



**WARNING!**  
Only fully Qualified  
Personnel should install or  
service this Device.

**2T-Technology**

## Mobile 2 Heating (M2H)

### 4 Zone Controller

### Installer Manual



Device Telephone Number: \_\_\_\_\_

## QUICK START—Basic Installation Steps

1. If there is a SIM installed in the unit skip to step 3.

2. Un-programme the PIN number from the SIM card.

SIM Cards have a PIN that the phone user must enter when turning on their phone. This is stored in the SIM and must be removed for the unit to work. This is done by placing the SIM in any mobile phone and going to the 'Settings', then 'Security' menus. Then Turn Off the PIN Code request.

3. Wire the M2H unit to the heating system as shown on the wiring diagram on the centre page.

Be very careful when controlling the AC mains. Only apply mains after all wiring is complete and top is screwed back onto the GSM Unit.

Only a fully qualified electrician should install, maintain or repair this equipment

Ensure that the maximum applied voltage and maximum current specified in the table on the wiring diagram are complied with.

Voltage	Max switching Load Current
AC 220—250 VAC	6A
DC 30V	3A

**4. Apply power to the GSM unit.**

**5. Give the Unit about 2 minutes to register when first turned on.** When the Signal Strength light is on constantly or flashing the unit has registered on the network. If the signal strength light fails to light at all you may have to change the position of the device to pick up a GSM signal.

**6. Now program the M2H device with the numbers which you wish to allow to control the heating.**

Send This Text

Receive this text response.

phone 1 XXXXXXXXX

phone 1 XXXXXXXXX  
programmed.

\*XXXX represents your mobile number eg:087237660

\*\*No Spaces in Tel Number

*\*Remember to put the full telephone number into the device including area or country codes, that you would have to use if calling that number from your mobile phone.\**

- 2 more numbers can be programmed into the phone list of the M2H Unit.
- For example:use the following Text commands:
- phone 2 0872234355 , where the tel number is 0872234355
- phone 3 0872735522, where the tel number is 0872735522

## Placing a Telephone Call to the Device.

### **7. Test the system configuration by placing a call.**

- Call the GSM device from one of the 3 mobile numbers programmed into the GSM unit.
- The GSM unit will recognise the calling number and switch relay 1 to turn on heating zone 1.
- Again Call the GSM device from one of the 3 mobile numbers programmed into the GSM unit.
- The GSM unit will again recognise the calling number and switch back the relay to turn off the heating zone 1.
- When any zone is on, an incoming call will turn off all zones.

### **8. Configure which Zones turn on, on a call.**

- Calling the device to turn on the heating is useful because there is no call cost.
- The Factory default operation is for relay 1 to latch when an incoming call is received.
- To configure the operation of the different relays (zones), when an incoming call is recognised, we will give examples for relay 2 or zone 2.

To make Relay 2 activate on an incoming call.

Send This Text

Receive this text response.

Active on 2

Active on incoming call for Relay 2

\*\*To stop Relay 2 activating on an incoming call send text "Active off 2"

- By default Relay 2 is set to latch if activated on an incoming call.

To make Relay 2 pulse on an incoming call.

Send This Text

Receive this text response.

pulse 2

Relay pulsed on incoming call.  
relay no. 2

\*\*To set Relay 2 to latch on an incoming call send text "latch 2"

The following table lists all text commands. These can be used to control the operation of all the M2H relays on an incoming call.

<b>Text Command</b>	<b>Meaning</b>
Active on x	Sets relay x to activate on an incoming call. (x is 1,2,3 or 4)
Active off x	Sets relay x NOT to activate on an incoming call.(x is 1,2,3 or 4)
Active on all	Sets all relays to activate on an incoming call
Active off all	Sets all relays NOT to activate on an incoming call
Pulse x	Sets relay x to pulse on an incoming call (x is 1,2,3 or 4)
Pulse all	Sets all relays to pulse on an incoming call
Latch x	Sets relay x to latch on an incoming call. (x is 1,2,3 or 4)
Latch all	Sets all relays to latch on an incoming call

## Relay 1 to 4 Factory Default Settings.

The following table gives details of the factory default settings for Relays 1 to 4.

From this table we can see that the default action on an incoming call is for Relay 1 to Latch. No other relay will activate.

Relay Number	Active On	Latch or Pulse
1	Yes	Latch
2	No	Latch
3	No	Latch
4	No	Latch

### Set the default Pulse time for all relays.

Relays that activate on an incoming call, and that have been set to pulse mode, will switch over the relay for a fixed period. This period is defaulted to 30 minutes but can be set as required

To set the default pulse time to 1 hour or 60 minutes:

Send This Text

Receive this  
text response.

pulse time 60

Pulse Time 60

\* Maximum setting for this time is 99 minutes.

## Controlling the device with an SMS Text

### 9. Test the system configuration by sending an SMS text to the GSM unit.

- Send the following text to the GSM Unit  
Send This Text                      Receive this text response

On 1

Command  
Received

- The GSM unit will accept the command and switch relay 1 to turn on the heating.

- Again Send the following text to the GSM Unit

Send This Text

Receive this text  
response

off 1

Command Received

- The GSM unit will accept the command and switch back relay 1 to turn off this heating zone.

### 10. Boost zone 2 for 30 minutes.

Send This Text                      Receive this text response

On 2 30

Command  
Received

- The GSM unit will accept the command and switch relay 2 to turn on the heating. After 30 minutes Zone 2 will turn off.

The following table lists all text commands that can be used to switch on or off a heating zone permanently or for a fixed period.

<b>Text Command</b>	<b>Meaning</b>
on x	Turns on zone x. (x is 1,2,3 or 4)
off x	Turns off zone x. (x is 1,2,3 or 4)
on all	Turns on all zones.
off all	Turns off all zones.
On x yy	Sets relay x to latch for a period of yy minutes. (x is 1,2,3 or 4) (yy is minutes)



## Checking Status of GSM heating control.

The user can send an SMS text to the GSM unit to check if the GSM heating controller has the heating On or OFF.

To check the heating controller status.

- Send the following text to the GSM Unit

Send This Text

Heat status x

Receive this text response

Heat Switch: OFF

X is the number 1,2,3,4 and is the relay (or zone) we are checking for.

Send This Text

Heat status all

Receive this text response

Heat Switch  
1 ON  
2 OFF  
3 OFF  
4 OFF

## **Advanced Installation Options.**

If required in the future you may need to check phone numbers programmed in the phone list.

### **To Check Numbers in the Phone List.**

For example to check what number is programmed into the first phone number in the list.

Send this text.

Send Phone 1

Receive This  
TxT Response

Phone 1:  
08???????

### **Test Call**

To confirm that the unit is operating correctly we can get it to generate a test call at any time.

Send this text.

Test

Receive This TxT  
Response

GSM Heat  
Controller Test Call

**To Remove Numbers in the Phone List.**

To remove an already programmed number we enter an invalid number such as the number 0. OR we can overwrite the existing number with a new number we want to use.

Send this text.

Receive This  
TxT Response

**Phone 2 0**

**phone 2: 0 programmed**

The newly programmed invalid number can not be reported to.

## **Default the SIM and the Device.**

It is possible to reset the unit back to factory settings.

### **ENGINEER RESET - Return to Factory Settings.**

**\*Warning:** Credit code, credit alarm and other factory settings will revert to their factory settings.

Send this text.

Receive This TxT Response

Default

Restored to Factory Settings.

### **ENGINEER RESET - Remove all Phone Numbers from the SIM.**

**\*Warning:** This command will clear all programmed telephone numbers from the Phone lists.

**\*Warning:** This command can take up to 3 minutes to complete. Do not send any other commands to the Unit until this command completes.

Send this text.

Receive This TxT Response

Default SIM

SIM Cleared

## Installation For Mobile Network

The M2H Unit can be used with bill pay or pre pay SIM cards. For pre pay cards the ability for the user to get an indication when credit is falling low is useful and allows the user to add credit when required. Confident that he can keep the M2H unit topped up with credit the user will be happy to use a pre pay SIM card.

The system is factory configured for an O2 SIM. To use a different network requires that you program a different Credit code.

### Set the Credit Code

**For example to set the credit code for vodafone in Ireland.**

Send this text.

Receive This Txt Response

Credit code \*174#

Credit Number Set

**There are different codes for different networks.**

Network	Ireland	UK
Vodafone	*174#	*#1345#
O2	*100#	*#10#
Meteor	*#100#	
Orange (UK only)		Orange not currently giving credit. (Use a bill pay SIM)

### **Turn Off The Credit Warnings.**

Should the User switch to a Bill-Pay SIM or if credit monitoring is no longer required, it can be turned off as follows.

Send this text.

Receive This TxT Response

Credit alarm off

Credit alarm off

### **To Check the Remaining Credit on a SIM.**

Send this text.

Receive This TxT Response

heat Credit

Credit = XX.XX

## Fixing Problems.

**Q1. I am sending a text messages to the Unit but I'm not getting any response.**

**Check the following:**

**1.** Is the PIN removed from the SIM Card? Put the SIM card into any mobile phone. When the mobile is powered up the phone should not look for a PIN if it has been disabled. If the mobile looks for a PIN then you must turn off the PIN request.

**2.** Is the SIM registered on the mobile network? Check the registered LED on the PCB and confirm that that LED is flashing every 3 seconds and not every second. If flashing every second then the unit is not registered on the network.

**3.** Is the Signal Strength LED flashing or on constantly? If it is OFF then either the device is not registered OR there is not enough signal strength for the device to work.

**4.** Move the position of the unit to obtain a stronger signal level. On occasions you will find that some operators have no signal strength in certain location while another will have good signal strength. This will require changing the SIM to one from an operator who has good coverage at this location.

**5.** On occasion an extended length antenna will allow the unit to get good signal level. Contact 2T for details on longer antennas.

**Q2. I am sending a text message to the unit but I'm getting the following response.**

Command Error

**Check the following:**

1. Check the spelling of the txt message sent. Quite often this response comes from a command which is almost correct but is spelt wrong.

**Q3. I am sending a text message to the unit but I'm getting the following response.**

Invalid Command

**Check the following:**

1. Check the spelling of the txt message sent. Quite often this message can come from wrong spelling.

2. Check the details of the command being sent against the details in this manual.

**Q4. Sometimes I place a call to the unit and it either rings out or is not contactable.**

**Answer:**

- (A) The first thing to check is that the signal strength is good and that the unit is registered on the network.
- (B) However, on occasion, for certain sites, you can get signal drop out. This is



where the signal is normally reasonable but on occasion just drops out and communication is impossible. In this situation sending an SMS text to the device might be fine, but the device cant receive a phone call.

- (C) Next you need to confirm that the network provider has not removed the device from the network. This happens when either credit has not been added in many months or there has been insufficient credit usage over a period.

**Q5. The unit appears to be dead. When I place a call to the unit, it either rings out or is not contactable.**

**Answer:**

- (A) The first thing to check is that the signal strength is good and that the unit is registered on the network. If you have signal strength problems then look at Q1 above for remedies.
- (B) Try sending an SMS text message to the device. For example send " On 1 "
- Monitor the unit for 5 minutes, and see if Relay 1 latches. If it does then the SIM is on the network, but if the unit doesn't respond with a text it may have no credit. Add credit to the SIM.
- (C) If for your test in (B) above you got no response text and you got no Relay to latch then **1**. Power cycle the unit. **2**. Wait for it to come up with Signal strength and **3**. re run test in B above.

- (D) If power cycling the unit brings it back to life then it is likely that the network operator had taken the device off of the network. If this problem persists and you find that power cycling the unit resolves the problem then it is probably time to change the SIM for a different operator.

Page Intentionally Left Blank.

Ver 2.0

# 2T-Technology



[www.2t-tec.com](http://www.2t-tec.com)