

RESISTOR SWITCH – INSTALLATION INSTRUCTIONS

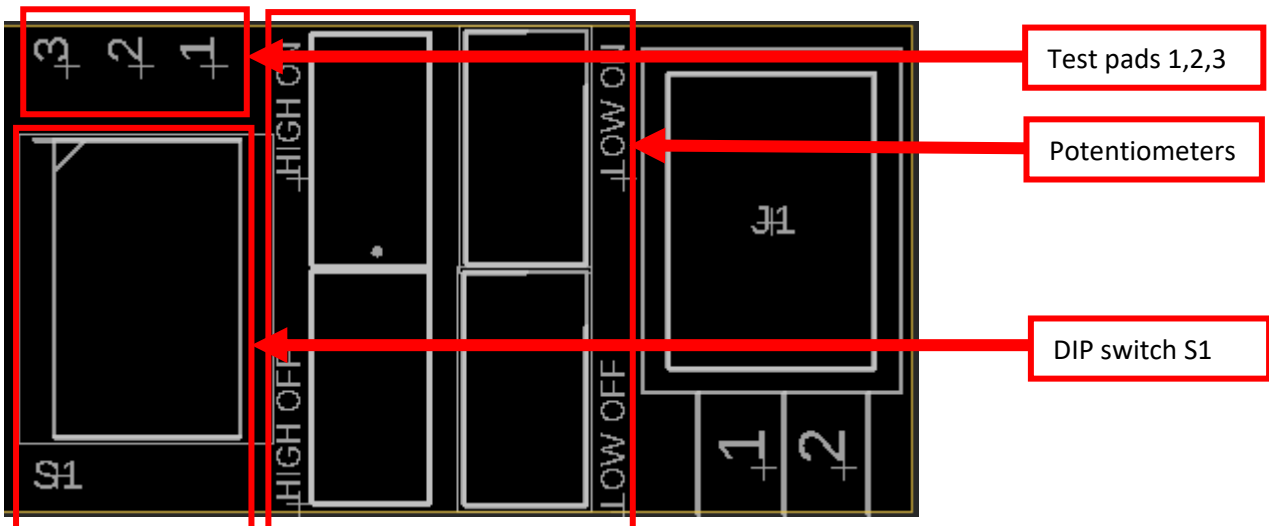
Introduction

The resistor switch is a device designed to allow for generic interface with heat pumps expecting the use of a digital NTC/PTC/PT100/PT1000 style sensor for the detection and control of the hot water temperature within the cylinder. As the Mixeroy cylinder has its own suite of sensors and more sophisticated hot water control options, the use of such a sensor along with the heat pump's hot water control would cause conflicts in the functionality of the hot water system, namely:

1. Scheduling of the hot water
2. Temperature control of the hot water
3. Control of the auxiliary exchanger pump

In order to avoid these problems, the resistor switch is designed to allow for the Mixeroy system to convert a 240VAC switched call for heat (thermostatic control) to a switched resistance. The two positions (ON/OFF) of this switched resistance can be adjusted by the installer and are intended to mimic the apparent resistance that would be seen on the heat pump's cylinder temperature sensor when the water is cold (ON) and hot (OFF).

Adjusting the resistor switch



To adjust resistances on the resistor switch, there are two steps required:

1. Setting the DIP switch S1 as per the table below
2. Adjusting the high resistance/low resistance potentiometers as selected using a small flathead screwdriver.

	DIP SWITCH POSITION
	

RESISTANCE RANGE	1	2	3	4
HIGH (1k – 25k)	ON	OFF	ON	OFF
LOW (0 – 1k)	OFF	ON	OFF	ON

If the cylinder is unpowered and no indirect/HP call for heat is made, the terminals at J1 (1,2) will read the resistance of the hot (OFF) state. If a call for heat is made by the cylinder, this will be switched to the cold (ON) state.

Setting the resistor switch

It is recommended to follow the steps below to set up the resistor switch as required:

1. take a resistance measurement of the heat pump's cylinder temperature sensor at 50C – 70C
2. take a resistance measurement of the heat pump's cylinder temperature sensor at ambient (15C – 30C)
3. adjust the resistor switch OFF potentiometer (HIGH/LOW as selected by S1) until resistance between test points 1 and 2 equal the measurement taken at step 1.
4. Adjust the resistor switch ON potentiometer (HIGH/LOW as selected by S1) until resistance between test points 1 and 3 equal the measurement taken at step 2.
5. Wire a 2-core cable between the heat pump controller's cylinder temperature ports and the resistor switch ports J1 1,2 – orientation does not matter.
6. Power up the heat pump and cylinder and test operation. Ensure the cylinder is set to 'heat pump' or 'indirect' heating mode as the default heat source (refer to the Mixergy installer manual/user guide for further guidance on setting this correctly). Boost the system and ensure the heat pump starts the compressor and begins charging the cylinder.
7. After waiting 5 minutes, cancel the cylinder's boost and check that the call for heat is stopped and the heat pump ceases production of heat.

Troubleshooting

If the cylinder is unable to call for heat from the heat pump, please check the following:

1. Does the cylinder junction box have a permanent live (240VAC) supply wired into L1, N, E? Ensure that this supply is provided.
2. Are the resistance values correct? If the heat pump is able to display the cylinder temperature, you should be able to see this change from 50C – 70C to 15C – 30C when the cylinder makes a call for heat.
3. Is the heat pump set up with hot water priority and 24/7 water heating schedule? The heat pump's internal schedule and heating priority may be conflicting with the cylinder's call for heat.
4. Is the heat pump's water temperature threshold set correctly? If this is too low (<15C), you may have to further adjust the ON potentiometer value until it falls below this threshold.



If the cylinder is constantly calling for heat from the heat pump, please check the following:

1. Ensure the OFF resistance is set correctly such that it is above the heat pump's hot water target temperature (if the hot water target temperature is 60C, set the OFF resistance such that it represents 65C)