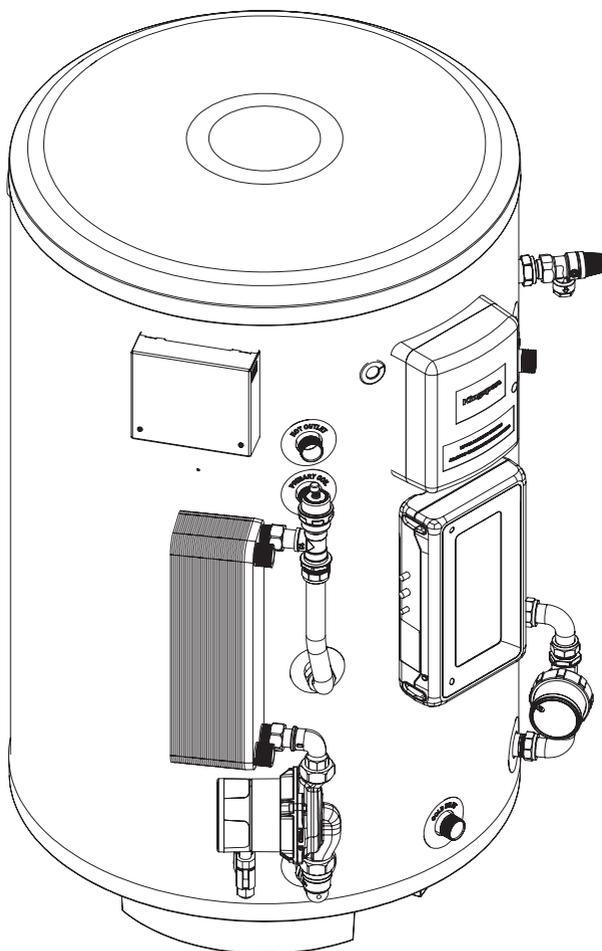


Installation and commissioning instructions

MDC0008-02

For Mixergy heat exchanger modules



PLEASE LEAVE WITH HOUSEHOLDER

Failure to install and maintain this system in accordance with these instructions will invalidate the manufacturer's warranty.

mixergy

About this module

The Mixergy heat pump exchanger module is designed to allow for integration of any Mixergy cylinder with both low and high temperature heat pumps.

This module incorporates a high surface area plate heat exchanger and circulator pump to enable high performance heat transfer between the heat pump and cylinder. This module replaces a traditional coil and can provide better volumetric efficiency, reheat speed, heat pump performance and serviceability than a conventional system.

For all queries, please contact us:

Tel: 01865 884343

Email: enquiries@mixergy.co.uk

Technical data

Exchanger construction	Copper brazed 304 SS
Exchanger rating*	44 kW
Exchanger max. primary flow rate	65 L/min (3.8 m ³ /hr)
Exchanger connections	3/4" ISO-G (BSPP) M
Exchanger max. primary flow temperature	80 °C
Exchanger equivalent coil surface area**	3 m ²
Exchanger max. working pressure (indirect)	2.0 MPa (20 bar)
Circulator pump rating	230-240 V~ 10-50 W

* Tested at 80 C, 15 L/min primary flow as per BS EN 12897-2016

** Equivalently performant coil surface area for SAP 10 calculations

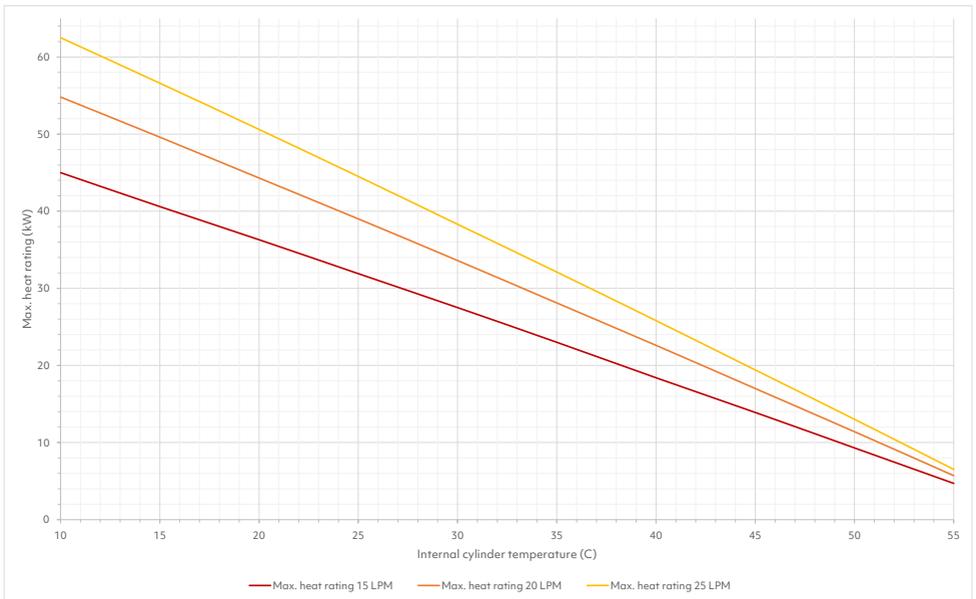
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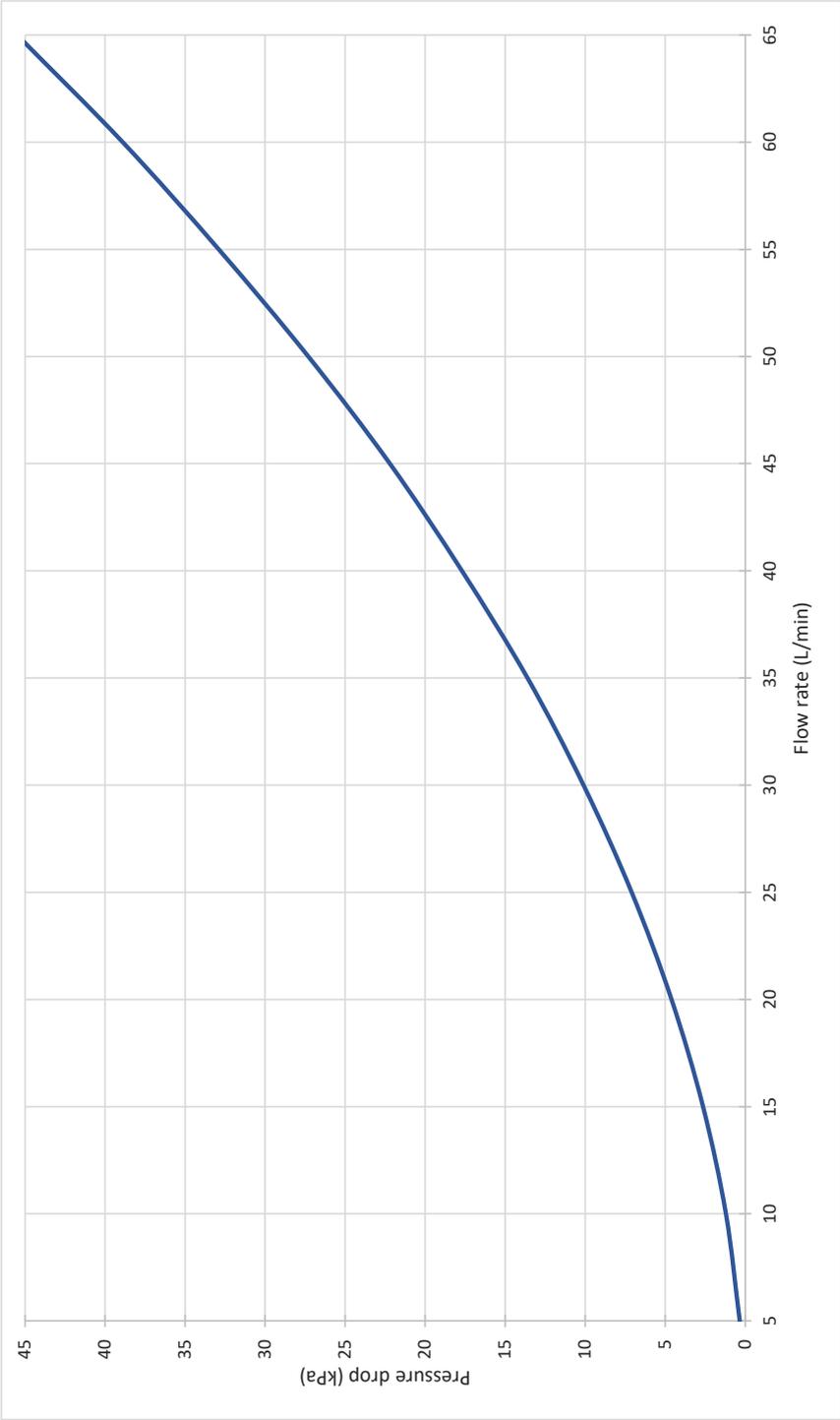
Included items

- Heat exchanger module complete with pipework, fittings (MAS0137, MAS0138, MAS0139), exchanger, AAV and pump
- 2x 22mm compression nuts and olives
- 2x 22mm isolator valves and pipe stubs
- Installation guide
- Insulating jacket for exchanger
- Heat pump interface

Exchanger performance graphs

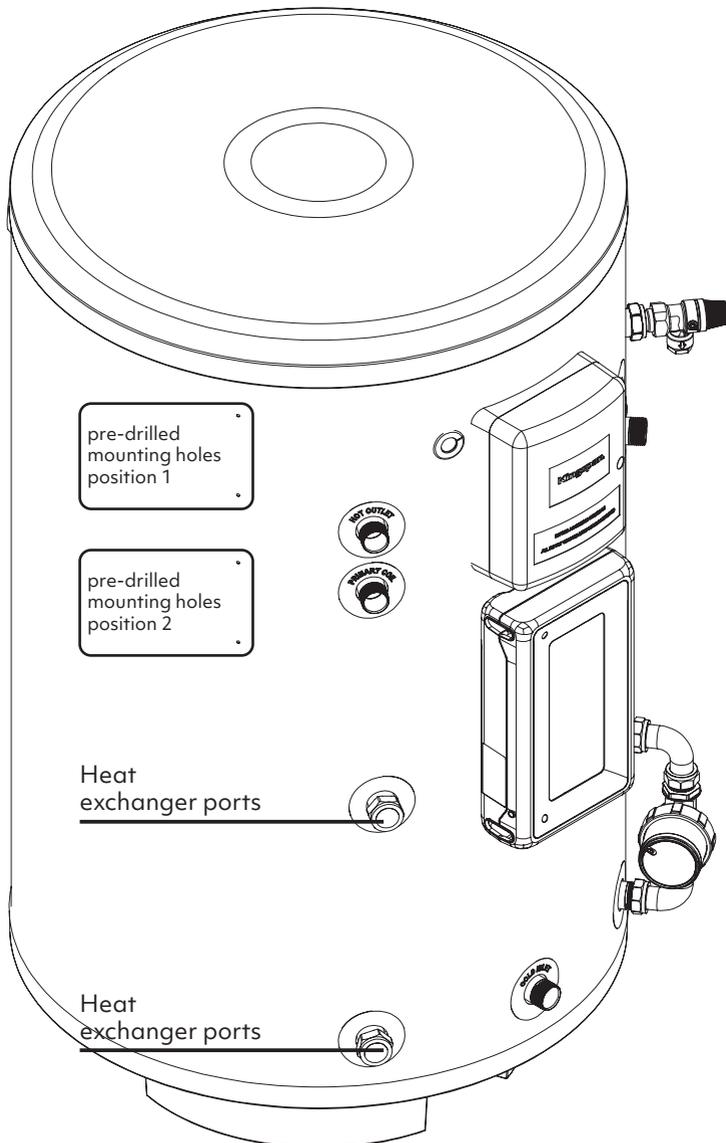


Performance given at 60 C, 15/20/25 L/min primary flow.



Installation: hydraulic

1. Drain hot water system if it is currently filled, refer to the back of this booklet for specific guidance on draining the hot water cylinder.
2. Remove blanking caps from cylinder heat exchanger ports, replace with included compression nuts and olives.

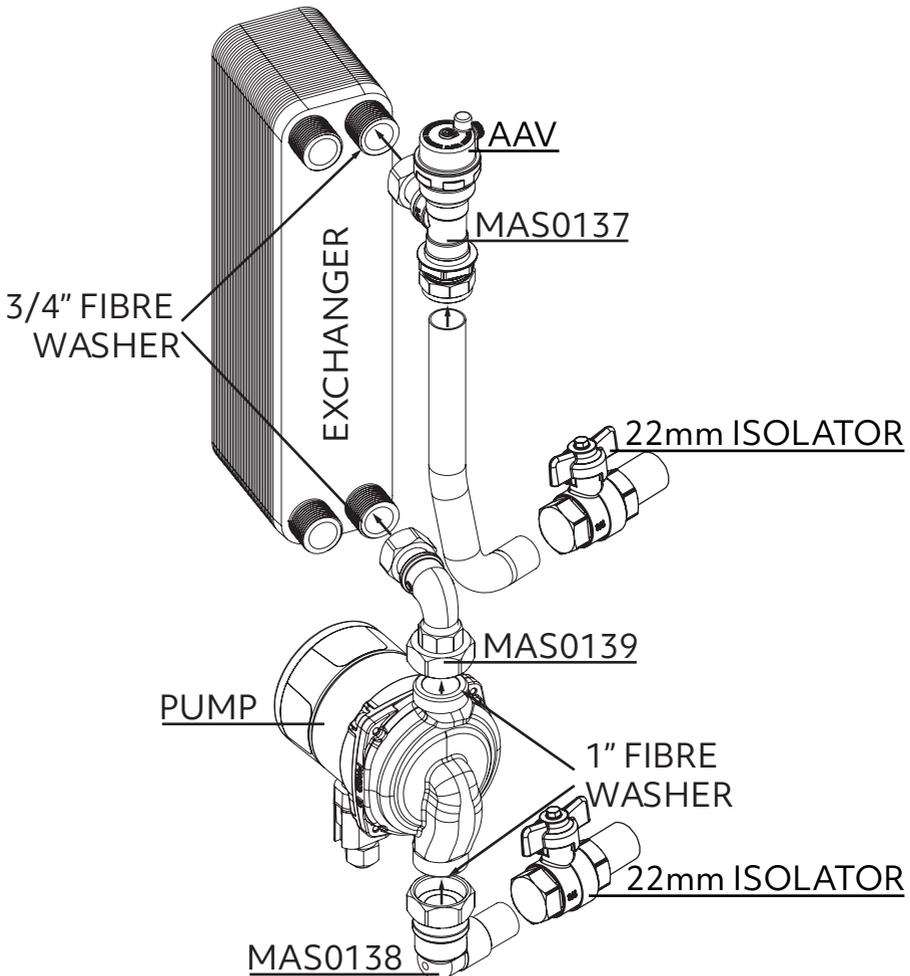


Installation: hydraulic

3. Assemble and orient the exchanger as pictured.
4. (OPTIONAL) Fit 22mm isolators to the heat exchanger ports using supplied pipe stubs.
5. Push the assembly onto the cylinder.

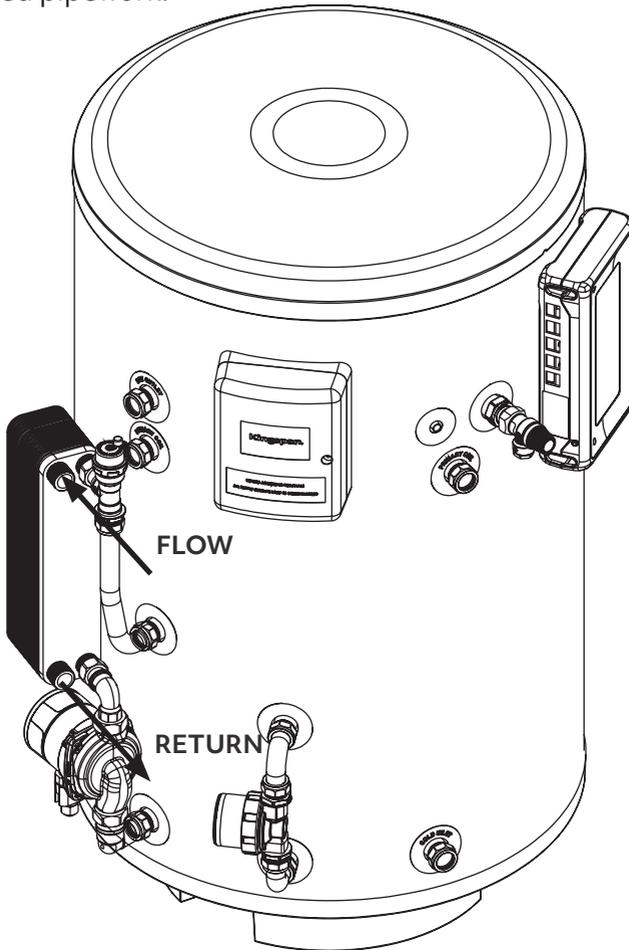


IT IS RECOMMENDED TO FIT THE SUPPLIED 22mm ISOLATOR VALVES BETWEEN THE EXCHANGER ASSEMBLY AND THE HEAT EXCHANGER PORTS WHEN POSSIBLE FOR EASE OF SERVICE



Installation: hydraulic

6. Align exchanger assembly and tighten compression fittings. Ensure all fittings on the cylinder are tight before filling.
7. Plumb the primary circuit flow and return as pictured.
8. Refill the system with water, ensure the air vent cap is loosened to allow the system to be purged of air during filling.
9. Close the air vent cap.
10. Fit the exchanger installation jacket and supplied lagging to exposed pipework.



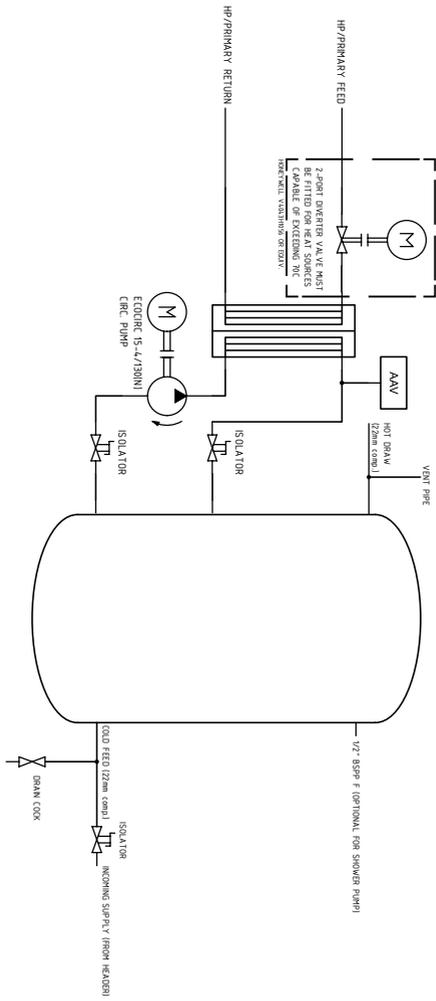
IT IS THE INSTALLER'S RESPONSIBILITY TO ENSURE THE ASSEMBLY IS FULLY SEALED BEFORE LEAVING SITE

Installation: remote mounting

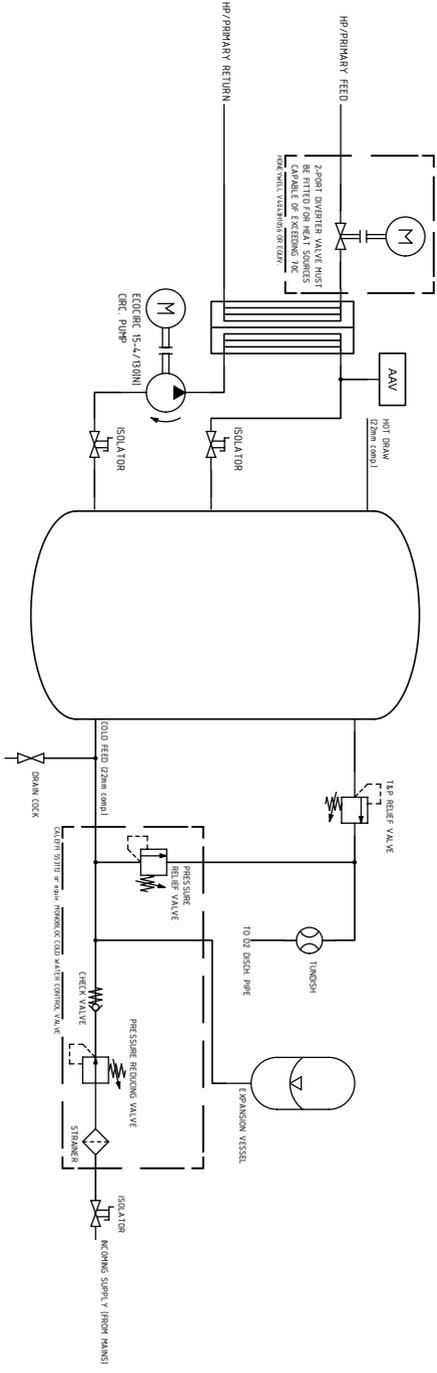
For 120L units and in some cases where limited space or pre-existing pipework obstruct the normal mounting position of the exchanger assembly, it may be required to mount the assembly a small distance away from the cylinder. In this situation, please follow the guidance below:

- Ensure that a minimum of 22mm pipework is used to connect the exchanger assembly to the heat exchanger ports on the cylinder. Do not exceed more than 2m of additional pipework and reduce the number of bends in the pipework to a minimum.
- Ensure the exchanger assembly is adequately supported with a minimum of 3 wall mounted pipe clips within 300mm of the assembly.
- Ensure all pipework running to and from the assembly is fully lagged.
- Ensure the orientation and plumbing of the installed pipework matches that of the hydraulic schematic (page 10).

HEAT PUMP VENTED



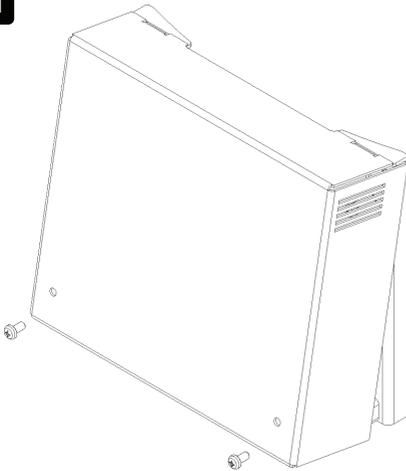
HEAT PUMP UNVENTED



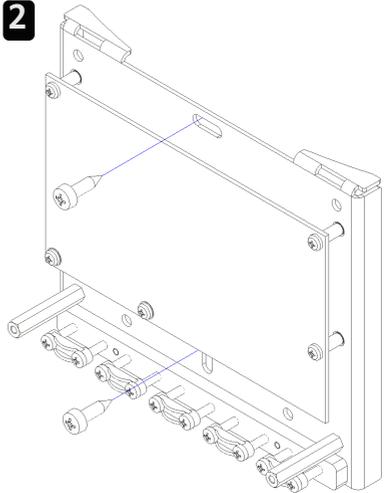
Installation: mechanical

1. Remove the front cover of the HP interface.
2. Mount the PV switch either to the side wall of the cylinder (using the included self-tapping screws at either position 1 or 2 as shown on page 6) or to a nearby wall (using the included plastic spacers and screws).

1



2



IN THE CASE OF A 120L CYLINDER, IT IS RECOMMENDED TO FIT THE HEAT PUMP INTERFACE AT POSITION 1 TO ALLOW SPACE FOR THE EXCHANGER ASSEMBLY

Installation: electrical



ENSURE ALL ELECTRICAL SUPPLIES ARE SWITCHED OFF BEFORE MAKING ANY CONNECTION TO THE UNIT. ELECTRICAL INSTALLATION MUST BE CARRIED OUT BY COMPETENT ELECTRICIAN AND BE IN ACCORDANCE WITH THE LATEST I.E.E. REGULATIONS.



How the electrical interface works

The electrical interface for indirect/heat pump control on a Mixergy cylinder works by switching the contacts on a volt free relay.

For heat pump systems, 240VAC must be supplied to the COM terminal of this relay (terminal L in the HP interface box) in order to power the included circulator pump.

When the Mixergy cylinder then makes a call for heat, this 240VAC signal will be switched from the NC terminal of the relay to the NO terminal of the relay (terminal SW_L in the heat exchanger junction box). The output on SW_L can then be used to switch a diverter valve or otherwise interface with the heat pump depending on setup. The SENSOR1 output can also be used in cases where the heat pump ordinarily requires the use of a PTC/NTC/PT100/PT1000 temperature sensor for DHW operation.

Use of a temperature probe

In the instance where control of the cylinder by the heat pump is desired (i.e. cylinder slave operation), a probe pocket is provided to allow for the installation of the heat pump's water temperature sensor.

Please note that in this mode of operation, all scheduling and control features of the Mixergy app will be disabled and the cylinder will only function as an observational/diagnostic tool. Any scheduling and control changes need to be performed on the heat pump's controller.

Recommended installation (DHW Sensor)

For heat pumps with a DHW sensor input, the recommended installation is as follows:

1. Connect cylinder indirect control cable GREEN/YELLOW to HP interface INDIRECT E.
2. Connect cylinder indirect control cable BLACK to HP interface INDIRECT COM.
3. Connect cylinder indirect control cable BROWN to HP interface INDIRECT NO.
4. Connect cylinder indirect control cable GREY to HP interface INDIRECT NC.
5. Connect cylinder high limit stat. cable BROWN to HP interface STAT COM.
6. Connect cylinder high limit stat. cable BLUE/BLACK to HP interface STAT NC.
7. Connect cylinder exchanger circ. pump L, N, E to HP interface PUMP L, N, E.
8. Connect heat pump 3A supply L, N, E to HP interface HEAT PUMP L, N, E.
9. Connect HP interface SENSOR1 terminals 1,2 to heat pump DHW sensor terminals via a length of 2-core cable. Conductor orientation does not matter. If the heat pump sensor interface has more than 2 terminals, please contact Mixergy directly for further guidance.

Full schematics for this installation can be found on page 16.



ENSURE 3-CORE CABLE USED FOR CIRCULATOR PUMP HAS A MINIMUM CSA OF 0.5 mm² AND A MINIMUM VOLTAGE RATING OF 240 VAC.



ENSURE 2-CORE CABLE USED FOR SENSOR INTERFACE HAS A MINIMUM CSA OF 0.25 mm²

Alternate installation (Modified S-PLAN)

For heat pumps with a dedicated DHW ON switched live input or a configurable high temperature (HT) zone switched live input, the recommended installation is as follows:

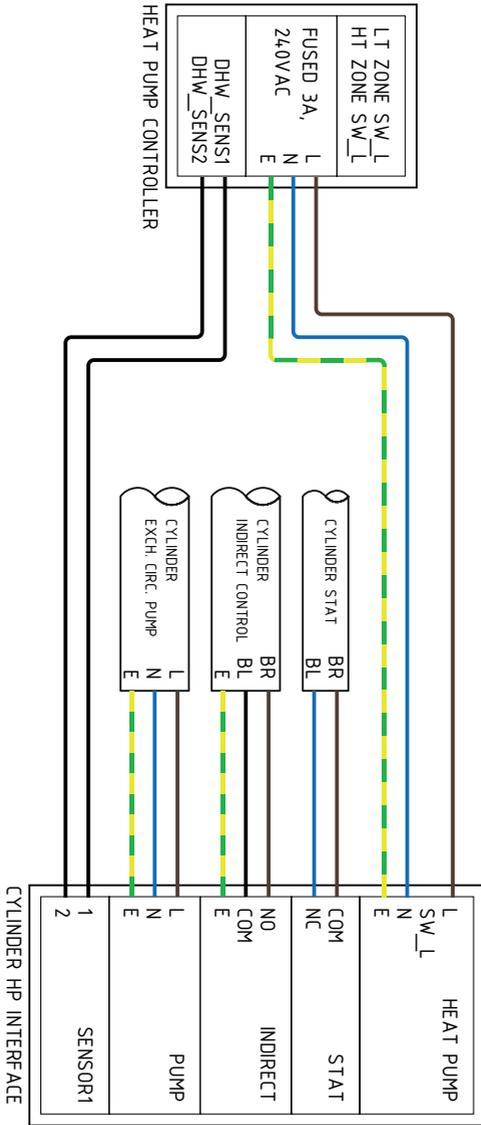
1. Connect cylinder indirect control cable GREEN/YELLOW to HP interface INDIRECT E.
2. Connect cylinder indirect control cable BLACK to HP interface INDIRECT COM.
3. Connect cylinder indirect control cable BROWN to HP interface INDIRECT NO.
4. Connect cylinder indirect control cable GREY to HP interface INDIRECT NC.
5. Connect cylinder high limit stat. cable BROWN to HP interface STAT COM.
6. Connect cylinder high limit stat. cable BLUE/BLACK to HP interface STAT NC.
7. Connect cylinder exchanger circ. pump L, N, E to HP interface PUMP L, N, E.
8. Connect heat pump 3A supply L, N, E to HP interface HEAT PUMP L, N, E.
9. Connect DHW 2-port diverter valve WHITE to 3A supply L.
10. Connect DHW 2-port diverter valve BLUE to 3A supply N.
11. Connect DHW 2-port diverter valve GREEN/YELLOW to 3A supply EARTH.
12. Connect DHW 2-port diverter valve BROWN to HP interface SW_L.
13. Connect DHW 2-port diverter valve ORANGE to heat pump DHW ON/HT ZONE ON.

Full schematics for this installation can be found on page 17.

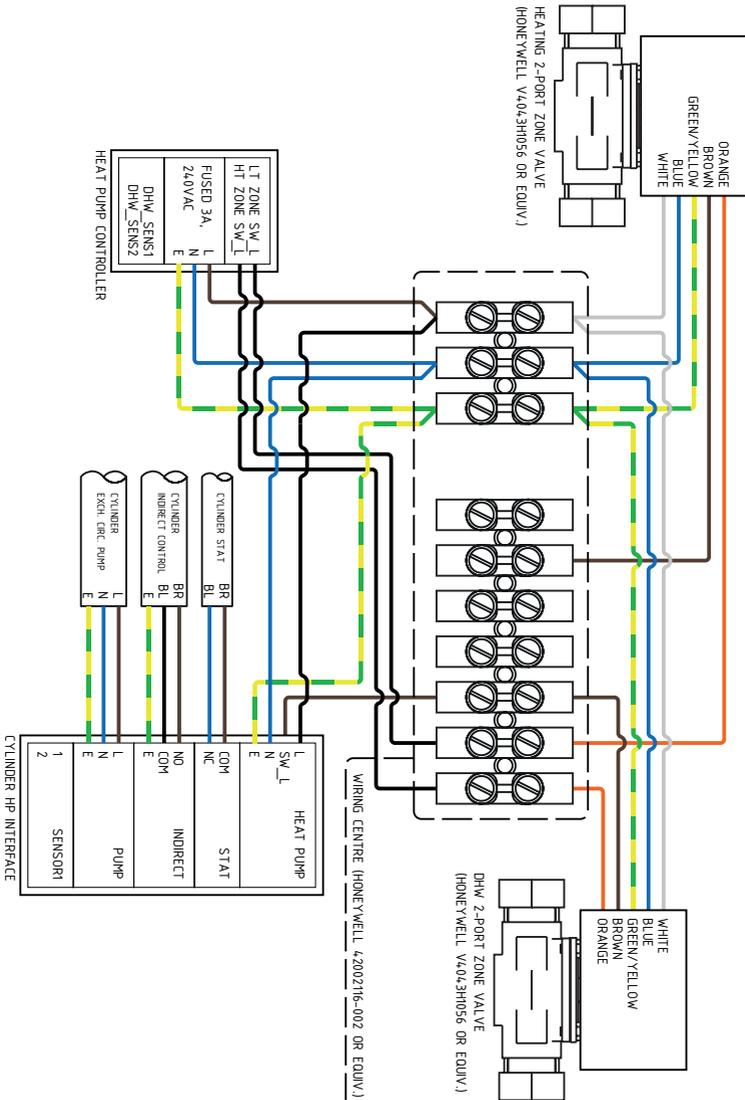


ENSURE 3-CORE CABLE USED FOR CIRCULATOR PUMP HAS A MINIMUM CSA OF 0.5 mm² AND A MINIMUM VOLTAGE RATING OF 240 VAC.

Installation: electrical (DHW Sensor)

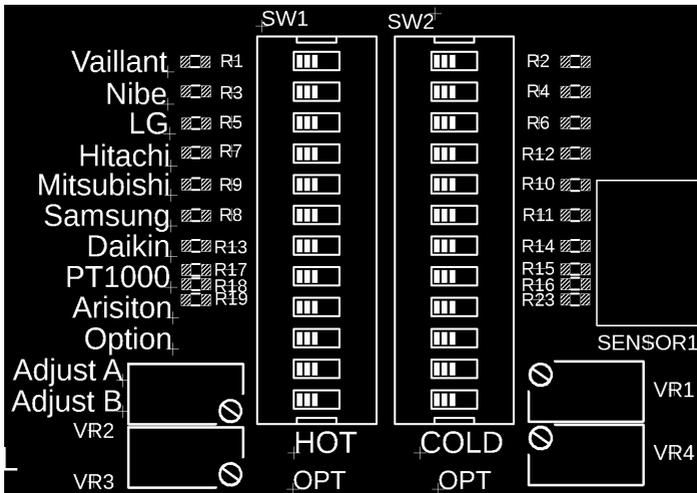


Installation: electrical (Modified S-Plan)



Installation: commissioning

1. Set the DIP switches SW1 and SW2 in the top right corner of the HP interface board to select the correct heat pump. Labels for the different heat pump manufacturers are printed on the circuit board to the left of the DIP switches. Find the correct heat pump and move the two DIP switch positions to the right of the label to the (rightmost) ON position.
2. Ensure the heat pump's HT zone/DHW water heating is unscheduled (i.e. always available) otherwise this can cause schedule conflicts with the Mixergy app.
3. Ensure that any time constraints on DHW priority are removed. These can be reinstated once the 0-100% reheat time has been observed.
4. Set the Mixergy cylinder default heat source into heat pump mode. This can be done in the web/phone app or directly on the cylinder gauge by holding both the boost up and down buttons and releasing once the display lights blue.
5. Boost the cylinder and check for correct operation (i.e. a call for heat is made, circulator pump and heat pump begin running, cylinder starts to heat).



Troubleshooting

No call for heat is made

If no call for heat is made and the cylinder is instead energizing the primary immersion, ensure that the cylinder has been set to operate with a default heat source set as 'heat pump'. If the cylinder is offline then this change may require a reboot to take effect. If a call for heat is being made by the cylinder but there is no response from the circulator pump, ensure that a 240VAC supply has been provided to the assembly junction box. If a call for heat is made and the circulator powers but the heat pump does not respond, double check the wiring integration with the heat pump along with the heat pump controller setup - refer to the heat pump's installation manual for further guidance.

Heat pump reporting strange temperatures

If the heat pump DHW sensor reading is either in an error state or reporting values outside of the expected range, then the heat pump may be set to the wrong sensor type. If the heat pump accepts multiple different types of temperature sensor, try checking the heat pump manual for guidance on changing the sensor type. If no such function exists, please contact Mixergy directly for further support.

Slow charging

If the cylinder is charging slowly when charging via heat pump, ensure that the heat exchanger circulator pump is running and that there is adequate flow-rate through the primary side of the exchanger.

Electrical fault

If an electrical fault of the controller is suspected or the electrical system does not operate as expected, please contact Mixergy directly.

Intermittent charging

If the cylinder is only able to charge some of the time when a call for heat is made or charging is out of sync with calls for heat, this indicates either a scheduling conflict or a wiring integration issue. If the former is suspected, please ensure that the heat pump controller's DHW generation is unscheduled. If the latter is suspected, double check the wiring. If a solution cannot be found, please contact Mixergy directly.

Troubleshooting

Immersion is being used in heat pump mode

The cylinder will auto-detect if the heat pump has reached a temperature ceiling below the set temperature of the cylinder (for example if the heat pump reaches a maximum of 45 C with a cylinder set temperature of 55 C). If this is detected, the immersion will be switched on in order to satisfy the temperature difference. If this behaviour is undesirable, the set temperature of the cylinder should be adjusted down and the flow temperature of the heat pump adjusted up. Please note that a set temperature of less than 50 C is not permitted for sanitary reasons.

Other issues

If any other issues are suspected, please contact Mixergy directly for further support.

Draining the cylinder

1. Switch off the controller, boiler and any other heat sources.
2. Switch off water at mains.
3. Open nearest hot tap.
4. Open drain to start draining the cylinder.

Replacement parts

Do not attempt to repair or replace any parts of the Mixergy cylinder unless you are a trained operative. If you suspect a fault or a replacement part is needed, please contact Mixergy directly.

Part description	Part no.
Heat exchanger assembly	MAS0003
Upper fitting assembly	MAS0137
Middle fitting assembly	MAS0139
Lower fitting assembly	MAS0138
Circulator Pump	MEL0021
Heat exchanger	MME0072
Heat exchanger jacket	MME0054
AAV	MME0123

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