



Quick Guide to Installing M-Thermal Heating Only **Hydronic Heating Only**, With or Without **Domestic Hot Water (DHW)**

1. Introduction

The Mits Air M-Thermal Air to Water Heat Pump is a superior design that can incorporate hydronic heating, cooling, domestic hot water and solar heating assistance. This pamphlet will deal with **heating only** or **heating with domestic hot water**.

2. Needed before you start:

- a. A buffer tank that will have sufficient capacity for the system.
- b. If you are adding domestic hot water, you will need a buffer tank that incorporates indirect domestic hot water heating.
- c. A two-stage heating thermostat.
If you only have two wires going to the existing thermostat and it has only two wires and it will be difficult to pull new wires, consider using a **Tekmar 564 thermostat**. While the thermostat is a bit more expensive, the labor savings will easily offset this additional cost.
- d. If you have a cast-iron boiler or black iron piping and are planning to use an **ECM pump**, it is highly recommended that you install a magnetic dirt separator to ensure that rust and magnetite does not cause pump issues.

3. Piping:

Before starting, you will need to decide how you will add the M-Thermal to the system. The best way is to use the buffer tank outlet as the primary loop and the original boiler injecting into the primary loop through closely spaced T's. If you are unsure of which to use, please call our Hydronics Division at **905-362-5293** or **hydronics@mitsair.com** and they will be happy to discuss the best strategy for your particular application.

4. Controls:

You will need a two-stage heat thermostat a 24 vac SPST (Single-Pole Single-Throw) relay and possibly a transformer. The relay only requires signal contacts. Please review the wiring schematic.

5. Programming the Controller:

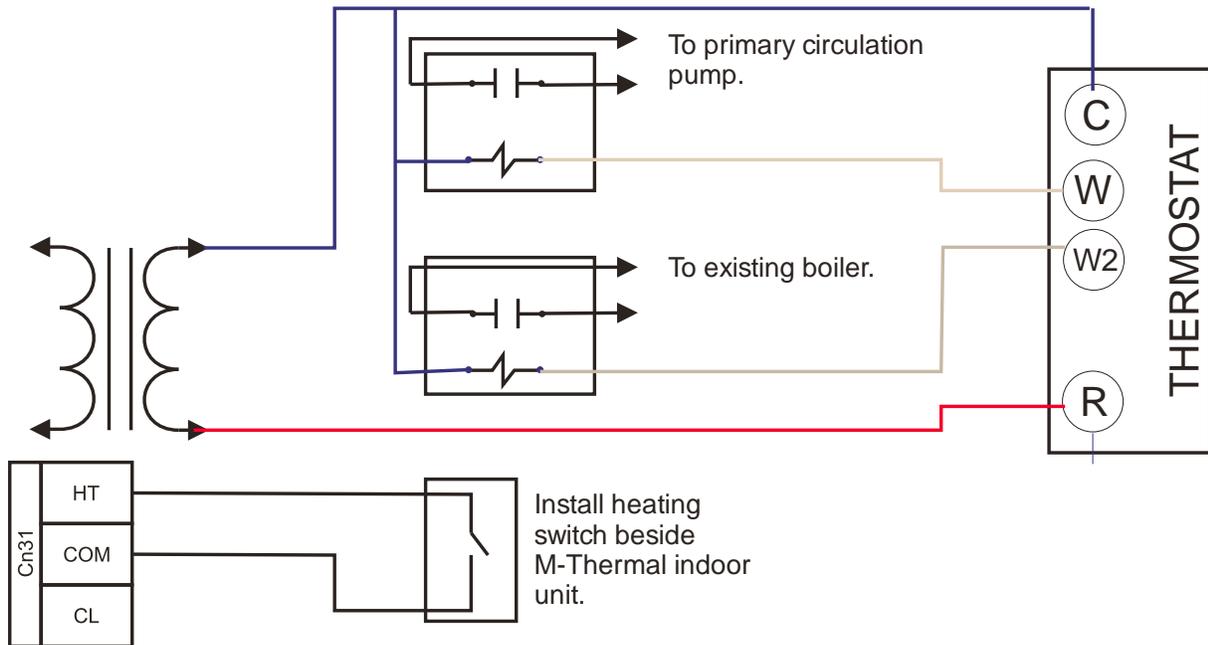
The M-Thermal requires the main display to be programmed for your application before it can operate. At first this looks very confusing, but if you use the fast-programming guide (listed below) this can be done in minutes.

**For suggestions/advice on your design and installation,
contact the Mits Air Hydronics Team:**

**6125 Netherhart Road, Mississauga, ON, L5T 1G5.
905-362-5293 or hydronics@mitsair.com**

Please refer to manufacturer installation manual

M-Thermal Wiring Heating Only or with DHW



Notes:

1. This is for single thermostat control only.
2. This would pump from the indoor unit to the buffer tank (hydraulic separator connections).
4. M-thermal must be on continuously if using domestic hot water.
3. W controls primary loop pump for heating purposes.
4. If M-Thermal requires assistance, boiler turns on and injects to primary loop when W2 is activated.

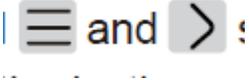
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Start-Up Programming

This is a quick guide to doing the programming for **Heating**.

You can also refer to the commissioning section of the M-Thermal for in-depth instructions.

Heating Setting:

<p>Start To enter the Serviceman Set-Up mode, hold down the two keys for 3 seconds and enter the password 234 and confirm.</p> 	
<p>Press on Heating Setting</p>	

You must enable Heating Mode
Use the arrow keys to advance or go back..

Heating setting

Heating mode	<input checked="" type="checkbox"/> YES
t_T4_FRESH_H	0.5hours
T4HMAX	77 F
T4HMIN	5 F

- Temperature Tupe Setting:
- Set water flow temp to Yes
 - Set Room Temp to No
 - Set double zone to No.

Temp. type setting

Water flow temp.	<input checked="" type="checkbox"/> YES
Room temp.	<input type="checkbox"/> NO
Double zone	<input checked="" type="checkbox"/> YES

Room Thermostat Setting
Set to no

Room thermostat setting

Room thermostat	<input type="checkbox"/> NO
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<ul style="list-style-type: none"> • Set IBH (Booster Heater) to YES. • Set on to DT!_IBH_ON to 41 • Set delay to 15 minutes • Set IBH to 5 	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; text-align: center;"> <h3>Other heat source</h3> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">IBH function</td> <td style="text-align: right;">YES</td> </tr> <tr> <td>dT1_IBH_ON</td> <td style="text-align: right;">41 F</td> </tr> <tr> <td>t_IBH_DELAY</td> <td style="text-align: right;">15minutes</td> </tr> <tr> <td>T4_IBH_ON</td> <td style="text-align: right;">5 F</td> </tr> </table> </div>	IBH function	YES	dT1_IBH_ON	41 F	t_IBH_DELAY	15minutes	T4_IBH_ON	5 F
IBH function	YES								
dT1_IBH_ON	41 F								
t_IBH_DELAY	15minutes								
T4_IBH_ON	5 F								
<p>Input definition:</p> <ul style="list-style-type: none"> • Set Smart Grid to NO. • Set Tbt to No. • Set P_X port to Defrost 	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; text-align: center;"> <h3>Input definition</h3> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">M1 M2</td> <td style="text-align: right;">Remote ON/OFF</td> </tr> <tr> <td>Smart grid</td> <td style="text-align: right;">NO</td> </tr> <tr> <td>Tbt</td> <td style="text-align: right;">NO</td> </tr> <tr> <td>P_X port</td> <td style="text-align: right;">Defrost</td> </tr> </table> </div>	M1 M2	Remote ON/OFF	Smart grid	NO	Tbt	NO	P_X port	Defrost
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<p>Service Call Enter your information for customer reference. Mobile number is optional</p>	<div style="border: 1px solid black; border-radius: 10px; padding: 10px; text-align: center;"> <h3>Service call</h3> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">Phone number</td> <td style="text-align: right;">0000000000000000</td> </tr> <tr> <td>Mobile number</td> <td style="text-align: right;">0000000000000000</td> </tr> </table> </div>	Phone number	0000000000000000	Mobile number	0000000000000000				
Phone number	0000000000000000								
Mobile number	0000000000000000								
<p>Save and Exit</p>	<p> Press the icon on the controller to exit. A dialogue screen pops up and yes to save and exit service mode</p>								

Domestic How Water (DHW) Setting:

<p>Go to Serviceman Screen and insert the password</p>	<div style="border: 1px solid black; border-radius: 10px; padding: 20px; text-align: center;"> <p>For serviceman</p> <div style="border: 1px solid black; width: 60px; height: 30px; margin: 10px auto; display: flex; align-items: center; justify-content: center;"> <p>234</p> </div> <p>Please input the password</p> </div>
<p>Select DHW</p>	<div style="border: 1px solid black; border-radius: 10px; padding: 20px; text-align: center;"> <p>For serviceman</p> <ul style="list-style-type: none"> <li style="border-bottom: 1px solid black; padding: 5px 0;">DHW setting > <li style="border-bottom: 1px solid black; padding: 5px 0;">Cooling setting > <li style="border-bottom: 1px solid black; padding: 5px 0;">Heating setting > <li style="border-bottom: 1px solid black; padding: 5px 0;">Auto mode setting > </div>
<p>Set: DHW Mode to Yes Disinfect to No DHW Priority to Yes Pump D to Yes</p>	<div style="border: 1px solid black; border-radius: 10px; padding: 20px; text-align: center;"> <p>DHW setting</p> <ul style="list-style-type: none"> <li style="border-bottom: 1px solid black; padding: 5px 0;">DHW mode YES <li style="border-bottom: 1px solid black; padding: 5px 0;">Disinfect NO <li style="border-bottom: 1px solid black; padding: 5px 0;">DHW priority YES <li style="border-bottom: 1px solid black; padding: 5px 0;">Pump_D YES </div>
<p>Save and Exit</p>	<p> Press the icon on the controller to exit. A dialogue screen pops up and yes to save and exit service mode</p>