



Clivet Typical Installation with Third Party controls

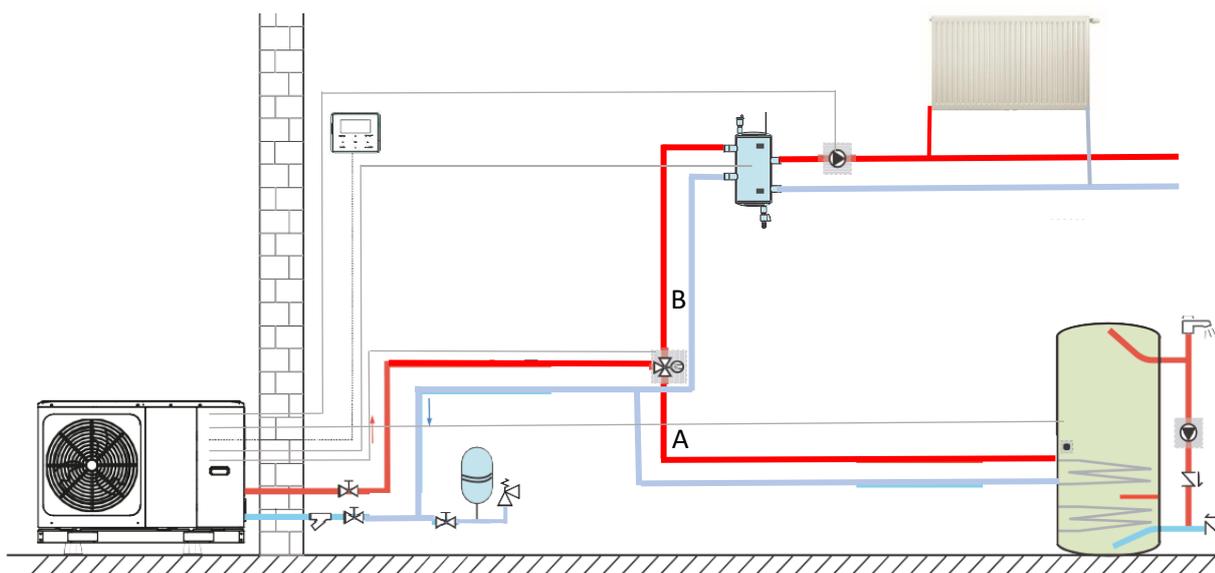
Installation and Setup

Monobloc system

Rev 1.8 December 2023

This manual is designed to be a quick start guide for the most common type of installation, for the Clivet Monobloc range.

This shows heating via Buffer Tank and domestic hot water via a cylinder, with a sensor pocket and immersion heater installed, using 1x 3 port drive open valve to control space heating and Hot water heating demand using the Clivet controller and third-party control for the end user control.



In the above system the monobloc unit functions are controlled by the unit's own controller and this is for use by the technician. End user control is via Third Party controls.

The end user controls the heating demand via the third-party controller.

The heat pump controls the domestic hot water temperature itself (including an optional sterilization cycle assisted by the immersion heater) using a drive open 3 port valve in a W plan heating configuration.

The hot water temperature is managed through the Clivet Controller. Hot water takes priority over heating.

There is no electric heater installed inside the monobloc unit.

There is a Flow sensor, Pump, Auto Air Vent, Safe Relief valve and 8lt Expansion vessel located within the monobloc unit.

There is a pump installed within the monobloc, however a second pump will be required on downstream of the buffer to feed the heating circuits.

A strainer must be installed in the return pipework to the mono block this is included with the unit. It is strongly recommended by Clivet in addition to this, a Magnetic filter and Flow setter should also be installed to the unit.



Warranty

Please check the following before commencing start-up of the unit, as these are important conditions of the Clivet Warranty*

- The manufacture supplied filter has been installed to the return to the monobloc.
- The system should be flushed, this is especially important if the system is an old gas or oil system. Flushing should be completed in accordance to BS7593.
- Clivet recommends a suitable heat transfer fluid is used to give a minimum frost protection of -12. In order to stop bacterial growth, it is also recommended to use a suitable Biocide, if not included in the heat transfer solution.
- A 25lt buffer is **required** for the 4-10kw units and a 50lt for the 12-16kw Clivet heat pumps, In order to meet the minimum system water open volume at all times.
- The pipe work diameter should be sized in relation to the length of the pipework run, number of fittings and components but should have an internal bore no less than 28mm copper pipework. Be aware that plastic pipework tends to have a smaller internal bore and needs to be sized correctly.
- The external monobloc should be installed on a base suitable for withstanding the weight of the unit and should be level. The steel plinth is Structural and **MUST NOT** be removed
- There shall be a proper means of disposal of the condensate, this should be via a drain or soak away.
- The external monobloc unit should be positioned so that there is good air flow around the unit. The minimum clearances are 300mm to the left, 600mm to the right, 300mm behind the unit and 1000mm in front on the 4-6kw and 1500mm on the 8-16kw units.

*The Terms and Condition should be referred to for further information.

As part of the commissioning process, it is important that the correct flow rates are achieved for the output of the unit. Failure to do so, will result in poor performance and protentional faults. The flow rates required are specified below.

Unit	Minimum Flow Rate	Recommended	Maximum Flow Rate
Edge EVO 2.1	6.64 Lpm*	11.4 lpm	14.16 Lpm
Edge EVO 3.1	6.64 Lpm*	17.4 lpm	20.82 Lpm
Edge EVO 4.1	6.64 Lpm*	22.8 lpm	27.48 Lpm
Edge EVO 5.1	6.64 Lpm*	28.8 lpm	33.32 Lpm
Edge EVO 6.1	11.62 Lpm*	34.2 lpm	41.65 Lpm
Edge EVO 7.1	11.62 Lpm*	40.2 lpm	45.81 Lpm
Edge EVO 8.1	11.62 Lpm*	45.6 lpm	49.98 Lpm
Edge EVO 6.1 T	11.62 Lpm*	34.2 lpm	41.81 Lpm
Edge EVO 7.1 T	11.62 Lpm*	40.2 lpm	45.81 Lpm
Edge EVO 8.1 T	11.62Lpm*	45.6 lpm	49.98 Lpm

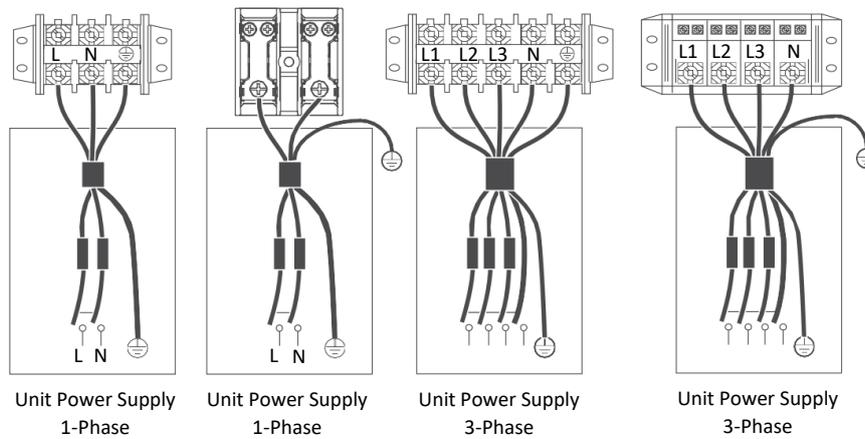
*Please be aware if the only the minimum flow rate is achieved through the unit the unit will not function to its full output.

Power Supplies

The Monobloc requires one Power supply, the details of the power supply are detailed below. Without IBH

Unit	4kW	6kW	8kW	10kW	12kW	14kW	16kW	12kW 3-PH	14kW 3-PH	16kW 3-PH
Maximum overcurrent protector(MOP)(A)	18	18	19	19	30	30	30	14	14	14
Wiring size(mm ²)	4.0	4.0	4.0	4.0	6.0	6.0	6.0	2.5	2.5	2.5

***The above sizing are for guidance only, correct cable sizing should be undertaken by a suitably qualified engineer.
All electrical connections should be completed by a competent electrician**

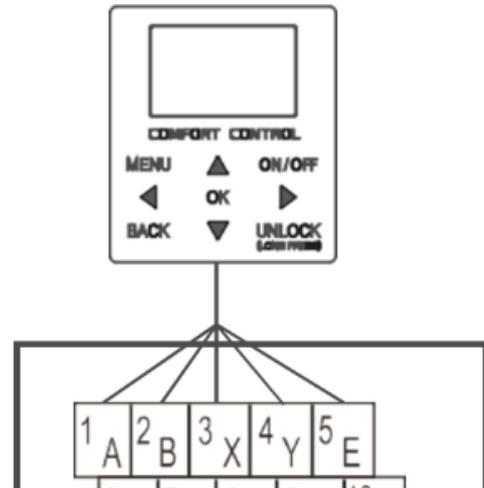


If an immersion heater is installed to the DHW tank this should have its own independent supply. **DO NOT** supply directly from the PCB. This would require an additional 13amp supply and suitably sized cable.

The immersion heater can be controlled by the controller via a Contactor.

All supplies should be via a double switched isolator and all cables should be sized in accordance with BS7671.

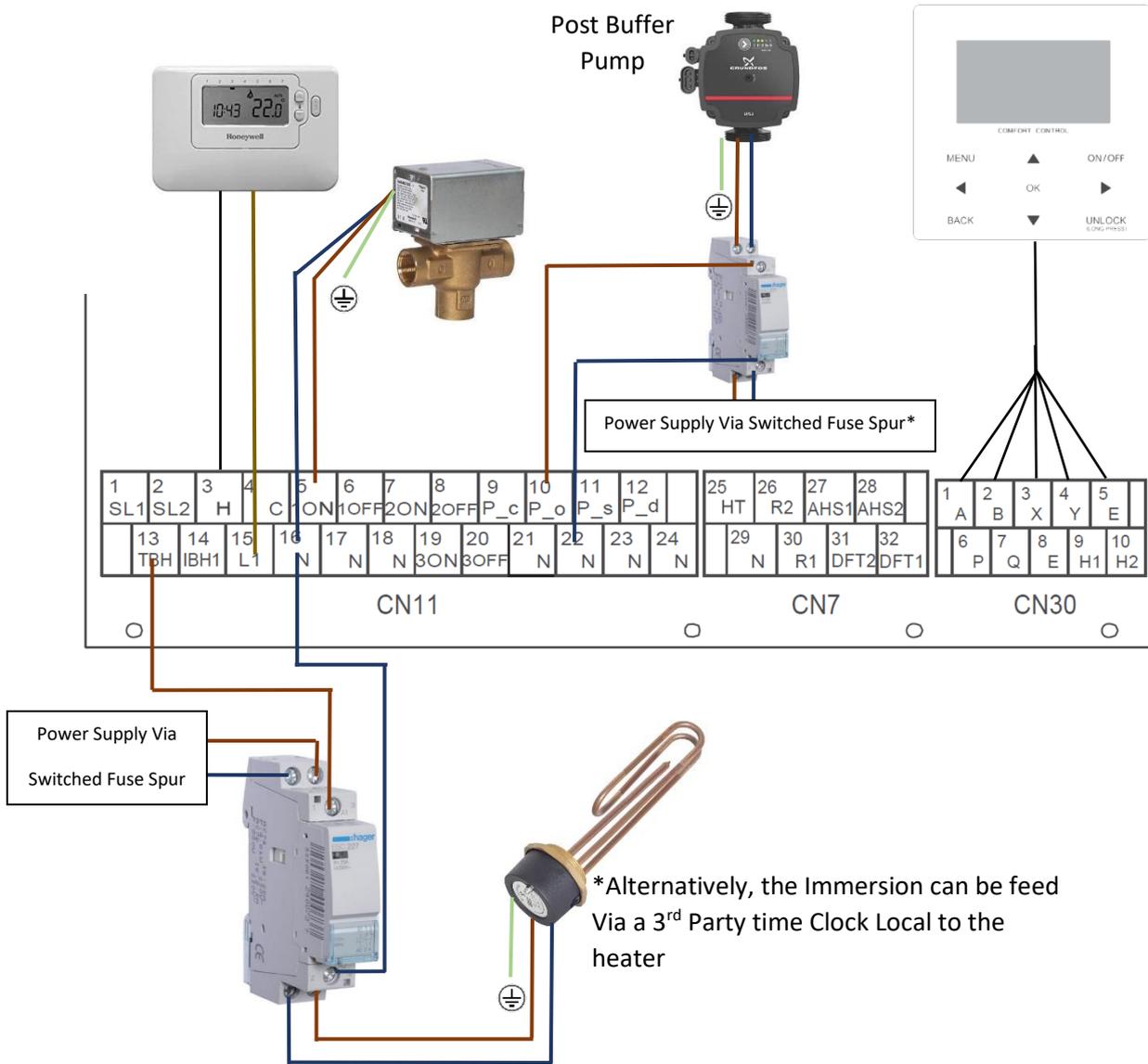
The Controller Requires a 5 core Screened cable. We would recommend CAT 5e FTP cable, this cable is polarity sensitive, so, it is important not to mix up the cores.



Control Wiring

Below shows a basic wiring schematic for use with the previous hydraulic schematic, for the Clivet monobloc Heat pump. Using a Third party room stat for switching on and off the heating demand.

Each terminal supplies a maximum of 0.2amp if the item connected draws more than 0.2amp a relay and a external power supply should be used.



The Domestic Hot water sensor T5 is connected directly to the PCB on plug CN13. There is a flying lead with a plug on for connecting this, this is located at the right-hand side of the unit. As in the picture to the right-hand side.

The Domestic Hot water sensor is supplied with a 10m Cable, this cable can be extended to a maximum of 20m. This should not be shortened.



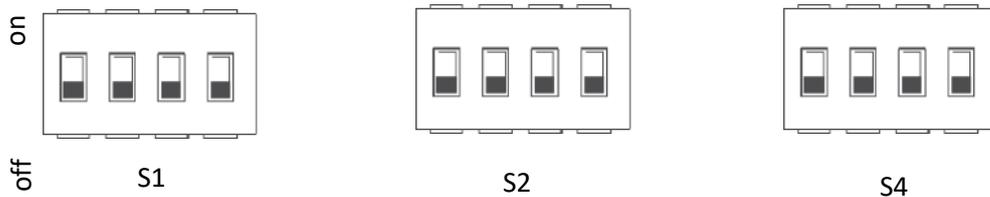
DIP Switch Settings

There are 3 sets of dip switch located on the unit's main PCB, these are S1, S2, S4 these control certain function of the unit, so must be set accordingly to allow correct operation.

S1 Dip Switch's control the IBH if fitted in the unit.

S2 Dip Switch's control the Internal Pump.

S4 Dip Switched are for multiple unit setups.



DIP switch	ON=1	OFF=0	Factory defaluts	DIP switch	ON=1	OFF=0	Factory defaluts	DIP switch	ON=1	OFF=0	Factory defaluts	
S1	1/2		Refer to eletrically controlled wiring diagram	S2	1	Start pumpo after 24 hours will be invalid	Start pumpo after 24 hours will be valid	Refer to eletrically controlled wiring diagram	S4	1	Master unit:clear addresses of all slave units Slave unit: clear its own address	Keep the current address
	3/4				2	without TBH	with TBH			2	IBH for DHW =vaild	IBH for DHW =invalid
	0/0=Without IBH and AHS 1/0=With IBH 0/1=With AHS for heat mode 1/1=With AHS for heat mode and DHW mode				3/4	0/0=pump 1 0/1=pump 2 1/0=pump 3 1/1=pump 4	3/4			Reserved		

S1 Dip switch 1/2 should be set to **OFF/OFF**, this will deactivate the IBH (internal back up heater is not fitted to the Clivet unit as standard)

S1 Dip switch 3/4 should be set to **OFF/OFF**, this will deactivate the IBH and AHS (additional heat Source) if fitted set to **OFF/ON**

S2 Dip switch 1 should be **OFF**

S2 Dip switch 2 should be set to **OFF** if the immersion heater is connected to the unit. If the Immersion heater is independent from the heat pump this must be set ON, failure to do so will lead to faults.

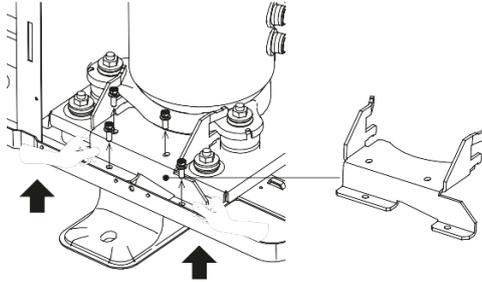
S2 Dip switch 3/4 should be set according to the pump installed in the unit.

S4 Dip switch 1/3/4 all off as Default. If 2 is on the IBH if fitted can be used for DHW.

Pre-Commissioning Checks

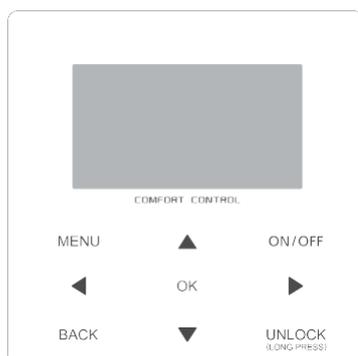
Before starting the unit, a number of pre checks that must be carried out. These can be found listed below.

On the larger 12/14/16kw units there is a Transportation support bracket installed to the compressor within the unit, this bracket must be removed prior to starting the unit. Failure to remove the support bracket will result in the compressor becoming noisy and potentially being **DAMAGED** and would not be covered under the Warranty terms and conditions. Please find further details below.



1. Make sure the water hydraulics are piped up in accordance with the manufacturer's instructions.
2. Make sure the electrical connections are wired in accordance with the manufacturer's instructions.
3. Make sure the system is fully flushed and an adequate filtration system is fitted.
4. Open any auto air vents and fill the system 1 bar minimum and make sure the system is vented fully.
5. Make sure the system is leak free.
6. Make sure an adequate level of anti freeze is added to the system to give protection to a -12°C. Make sure the anti freeze is fully mixed into the system prior to starting the unit.
7. Make sure the DIP switches are set as per this manual.

Controller Overview



Keys	Function
MENU	<ul style="list-style-type: none"> Go to the menu structure(on the home page)
◀▶▼▲	<ul style="list-style-type: none"> Navigate the cursor on the display Navigate in the menu structure Adjust settings
ON/OFF	<ul style="list-style-type: none"> Turn on/off the space heating/cooling operation or DHW mode Turn on/or off functions in the menu structure
BACK	<ul style="list-style-type: none"> Come back to the up level
UNLOCK	<ul style="list-style-type: none"> Long press for unlock /lock the controller Unlock /lock some functions such as "DHW temperature adjusting"
OK	<ul style="list-style-type: none"> Go to the next step when programming a schedule in the menu structure; and confirm a selection to enter in the submenu of the menu structure.

Starting Up the Unit for the First Time

When the monobloc is powered up for the first time, 1-100% will be displayed on the user interface during initialisation, in this time the controller can't be used.

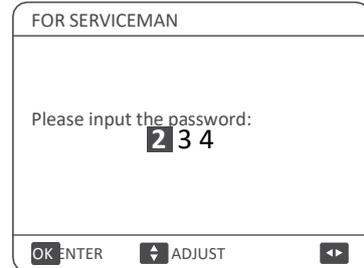
The following setting must be entered into the controller these are detailed below, in order for the controller and Heat pump to operate correctly.

Press and Hold the unlock button for 3 seconds if the Pad Lock is displayed.

Press the menu button to enter the menu

Scroll down the using the down arrow to SERVICEMAN and press OK

Enter the SERVICEMAN code 234.



Select DHW MODE SETTING

Set DHW Mode to **YES**

DISINFECT should be set **YES** if the immersion is controlled by the heat pump.

1	DHW MODE SETTING	1/5
1.1	DHW MODE	YES
1.2	DISINFECT	YES
1.3	DHW PRIORITY	YES
1.4	DHW PUMP	YES
1.5	DHW PRIORITY TIME SET	NON
	ADJUST	

DHW PRIORITY should be set to **Yes**

1.13 t.TBH_Delay should be set According to the tank size: As below

1.18 t_DHWHP_MAX should be set According to the tank size:

200L - 60min

300L - 90min

1	DHW MODE SETTING	4/5
1.16	t_DI_MAX	210 MIN
1.17	t_DHWHP_RESTRICT	30 MIN
1.18	t_DHWHP_MAX	120 MIN
1.19	DHW PUMP TIME RUN	YES
1.20	PUMP RUNNING TIME	5 MIN
	ADJUST	

All changes to selections must be confirmed with **OK**

Press BACK

NON

Select Cool Mode

Cool Mode 2.1 should be set to **NON**

All changes to selections must be confirmed with **OK**

Press BACK

2	COOL MODE SETTING	1/3
2.1	COOL MODE	YES
2.2	t_T4_FRESH_C	2.0HRS
2.3	T4CMAX	43°C
2.4	T4CMIN	20°C
2.5	dT1SC	5°C
	ADJUST	

Select Heat Mode

3	HEAT MODE SETTING	1/3
3.1	HEAT MODE	YES
3.2	t_T4_FRESH_H	2.0 HRS
3.3	T4HMAX	16°C
3.4	T4HMIN	-15°C
3.5	dT1SH	5°C
	ADJUST	

Set T1setH1, set to 55°C for Rads and 45°C for UFH or to the Design flow temp.

Set T1SetH2, set to 30°C

Set T4H1, set to the External design temp
We recommend -2°C or -5°C for Scotland

Set T4H2, set to 15°C

This will give a weather compensated curve of 45 degrees flow temp at -2 degrees outside and a Flow temp of 30 degrees at 15 degrees outside ambient air temperature

All changes to selections must be confirmed with **OK**

Press Back

Select Room Thermostat

Change Room Thermostat to Zone 1

Press **OK**

Press Back Twice to return to the home screen

To Activate the Weather Compensated Curve entered earlier, the next steps must be followed.

From the main screen press Menu button

Select Pre-set temperature and press **OK**

Go across to Weather Temp. Set

Scroll down to Zone1 H-Mode low temp,
Press the **ON/OFF** button to turn on.

Scroll right to the Number 9 and Confirm with **OK**

Press Back, until you return to the Home Screen.

3 HEAT MODE SETTING	2/3
3.6 dTSH	2°C
3.7 t INTERVAL_H	5MIN
3.8 T1SetH1	35°C
3.9 T1SetH2	28°C
3.10 T4H1	-5°C
ADJUST	

3 HEAT MODE SETTING	3/3
3.11 T4H2	1°C
3.12 ZONE1 H-EMISSION	RAD.
3.13 ZONE2 H-EMISSION	FLH
3.14 t DELAY_PUMP	2MIN
ADJUST	

6 ROOM THERMOSTAT	
6.1 ROOM THERMOSTAT	NON
ADJUST	

PRESET TEMPERATURE		
PRESET TEMP.	WEATHER TEMP.SET	ECO MODE
ZONE1 C-MODE LOW TEMP		OFF
ZONE1 H-MODE LOW TEMP		OFF
ZONE2 C-MODE LOW TEMP		OFF
ZONE2 H-MODE LOW TEMP		OFF
ON/OFF		

Test Mode

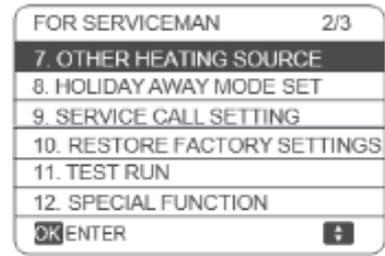
The unit can be put into a Test mode, this is done through the SERVICEMAN menu accessed as above.

In the Test mode menu, there are a couple options that can be selected in this menu, these include testing of all Outputs. This will allow the installer to check the unit has been wired correctly, there is also a handy air purge function within this menu.

We recommend that the air purge function is carried out before initially starting the unit. Please Find below the details on carrying out this process.

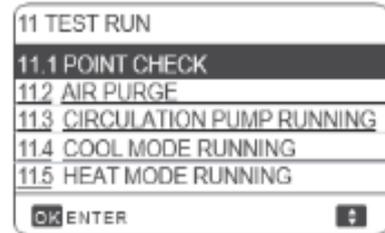
Enter SERVICEMAN mode using the password as Detailed in the previous section.

Scroll down and Select Test Run with **OK**



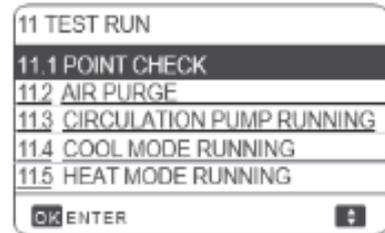
Once in Test Run menu, scroll down and select Air Purge with **OK** the unit will now run-in air purge Mode until exited.

During this process any auto air vent within the unit should be open and any external auto air vent, the pressure should be observed throughout, the venting process and topped up as required.



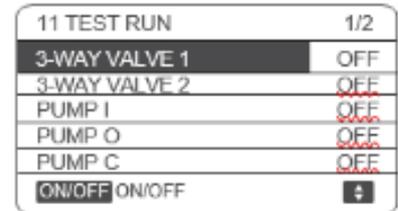
To return to the home screen press Back until the home screen is displayed

If point check is selected.



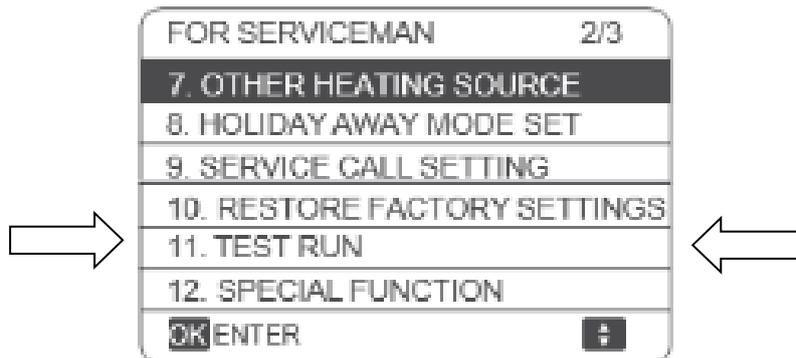
A number of outputs can be tested manually. Scroll down to the required Output and turn on/off using the **ON/OFF** button

Press Back until back at the home screen once Completed.



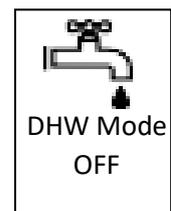
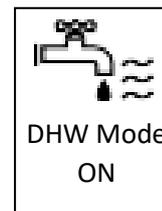
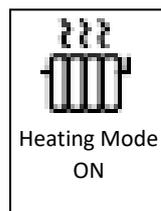
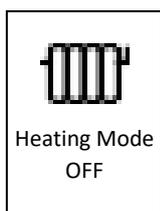
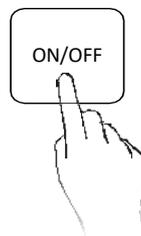
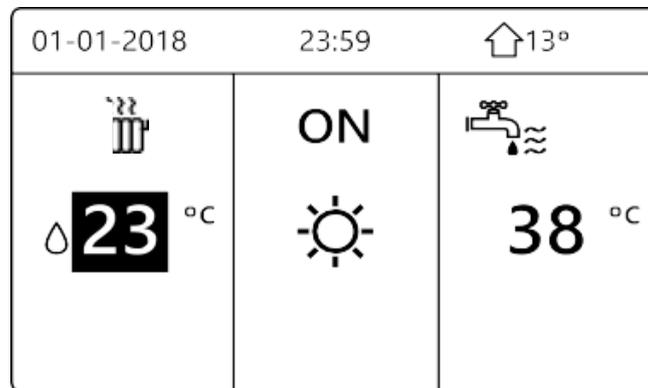
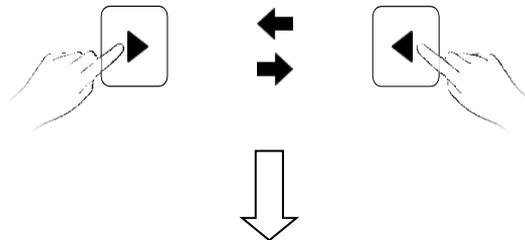
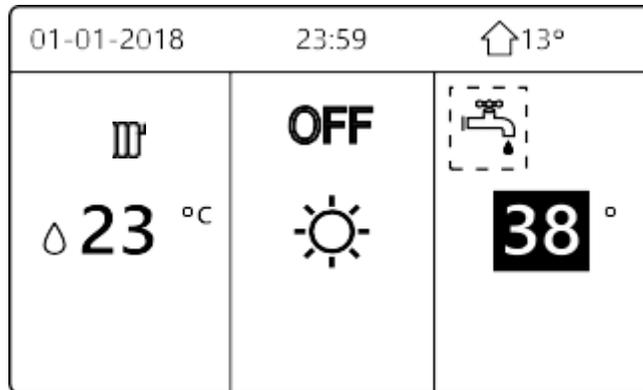
Factory Reset

If at any point all the setting requires changing back to default, this can be done via the factory reset option. This can be selected in the SERVICEMAN menu, by selecting Restore Factory Settings.



Putting the unit into Operations

In order to put the unit into operation you must turn on the modes within the home screen. This is done by selecting the mode (highlighting on the main screen) and then by pressing the ON/OFF button to enable.



Final Operational Checks

With the unit operating in Central Heating mode the mono bloc unit flow rate, can now be checked, to make sure the minimum flow rate is been achieved.

1. Enter SERVICEMAN menu as described in the previous sections.
2. Select Operation Parameters.
3. Scroll through and check the minimum flow rate for the unit fitted is been achieved adjust the flow setter if required.

OPERATION PARAMETER	#01
GAS BOILER	OFF
T1 LEAVING WATER TEMP.	35°C
WATER FLOW	1.72m ³ /h
HEAT PUMP CAPACTIY	11.52kW
POWER CONSUM.	1000kWh
Ta ROOM TEMP	25°C
◀ ADDRESS	3/9 ▶

Unit	Minimum Flow Rate	Recommended		Maximum Flow Rate
Edge EVO 2.1	6.64 Lpm*	11.4 lpm	0.68m ³ h	14.16 Lpm
Edge EVO 3.1	6.64 Lpm*	17.4 lpm	1.02m ³ h	20.82 Lpm
Edge EVO 4.1	6.64 Lpm*	22.8 lpm	1.37m ³ h	27.48 Lpm
Edge EVO 5.1	6.64 Lpm*	28.8 lpm	1.71m ³ h	33.32 Lpm
Edge EVO 6.1	11.62 Lpm*	34.2 lpm	2.05m ³ h	41.65 Lpm
Edge EVO 7.1	11.62 Lpm*	40.2 lpm	2.40m ³ h	45.81 Lpm
Edge EVO 8.1	11.62 Lpm*	45.6 lpm	2.74m ³ h	49.98 Lpm
Edge EVO 6.1 T	11.62 Lpm*	34.2 lpm	2.05m ³ h	41.81 Lpm
Edge EVO 7.1 T	11.62 Lpm*	40.2 lpm	2.40m ³ h	45.81 Lpm
Edge EVO 8.1 T	11.62Lpm*	45.6 lpm	2.74m ³ h	49.98 Lpm

*Please be aware if, only the minimum flow rate is achieved through the unit the unit will not function to its full output.

Fault Codes

Error code	
C7	Transducer module temperature too high protect
E0	Water flow failure (E8 appears 3 times)
E1	Phase sequence error (for 3 phase models)
E2	Communication error between the main control board of hydraulic module and user interface
E3	Backup electric heater exchanger water outlet temperature sensor T1 error
E4	Domestic hot water tank temperature sensor T5 error
E5	Air side heat exchanger refrigerant outlet temperature sensor T3 error
E6	Outdoor ambient temperature sensor T4 error
E7	Balance tank sensor Tbt1 error
E8	Water flow failure within 3 times
E9	Suction pipe temperature sensor Th error
EA	Discharge pipe temperature sensor Tp error
Eb	Solar board sensor Tsolar error
Ec	Balance tank sensor Tbt2 error



Ed	Water side heat exchanger water inlet temperature sensor Twin error
EE.	Hydronic box EEPROM error
F1	DC generatrix voltage is too low
H0	Communication error between outdoor unit main control chip and hydronic box main control chip
H1	Communication error between outdoor unit main control chip and inverter driver chip
H2	Water side heat exchanger refrigerant outlet (liquid pipe) temperature sensor error
H3	Water side heat exchanger refrigerant inlet (gas pipe) temperature sensor error
H4	Inverter module protection (L0/L1 appear 3 times in one hour)
H5	Room temperature sensor Ta error
H6	DC fan error
H7	Abnormal main circuit voltage
H8	Pressure sensor error
H9	Zone 2 water outlet temperature sensor Tw2 error
HA	Water side heat exchanger water outlet temperature sensor error
Hb	PP protection three times in a row and Twout<7°C
Hd	Communication fault between master unit and slave unit (in parallel)
HE	Communication error between main board and thermostat transfer board
H.F.	Refrigerant system EEPROM error
HH	H6 appears 10 times in 120min
HP	Low pressure protection (pressure < 0.6MPa for 3 times in one hour)
P0	Low pressure protection
P1	High pressure protection
P3	Compressor current protection
P4	Discharge temperature sensor Tp protection
P5	High temperature difference between water side heat exchanger water inlet and water outlet temperatures protection
P6	Inverter module protection
L0	Inverter module protection
L1	DC bus low voltage protection

L2	DC bus high voltage protection
L4	MCE error
L5	Zero speed protection
L7	Phase sequence error
L8	Compressor frequency variation greater than 15Hz within one second protection
L9	Actual compressor frequency differs from target frequency by more than 15Hz protection
Pb	Water side heat exchanger anti-freeze protection
Pd	High temperature protection of refrigerant outlet temperature of condenser in cooling mode
PP	Water side heat exchanger inlet temperature is higher than outlet temperature in heating/DHW mode
bH	PED board error

MCS & ENA

Please find below the product MCS Certification numbers. If further details on the Unit's SCOP values are required at the designed flow temp, these can be found at [Product directory - MCS \(mcscertified.com\)](http://www.mcscertified.com) by searching the Certificate number below.

Unit	MCS Certified Product
Edge EVO 2.1	041-K008-02 a
Edge EVO 3.1	041-K008-02 b
Edge EVO 4.1	041-K008-03 a
Edge EVO 5.1	041-K008-03 b
Edge EVO 6.1	041-K008-04 a
Edge EVO 7.1	041-K008-04 b
Edge EVO 8.1	041-K008-04 c
Edge EVO 6.1 T	041-K008-04 d
Edge EVO 7.1 T	041-K008-04 e
Edge EVO 8.1 T	041-K008-04 f

Below you can Find the ENA Database Registration Number and Maximum System Demand. Further Details can be found at - [Databases – Energy Networks Association \(ENA\)](http://www.enadatabase.com)

Unit	Maximum Demand	ENA Number
Edge EVO 2.1	10.10A	HP_3901
Edge EVO 3.1	11.90A	HP_3902
Edge EVO 4.1	14.90A	HP_3903
Edge EVO 5.1	16.20A	HP_3904
Edge EVO 6.1	24.20A	HP_3905
Edge EVO 7.1	25.20A	HP_3906
Edge EVO 8.1	26.96A	HP_3907



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