Procon

MAXI M2M-IP/50

FOR INSTALLERS

INSTALLATION AND OPERATION MANUAL
Version 3.00

For safe and correct use, please read this installation manual thoroughly before installing the MAXI M2M-IP/50.

MITSUBISHI ELECTRIC

Preface

Safety warnings

⚠ **Caution:**

Do not expose to rain or moisture.

⚠ **Screened Signal Cables:**

Use only screened cables for connecting peripherals to any Procon M2M device to reduce the possibility of interference with radio communications services. Using screened cables ensures that you maintain the appropriate EMC classification for the intended environment.

⚠ **CE Notice:**

This product has been determined to be in compliance with 2004/108/EC (EMC Directive) and amendments of the European Union.

⚠ **European Union, Class A:**

Class A products are intended for use in non-residential/non-domestic environments. Class A products may also be utilised in residential/domestic environments but may cause interference and require the user to take adequate corrective measures.

This is a Class A product. In a domestic environment this product may cause radio frequency interference in which case the user may be required to take adequate measures.

A “Declaration of Conformity” in accordance with the preceding directives and standards has been made and is available on request.

If this equipment does cause interference with radio communications services, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna.
Relocate the Procon M2M with respect to the receiver.
Move the Procon M2M away from the receiver.

If necessary, consult a Procon M2M technical support representative or an experienced radio/television or EMC technician for additional suggestions.

Disclaimer

⚠ **Warranty:**

All products manufactured on behalf of Mitsubishi Electric UK are warranted against defective materials for a period of three years from the date of delivery to the original purchaser.

⚠ **Warning:**

Mitsubishi Electric UK assumes no liability for damages consequent to the user of this product. We reserve the right to change this manual at any time without notice. The information furnished by us is believed to be accurate and reliable. However, no responsibility is assumed by us for its use, nor for any infringements of patents or other rights of third parties resulting from its use.

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[Fig. 1]
Included Items

A

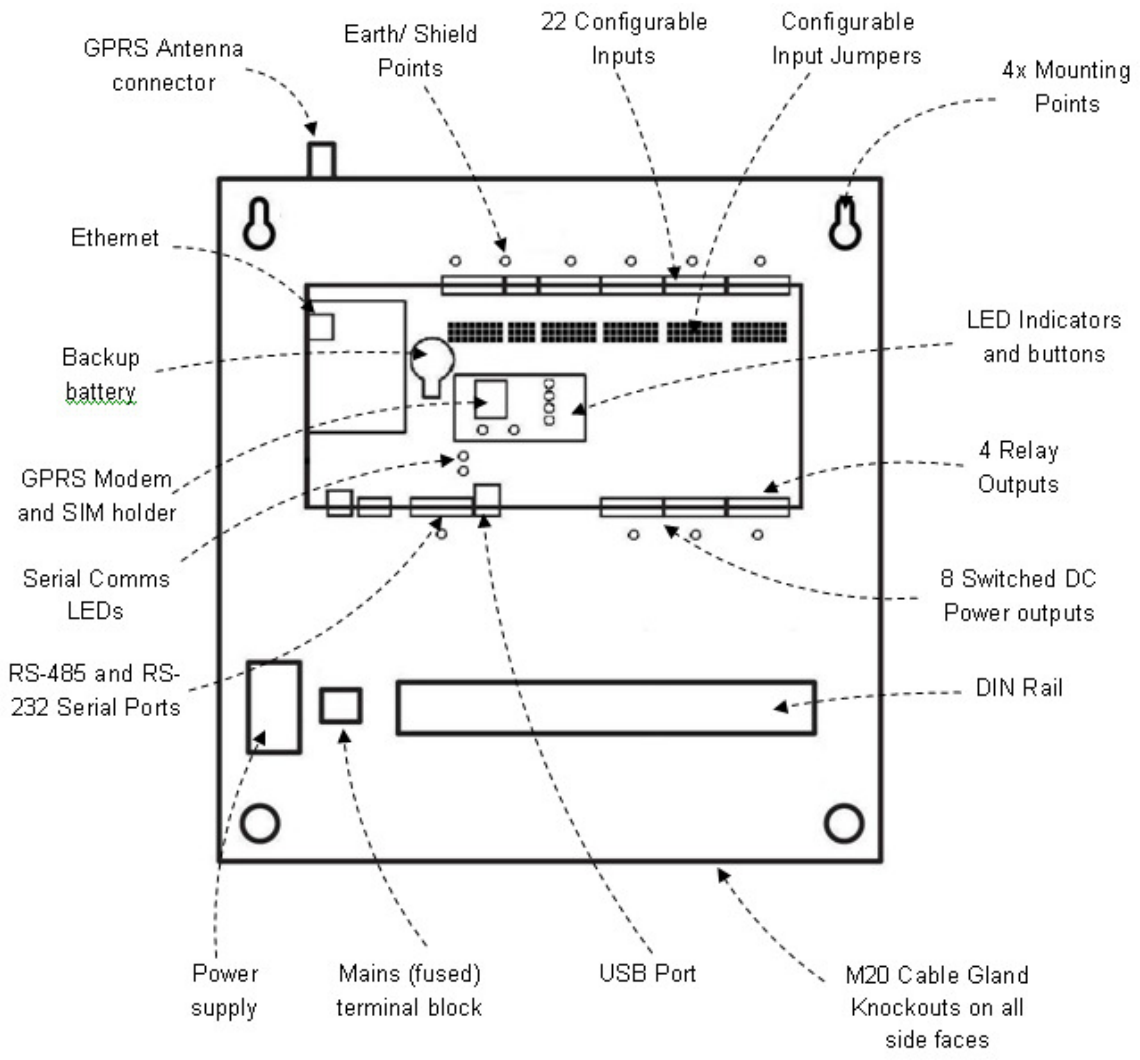
B

C

A	1 x Maxi M2M-IP/50
B	1 x Aerial
C	1 x Maxi M2M-IP/50 Manual

2

[Fig. 2]
Overview



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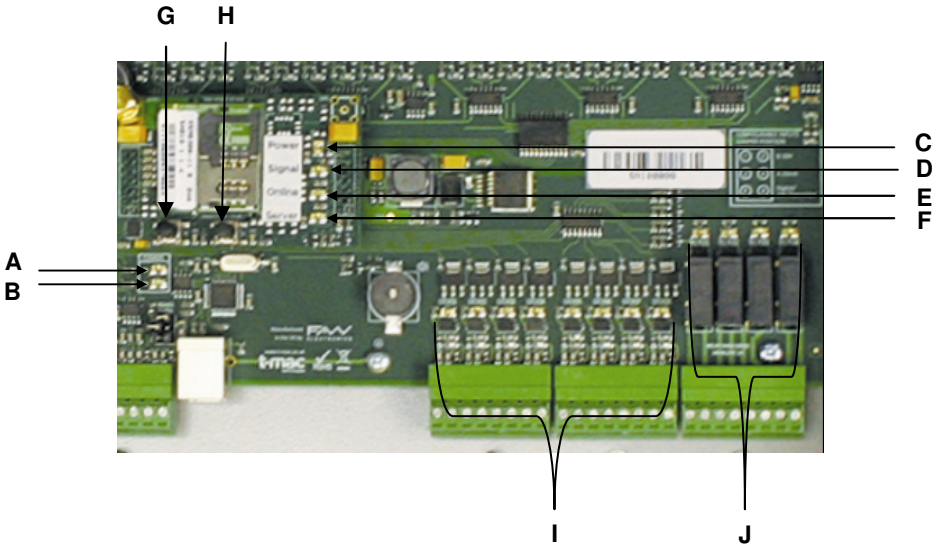
[Fig. 3]
Inside of Units

A	LED Receive Data TX
B	LED Transmit Data RX
C	LED Power
D	LED GSM Signal
E	LED Online
F	LED Server
G	Reset Button
H	Sync Button
I	LED Switched Power Output
J	LED Relay Output



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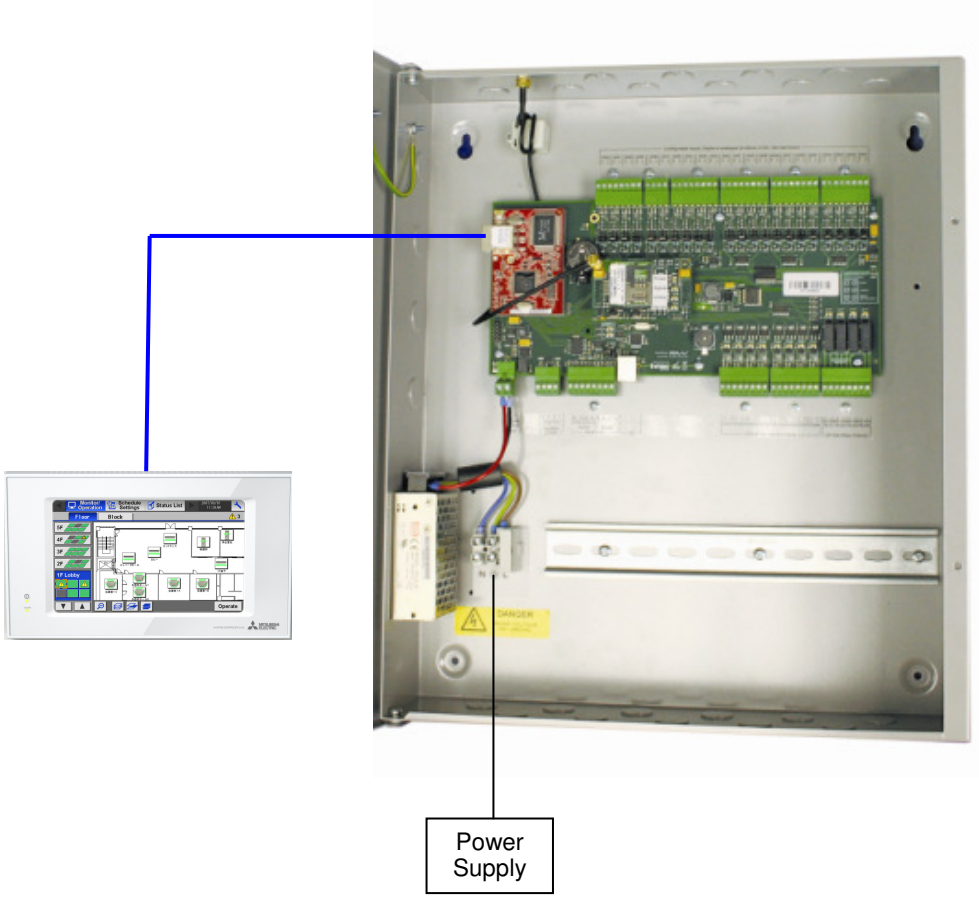
[Fig. 4]
Wiring Diagram



1. Quick set up

Step 1:

Register the Procon M2M using http://m2m.mitsubishielectric.co.uk/commissioning. Please enter your contractor code below, if you do not have a code please contact the Site Services Department 0161 866 6089. When the form has been completed and submitted, the SIM card will be activated within 3 working days. The correct serial number (SN******) of the M2M is required to fill in the form.

Step 2:

Connect the 240VAC power supply but do not switch ON.

Step 3:

Connect the Aerial.

Step 4:

Connect the GB50/G50/AG150 using the supplied crossed over network cable.

Step 5:

Register the Web monitor PIN code on the GB50/G50/AG150.

Step 6:

Make sure the groups are setup properly on the GB50/G50/AG150. The lowest MNET address in the group **must** match the group number.

Step 7:

Switch ON the power supply and check the LED status.

Step 8:

Close the front cover.

Step 9:

Check that the communication with the server is working http://m2m.mitsubishielectric.co.uk using your login and password. You should have received the login (your Email address) and password when you have registered the M2M (Step 1).

2. Safety precautions

- **Before installing the unit, make sure you read all the "Safety precautions"**
- **The "Safety precautions" provide very important points regarding safety. Make sure you follow them**

Symbols used in the text

⚠ Warning:
Describes precautions that should be observed to prevent danger of injury or death to the user.

⚠ Caution:
Describes precautions that should be observed to prevent damage to the unit.

⚠ Warning:
Carefully read the labels affixed to the main unit

⚠ Warning:

- **Ask the dealer or an authorised technician to install the unit**
  - Improper installation by the user may result in water leakage, electric shock, or fire
- **Use the specified cables for wiring. Make the connections securely so that any outside forces acting on the cables are not applied to the terminals**
  - Inadequate connection and fastening may generate heat and cause a fire
- **Never repair the unit. If the controller must be repaired, consult the dealer**
  - If the unit is repaired improperly, electric shock, or fire may result
- **When handling this product, always wear protective equipment. EG: Gloves, full arm protection and safety glasses**
  - Improper handling may result in injury
- **Have all electric work done by a licensed electrician according to "Electric Facility Engineering Standard", "Interior Wire Regulations" and the instructions given in this manual and always use a special circuit**
  - If the power source capacity is inadequate or electric work is performed improperly, electric shock and fire may result
- **Keep the electric parts away from any water - washing water etc…**
  - Contact may result in electric shock, fire or smoke
- **Do not reconstruct or change the settings of the protection devices**
  - If the protection device is shorted or operated forcibly, or parts other than those specified by Mitsubishi Electric are used, fire or explosion may result
- **To dispose of this product, consult your dealer**

⚠ Caution:

- **Ground the unit**
  - Do not connect the ground wire to gas or water pipes, lightning rods, or telephone ground lines. Improper grounding may result in electric shock
- **Install the power cable so that tension is not applied to the cable**
  - Tension may cause the cable to break and generate heat which may, in turn, cause fire
- **Install a leak circuit breaker, as required**
  - If a leak circuit breaker is not installed, electric shock may result
- **Use power line cables of sufficient current carrying capacity and rating**
  - Cables that are too small may leak, generate heat, and cause a fire
- **Use only a circuit breaker and fuse of the specified capacity**
  - A fuse or circuit breaker of a larger capacity or a steel or copper wire may result in a general unit failure or fire
- **Be careful that the installation base is not damaged**
  - If the damage is left uncorrected, the unit may fall and cause personal injury or property damage
- **Safely dispose of the packing materials**
  - Packing materials, such as nails and other metal or wooden parts, may cause stabs or other injuries
  - Tear apart and throw away plastic packaging bags so that children will not play with them - If children play with a plastic bag which has not been torn apart, they face the risk of suffocation

3. Overview

The Procon M2M is an automatic data monitoring, logging, and control device which communicates over the Internet, allowing a user to monitor and control G50/GB50/AG150 devices from anywhere in the world by simply logging onto a web page.

The Procon M2M is connected to the Internet by GPRS using a SIM card. The Procon M2M periodically connects to a web server on the Internet to synchronise its settings with the server, and upload any stored data or configuration changes that may have been specified.

The Procon M2M is supplied with a one year Vodafone SIM card and server contract free of charge.

However after that year, the customer will need to renew the contract.

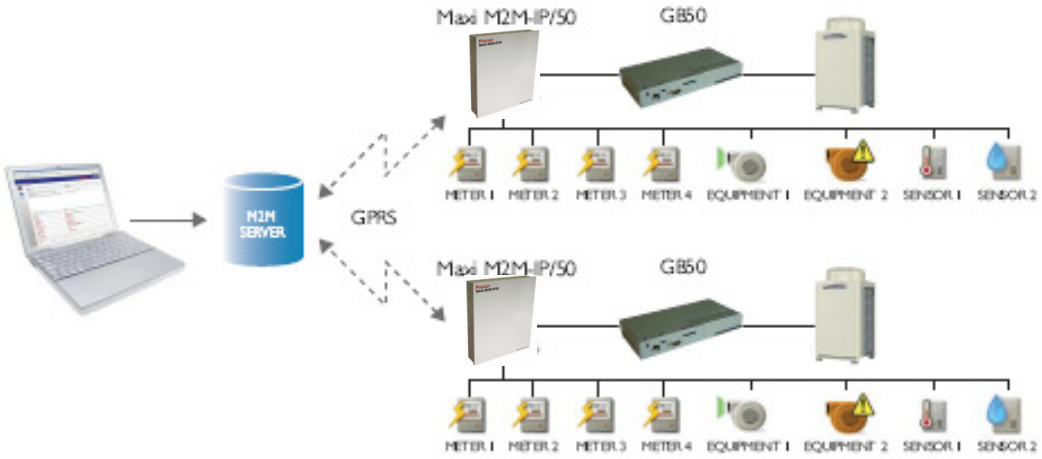


Figure 1 shows the items included with the MAXI M2M-IP/50.

Figure 2 shows an overview of the unit.

Figure 3 shows the inside of the unit.

Figure 4 shows the wiring diagram of the unit.

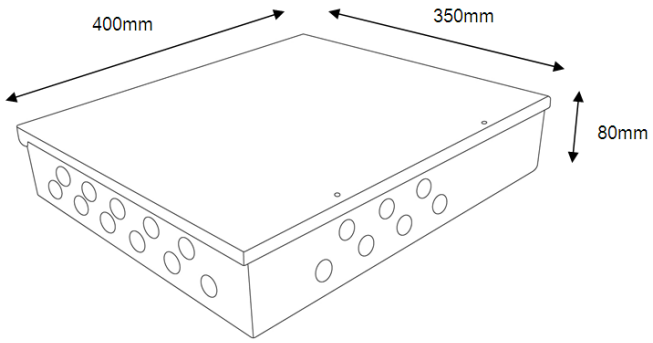
DEMONSTRATION

Visit **m2m.mitsubishielectric.co.uk/demo** to use the live demonstration space (login: demo / password: demo)

4. Mounting

The Procon M2M should be mounted next to, or near to the building's primary distribution panel. Suitable space should be provided all around the panel for cable conduit and additional equipment.

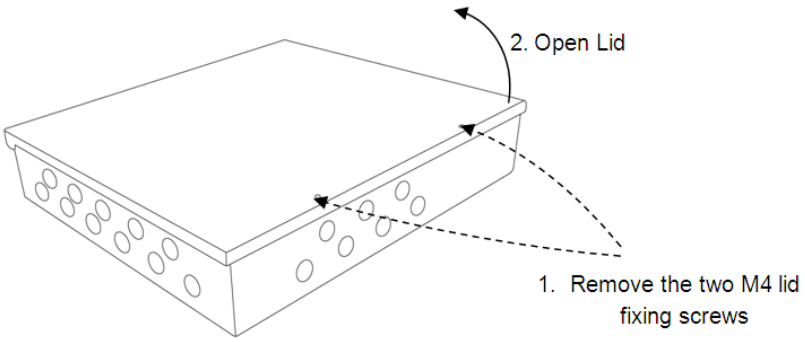
4.1. Enclosure dimensions



Procon M2M dimensions

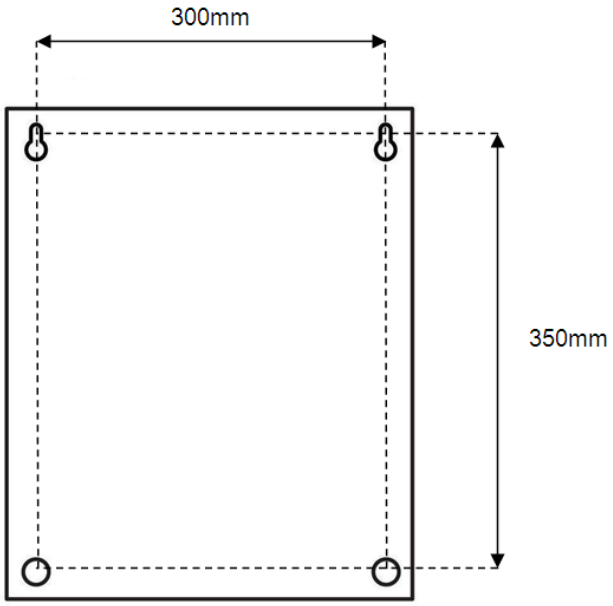
4.2. Removing the enclosure lid

Open the enclosure lid, by removing the two M4 screws on the right hand side of the front face, then open the door (hinged down left hand side).



Procon M2M lid removal

4.3. Mounting points



Procon M2M mounting points

Note: Appropriate wall fixings must be used

5. Connections

The Procon M2M provides continuous remote monitoring of its 22 inputs, and remote modification of its 16 outputs along with functions attached to the G50/GB50/AG150.

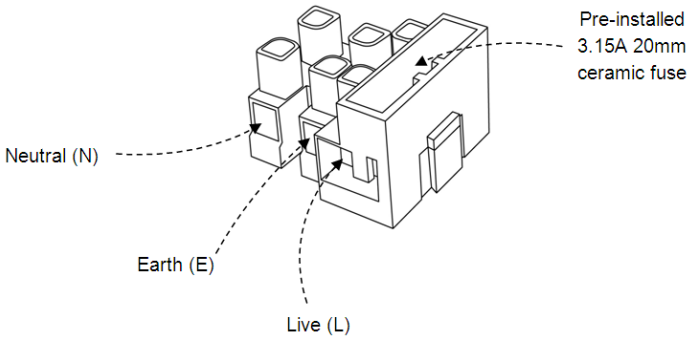
5.1. Power

A double pole (Live and Neutral) 5A switch or circuit breaker must be provided in line with the supply to the Procon M2M and be in close proximity to it. It must be clearly marked as the disconnecting device for the Procon M2M.

The construction of the connections of the conductors should be such that, if the cord were to slip in its anchorage, the protective earth conductor would be the last to take the strain.

Ensure the mains cable supplying the Procon M2M is suitably rated for the intended environment and current draw of the Procon M2M.

Connect Live (L), Neutral (N) and Earth (E) to the terminal block located in the bottom right hand corner of the Procon M2M enclosure, as indicated below.



Mains terminal block connection

5.2. Inputs

The Procon M2M provides 22 analogue inputs, each with 12-bit resolution, and these can be configured by internal jumpers for any of the following sense circuits:

- 4 to 20mA
- 0 to 10V
- Resistance (eg 10K thermistor)
- Digital input

Each input can be configured via the M2M website to specify the type of input, and assign it a name. You can also specify a unit of measure, converting from base units, such as resistance, to measured units, such as ℃.

The M2M website can also be used to set alarm set points on any input, or log the readings from any input.

5.3. Outputs

The Procon M2M provides eight low-sided switched power outputs. All eight digital outputs can drive up to 24VDC 100mA per channel and have full back protection against short circuit, overload, and over temperature.

The Procon M2M also includes four 24VAC/DC 2A relay outputs per channel, suitable for driving external systems such as boilers, solenoid valves, and pumps that operate up to 24VAC/DC. They can also be used for isolated switching of any type such as lighting control, alarm systems, and remote machine shut-down.

Each output has an associated status LED.

5.4. G50/GB50/AG150 interfacing

The Procon M2M can monitor and control up to 50 indoor units using a G50/GB50/AG150.

The variables available are listed below:

FUNCTION	NETWORK VARIABLE	UP TO 25 GROUPS	UP TO 50 GROUPS	NOTES
Control				
	On/Off	✔	✔	Run/Stop
	Mode Operation	✔	✔	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	✔	✔	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	✔		Lo-Mil-Mi2-Hi
	Permit / Prohibit	✔		On/Off, Mode, Setpoint
	Airflow Direction	✔		Horizontal - 60,80,100° swing
	Filter Sign	✔		Normal/Reset
Monitor				
	On/Off	✔	✔	Run/Stop
	Mode Operation	✔	✔	Cool / Dry / Heat / Auto / Fan
	Setpoint Adjustment	✔	✔	Cooling 19-30°C, Heating 17-28°C, Auto 19-28°C
	Fan Speed Control	✔		Lo-Mil-Mi2-Hi
	Permit / Prohibit	✔		On/Off, Mode, Setpoint
	Airflow Direction	✔		Horizontal - 60,80,100° swing
	Fault Code	✔	✔	4 Character code - Indicates all unit alarms
	Filter Sign	✔		-
	Room Temperature	✔	✔	-

5.5. Sounder

The Procon M2M includes an internal audible sounder, which can be used to alert the operator to particular conditions.

6. Size and weight

The Procon M2M details are:

- Height 400mm
- Width 350mm
- Depth 80mm
- Weight 4.4Kg

7. Getting started

7.1. Unpacking

The Procon M2M is supplied with the following components:

- Procon M2M unit including a 24VDC 1.1A power supply
- Aerial
- 5m cross-over Ethernet cable
- This user guide

Please contact your supplier if any of these components are missing.

7.2. Before switching ON

Before switching the unit ON, the Procon M2M must be registered onto the M2M server.

To complete the registration, go to http://m2m.mitsubishielectric.co.uk/commissioning

Please enter your contractor code below, if you do not have a code please contact the Site Services Department on 0161 866 6089.

For more details, refer to **Registering the M2M interface online** section.

7.3. Status indicators

After applying power to the Procon M2M it will attempt to connect to the Procon M2M server, the status indicators show the progress of the connection as follows:

Indicator	Description
Signal	Indicates whether the Procon M2M can obtain a GPRS connection **On constantly** – The Procon M2M has sufficient signal for GPRS connection **Off** – There is insufficient signal **Fast flash** – Indicates an error communicating with the modem, or a PIN number error on the SIM card
Online	Indicates whether the Procon M2M is connected to the internet **On constantly** – Procon M2M is connected to the internet **Off** – Procon M2M is not connected to the internet **Slow flash** – Procon M2M is trying to connect the internet **Fast flash** – Procon M2M has failed to connect to the internet
Server	Indicates communications with the server **Slow flash** – Procon M2M is connecting with the server **Irregular flash** – Procon M2M is transferring data to/from the Procon M2M server **Fast flash –** Procon M2M is not able to connect to the server, it will retry

When the Procon M2M is downloading firmware all LEDs will be ON except for the power LED. The power LED will then flash to indicate the progress.

The remaining status indicators, Signal, Online and Server, have different functions depending on the connection type; see **Communicating with the Procon M2M**.

7.4. SIM card data usage (6Mb per month included with the Vodafone SIM card)

The Vodafone SIM card supplied with the Procon M2M includes 6Mb of data per month. If the amount of GPRS data exceeds 6Mb per month the contract will terminate earlier.
Any text messages sent from the Procon M2M is not included in the contract and will be charged separately.

The amount of GPRS data each Procon M2M sends is affected by the snapshot logging period, the number of inputs and output being logged, and the server sync interval.

You can monitor your data usage from the Statistics page on the Web Portal for each Procon M2M unit.

You can also estimate your data usage by downloading the GPRS Data Calculator from the Downloads page.

Below are some recommendations:

- For up to 25 groups and when not using third party inputs and outputs, sync and log every 15mins
- For up to 50 groups and when not using third party inputs and outputs, sync and log every 30mins
- Deactivate the I/O you may not need to monitor for instance
    - Prohibit
    - Air Direction
    - Etc…

The M2M contract runs for a year but after that, the M2M contract must be renewed at a cost of £175 per year and per Procon M2M.

Refer to **M2M Renewal and Data Storage Update** section for more details.

7.5. Server data usage (15Mb included)

All the data is logged to the M2M server (http://m2m.mitsubishielectric.co.uk).

The M2M contract includes 15Mb worth of data per year on the server.

When the server data storage runs out, an Email will be sent out and the Procon M2M will be "suspended". There is an option of overwriting the old data and therefore to stop the Procon M2M being suspended.

The M2M server data storage can be upgraded to 115Mb at a cost of £150 per year and per Procon M2M.

Refer to **M2M Renewal and Data Storage Update** section for more details.

8. Registering the Procon M2M interface online

The Procon M2M interface will not work until it has been registered as the Vodafone SIM card is deactivated. The online registration will activate the SIM card within 3 working days.

8.1. Link to the online registration

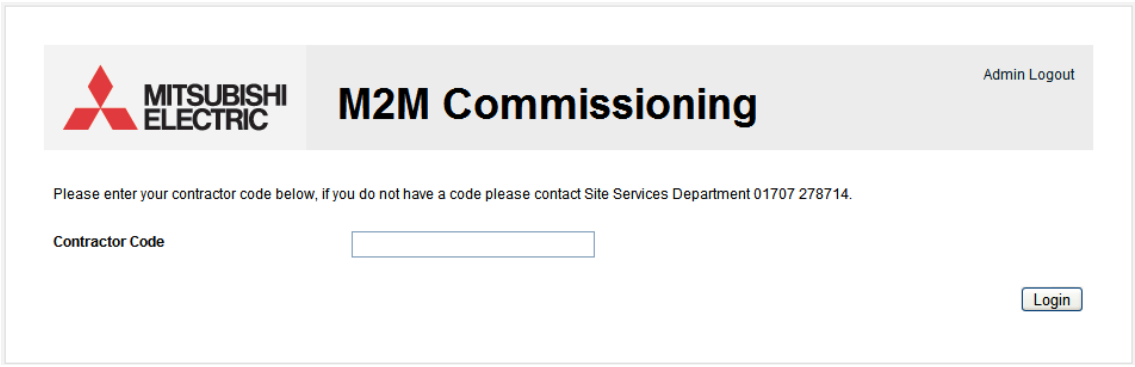
To complete the registration, go to
http://m2m.mitsubishielectric.co.uk/commissioning

8.2. Online registration, step 1- Contractor code

Enter your contractor code below, if you do not have a code please contact Site Services Department 0161 866 6089.

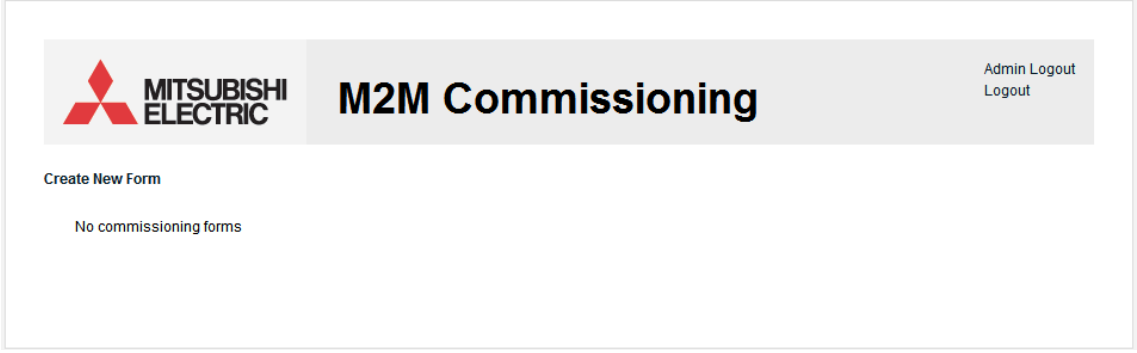
The contractor code can be used for any other Procon M2M installation.

Enter the contractor code and select *Login*.



8.3. Online registration, step 2 – Create new form

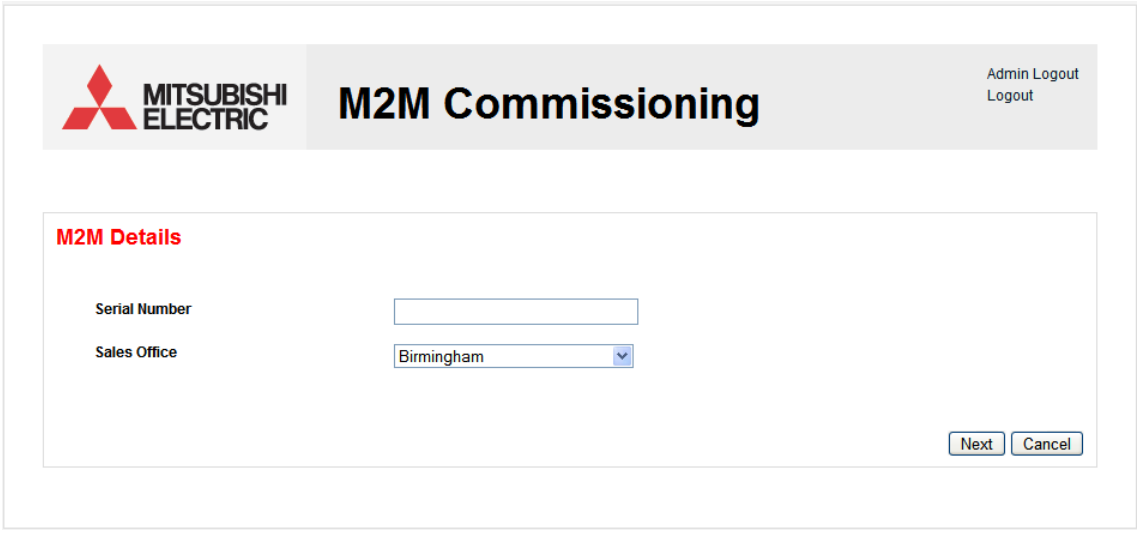
Select *Create New Form*



8.4. Online registration, step 3 – Enter serial number

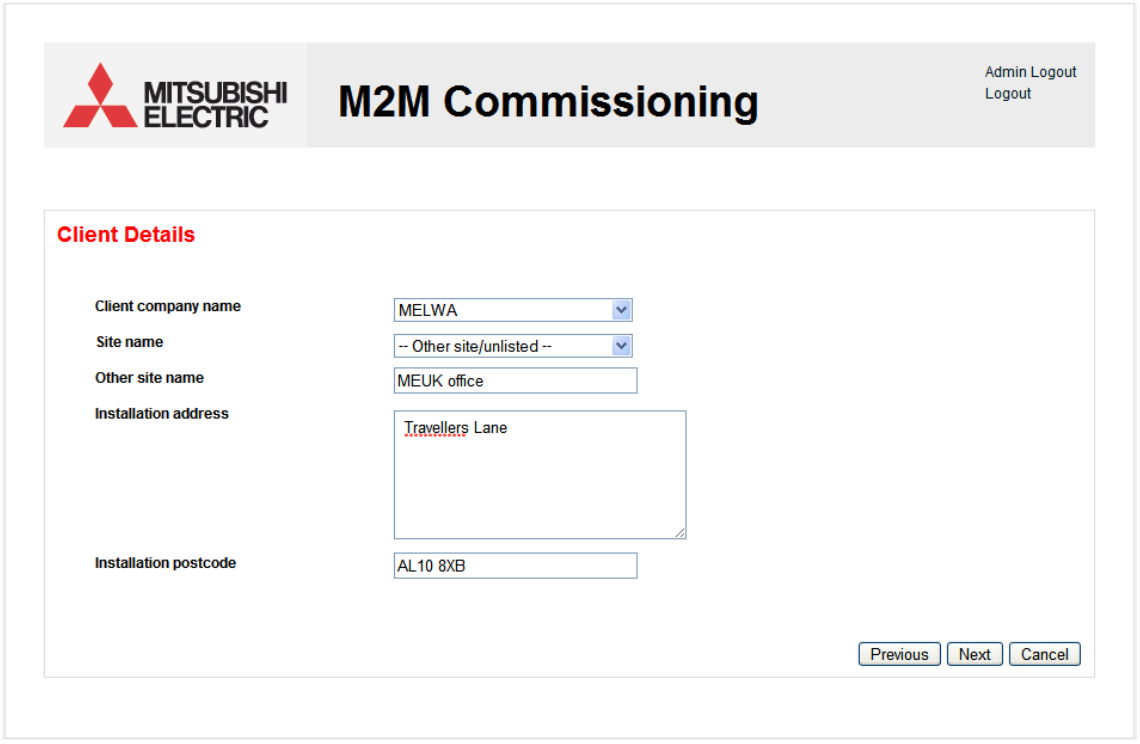
Enter the M2M serial number and select the Sales Office you bought the unit from.

Click *Next*.



8.5. Online registration, step 4 – Enter address

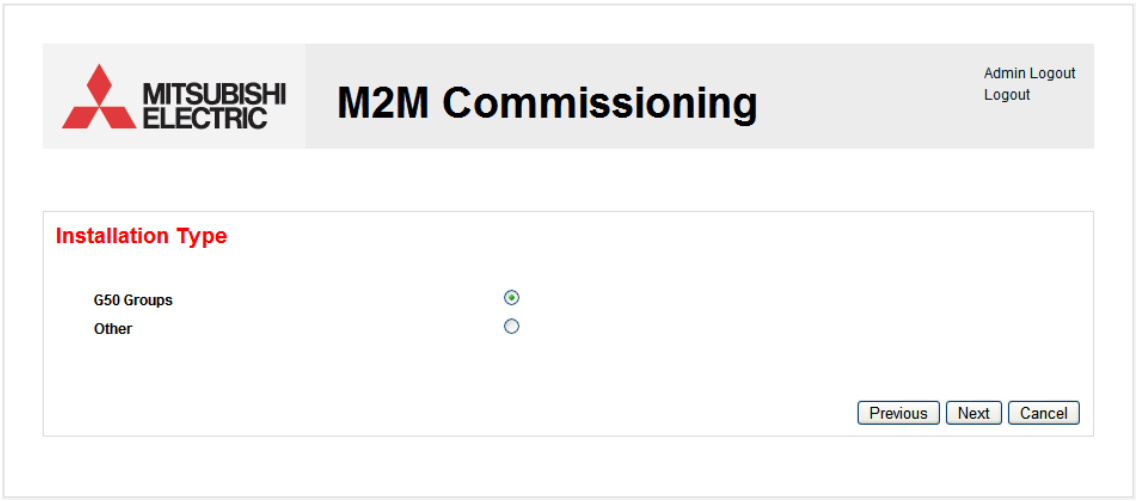
Enter the site address and click *Next*.



8.6. Online registration, step 5 – Setup the groups

Select *G50 groups*.

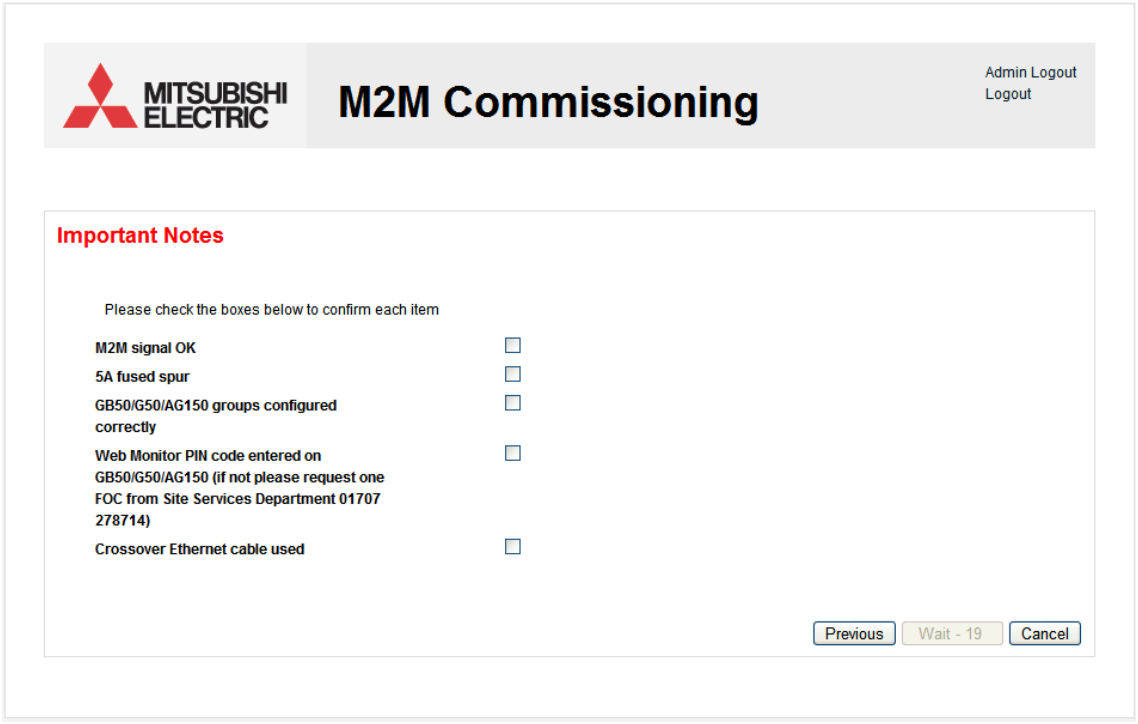
Click *Next*.



8.7. Online registration, step 6 – Important notes

Confirm each important note.

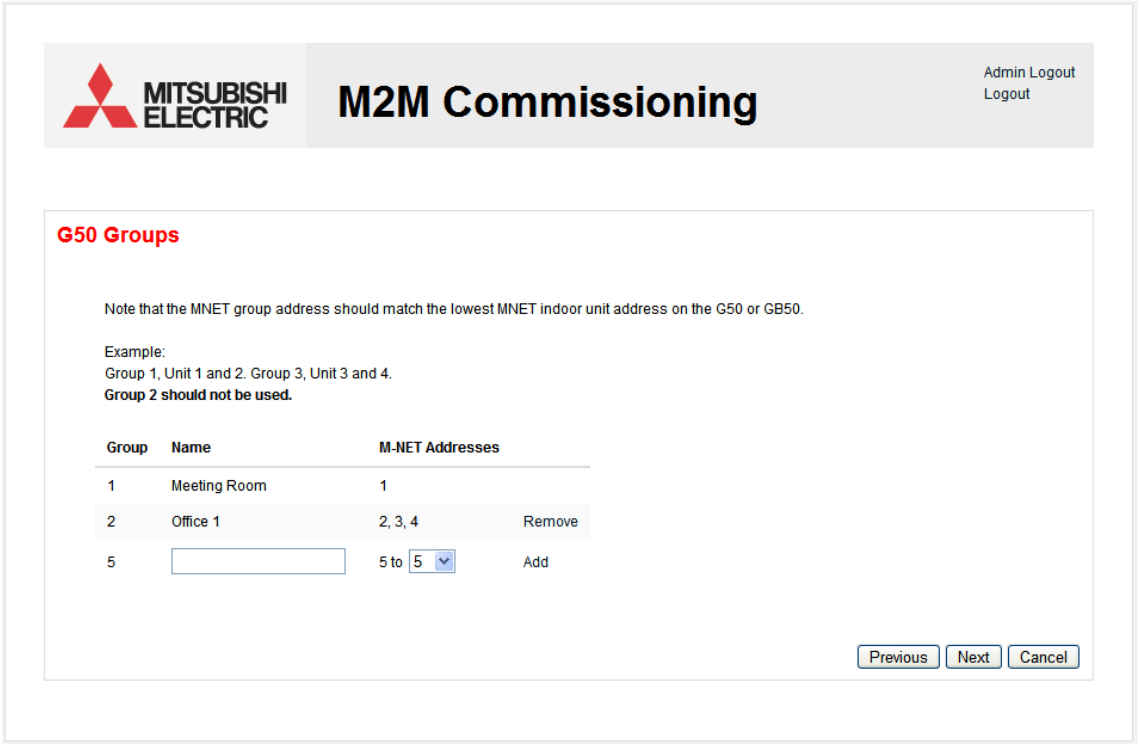
Click *Next*.



8.8. Online registration, step 7 – MNET Grouping

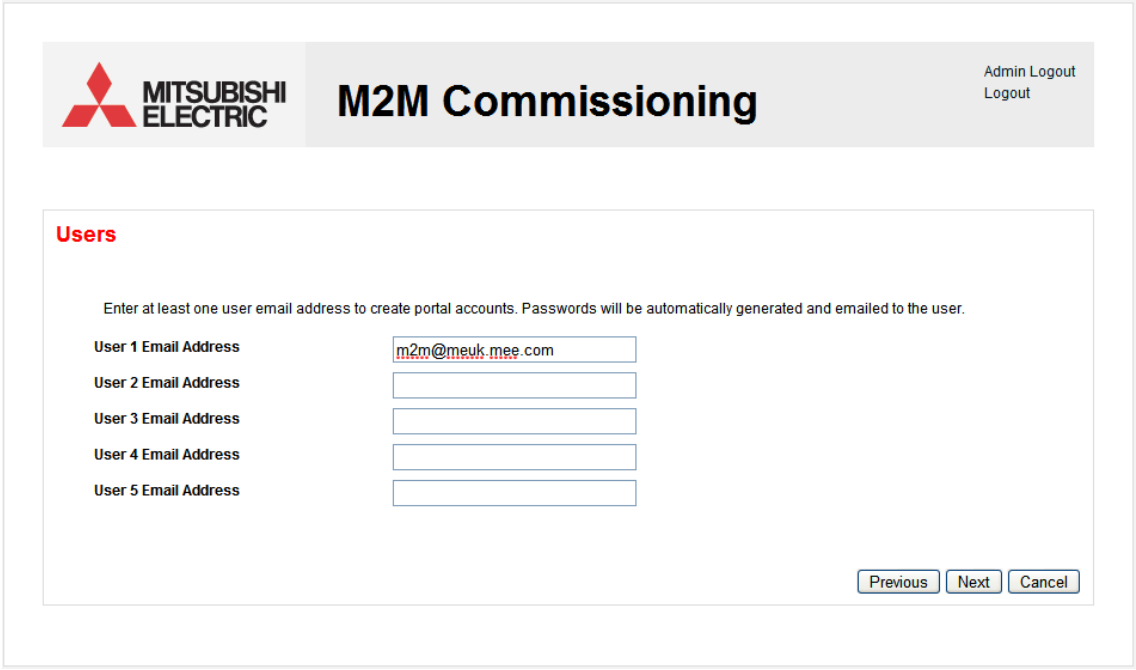
Enter each group setup on the GB50/G50/AG150. Select *Add* to add group and *Remove* to delete a group.

Click *Next*.



8.9. Online registration, step 8 – Email addresses

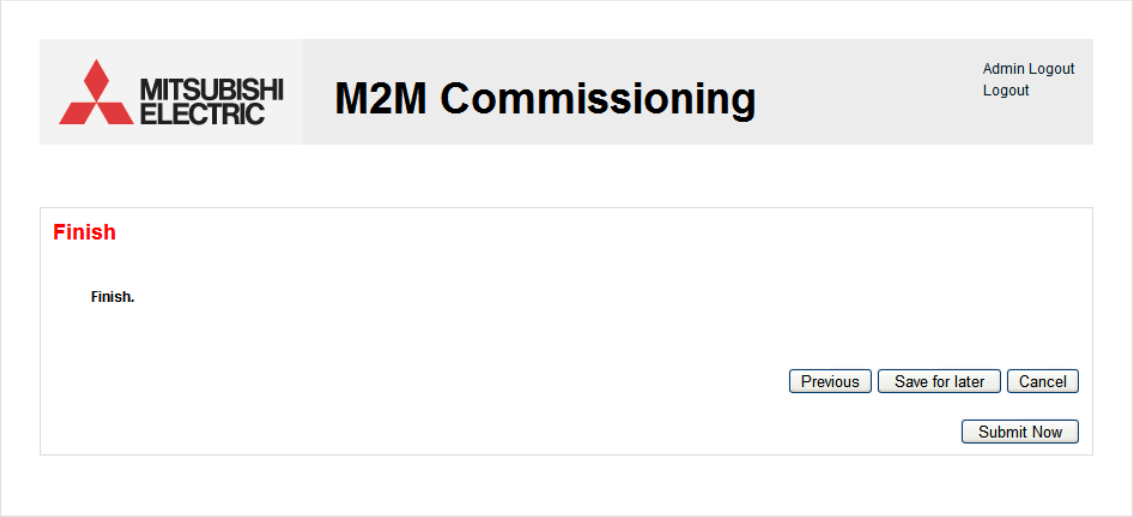
Enter Email addresses. Make sure that they are correct as the password will be sent to them and select *Next*.



8.10. Online registration, step 9 – Submit

The registration is completed. You can save it for later or submit it.

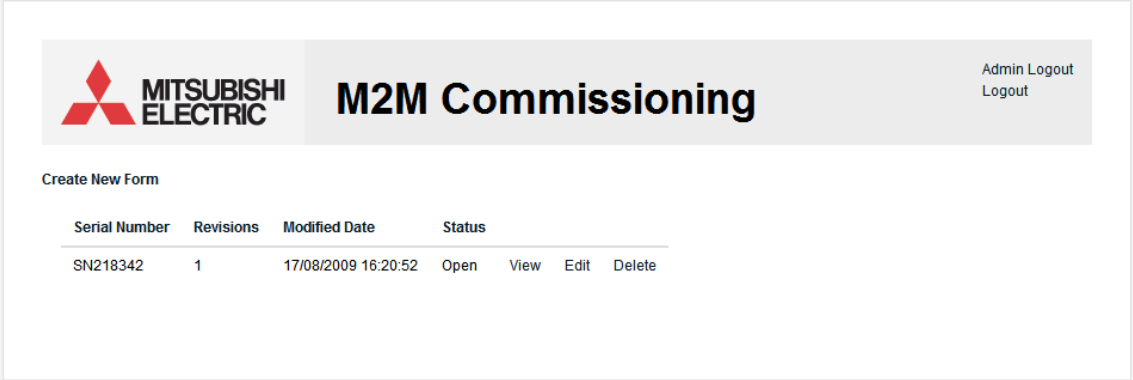
Click on *Submit Now* to submit the form to us automatically.



8.11. Online registration, list of sites

If you select Save for later, you will then see a list of all the forms submitted but also saved.

You can also View, Edit and Delete each form.



9. Installation

9.1. Selecting an installation site

- Avoid locations in direct sunlight
- Avoid locations exposed to steam or oil vapour
- Avoid locations where combustible gas may leak, settle or be generated
- Avoid installation near machines emitting high-frequency waves
- Avoid places where acidic solutions are frequently handled
- Avoid places where sulphur-based or other sprays are frequently used
- Avoid areas of high humidity
- Install inside the building
- Install near the connected indoor units

9.2. Installation

9.2.1. Physical unit installation

Please secure the Procon M2M before powering the unit on.

9.2.2. Power supply

⚠ **Warning:**
Electrical work should be done by qualified electrical engineers / electrician in accordance with "Engineering Standards for Electrical Installation" and supplied installation manuals. Dedicated circuits should also be used. If the power circuit lacks capacity or has an installation failure, it may cause a risk of electric shock or fire.

The Procon M2M does come with a power supply and requires 240VAC.

⚠ **Caution:**
Do not use anything other than the correct capacity breaker and fuse. Using fuse, wire or copper wire with too large capacity may cause a risk of malfunction or fire.

- Be sure to take power from the special branch circuit
- Install the unit to prevent any of the control circuit cables coming into direct contact with power cables
- Ensure that there is no slack on all wire connections
- Never connect the power cable to leads for the transmission cables. This will damage the transmission cables

10. Communicating between M2M and M2M server

This chapter describes how to communicate with Procon M2M using GPRS along with information about the LED indicators.

The Procon M2M is provided with a GPRS modem, which works in conjunction with a suitable SIM card to provide a wireless connection to the Internet for uploading data and downloading configuration settings.

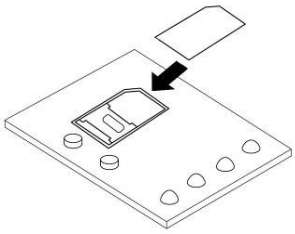
To install the GPRS SIM card follow the instructions below.

10.1. Fitting a SIM card

This section only applies when you are not using the Vodafone SIM card already fitted.

Before using Procon M2M, a valid SIM card with GPRS capability must be installed. To do this:

- Ensure the power to the unit is switched off
- Remove the two screws on the front of the casing
- Slide the SIM card into the SIM holder with the contacts facing down and the bevel edge facing away from the Modem.



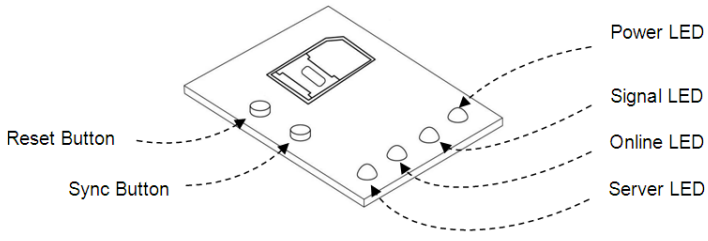
Ensure the Antenna is screwed tightly to the Antenna connector at the top of the enclosure.

The antenna should be located on a metal surface, as the antenna has a magnetic base.

The most suitable location for the antenna can be discovered by checking the antenna signal strength via the Procon M2M Commissioning Software. Refer to **M2M commissioning software** section for more details.

10.2. Initial power ON

Once the SIM card has been installed, apply power to the unit.



LEDs and Buttons

The Power indicator will light up and the unit will beep twice to indicate that it has started.

When power is first applied, providing Procon M2M has been set up for the SIM card installed, Procon M2M will attempt to connect to the GPRS network and will then connect to the Procon M2M server to update settings.

10.3. To select a mobile network (As standard set to Vodafone)

Each mobile network has unique GPRS settings, and the Procon M2M is set as default to work with the supplied Vodafone SIM card however the Procon M2M can be set to the other networks before it can connect to the internet.

Configuration for O2, T-Mobile, Vodafone or Orange UK contract SIM cards can be performed using the push buttons on the front panel.

- Push and hold the **Reset** button for five seconds.

The **Power** indicator will flash to indicate that Procon M2M is in mobile network setting mode.

The **Signal**, **Online**, and **Server** indicators are illuminated to indicate the current network setting as follows:

Setting	Signal	Online	Server
O2	**ON**	OFF	OFF
T-Mobile	**ON**	**ON**	OFF
Vodafone	OFF	OFF	**ON**
Orange	OFF	**ON**	OFF

- Press the **Reset** button briefly to step through each of the network options until the indicators corresponding to the network you want to use are illuminated.

- Press and hold the **Reset** button for two seconds to save your selection.

The indicators will flash to indicate that your selection has been saved.

Alternatively, press the **Sync** button at any time to exit from mobile network setting mode without changing the original settings.

For other networks Procon M2M must be configured from either the Procon M2M Commissioning Software application via a PC connected to the RS-232 port.

10.4. Status LEDs

After applying power to the Procon M2M it will attempt to connect to the Procon M2M server, the status indicators show the progress of the connection as follows:

Indicator	Description
Signal	Indicates whether the Procon M2M can obtain a GPRS connection **On constantly** – The Procon M2M has sufficient signal for GPRS connection **Off** – There is insufficient signal **Fast flash** – Indicates an error communicating with the modem, or a PIN number error on the SIM card
Online	Indicates whether the Procon M2M is connected to the internet **On constantly** – Procon M2M is connected to the internet **Off** – Procon M2M is not connected to the internet **Slow flash** – Procon M2M is trying to connect the internet **Fast flash** – Procon M2M has failed to connect to the internet
Server	Indicates communications with the server **Slow flash** – Procon M2M is connecting with the server **Irregular flash** – Procon M2M is transferring data to/from the Procon M2M server **Fast flash –** Procon M2M is not able to connect to the server, it will retry

11. Connecting the inputs and outputs

This chapter gives information about connecting to the analogue and digital inputs and outputs provided on the Procon M2M.

11.1. Overview

The Procon M2M provides the following inputs and outputs (I/Os):

11.1.1. 22 Configurable inputs (12bit resolution)

All 22 inputs can be configured to measure 0-25mA, 0-10V or resistance analogue input circuits or can measure volt free digital inputs. Configuration is via a small jumper.

11.1.2. 8 Low side switched power outputs

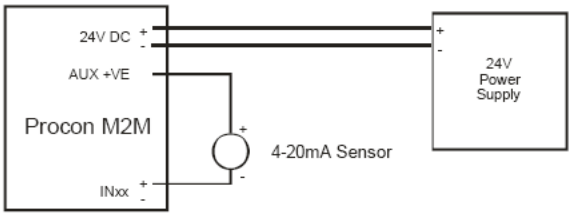
These are low sided switched power outputs with built in short circuit, overload, and over temperature protection. All eight digital outputs can drive up to 24VDC 100mA per channel.

11.1.3. 4 24V 5A relay outputs

These are 24VAC/DC relay outputs, capable of driving external systems, such as boilers, solenoid valves and pumps. They also offer a solution for any type of isolated switching, eg lighting control and alarm systems.

11.2. Configurable inputs (IN01 to IN22)

11.2.1. Current inputs



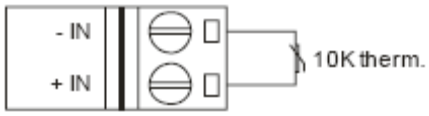
To connect a 4-20mA sensor requiring loop power:

- Connect the positive (+) terminal on the sensor to the 24V DC positive supply
- Connect the negative (-)/signal terminal on the sensor to the required positive (+) analogue input terminal on Procon M2M (eg IN01+)

The negative input terminal (eg IN01-) does not need to be connected as the negative connections are internally connected to the negative supply.

11.2.2. Voltage inputs

11.2.3. Resistance inputs



11.2.4. Digital inputs

11.3. Outputs

11.3.1. Switched power outputs (DO01 to DO08)

11.3.2. Relay outputs (RL01 to RL04)

11.4. Connecting expansion modules

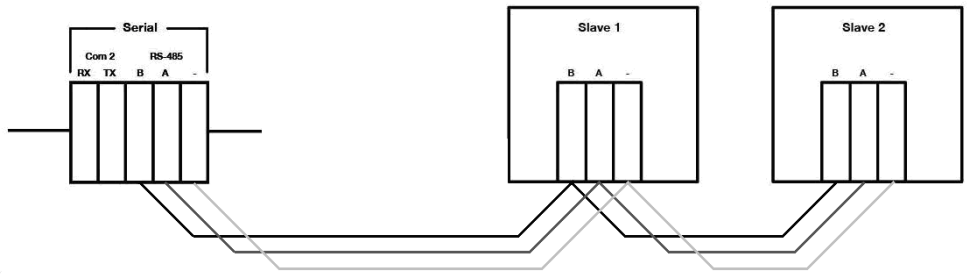
The Procon M2M has two different serial interface types, which can be utilised to expand the Procon M2M system. These interfaces allow Procon M2M to connect to 3rd party devices which support the Modbus RTU protocol.

Modbus RTU communications is achieved via either the RS-485 or RS-232 ports. Procon M2M (as standard) can only use either RS-232 or RS-485, not both together.

RS-485 is a multi-drop bus architecture which allows up to 30 different devices to be connected to the same port. RS-232 on the other hand is a one-to-one interface, allowing only one device to be connected to the same port.

11.4.1. RS-485

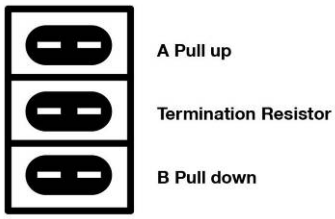
An RS-485 Modbus bus is a multi-drop bus architecture, which is wired in a daisy chain configuration. The bus should not extend further than 1200m from the Procon M2M.



⚠ **Caution:**
Use only shielded twisted-pair cables for connecting the RS-485 network to reduce the possibility of interference with radio communications services. Using shielded cables ensures that you maintain the appropriate EMC classification for the intended environment.

Screw terminals are provided next to each I/O port with a direct connection to Earth.

Depending upon the application and the equipment connected to the Procon M2M, termination and/or pull up/down resistors will be required. The Procon M2M has built in jumper selectable termination and pull up/down resistors.



To power the RS-485 devices, the Procon M2M can be used to provide +24VDC and Ground from the AUX output connections. Ensure the current draw of the device does not result in the PSU exceeding its maximum current rating (See the Technical Specification at the rear of this manual).

If an external power source is used to power the device ensure that the Procon M2M and the device have a shared ground connection (the RS-485 '–' terminal can be used for this).

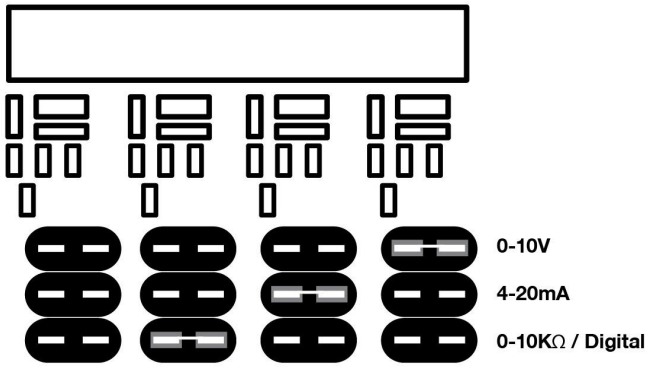
12. Configuring the inputs and outputs

This chapter describes the configuration options for the inputs and outputs.

To configure the function of an input you need to perform three steps:
- Set the jumper to the appropriate position on the Procon M2M circuit board
- Specify the status of the input on the M2M website
- Specify the units of measure, and optionally define a response characteristic

12.1. Setting the jumpers

The first step in configuring an input is to set the jumper to the appropriate position on the Procon M2M circuit board:



By default all inputs are configured as voltage inputs.

To set an input to a different function move the jumper as shown in the following table:

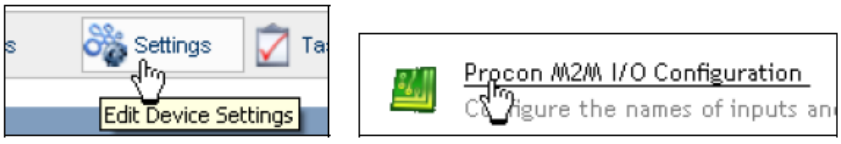
1 – 0-10V - voltage
2 – 4-20mA - current
3 – 0-10KΩ – resistance / Digital

Note that position 1 is the jumper position nearest to the case, and position 3 is the jumper position nearest the centre of the circuit board.

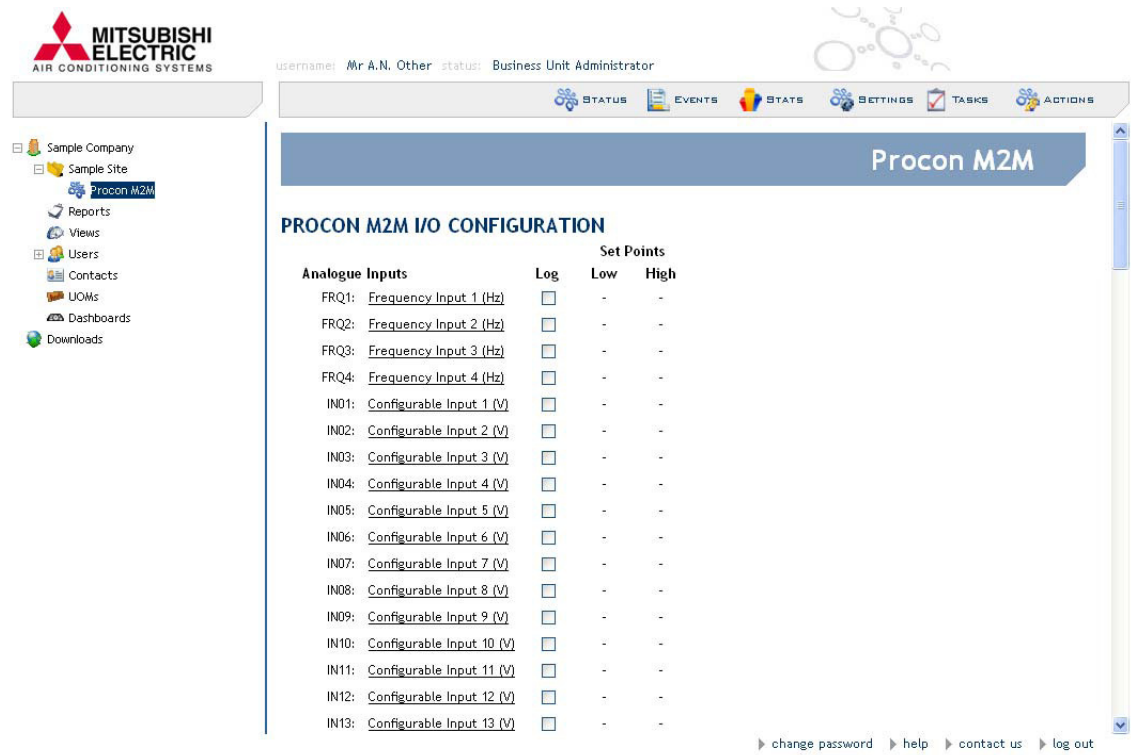
12.2. Changing the web site configuration

After changing a jumper on the Procon M2M circuit board you need to change the configuration of the same input on the M2M website to reflect the change.

- Connect to http://m2m.mitsubishielectric.co.uk/ and log in to the M2M website
- Select the appropriate site, and the Procon M2M on the site, to display the Procon M2M status page
- On the toolbar click *Settings* and then select *Procon M2M I/O Configuration* from the settings page



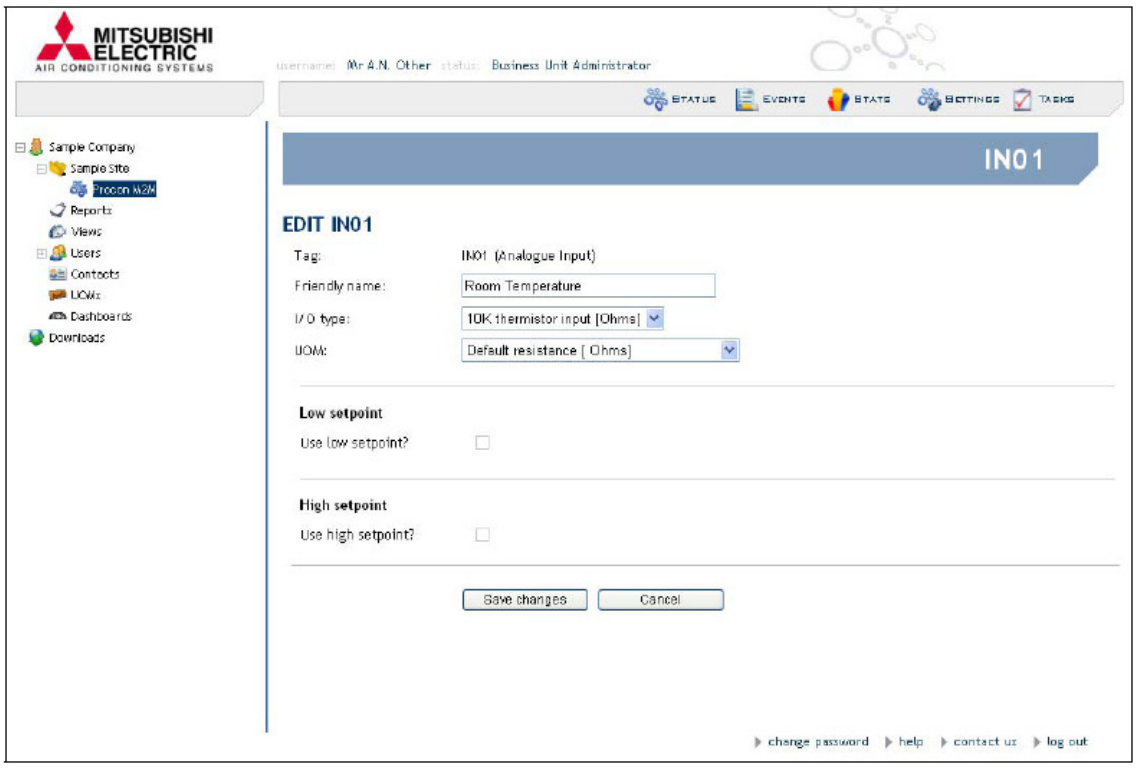
The Change I/O Configuration page will be displayed:



Click the input you want to configure; eg IN01.

The Change I/O Configuration page then allows you to specify information about the input.

- Enter a descriptive name for the input in the Friendly name field; eg Room temperature
- Specify the jumper setting on the I/O type drop-down menu



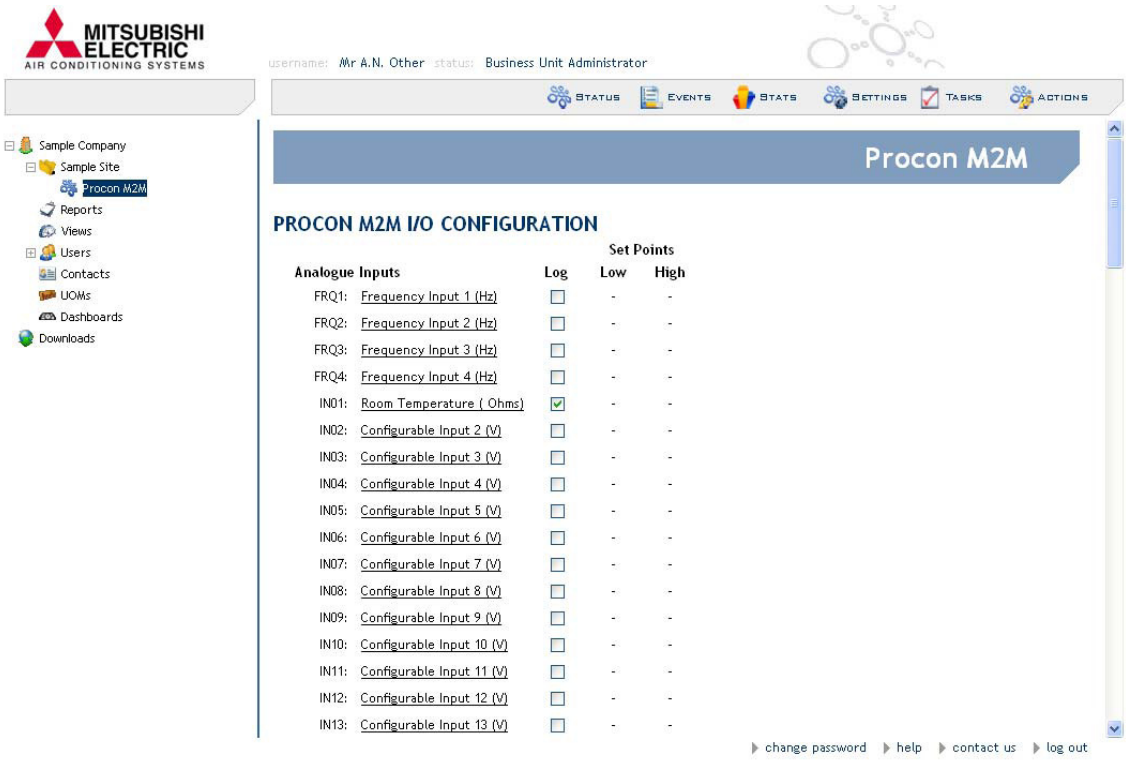
The Unit of Measure drop-down menu will show the default unit of measurement for the I/O type you have specified.

For information about defining a new unit of measure refer to **Defining units of measure (UOM)**.

- Click the *Save* changes button to save the definition of the input.

The Change I/O Configuration page will be displayed showing the new definition for the input.

- Click the *checkbox* in the Log column to turn on logging for the input you have defined:



Click the *Save configuration* button at the bottom of the page to save this change.

The value of the input you have selected will automatically be uploaded to the server at the next expected log-in defined on the Status page, but you can force an immediate update:

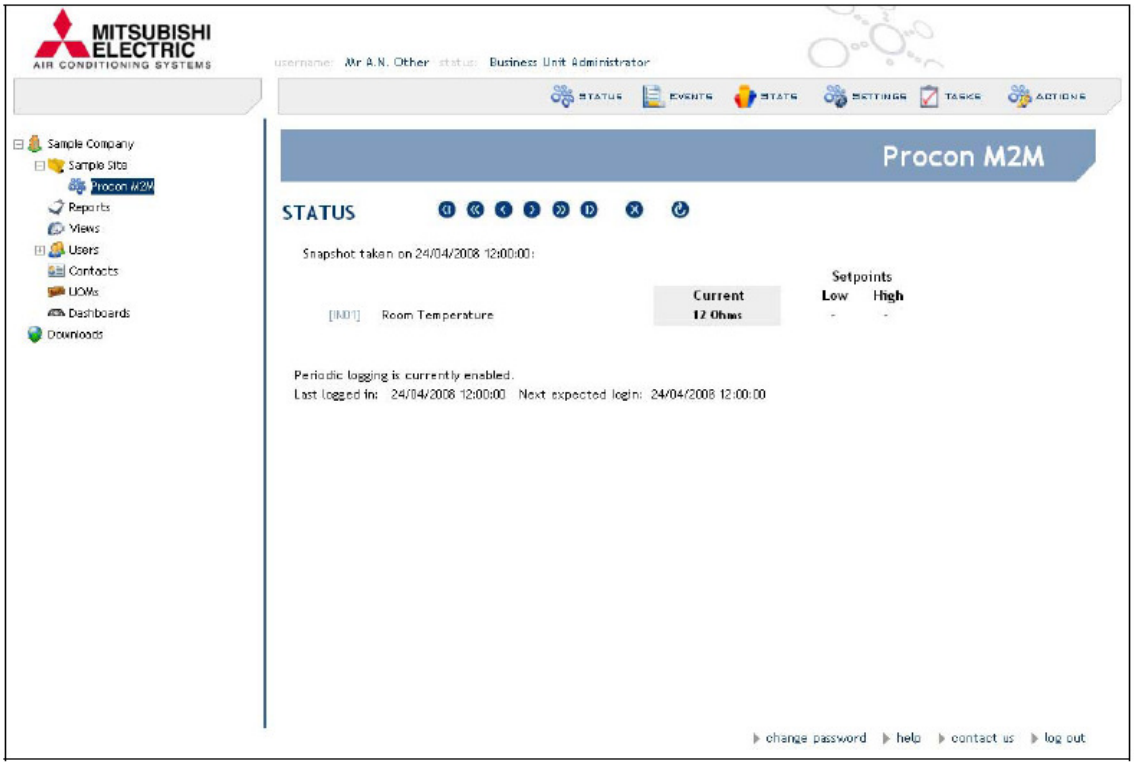
- Press the Sync button on the Procon M2M

This will download the new status of the input to the Procon M2M to start logging data for the input. Once the connection has completed:

- Press the Sync button again

This will upload the logged data to the Procon M2M server, so that it is available on the M2M website

The Status page will show the value of the input you have specified:



- Repeat the previous process for any other inputs you want to configure

12.3. Defining units of measure (UOM)

The M2M website allows you to define one or more units of measure which convert from base units, such as resistance, to measured units, such as ℃.

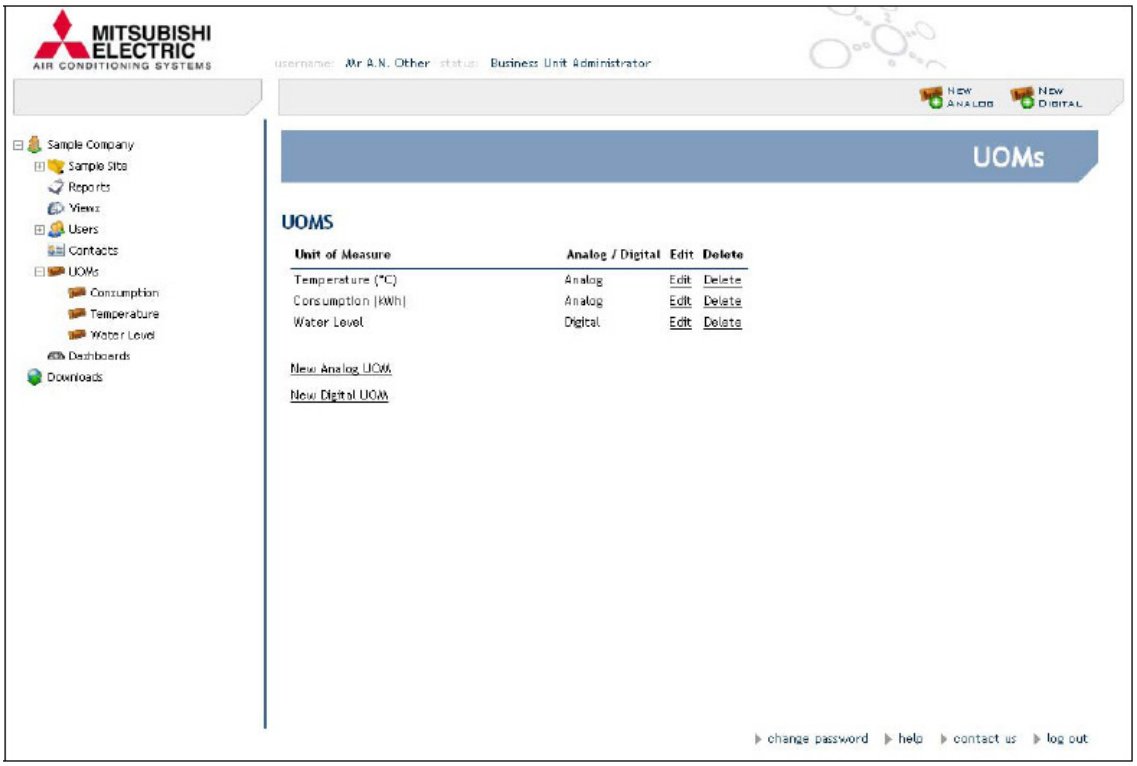
A simple unit of measure can define a linear relationship, such as 10 pulses = 1kWh. This only requires you to enter two data points defining the straight-line slope.

Alternatively you can enter multiple data points; a curve will be fitted to the points to define the relationship.
You can also define a Digital Unit of Measure which simply assigns aliases, such as On and Off, to the High and Low signals.

To define a new analogue UOM

- On the M2M website click *UOMs* in the tree-view

The Unit of Measure page will be displayed listing the analogue and digital UOMs that you have defined:

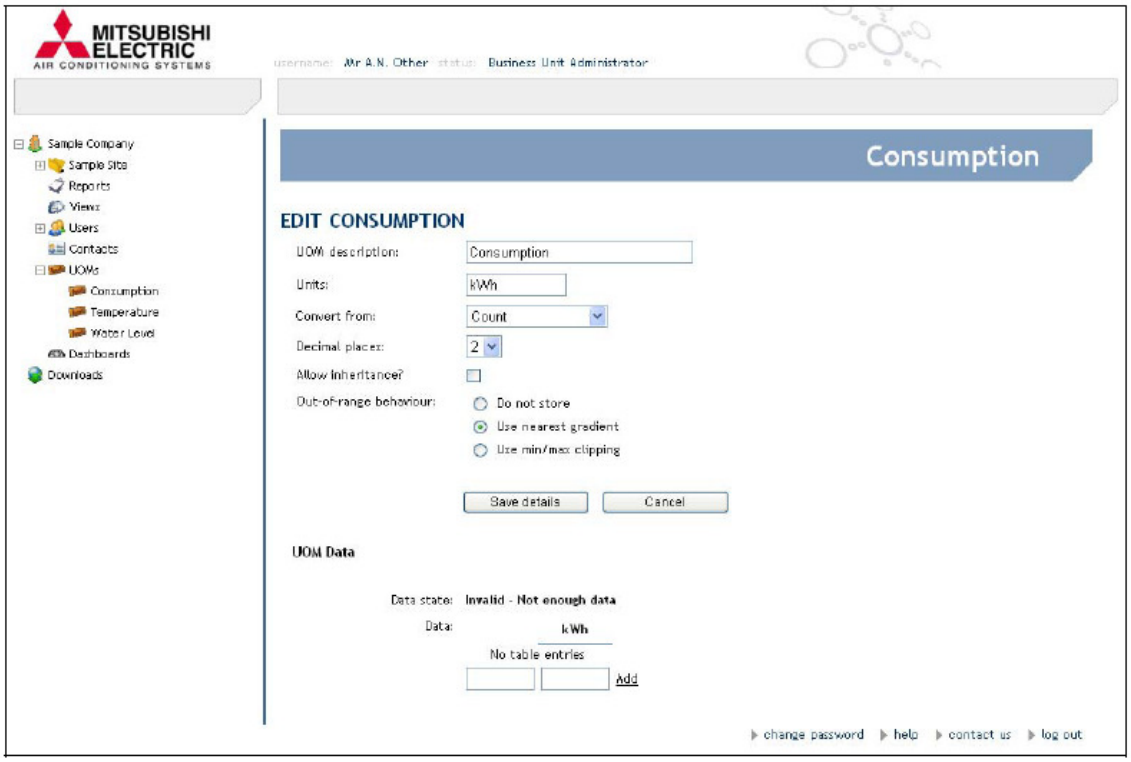


- Click the New analog UOM link

The Unit of Measure screen allows you to define the Unit of Measure, and enter data to specify the relationship.

- Enter a description for the UOM, the measured units, for example ℃, and the base units, which will typically be one of: Volts, Milliamps, Ohms, or Count
- Select Allow inheritance? to allow Procon M2M in sub-business units to access this UOM
- In the Out-of-range behavior section specify the option to be used for values outside the range of UOM data you specify:

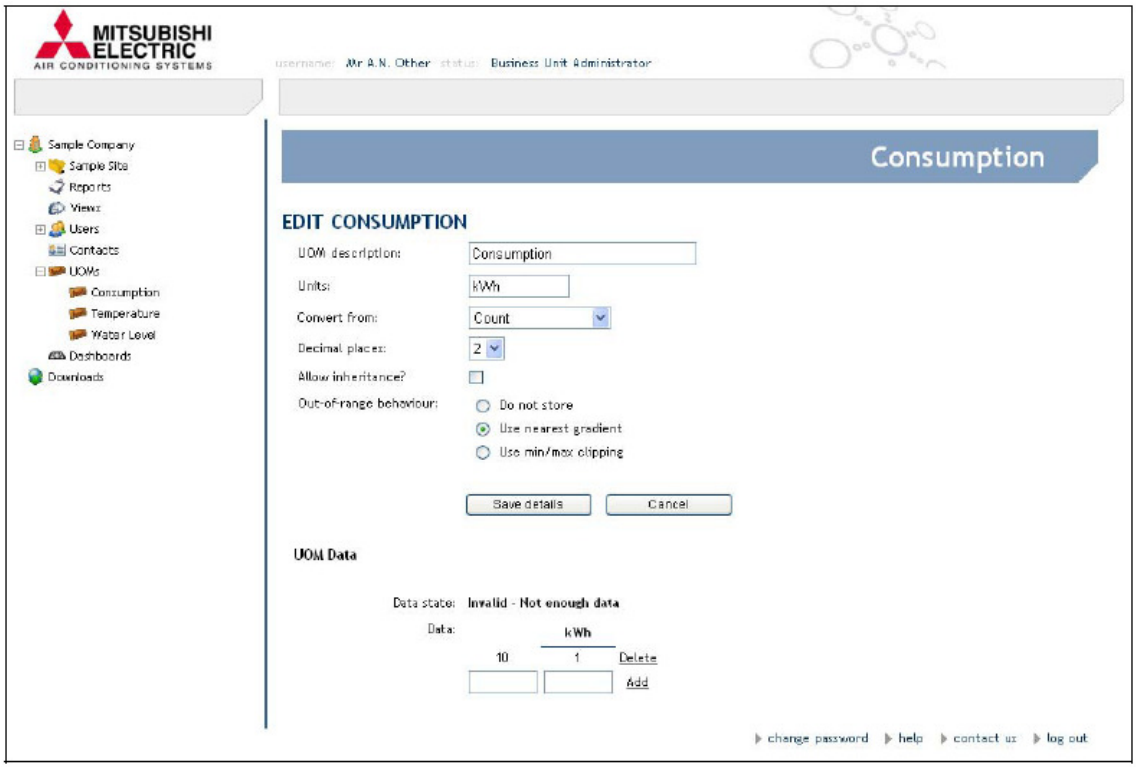
Option	Description
Do not store	Will not log data outside the specified range (useful for 4-20mA sensors)
Use nearest gradient	Will extrapolate the specified data to the measured value
Use min/max clipping	Will clip the data to the nearest value in the table



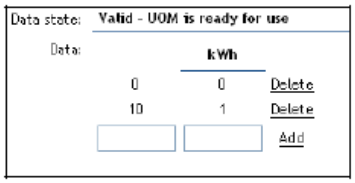
- Click the *Save* details button to save the details of the Unit of Measure.

To enter the data values

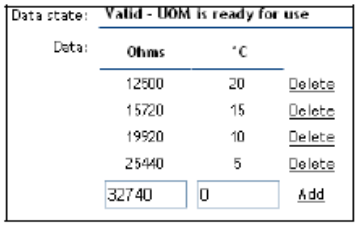
- On the Units of Measure screen, click the *Edit* link to the right of the unit of measure you want to edit
- On the Unit of Measure screen, in the UOM Data section enter the first values defining a data point, and click the *Add* button to add it to the table:



You must add at least two data points to define a valid UOM. For example, for the simple linear relationship 10 pulses = 1 kWh you also need to add 0 pulses = 0 kWh.



For a curved characteristic, such as for a thermistor, you should add pairs of values at intervals across the working range:



Points can be concentrated around the expected operating value for increased accuracy in non-linear relationships.

13. M2M commissioning software

The Procon M2M Commissioning Software is a PC application that allows local (onsite) testing and commissioning of the Procon M2M system (and connected devices).

It connects to Procon M2M using a customised RS-232 cable and utilises Procon M2M's GPRS connection to communicate with the Procon M2M server.

13.1. Download

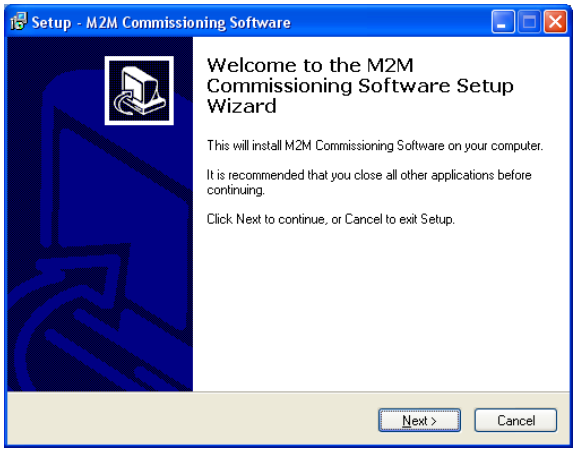
The Procon M2M Commissioning software is available on www.mitsubishi-aircon.co.uk.

Select Tool and Resources, Download and M2M Commissioning Tools.

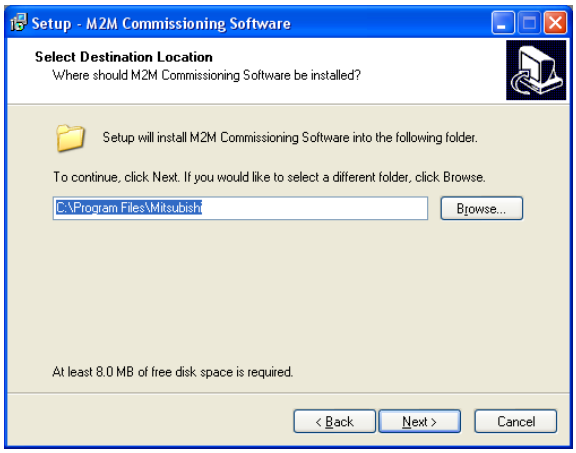
13.2. Installing the Procon M2M Commissioning Software

Once you have downloaded the Procon M2M Commissioning Software installer, please follow the following steps...

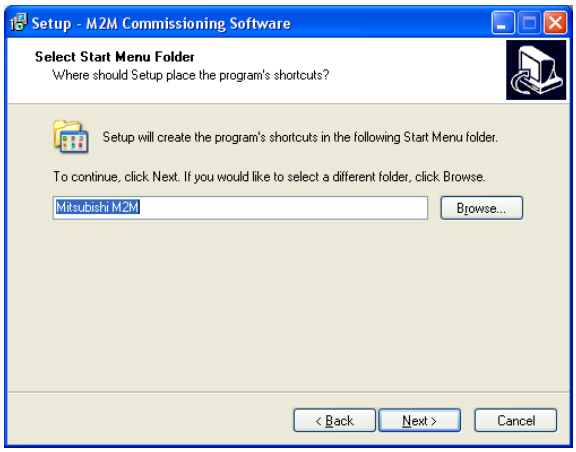
Run the Commissioning Software installer and click "Next>" on the first screen



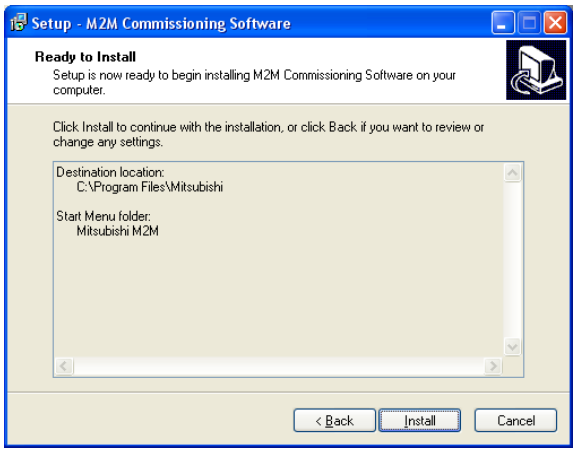
Select where to install the software



Select a Start menu folder



The software is now ready to install, click the “Install” button

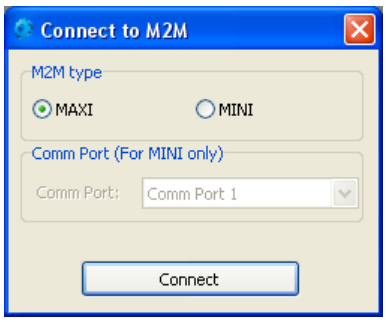


The software installation is complete, click “Finish”

13.3. Using the Procon M2M Commissioning Software

Connect the Procon M2M to the PC with a RS-232 cable. Power the Procon M2M with the Sync button held in. Launch the Commissioning Software from the Start menu.

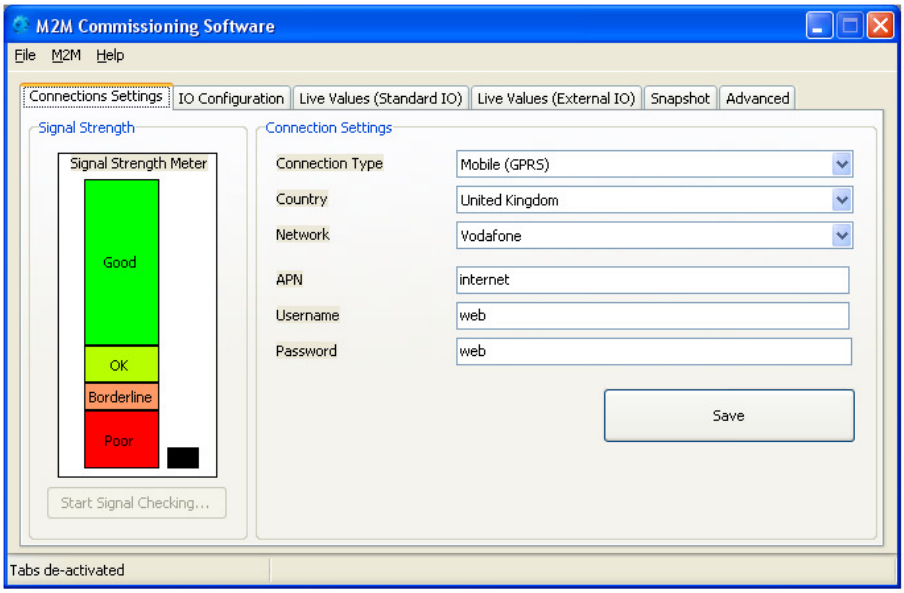
Select MINI as the Procon M2M type and click “Connect”.



13.3.1. Basic Information and Signal Checking

The “Connection Settings” tab allows you to view and update the connection settings for the Procon M2M. Use the drop-down boxes to select the connection type and related settings.

This page also shows a signal strength meter. To test how different antenna positions affect the signal strength click the “Start Signal Checking” button. Now move the antenna and leave in the new position for a few seconds, the signal strength meter will now update with the new signal strength.



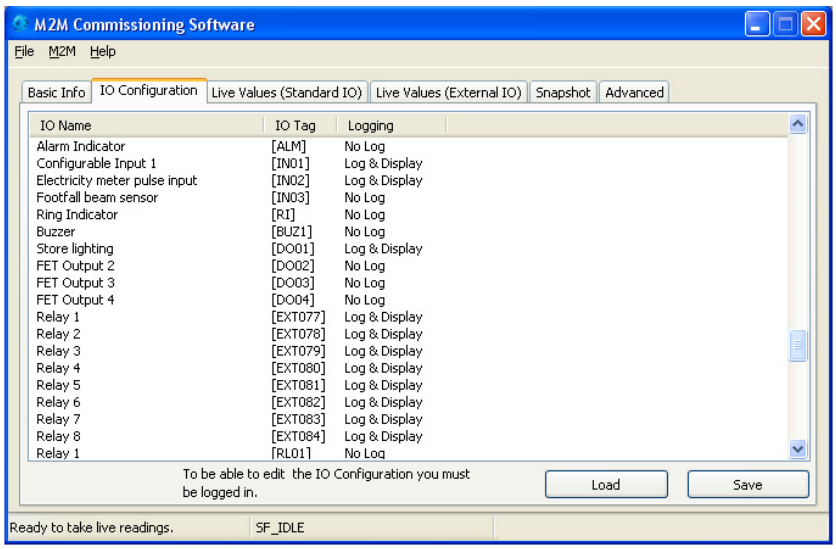
13.3.2. Logging On

Some features require you to login using your Procon M2M portal account. From the menu select M2M > Logon. Enter the email address and password that you use to log on to the Procon M2M portal. If you do not have a login, please contact your provider.

13.3.3. I/O Configuration

The I/O Configuration tab allows you to view the I/O Configuration.

The Load button downloads the I/O Configuration from the server and Save uploads any I/O Configuration changes back to the server.



Double clicking on an I/O brings up a dialog that allows you to change the configuration of an I/O (Only if logged in).

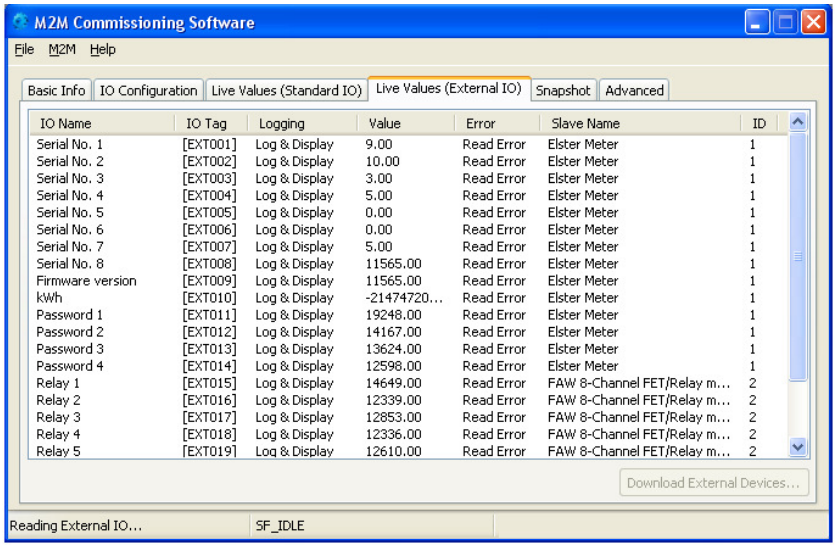
The name, type of I/O (only for configurable I/Os, IN01, IN02 etc.), unit of measure and the logging option can be changed.

Clicking “Save” stores the change locally. To commit the change you need to click “Save” on the I/O Configuration tab in the main dialog.

13.3.4. Live Values (Standard and External)

The Live Values (Standard I/O) and Live Values (External I/O) can show live data from the Procon M2M’s I/Os. For example if you had IN01 configured for a temperature sensor you would be able to see the live temperature value.

The Live Values (External I/O) tab displays some extra information such as the Error, Slave Name and Slave ID. This information can be used to identify any external devices that are not communicating.



14. Serial Expansion Devices

The Procon M2M can utilise one of the two serial interfaces (RS-232, RS-485) at any one time. For applications which require more than one serial interface please contact Mitsubishi Electric for more information.

14.1. RS-485 Modbus RTU expansion device

This section describes the method for connecting RS-485 Modbus RTU devices:

- Isolate the Procon M2M power
- Open the panel as described in the Mounting section
- We recommend adding one Modbus device at a time to your RS-485 network, working through each of the steps below, before moving onto the next device
- Connect the RS-485 Modbus RTU device as per the section Connecting Expansion Modules
- The device's baud rate and parity must be pre-configured to that of the Procon M2M (Default: Baud rate-9600, Parity-None)
- The device should be configured to have a unique ID/Address in the range of 1...247
- The device should now be added to the Procon M2M portal (see the online help for instructions on how to do this)
- Reconnect the Procon M2M power (and the device power if separate from the Procon M2M), whilst observing precaution on any live (240VAC) areas within the enclosure
- Wait for between 30 seconds to 1 minute for the Procon M2M to login to the Procon M2M servers (this is indicated by the Power, Signal and Online LEDs being on constantly, and the Server LED flashing irregularly)
- When the Server LED goes off, if the RS-485 device is wired correctly and setup correctly on the Procon M2M portal the "Comms" LEDs located above the serial ports should both be flashing to indicate comms is OK
- If the Comms LEDs are not both flashing, try pressing the Sync button. If this does not resolve the issue, re-check each step has been completed above
- When all devices are successfully communicating with the Procon M2M, the Procon M2M commissioning software (as described in the chapter Using the Procon M2M commissioning software) can be used to view data received from the expansion device. If the device has outputs, these can be tested in a similar way described in the section Outputs

The Procon M2M can connect to any device which supports the Modbus RTU protocol. The Modbus communication is via the RS-485 port and hence more than one Modbus device to be connected to the same port. The Procon M2M RS-232 port can be used instead of RS-485, as long as a RS-485 to RS-232 converter is placed between the Modbus devices and the Procon M2M (but only one device can be connected at a time using RS-232).

14.2. Modbus Slave IDs

Each Modbus device has a unique identifier called a 'Slave ID' which is an integer in the range 1 - 247. To add a Modbus device to a Procon M2M the Slave ID of the device must be known. It is not possible to add two devices which have the same Slave ID. It should be possible to change the Slave ID of any device by using PC configuration software or DIP switches on the device itself.

14.3. Modbus Register Types

There are four types of Modbus register:
- Digital Outputs (known commonly as Coils) which can have the value 0 or 1 only, and are read / write accessible
- Digital Inputs (known commonly as Discrete Inputs) which can have the value 0 or 1 only, and are read only
- Analogue Outputs (known commonly as Holding Registers) which can have a value from 0 to 65535, and are read / write accessible
- Analogue Inputs (known commonly as Input Registers) which can have a value from 0 to 65535, and are read only

The Analogue registers described above store a 16 bit (2 byte) value which cannot exceed 65535. In order to store larger values, some Modbus devices store values across two Modbus registers. This allows a value to be stored as a

32 bit (4 byte) number which has a maximum value of 4294967295. This is useful for values such as energy readings from electricity meters etc.

The Procon M2M allows you to read these 32 bit values and store them as a single register inside the Procon M2M, as long as it is configured to do so.

When adding a Modbus register you will be asked to specify its type. The types of registers are listed below:
- Digital Output
- Digital Input
- Analogue Output (unsigned)
- Analogue Output (signed)
- Analogue Output (unsigned long, least sig. word first)
- Analogue Output (unsigned long, most sig. word first)
- Analogue Output (signed long, least sig. word first)
- Analogue Output (signed long, most sig. word first)
- Analogue Output (float, least sig. word first)
- Analogue Output (float, most sig. word first)
- Analogue Input (unsigned)
- Analogue Input (signed)
- Analogue Input (unsigned long, least sig. word first)
- Analogue Input (unsigned long, most sig. word first)
- Analogue Input (signed long, least sig. word first)
- Analogue Input (signed long, most sig. word first)
- Analogue Input (float, least sig. word first)
- Analogue Input (float, least sig. word first)

For example, if a Modbus device stored a certain unsigned Analogue Input value over registers 7 and 8 (with the most significant 16 bits being stored in register 7) you would set the Procon M2M to read register 7 and set the register type to 'Analogue Input (unsigned long, most sig. word first)'

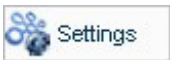
14.4. Modbus Registers

The maximum total number of registers which the Procon M2M can read is 255. This total can be made up from as many slave devices as needed (Modbus supports up to 247 slave devices).

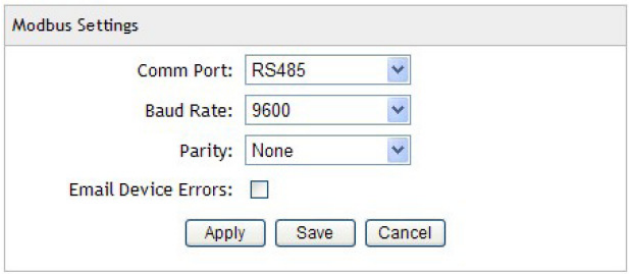
As an example:
- You could connect one Modbus device and read up to 255 registers from it
- You could connect two Modbus devices and read 120 from the first and 135 from the second
- You could connect three Modbus devices and read 20 registers from the first, 110 from the second and 125 from the third
- You could connect 255 Modbus devices and read one register from each
- You could NOT connect one Modbus device and read 256 registers from it
- You could NOT connect two Modbus devices and read 90 from the first and 166 from the second
- You could NOT connect 256 Modbus devices and read one register from each

Any combination is possible as long as the total number of registers does not exceed 255

14.5. Adding Modbus Devices

You can add a new Modbus device by clicking on 

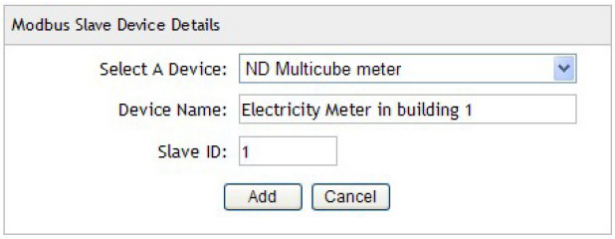
in the toolbar and then selecting *Modbus Settings*. You will then be taken to the Modbus Settings page where you should enter the Communication Settings as the following illustration shows:



The Baud Rate and Parity settings have to match the settings in the Modbus device you wish to add. These can usually be setup on the device itself, if not then you may need to contact your supplier of the device for further help. Click on *Apply* to save the settings.

When these settings have been saved click on *Add Modbus slave device* as shown below:

You will then be asked to select a Modbus Device, as shown below:



If the device you want to add is not in the *Select A Device* drop down menu then click on

in the toolbar and then on

.

Refer to the **Creating a Modbus device** section for more information on how to create a new Modbus device.

When a Modbus device is selected, enter a name for it and change the Slave ID if needed. Click *Add* and then the device will be added to the list of Modbus slave devices, as shown below:

You can add another Modbus device if necessary or edit / remove existing devices, but remember the total number of registers must not exceed 255.

The 'Status' column shows whether the Procon M2M can currently successfully communicate with the Modbus device or not. Having just added a device the 'Status' will be shown as **Status not yet received. (0)**. This indicates that the Procon M2M is yet to communicate with the Modbus device and the status is unknown.

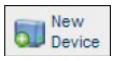
The Modbus information will only get transferred to the Procon M2M the next time it synchronizes and so the Status will remain unchanged. As soon as the Procon M2M connects for a second time the Status will change to reflect the current Status, this will either be **Communicating correctly. (1)** or **Error communicating with device (2)**. By clicking on *refresh* the current Status will be shown.

If the Status is **Communicating correctly. (1)**, this indicates that all registers are being read correctly by the Procon M2M. If the Status is **Error communicating with device (2)** then somewhere the communication between Procon M2M and Modbus device has been unsuccessful.

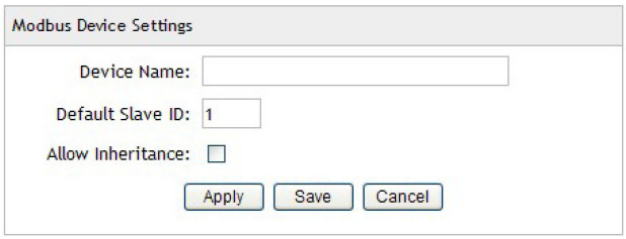
When the device has been successfully added the registers for the device will appear on the 'Edit I/O Configuration' page, all with 'EXT' prefixes, as shown below:

14.6. Creating Modbus Devices

To create a new device, when on the 'Add Modbus Device' page click on

and then on 

A new Modbus device can then be added:

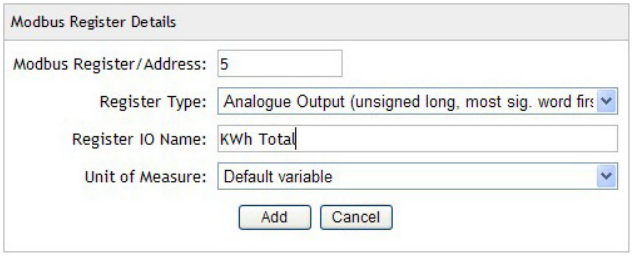


Enter a name for the device and enter a default Slave ID (when you add an already created device to a Procon M2M the default Slave ID will appear as default in the 'Slave ID' box). Tick *Allow Inheritance* if you want the Modbus device you are creating to be available for selection for Procon M2Ms in sub-business units.

Click *Apply* and then registers can be added to the device.

Click on *New Modbus register* as shown below:

Now the details of the new register can be added:



The 'Modbus Register/Address' of the register is an integer with a value between 0 and 65535. The 'Register Type' is one of the types described in the 'Modbus Register Types' section.

Refer to the Modbus device's documentation for information on its Modbus registers.

The 'Unit of Measure' (UOM) is set to 'Default variable' by default, if no UOM is set up for the register yet then this can be left as 'Default variable' and changed at a later point. For more information on UOMs refer to the **Defining Units Of Measure** section.

Click *Add* to save the register.

When all registers have been entered, save the device and then it will be selectable when adding a new Modbus device to a Procon M2M.

15. Connecting to a G50/GB50/AG150 controller

This chapter describes how to connect the Procon M2M to a G50/GB50/AG150 controller and how to configure it.

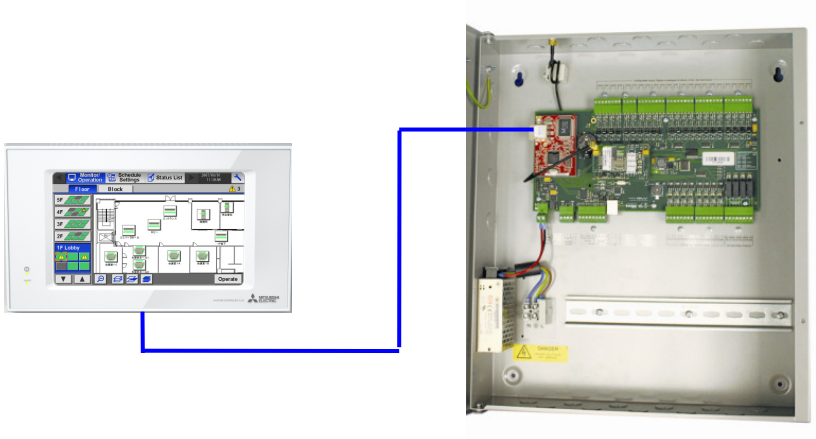
15.1. Physical connections

The Procon M2M communicates with the G50/GB50/AG150 using Ethernet, there are two connection possibilities:

- Direct connection using crosslink cable
- Connection through a hub

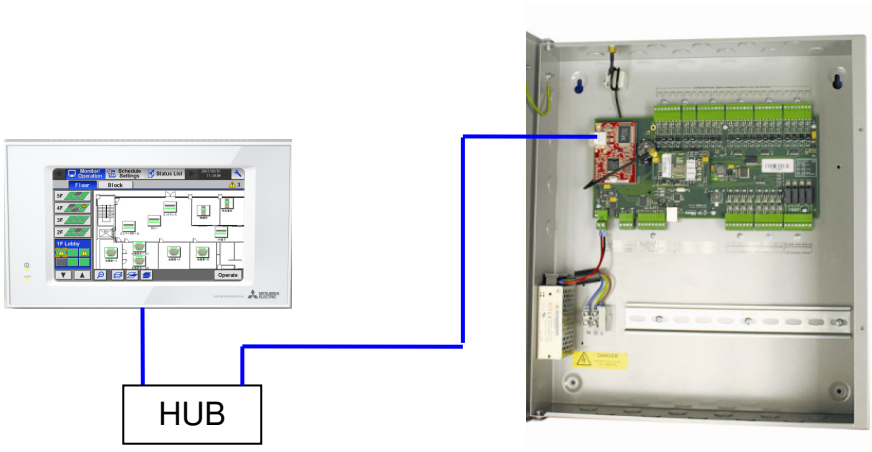
15.2. Direct connection using crosslink cable

The following diagram shows how to connect the G50/GB50/AG150 to the Procon M2M using an Ethernet crossover cable:



15.3. Connection through a hub

The following diagram shows how to connect the G50/GB50/AG150 to the Procon M2M through an Ethernet hub using straight through Ethernet cable:



15.4. G50/GB50/AG150 configuration

The factory settings for the G50/GB50/AG150 controllers are:

- IP address 192.168.001.001
- Subnet mask 255.255.255.000

The G50/GB50/AG150 controller should not be changed and left set to IP address 192.168.001.001 and subnet mask 255.255.255.000 to communicate with the Procon M2M.

The factory settings for the Procon M2M are:

- IP address 192.168.001.002
- Subnet mask 255.255.255.000

15.5. Procon M2M configuration

Although the G50/GB50/AG150 controller are connected using Ethernet, the Procon M2M sees them as a Modbus device.

The G50/GB50/AG150 controller allows air conditioning units to be split into groups, these groups can then be controlled independently. Each group has its own settings for Temperature Setpoint, Mode, Air Direction, Fan Speed etc. Each group is identified by its unique 'Group ID'.

Currently the Procon M2M stores data for G50/GB50/AG150 groups in an identical way to how it stores Modbus data, therefore the G50/GB50/AG150 groups and Modbus devices have been integrated together.

Through the M2M website a G50/GB50/AG150 group can be added by navigating to the *Modbus Settings* page, then clicking on *Add new Modbus device*. A Modbus device for the G50/GB50/AG150 has been created already and can be selected from the drop-down list. The Slave ID you assign to the Modbus device has to match the Group ID for the group being added (Group IDs will be in the range 1 – 50).

When a new Modbus device has been created for a G50/GB50/AG150 group, go to the *Edit I/O Configuration* page and select which I/O settings are to be logged. The writeable settings can be changed via 'Actions' and 'Tasks' thorough the website.

Each air conditioning unit also has its own unique address on the network as well as its own error register. These error registers can be accessed by the Procon M2M by setting up a Modbus slave device for each. So the addresses do not conflict with the G50/GB50/AG150 group addresses, an offset of 150 is applied to each one. For example, to read the error register for air conditioning units with addresses 1 and 5, add two Modbus devices with Slave IDs 151 and 155. There is already a Modbus slave device created for these error registers, so simply select it from the drop-down list.

Find below an example:

Modbus Slave Devices

Address	Protocol	Slave Name	Registers	Status	Edit	Remove
1	G50	Auditorium ST1	14	Communicating correctly.(1)	Edit	Remove
2	G50	Auditorium ST2	14	Communicating correctly.(1)	Edit	Remove
3	G50	Auditorium ST3	14	Communicating correctly.(1)	Edit	Remove
4	G50	Auditorium ST4	14	Communicating correctly.(1)	Edit	Remove
5	G50	Stage ST1	14	Communicating correctly.(1)	Edit	Remove
6	G50	Stage ST2	14	Communicating correctly.(1)	Edit	Remove
151	G50	G50 Indoor Unit 1 Fault Code	1	Communicating correctly.(1)	Edit	Remove
152	G50	G50 Indoor Unit 2 Fault Code	1	Communicating correctly.(1)	Edit	Remove
153	G50	G50 Indoor Unit 3 Fault Code	1	Communicating correctly.(1)	Edit	Remove
154	G50	G50 Indoor Unit 4 Fault Code	1	Communicating correctly.(1)	Edit	Remove
155	G50	G50 Indoor Unit 5 Fault Code	1	Communicating correctly.(1)	Edit	Remove
156	G50	G50 Indoor Unit 6 Fault Code	1	Communicating correctly.(1)	Edit	Remove

Add Modbus slave device Refresh

16. Air Conditioning Web Interface Dashboard

This chapter describes how to control the Mitsubishi Electric Air Conditioning systems via a G50/GB50/AG150 over the web using the web interface Dashboard.

16.1. Overview

The G50/GB50/AG150 web interface Dashboard allows the G50/GB50/AG150 controller to be monitored and managed across the internet. The Dashboard is similar in functionality to the internal web pages on the G50/GB50/AG150.

16.2. M2M server access

Connect to http://m2m.mitsubishielectric.co.uk/

The Web Portal has 2 level of access:

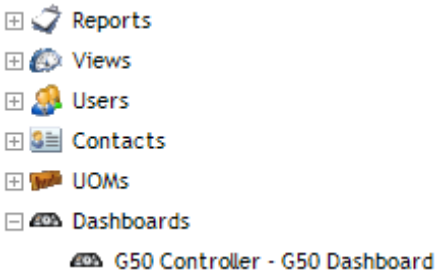
- M2M Web Portal which offers access directly to the dashboard
- Engineering Portal which offers an engineering level

16.3. Engineering Portal

16.3.1. Accessing the Dashboard

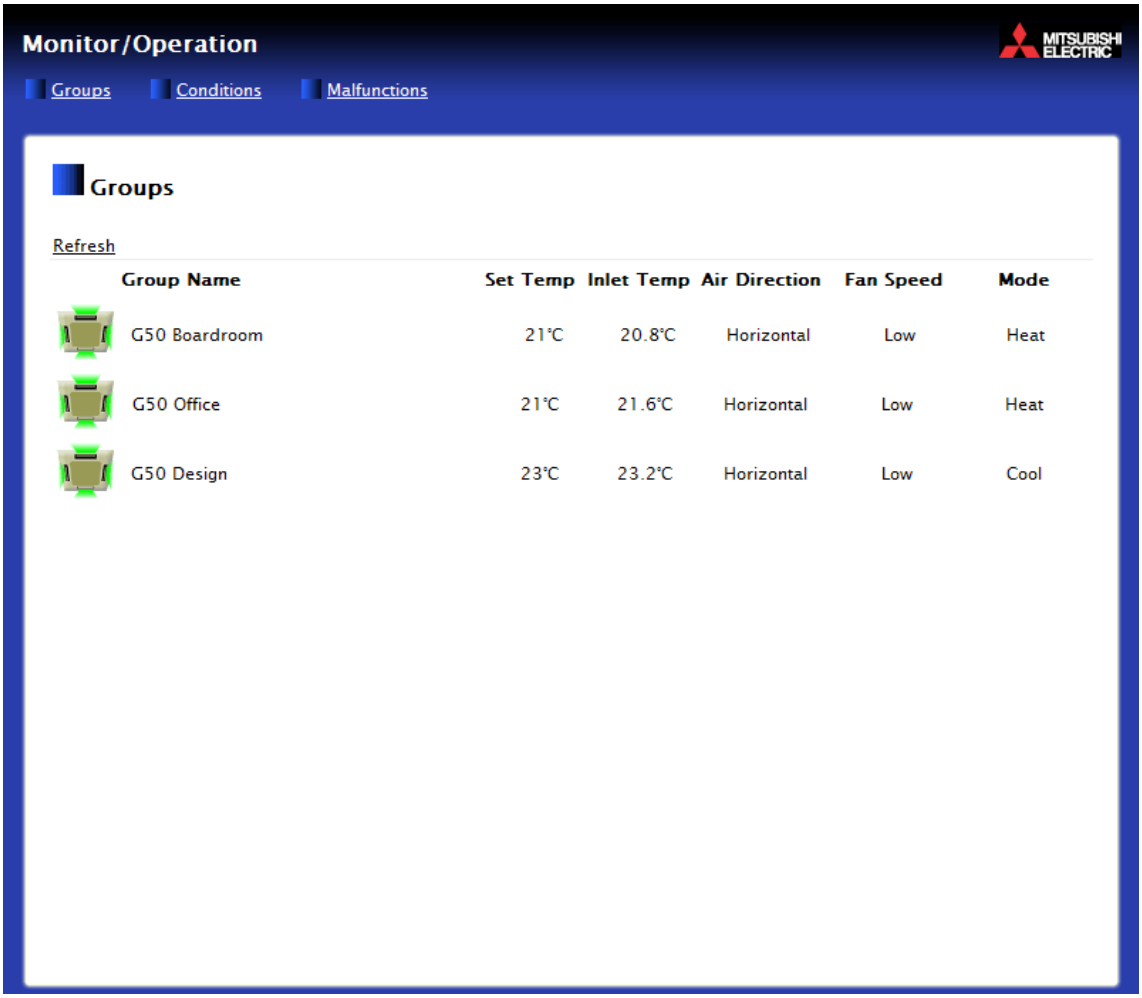
Enter Email address, type in Password, select *Engineering Portal* and click on *Login*.

- Expand the dashboards section on the tree view
- A dashboard link will be shown for each G50/GB50/AG150 connected to a Procon M2M
- Click on the link to the G50/GB50/AG150 Dashboard



16.3.2. Dashboard functionality

The main page on the dashboard is the ‘Groups’ page, the groups page shows a list of all the groups configured on the G50/GB50/AG150 and the current readings taken from the device.

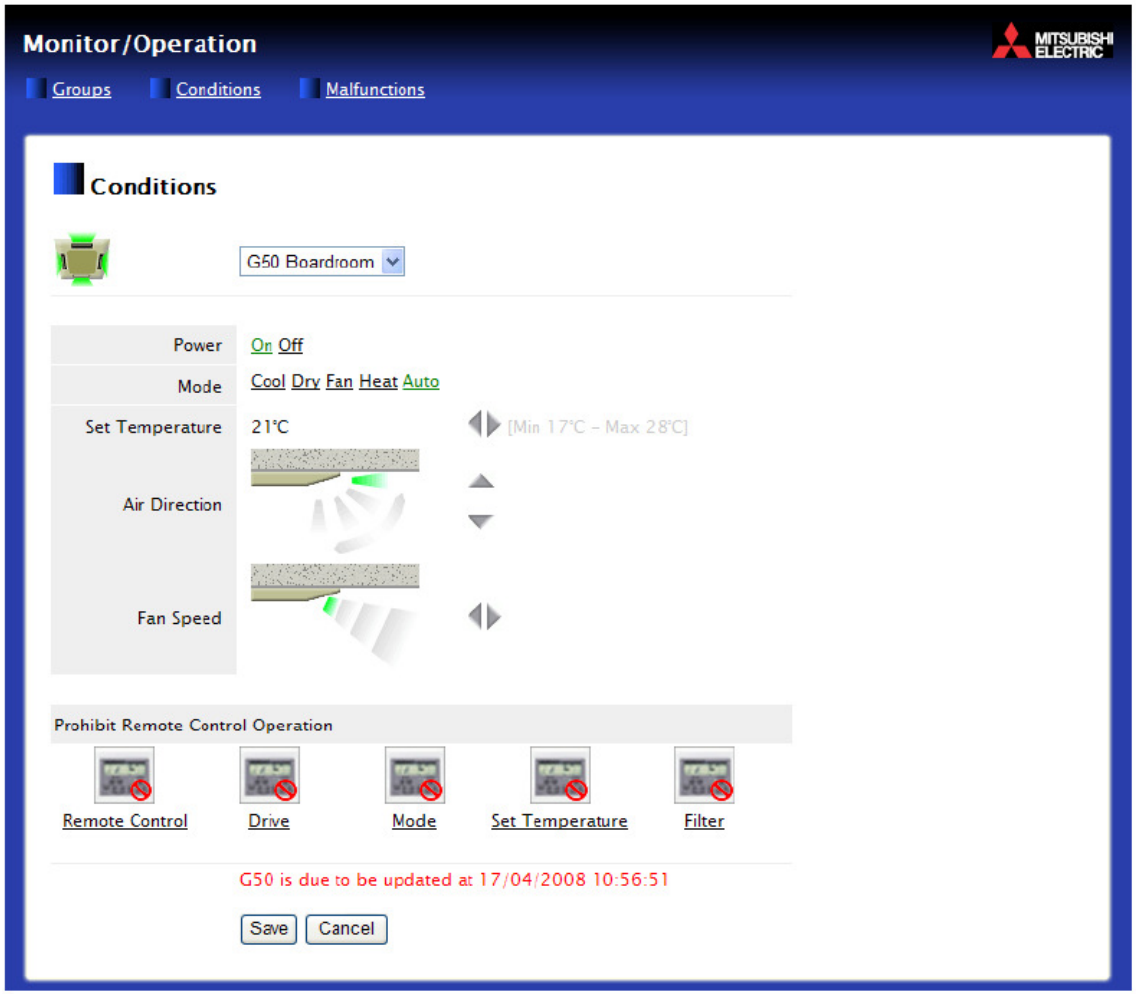


To change group settings click on the air conditioning icon or the ‘Conditions’ link at the top of the page.

16.3.3. Condition list

The ‘Conditions’ page shows the current settings for the selected group. Each setting can be changed by clicking the appropriate button or link. For example to set the group into *Heat* mode click the *Heat* link. To save the changes and update the G50/GB50/AG150 click the *Save* button.

NOTE: Currently the G50/GB50/AG150 will not be updated with immediate effect. The Procon M2M will have to login and download the settings before the G50/GB50/AG150 is updated. The date and time when this will occur is shown in red above the save and cancel buttons. Should you want to cancel the changes you must do this before the Procon M2M downloads the settings.



16.3.4. Malfunctions

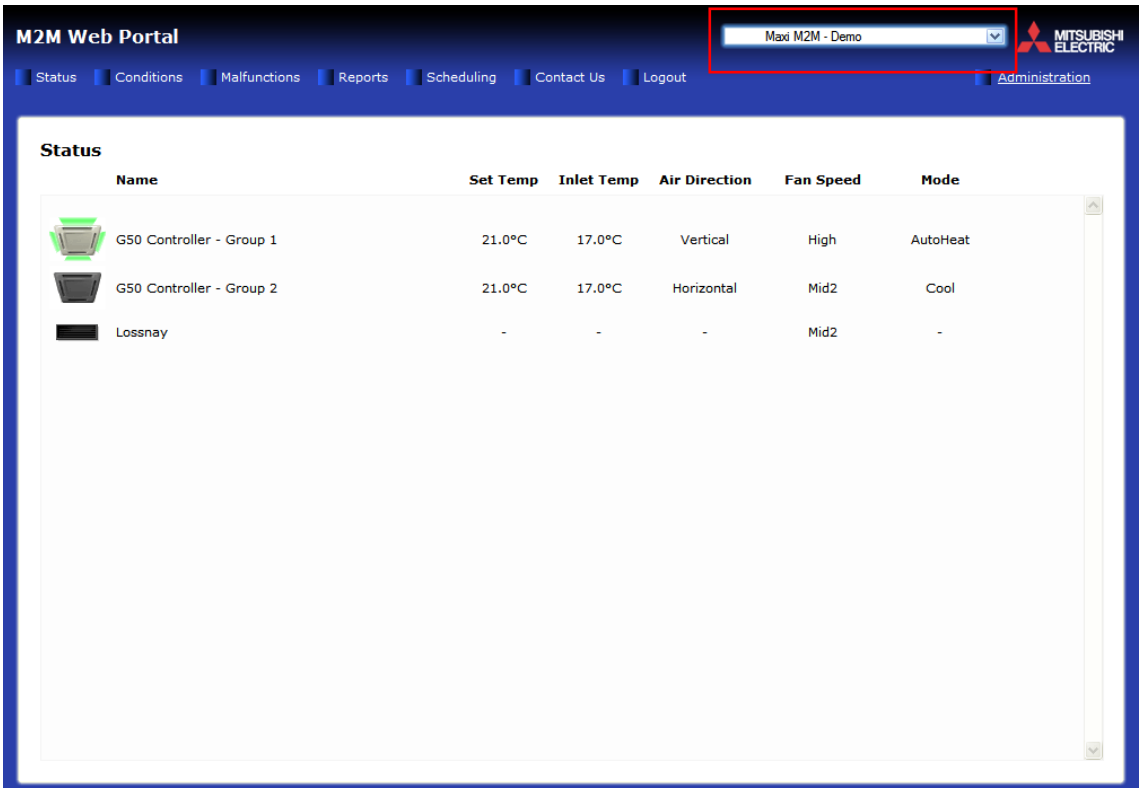
The ‘Malfunctions’ page shows a list of errors that may have occurred, a malfunction message is for an individual air conditioning unit not a group. Malfunctions will only appear if you have added a Modbus device for the air conditioning unit. For details of how to do this see the Procon M2M configuration section of the chapter - **Connecting to a G50/GB50/AG150 controller**.

16.4. M2M Web Portal (for End User)

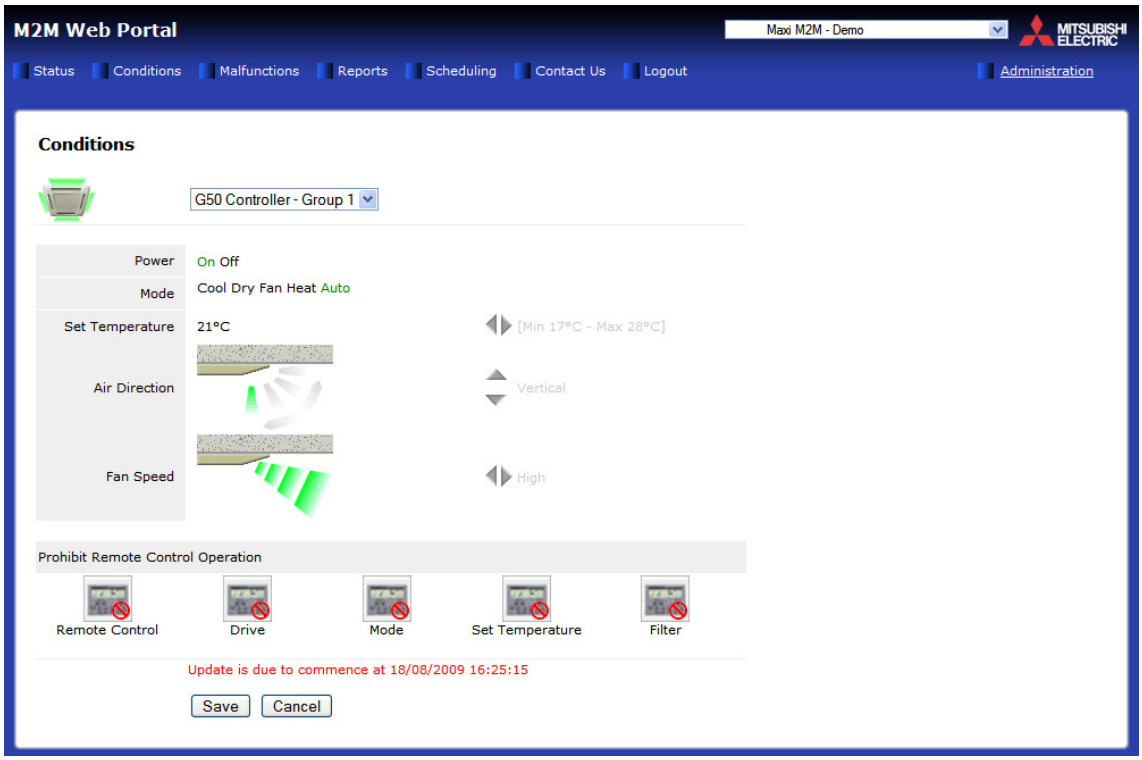
16.4.1. Accessing the Dashboard

Enter Email address, type in Password, select *M2M Web Portal* and click on *Login*.

Site can be selected using the drop down

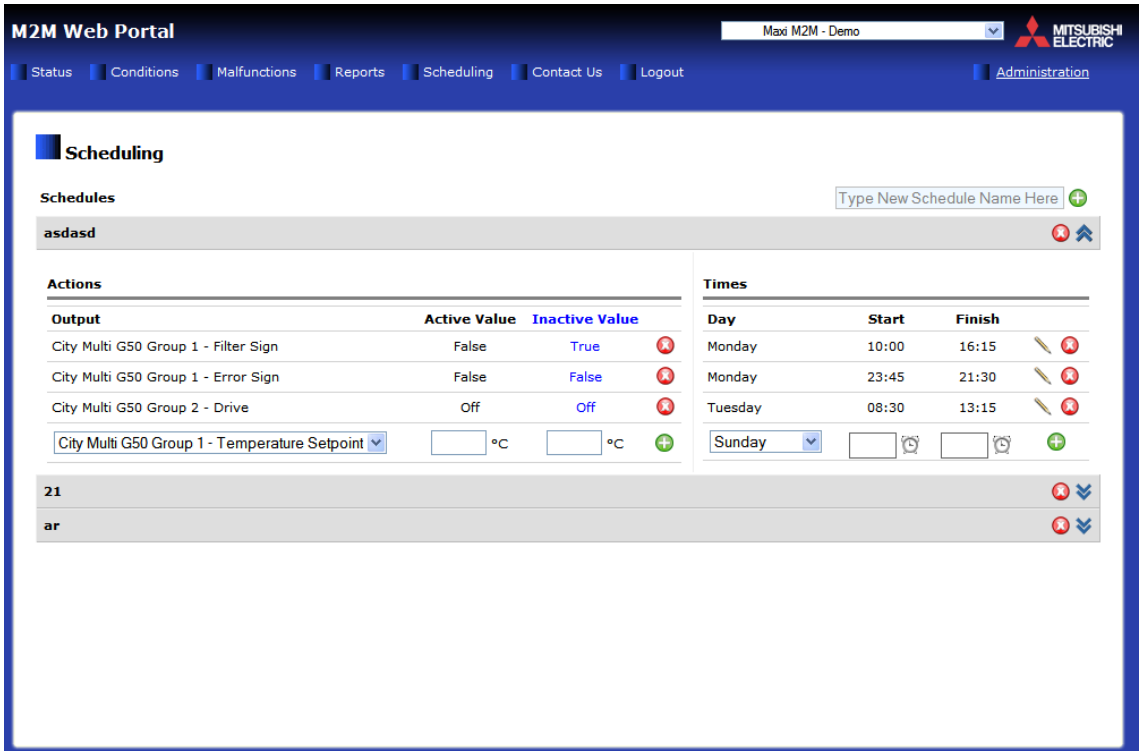


16.4.2. Condition list

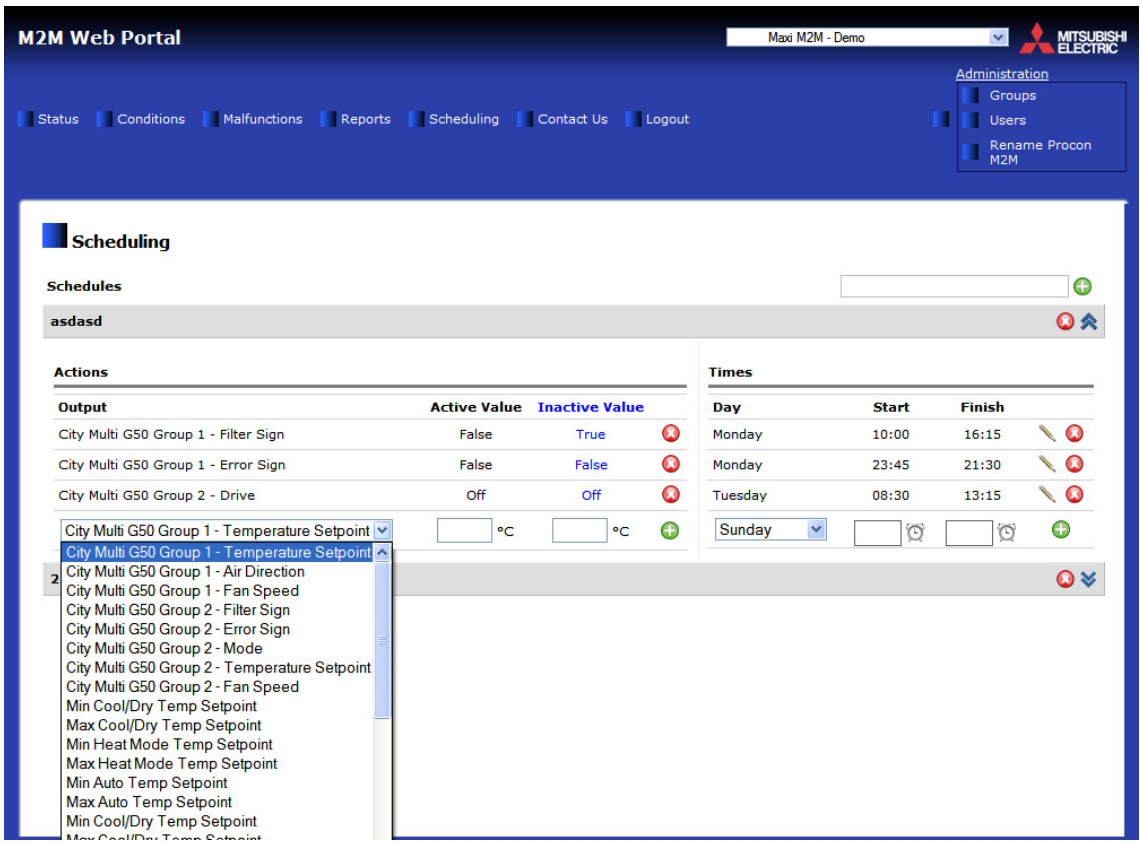


16.4.3. Scheduling

Scheduling can be set to time clock the Air Conditioning and other third party equipment.

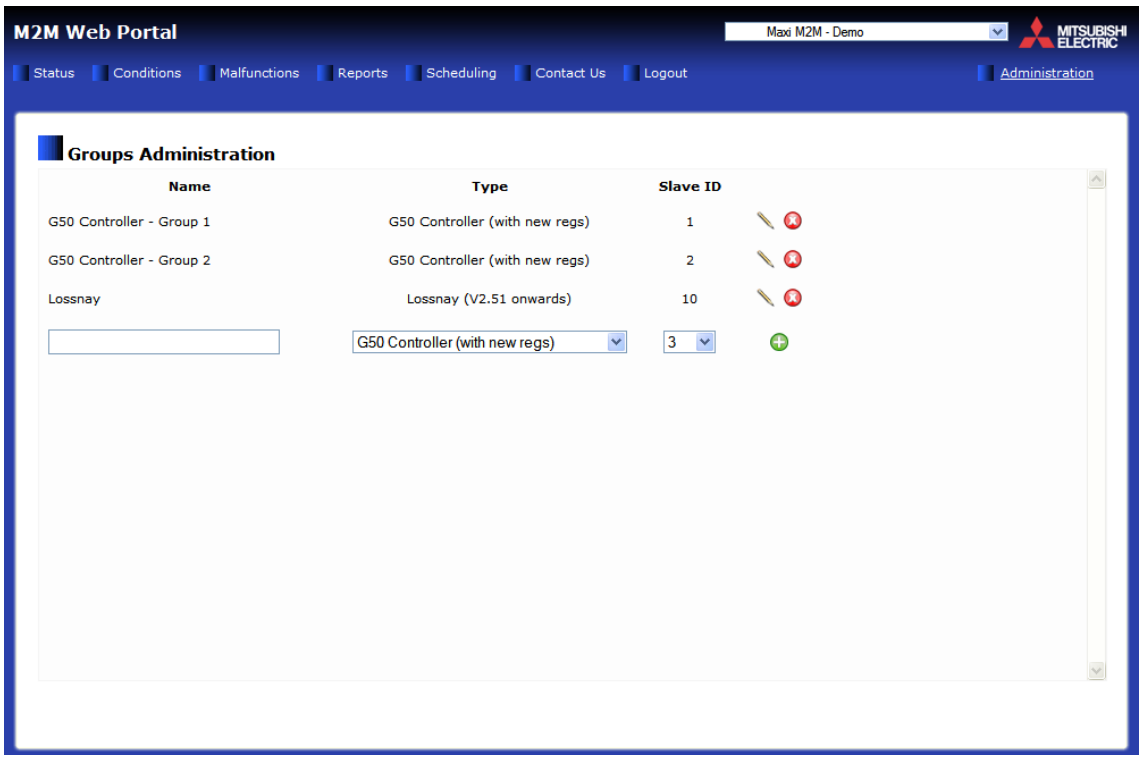


Select the times first and then the actions like for instance On/Off.



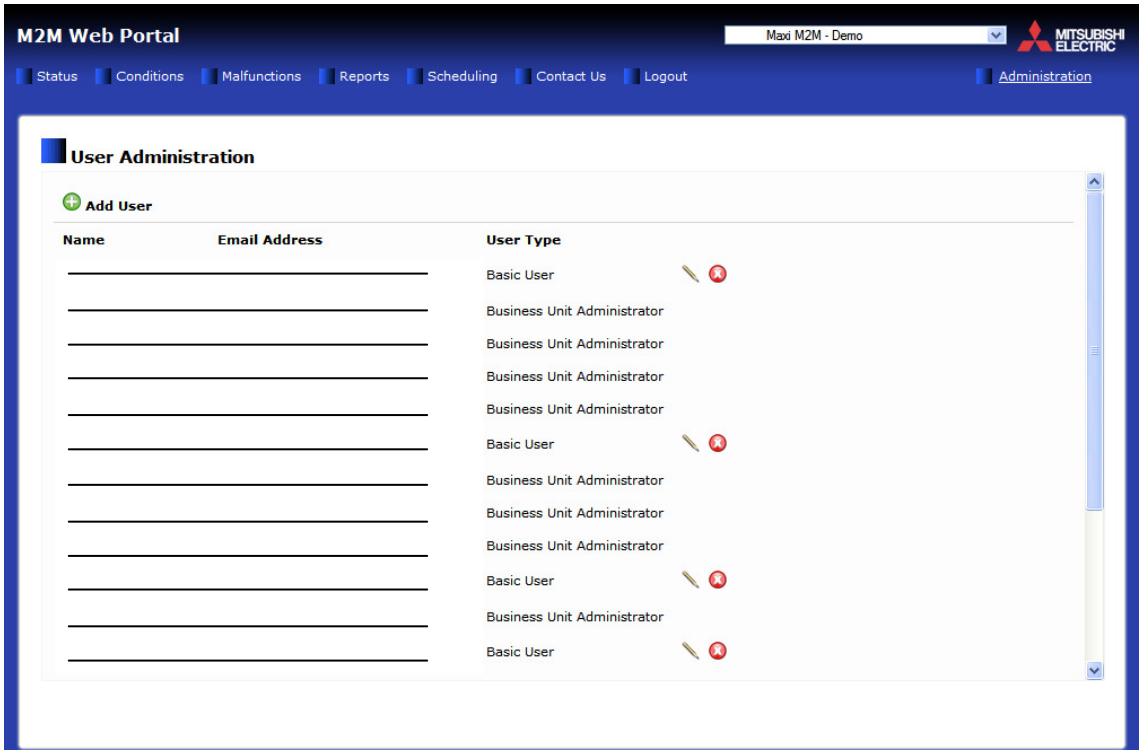
16.4.4. Grouping

Select *Administration* and then *Groups*. Groups can be added with Slave ID address (Group ID) and the names.



16.4.5. Users

Select *Administration* and *Users*.



16.4.6. Malfunctions

The ‘Malfunctions’ page shows a list of errors that may have occurred, a malfunction message is for an individual air conditioning unit not a group. Malfunctions will only appear if you have added a Modbus device for the air conditioning unit. For details of how to do this see the Procon M2M configuration section of the chapter - **Connecting to a G50/GB50/AG150 controller**.

17. Updating information with Procon M2M

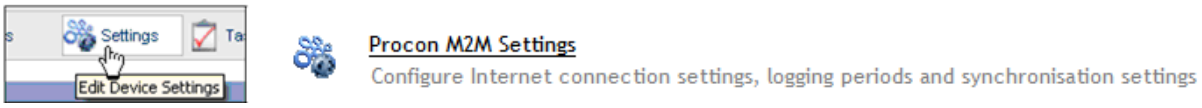
There are 3 ways of updating the data with the Procon M2M:

- Wait for the sync time to happen
- Press the sync button on the Procon M2M
- Click on the new Connect and Log button using the Engineering Portal

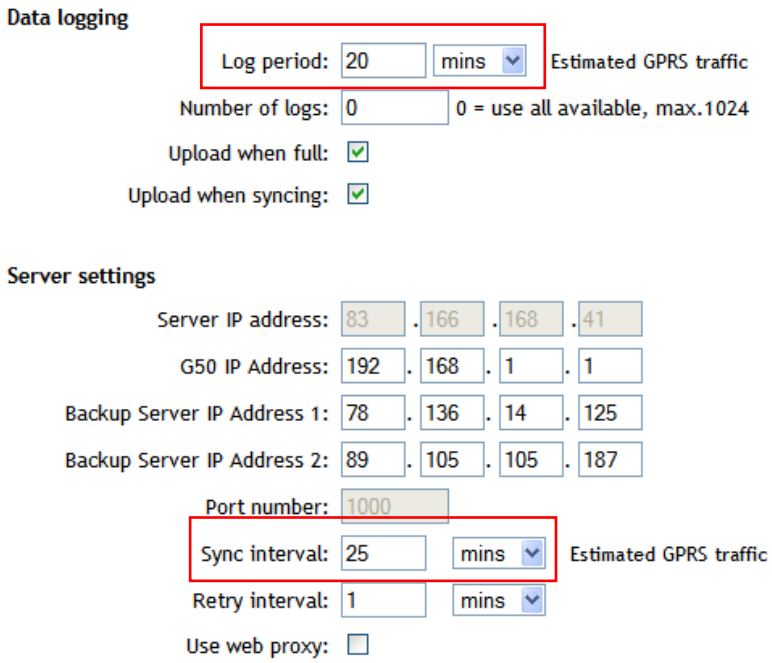
17.1. Waiting for the sync time to happen

The sync period is set using the Engineering Portal.

- Connect to http://m2m.mitsubishielectric.co.uk/ and log in to the M2M website using the Engineering Portal access
- Select the appropriate site, and the Procon M2M on the site, to display the Procon M2M status page
- On the toolbar click *Settings* and then select *Procon M2M Settings* from the settings page



Select the *Log period* and the *Sync interval*:



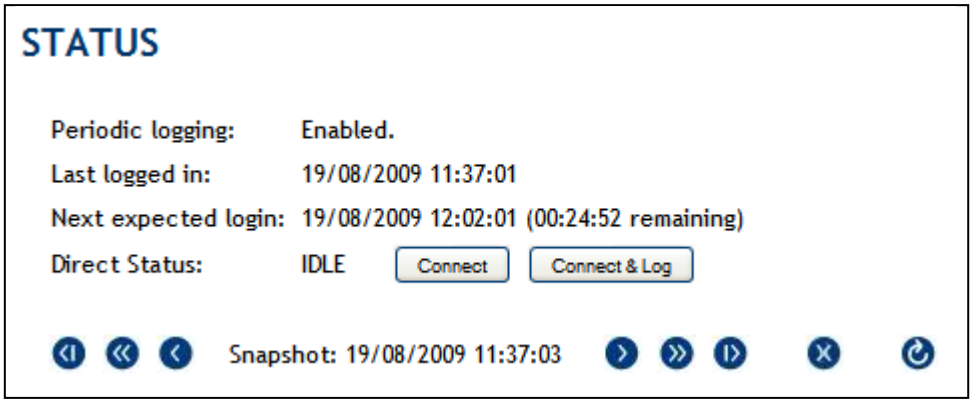
17.2. Press the sync button on the Procon M2M

The sync button on the Procon M2M will force an update between the Procon M2M and the M2M Server.

Press the Sync button, wait 1 minute and then click on the *Status* page to update the information on the Engineering Portal.

17.3. Click on "Connect and Log" using the Engineering Portal

A button is available on the Engineering Portal to force an update from the M2M Server.



Click on *Connect & Log* to update.

The Procon M2M Direct Status will show:

- IDLE then
- QUEUING then
- CONNECTING then
- CONNECTED_WAITING

This process will take no more than 30 seconds and will update the Status page automatically when the Direct Status is back to IDLE.

Note that the Procon M2M firmware may need an upgrade to activate this new function. If you do not see the Connect & Log option on your status page, that means an upgrade is required.

18. M2M diagnostics tool

The Procon M2M diagnostics tool allows direct connection with a PC to the Procon M2M for monitoring purposes.

18.1. Download

The Procon M2M Commissioning software is available on www.mitsubishi-aircon.co.uk.

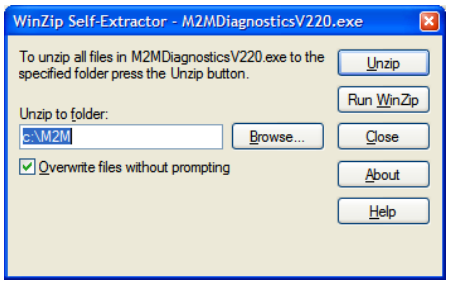
Select Tool and Resources, Download and M2M Commissioning Tools.

18.2. Installation

When the file has been downloaded:

- Double-click the file to extract the files for installation

You will be prompted to select a destination for the installer files:

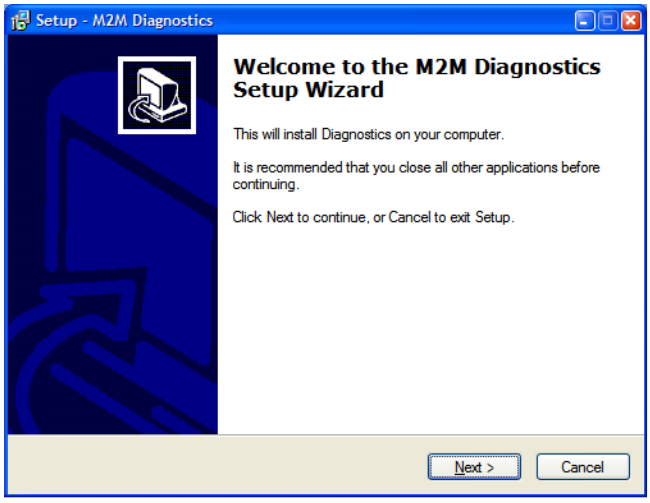


Click the Unzip button to extract to the default location c:\M2M, or click the Browse… button to select an alternative location.

To install the M2M Diagnostics application

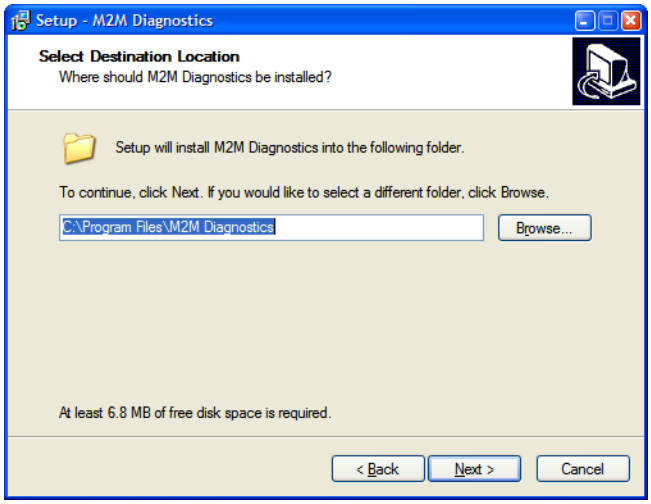
- Go to the location of the installer files, by default c:\M2M
- Run setup.exe

When the Welcome screen is displayed:



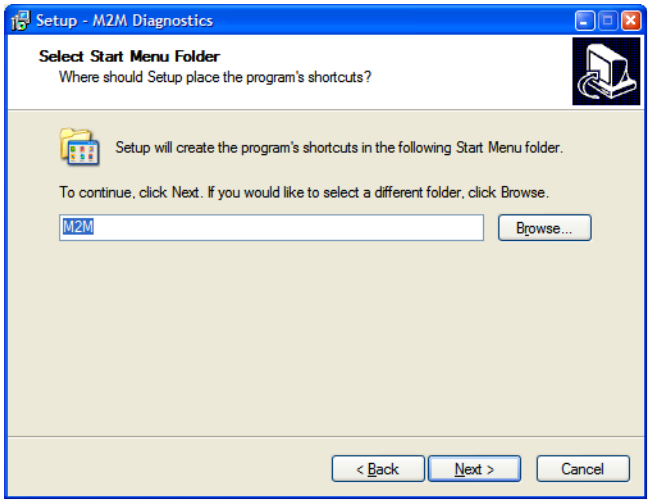
- Click the *Next* button to continue

You will be prompted to select the destination for the installed files:



Click the *Next* button to accept the default location, or click the Browse… button to select an alternative location.

The next screen allows you to specify the start menu folder for the program shortcut:



Click the Next button to accept the default folder, or click the Browse… button to choose an alternative folder.

- On the Ready to install screen click the *Install* button to proceed with the installation

Finally when the installation has been completed:

- *Click* the Finish button to exit from the Setup Wizard

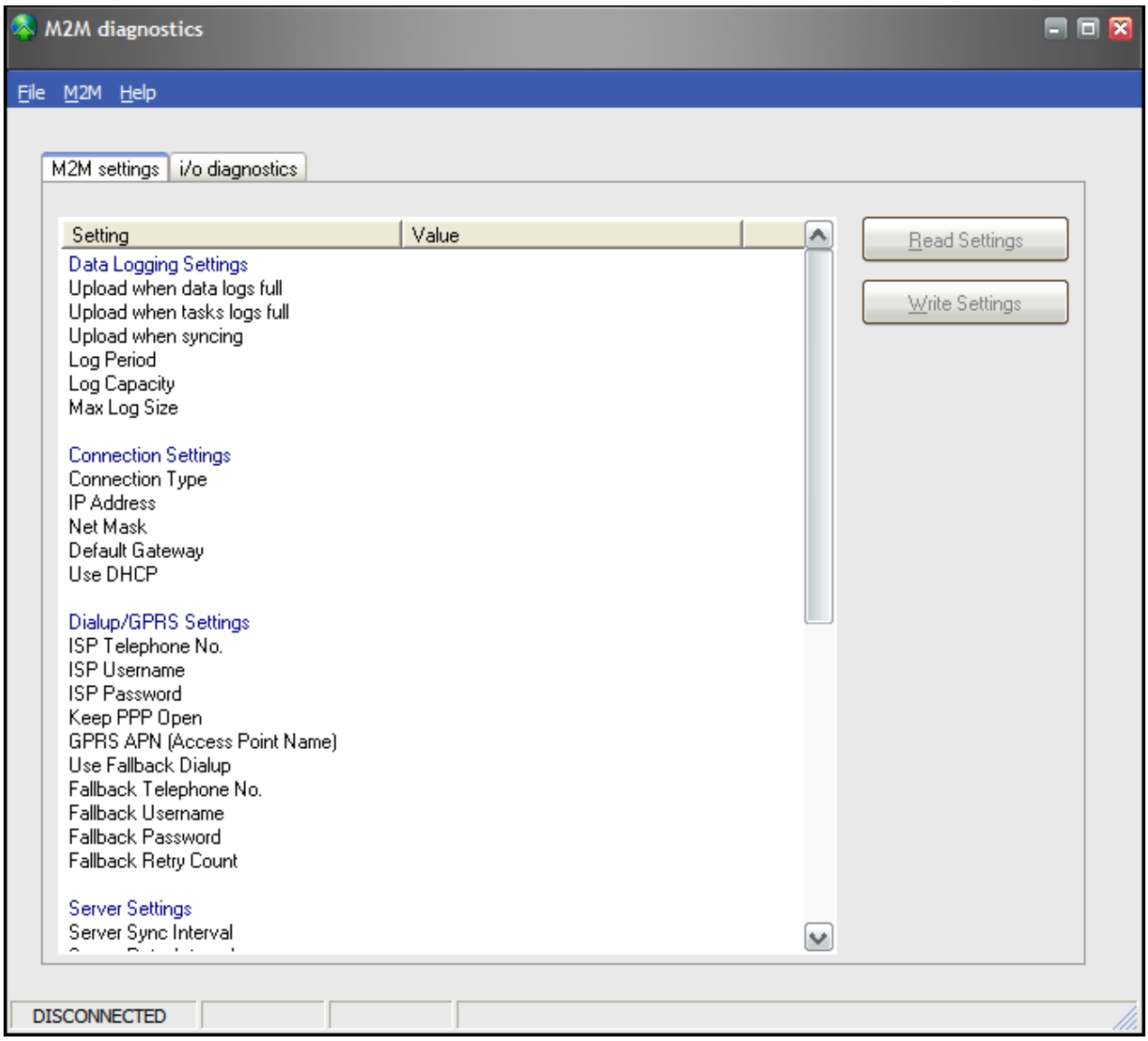
18.3. Running the M2M diagnostics tool

To run the M2M diagnostics tool

- Connect the Procon M2M to the PC using serial cable and the Procon USB port
- Open the Start menu, point to M2M, then click Mini diagnostics tool

The M2M diagnostics tool will be displayed.

The settings will automatically be read from the unit and displayed on the M2M settings panel:



Two tabs are available:

- M2M settings to read the Procon M2M settings
- i/o diagnostics to read inputs and write outputs

19. M2M renewal and data storage update

Find below the procedure:

- 90 days before the end of the contract, the customers registered on M2M will receive a warning Email saying that they have 90 days to renew their contract
- The warning Email will tell the customer to call our Spares and Warranty Department on 0870 3000 800 with the details requested i.e. the M2M serial number (SN******)
- The customer then calls the Spares and Warranty Department with the serial number as the reference
- The Spares and Warranty Department will send a fax form to fill in to renew the contract
- The contract is for one year (per M2M interface) and costs £175
- **No discounts are applicable**
- When the form has been filled in, the customer will fax it back to the Spares and Warranty Department with the order
- The M2M server will be updated within 3 working days of receiving the order
- Failure to renew the contract will result on the M2M **not** communicating to the M2M server anymore

In the fax form there is also the option of upgrading the M2M data storage from 15Mb (standard data storage) to 115Mb at a cost of £150 per year and per M2M interface.

20. M2M renewal and data storage update form

20.1. Page 1 of 2

MITSUBISHI ELECTRIC

MITSUBISHI ELECTRIC EUROPE
AIR CONDITIONING SYSTEMS
UK DIVISION
TRAVELLERS LANE
HATFIELD
HERTFORDSHIRE
AL10 8XB

M2M Renewal

This form can be used to renew the contract for the M2M server and the SIM card and / or upgrade the M2M server space.

Project information

Project Name	
Project Address	
Project Reference Number	
Clients Name	
Installer Company Name	
Installer Contact Details	
Mini or Maxi M2M	
M2M Serial Number (i.e. SNoooooo received with the Email from the server)	S N _ _ _ _ _ _

ITEM REQUESTED:

		Yes	No
One year M2M annual subscription (£175)	[SAP 229086]	☐	☐
Additional 100Mb M2M server space (£150)	[SAP 229097]	☐	☐

20.2. Page 2 of 2

The contract is for one year at a cost of £175 and includes:

- SIM card cost with a monthly allowance of 6Mb per month
- 15Mb data space on the M2M server

An additional 100Mb space can be purchased on the M2M server at a cost of £150 per year.

Note that NO discounts can be applied on those costs.

When the payment has been received the server will be updated within 3 working days.

Failure to complete and return this form will result in the cancellation of the communication between the M2M interface and the M2M server.

Please Fax. to Spare Parts Department on 0870 3000 333.

Signed: ……..…….…….…….. Date……..……..

Print Name: ……..……..……..

Company: ……..……..……...

MEU-UK Office Use Only	
Project Reference Number	
SAP Order Number	
Reference	

21. Applicable air conditioning models

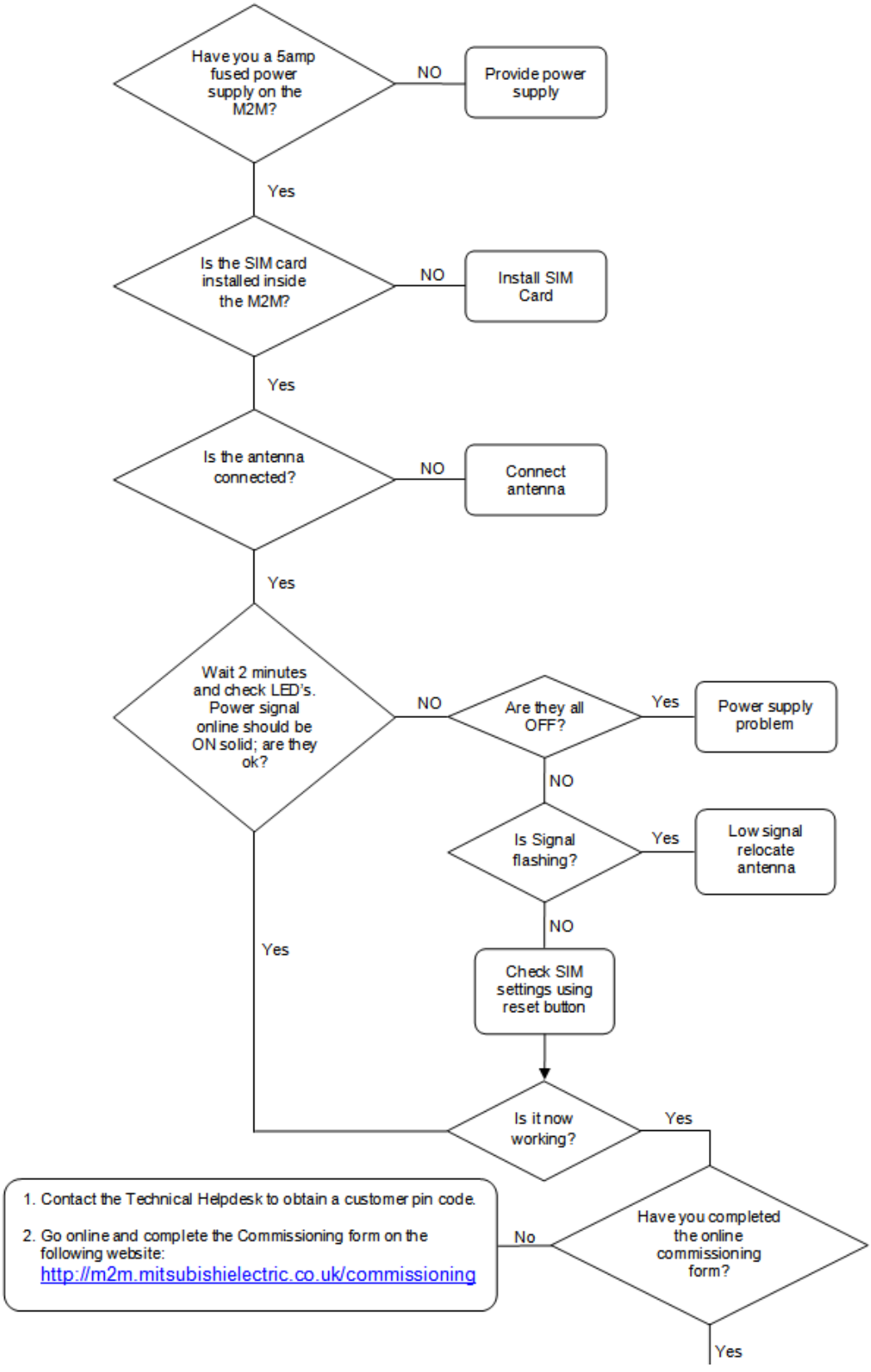
Below is a list of Air Conditioning models that can be connected to this unit using a GB50 / GB50ADA / G50 / AG150 controllers:

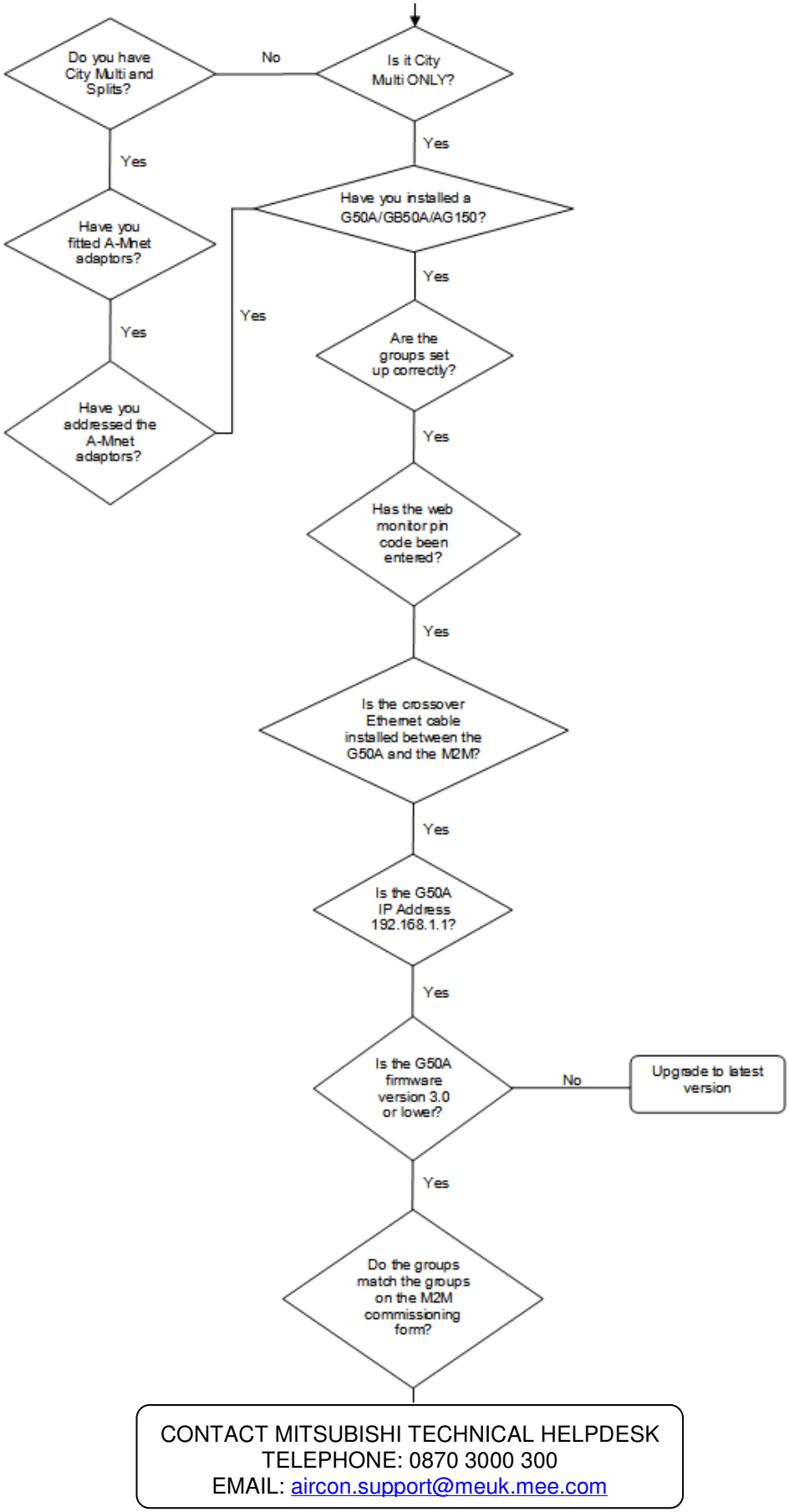
- M series product range with a MAC-399IF per indoor unit
- Mr Slim product range with a PAC-SF81MA per outdoor unit
- City Multi product range

22. Important notes

- The online form must be filled in before switching ON the Procon M2M at http://m2m.mitsubishielectric.co.uk/commissioning. The SIM card will then be activated within 3 working days
- Ensure there is sufficient GSM signal at the site of the Procon M2M
- The Vodafone SIM card included with the Procon M2M includes 6 Mb of data per month
- A third party SIM card can be used as long as the GRPS connection is activated and the Procon M2M is configured accordingly
- It is recommended to limit the number of variables monitored and controlled on the Engineering Portal Status page to limit the amount data sent and received on the SIM card
- It is also recommended to limit sync period to limit the amount data sent and received on the SIM card
- The Server data storage is 15Mb per year and can be upgraded to 115Mb at a yearly cost
- The Procon M2M is not compatible with PAYG (Pay As You Go) SIM card
- Any text messages sent from the Procon M2M is not included in the contract and will be charged separately
- The following PIN codes must be set:
  - G50: G50-WebMonitor
  - GB50: GB50-Basic
  - AG150: AG150-Basic
- The G50/GB50/AG150 groups must be set properly i.e. the lowest MNET address within the group **must** match the group number
- The supplied Ethernet cable must be used when connected the G50/GB50/AG150 directly to the M2M as it is a crossover cable
- The G50/GB50/AG150 must be set to 192.168.001.001 and the subnet mask must be set to 255.255.255.000
- The Procon Maxi M2M IP address is 192.168.001.002

23. Troubleshooting flow chart




Do you have City Multi and Splits?
No
Is it City Multi ONLY?
Yes
Yes
Have you installed a G50A/GB50A/AG150?
Have you fitted A-Mnet adaptors?
Yes
Yes
Yes
Are the groups set up correctly?
Have you addressed the A-Mnet adaptors?
Yes
Has the web monitor pin code been entered?
Yes
Is the crossover Ethernet cable installed between the G50A and the M2M?
Yes
Is the G50A IP Address 192.168.1.1?
Yes
Is the G50A firmware version 3.0 or lower?
No
Upgrade to latest version
Yes
Do the groups match the groups on the M2M commissioning form?
CONTACT MITSUBISHI TECHNICAL HELPDESK
TELEPHONE: 0870 3000 300
EMAIL: aircon.support@meuk.mee.com

24. Troubleshooting

This chapter gives suggested solutions to problems that users may encounter when accessing a Procon M2M via the Internet, using the Diagnostics application, or using the configurable I/O.

24.1. Problems connecting via GPRS

If the Procon M2M fails to connect to the server the Online indicator on the front panel will flash rapidly at 2Hz. In this case check the following:

- Ensure that the antenna is connected securely and is pointing upwards to maximise signal strength
- Ensure that the SIM card is installed firmly in place
- Ensure that GPRS has been enabled on the SIM card by your network provider
- Ensure that you have selected the correct mobile settings for your SIM card

If the GPRS signal strength is poor, the Procon M2M will fail to connect to the server. It will keep trying at regular intervals and communicate with the server once the GPRS signal strength returns to normal.

If the Procon M2M repeatedly fails to connect, try relocating the unit closer to a window or away from metalwork, which may shield the signal, or fit a larger external antenna.

24.2. Problems using the configurable inputs

If an input does not seem to be measuring correctly:

- Check the circuit connected to the input with a multimeter
- Check that the input is configured correctly for the appropriate sense circuit; see Configuring the inputs and outputs
- Check the polarity of the input if using 0-10V or 4-20mA.
- Use the Procon M2M Diagnostics application i/o diagnostics panel to give a dynamic display of the status of each input

If data is not being logged correctly from the input on the M2M website:

- Check that the input has been configured correctly on the M2M website and that logging has been enabled for the input; see Changing the website configuration
- Check that you have pressed the Sync button twice on the Procon M2M front panel to download the configuration of the input, and upload logged data to the Procon M2M server
- Check that you have refreshed the Procon M2M Status page on the M2M website to show the value of the input

This product is designed and intended for use in the residential, commercial and light-industrial environment.

The product at hand is based on the following EU regulations:

• Low Voltage Directive 73/23/EEC

• Electromagnetic Compatibility Directive 89/336/EEC

Please be sure to put the contact address/telephone number on this manual before handing it to the customer.

MITSUBISHI ELECTRIC UK

MITSUBISHI ELECTRIC UK, TRAVELLERS LANE, HATFIELD HERTFORDAHIRE, AL10 8XB

V3.0 Apr-11