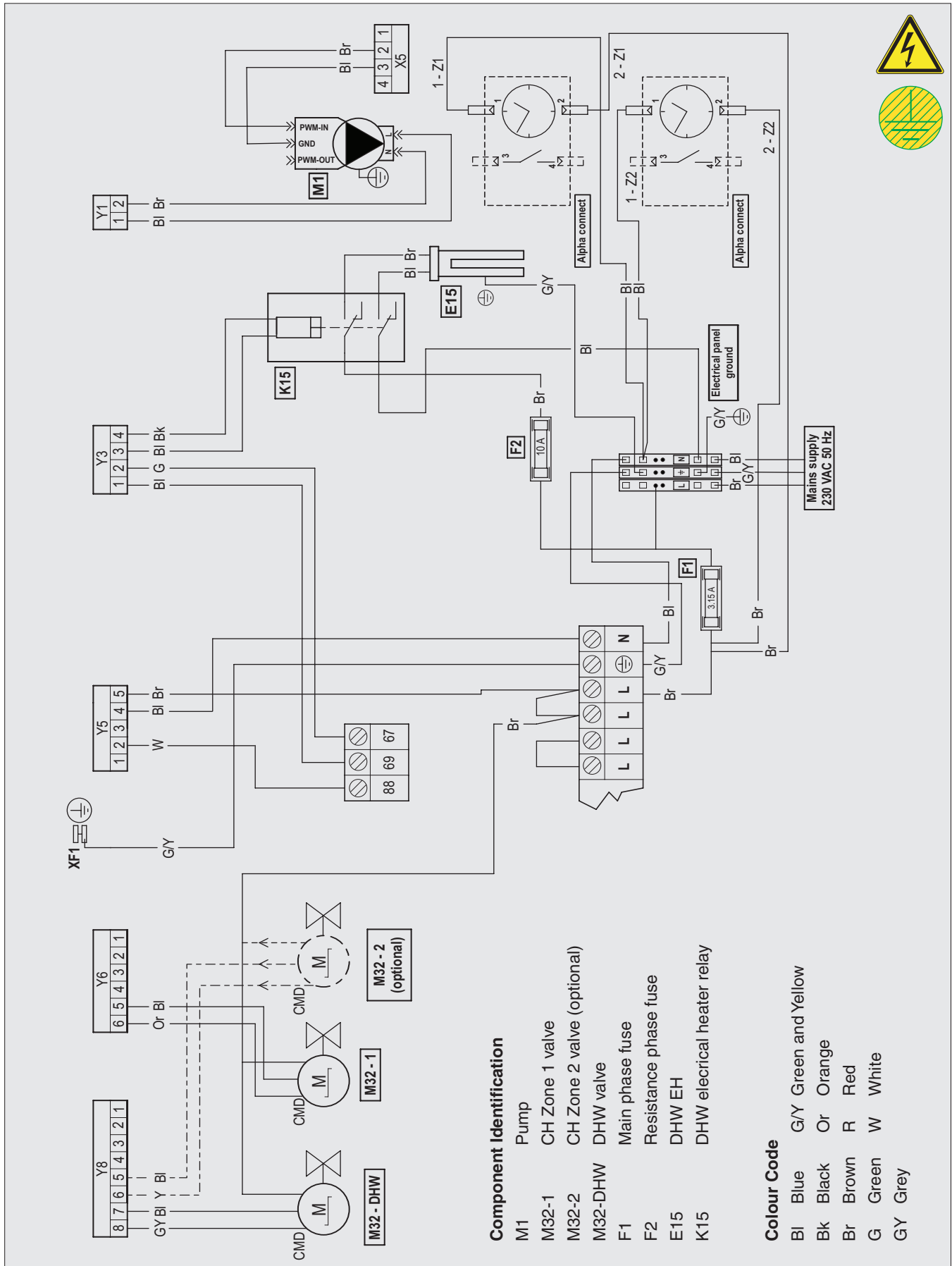
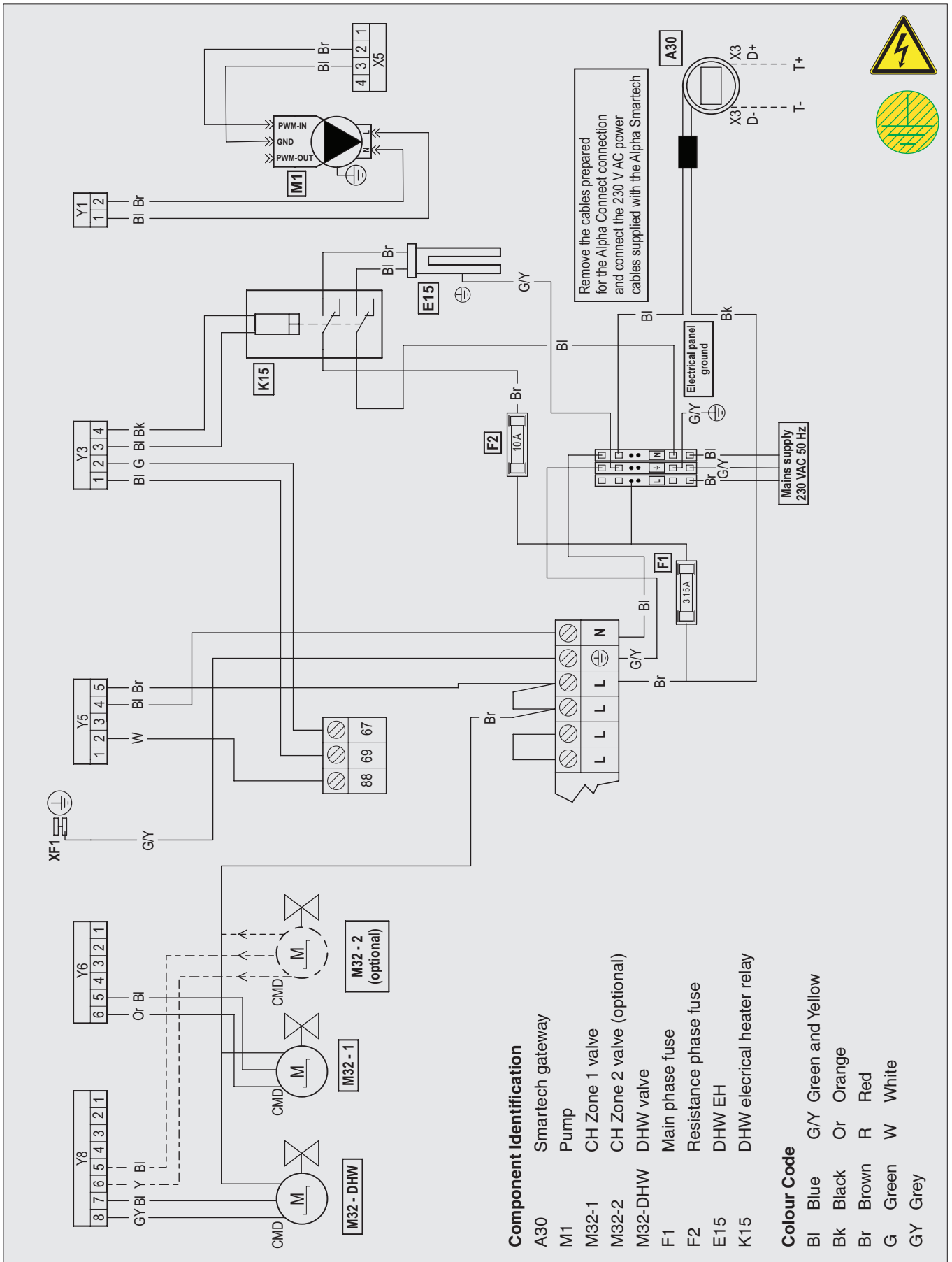


Fig. 17.5

17.6 GENERAL CONNECTIONS - PRE-PLUMBED CYLINDER



Component Identification

- A30 Smarttech gateway
- M1 Pump
- M32-1 CH Zone 1 valve
- M32-2 CH Zone 2 valve (optional)
- M32-DHW DHW valve
- F1 Main phase fuse
- F2 Resistance phase fuse
- E15 DHW EH
- K15 DHW electrical heater relay

Colour Code

- Bl Blue
- Bk Black
- Br Brown
- G Green
- GY Grey
- GY Green and Yellow
- Or Orange
- R Red
- W White

Fig. 17.6

17.7 GENERAL CONNECTIONS - NORMAL ON/OFF RECEIVER

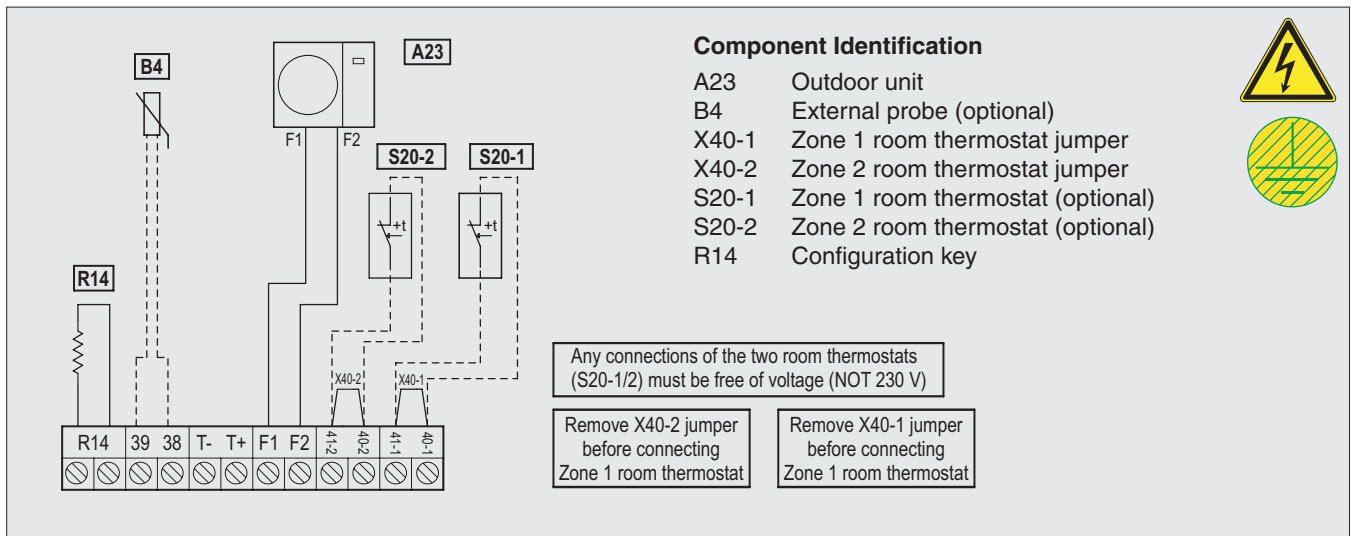


Fig. 17.7

17.8 CONNECT ONE RECEIVER

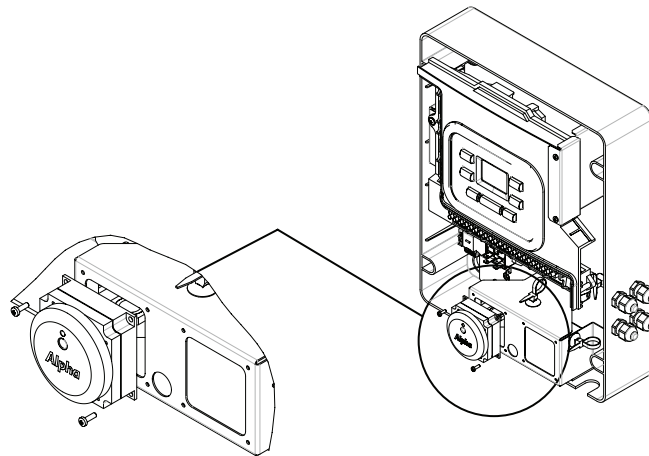


Fig. 17.8

17.9 CONNECT TWO RECEIVERS

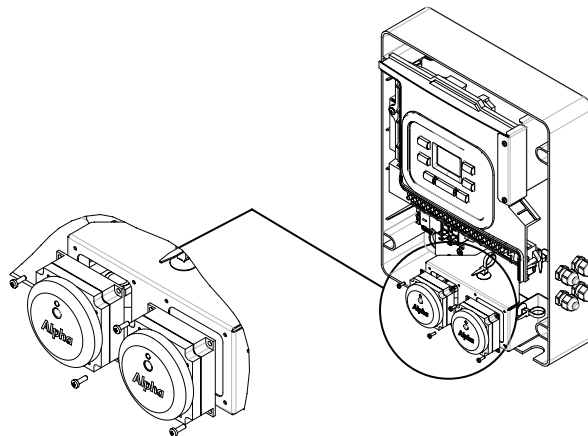


Fig. 17.9

17.10 GENERAL CONNECTIONS - SMARTECH RECEIVER

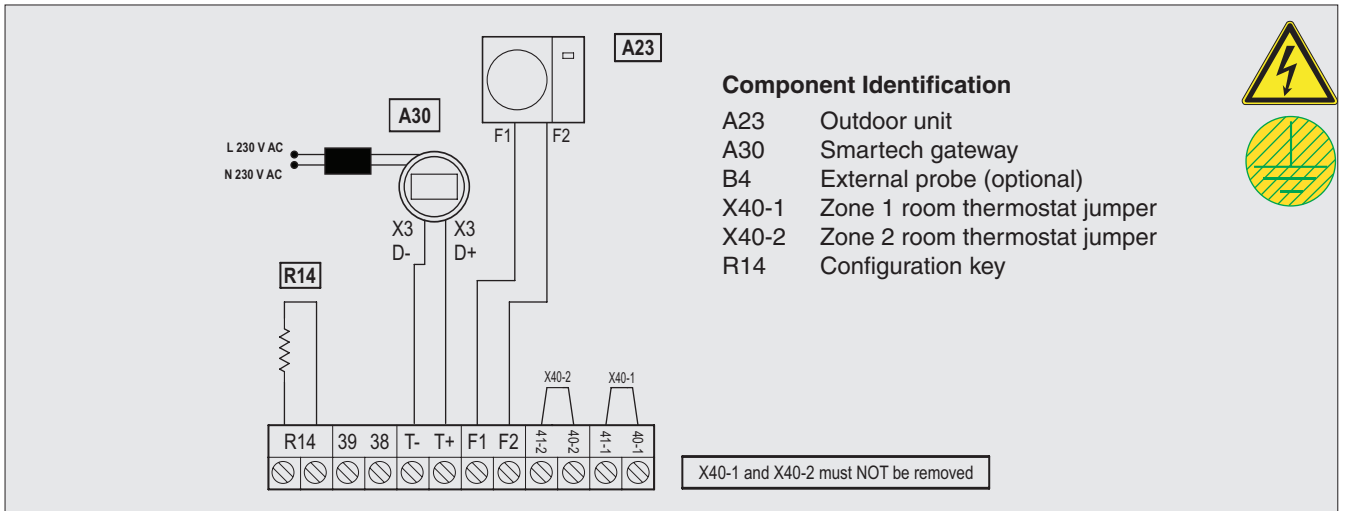


Fig. 17.10

17.11 CONNECT SMARTECH

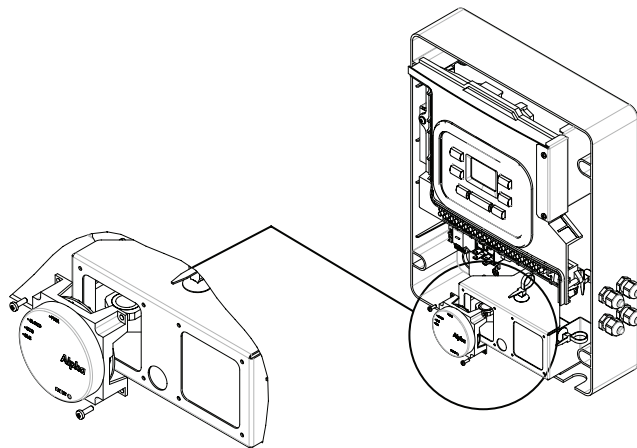


Fig. 17.11

17.12 GENERAL CONNECTIONS - BACK UP IMMERSION HEATER AND PV INPUT

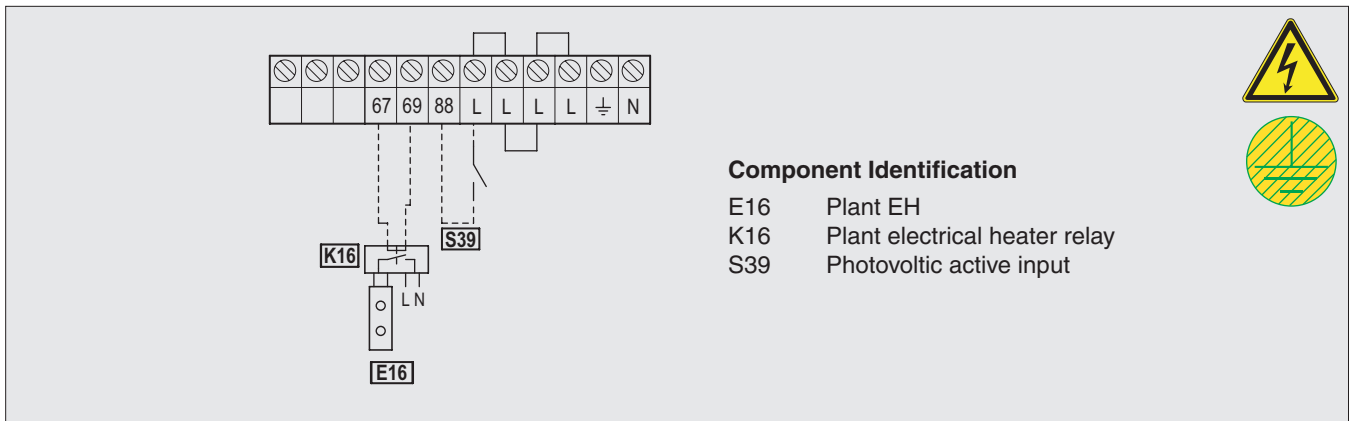


Fig. 17.12

17.13 INTERFACE BOARD - INDICATOR LED

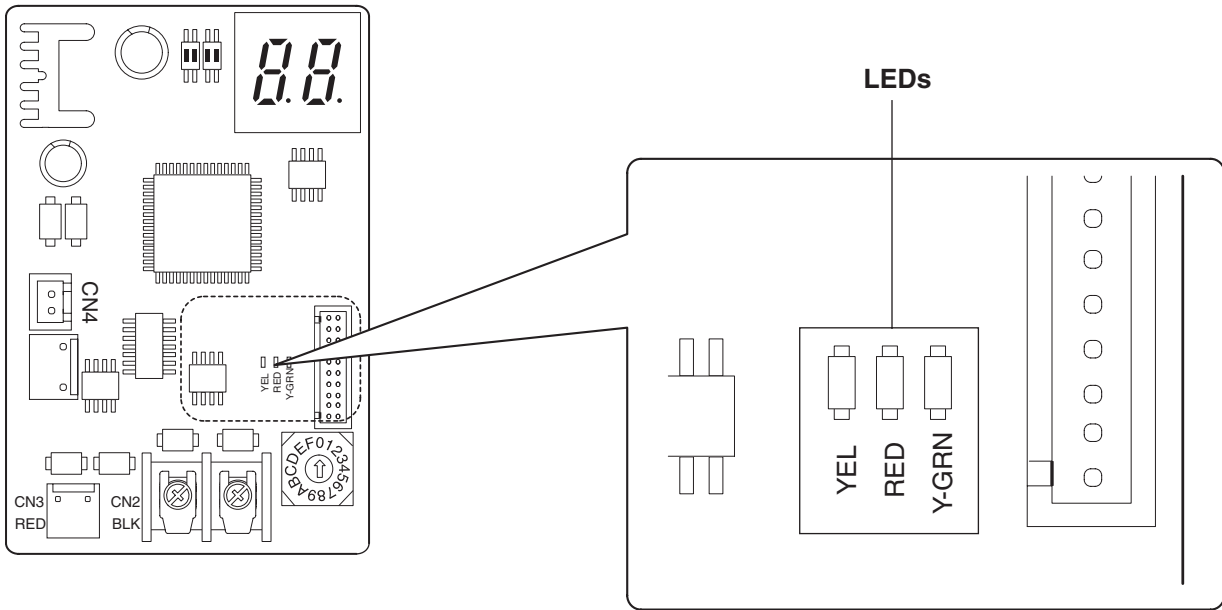


Fig. 17.13

- Red LED flashing = Communication between interface board and PCB valid
- Green LED flashing = Communication between interface board and outdoor unit valid
- Yellow LED = Not Used

INTERFACE BOARD - 7-SEGMENT DISPLAY

During normal operation, the display shows “A0” for 1 second, followed by “30” for 1 second:

	SEGMENTS
VALID COMMUNICATION	

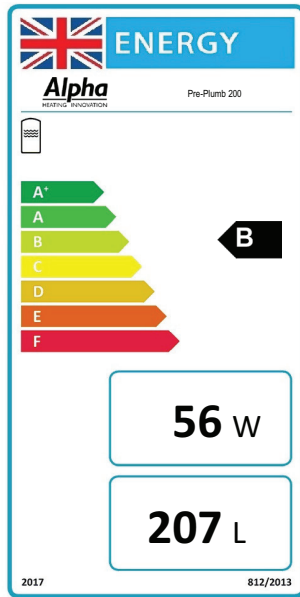
In case of an error of the outdoor unit, a sequence of two digits at a time is displayed: “E” plus outdoor unit error code:

ERROR CODES	SEGMENTS
E101	

18 ENERGY CLASSIFICATION

18.1 PRODUCT DATA SHEET (IN COMPLIANCE WITH REGULATION 811/2013)

Pre-Plumb 200



Result	Hydro 5	Hydro 8	Hydro 12	Hydro 16	Symbol
Load profile	XL	XL	XL	XL	-
Heating up time h:min	2:00	1:19	0:49	0:39	t_h
Heating up electrical energy consumption..... kWh	2.80	2.80	2.74	3.11	W_{eh-HP}
Stand-by power input W	46	41	42	46	P_{es}
Total useful energy content during load profile kWh	19.15	19.14	19.14	19.12	Q_{LP}
Total energy consumption during load profile kWh	7.00	7.43	7.60	8.05	W_{EL-LP}
Daily electrical energy consumption..... kWh	6.97	7.41	7.58	8.03	Q_{elec}
Coefficient of performance	2.74	2.58	2.52	2.37	COP_{DHW}
Water heating energy efficiency %	114	106	104	98	η_{wh}
Annual electrical energy consumption kWh/a	1474	1577	1613	1708	AEC
Reference hot water temperature °C	50.03	48.22	46.92	47.31	Θ'_{WH}
Maximum volume of mixed water at 40°C L	248.7	232.8	221.5	222.4	V_{40}
Rated volume of tank, where applicable L	206	206	206	206	V_m
Rated heat output..... kW	4.33	6.17	9.49	11.89	P_{rated}
Seasonal coefficient of performance	2.74	2.58	2.52	2.37	$SCOP_{DHW}$

Benchmark Commissioning & Warranty Validation Service Record

It is a requirement that the heat pump is installed and commissioned to the manufacturers' instructions and the data fields on the commissioning checklist completed in full.

To instigate the warranty the heat pump needs to be registered with the manufacturer within one month of the installation. The warranty rests with the end-user (consumer), and they should be made aware it is ultimately their responsibility to register with the manufacturer, within the allotted time period.

It is essential that the heat pump is serviced in line with the manufacturers' recommendations, at least annually. This must be carried out by a competent, certified operative. The service details should be recorded on the Benchmark Service and Interim Heat Pump Work Record and left with the householder. Failure to comply with the manufacturers' servicing instructions and requirements will invalidate the warranty.



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This Commissioning Checklist is to be completed in full by the competent person who commissioned the heat pump and associated equipment as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission according to the manufacturers' instructions and complete this Benchmark Commissioning Checklist will invalidate the warranty. This does not affect the customer's statutory rights.

* All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.



AIR TO WATER HEAT PUMP COMMISSIONING CHECKLIST

Address:											
Heat Pump make and model:											
Heat Pump serial number:											
Commissioned by (PRINT NAME):						Certified Operative Reg number (1):					
Company name:						Telephone number:					
Company email:						Company address:					
										Commissioning date:	
Heating and hot water system complies with the appropriate Building Regulations?										Yes	
DNO notification?										Yes	
Building Regulations Notification Number (if applicable) (2)											
MCS installer registration Number (if applicable)						MCS product certification number (if applicable)					
F-gas certification number (split heat pump only)											
G3 certification number (if applicable)											
Heat Pump Type (Tick)			Split		Monoblock		Peak heat loss of building kW				
Is Heat Pump Installed as part of a cascade?			Yes				Cascade Heat Pump Series			() of ()	
Heat Pump Refrigerant Type							Refrigerant weight (total)			kg	
Electrical and Hydronic Controls – SYSTEM AND HEAT PUMP (Tick the appropriate boxes)											
Time and temperature control to heating			Room thermostat and programmer/timer				Programmable Roomstat				
			Load/weather compensation				Optimum start control				
Time and temperature control to hot water			Cylinder thermostat and programmer/timer				Combined with Heat pump main controls				
Hybrid system – synchronised control of boiler and heat pump fitted						Yes					
If Yes – boiler model switching point – (Quote Tariff or Temperature Level)											
Heating zone valves (including underfloor loops)			pre-existing				Fitted		Not required		
Hot water zone valves			pre-existing				Fitted		Not required		
Thermostatic radiator valves			pre-existing				Fitted		Not required		
Outdoor Sensor			pre-existing				Fitted		Not required		
Heat Pump Safety Interlock (3)			pre-existing				Fitted		Not required		
Automatic bypass to system			pre-existing				Fitted		Not required		
Buffer Vessel Fitted			Yes		No		If yes		volume:		Litres
Plate Heat Exchanger fitted to give hydronic separation of the heat pump circuit to the heating circuit						Yes		No			
Expansion vessel for heating is sized, fitted & charged in accordance with manufacturer's instructions										Yes	
Legionella protection for stored hot water provided by timed temperature control?										Yes	
Water Treatment – SYSTEM AND HEAT PUMP (Tick the appropriate boxes/Measure and Record)											
System has been cleaned and treated in accordance with BS 7593:2019 and heat pump manufacturers' instructions?										Yes	
What system cleaner was used?			Brand:				Product:				
What heating system inhibitor was used?			Brand:				Product:				
What heat pump system anti-freeze/inhibitor was used? (monoblock only)			Brand:				Product:		% concentration		
System filter fitted in accordance with BS7593 : 2019?										Yes	
Heat Pump outdoor unit (Tick the appropriate boxes/Measure and Record)											
Is the heating system adequately frost protected and pipes insulated to prevent heat loss?										Yes	
Split only: The refrigerant circuit has been evacuated and charged in accordance with manufacturer's instructions										Yes	
The heat pump is fitted on a solid/stable surface capable of taking its weight										Yes	
The necessary heat pump defrost provision been put in place										Yes	
The heat pump fan free from obstacles and operational										Yes	
Condensate drain installed to manufacturer's instructions										Yes	
CENTRAL HEATING MODE (Tick the appropriate boxes/Measure and Record)											
The heating system has been filled and pressure tested										Yes	
Heating Flow Temperature			°C		Heating Return Temperature					°C	
System correctly balance/rebalanced										Yes	
DOMESTIC HOT WATER MODE (Tick the appropriate boxes)											
Is the heat pump connected to a hot water cylinder?				Unvented		Vented		Thermal Store		Not connected	
Hot water cylinder size			Litres		Stored hot water temperature					°C	
Hot water has been checked at all outlets			Yes		Have Thermostatic Blending Valves been fitted?			Yes		Not required	

* All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

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ADDITIONAL SYSTEM INFORMATION (Tick the appropriate boxes/Measure and Record)										
Water flow rate setting of the heat pump at commissioning (l/min):										
Additional heat sources connected:	<input type="checkbox"/>	Gas Boiler	<input type="checkbox"/>	Oil Boiler	<input type="checkbox"/>	Electric Heater	<input type="checkbox"/>	Solar Thermal	<input type="checkbox"/>	Other:
ALL INSTALLATIONS										
All electrical work complies with the appropriate Regulations									Yes	<input type="checkbox"/>
The heat pump and associated products have been installed and commissioned in accordance with the manufacturer's instructions									Yes	<input type="checkbox"/>
The operation of the heat pump and system controls have been demonstrated to and understood by the customer									Yes	<input type="checkbox"/>
The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer									Yes	<input type="checkbox"/>
Commissioning Engineer's signature:										
Customer's signature (To confirm satisfactory demonstration and receipt of manufacturers' literature)										

* All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

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SERVICE RECORD

It is recommended that your heating system is serviced regularly and that the appropriate Service Interval Record is completed.

Service provider

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions.

Always use the manufacturer's specified spare part when replacing controls.

*A System inhibitor efficiency test is required on every annual service in accordance with the manufacturers' instructions and BS 7593. It is only acceptable to not have undertaken this if the service engineers attendance visit was in between annual services to attend a non-water facing component.

SERVICE 01		Date:
Engineer name:		
Company name:		
Telephone No:		
Operative ID No:		
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *	Yes	N/a
Comments:		

Signature:		

SERVICE 01		Date:
Engineer name:		
Company name:		
Telephone No:		
Operative ID No:		
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *	Yes	N/a
Comments:		

Signature:		

SERVICE 01		Date:
Engineer name:		
Company name:		
Telephone No:		
Operative ID No:		
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *	Yes	N/a
Comments:		

Signature:		

SERVICE 01		Date:
Engineer name:		
Company name:		
Telephone No:		
Operative ID No:		
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *	Yes	N/a
Comments:		

Signature:		

SERVICE 01		Date:
Engineer name:		
Company name:		
Telephone No:		
Operative ID No:		
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *	Yes	N/a
Comments:		

Signature:		

SERVICE 01		Date:
Engineer name:		
Company name:		
Telephone No:		
Operative ID No:		
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *	Yes	N/a
Comments:		

Signature:		

SERVICE 01		Date:	
Engineer name:			
Company name:			
Telephone No:			
Operative ID No:			
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *		Yes	N/a
Comments:			

Signature:			

SERVICE 01		Date:	
Engineer name:			
Company name:			
Telephone No:			
Operative ID No:			
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *		Yes	N/a
Comments:			

Signature:			

SERVICE 01		Date:	
Engineer name:			
Company name:			
Telephone No:			
Operative ID No:			
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *		Yes	N/a
Comments:			

Signature:			

SERVICE 01		Date:	
Engineer name:			
Company name:			
Telephone No:			
Operative ID No:			
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *		Yes	N/a
Comments:			

Signature:			

SERVICE 01		Date:	
Engineer name:			
Company name:			
Telephone No:			
Operative ID No:			
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *		Yes	N/a
Comments:			

Signature:			

SERVICE 01		Date:	
Engineer name:			
Company name:			
Telephone No:			
Operative ID No:			
System inhibitor concentration has been checked and appropriate action taken, in accordance with BS 7593 and heat pump manufacturers' instructions. *		Yes	N/a
Comments:			

Signature:			

* All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

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These instructions have been carefully prepared but we reserve the right to alter the specification at any time in the interest of product improvement.
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