

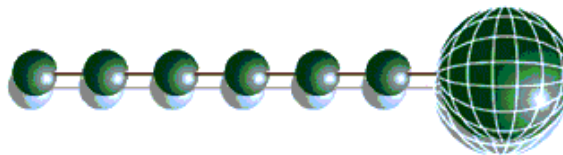
# Mercury 2 Monitor Installation Guide



**For Product: -  
PR0710-Mon**



Ensure that all power is  
switched off before  
installing or maintaining  
this product



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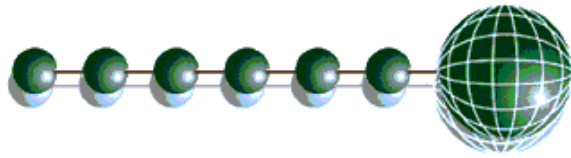
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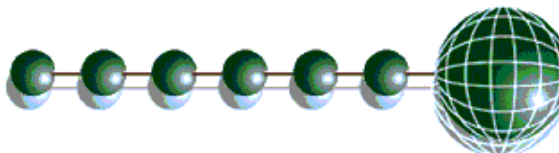
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## The Mercury 2 Range

From Resource Data Management

**This documentation refers to the 6 input monitor**

### Description

The Mercury 2 Monitor has three controller types embedded in one controller. Type one is a 6-channel temperature monitor with defrost inputs to inhibit alarms. Each input can be configured for temperature probe or plant fault (either N/C or N/O). Each channel can be independently configured for over and under temperature set points as well as alarm and recovery delays. The Monitor can also be configured as a temperature probe tester, where the monitor simply records the values without generating alarms. The third type of controller can be used for monitoring in low temperature applications with over and under temperature alarm limits for each channel. Channels can also be configured for plant faults (either N/C or N/O). The Monitor can operate stand-alone or be networked through either "legacy 485" or "IP" network modules.

The monitor supports PT1000 or NTC2000 or NTC2k25 or NTC10k temperature probes (note all 6 inputs are either PT1000 or NTC2000 or NTC2k25 or NTC10k)

Each input can be configured to have a temperature offset to compensate for long cable lengths.

### Configuration

The controller is delivered pre-configured as a Temperature Monitor (Type 1)

The controller gives three configuration options: - (see [set-up](#) for changing the type)

Display value	Type M
1	6 channel temperature or fault monitor
2	6 channel probe tester
3	6 channel Low temperature monitor

### Networks

The controllers are capable of connecting to either a TCP/IP local area network or a RS485 network or controlling in standalone mode with no network output.

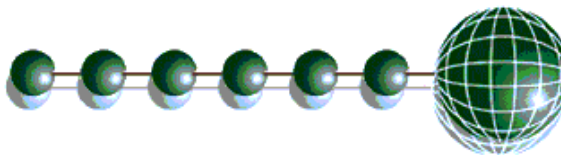
To connect to a network you must add the correct communications module.

- 485 Legacy module (Part No PR0026)
- IP Futura module (Part No PR0016)
- Mercury Hub (Part No. PR0018)
- Wireless Mesh Radio Interface (Part No. PR0730)

Connecting to either of these communication modules will automatically be detected on power up and this will affect the set up screens made available to you.



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### Front Panel Features

#### LED's: -

**Valve**  
(Not Used)



**Fans**  
(Not Used)



**Lights**  
(Not Used)



**Defrost**  
(Relay 2)



**On-Line**



- Off No network attached
- Flashing Attempting to Log on to network
- Steady On-line

**Service**  
(Not Used)



**Alarm**  
(Relay 1)



**HACCP**  
(Not Used)



#### Keys

Enter



Up



Down



Defrost



Note: Function keys illuminate when pressed, illumination is turned off 20 seconds after the key is used. Press and hold the defrost button to force a manual defrost

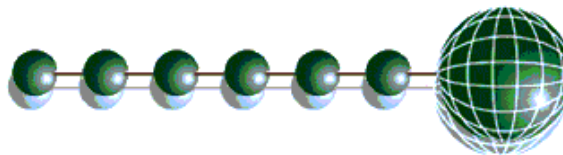
#### Main Display



4 character blue LED display, used to display Time and status information

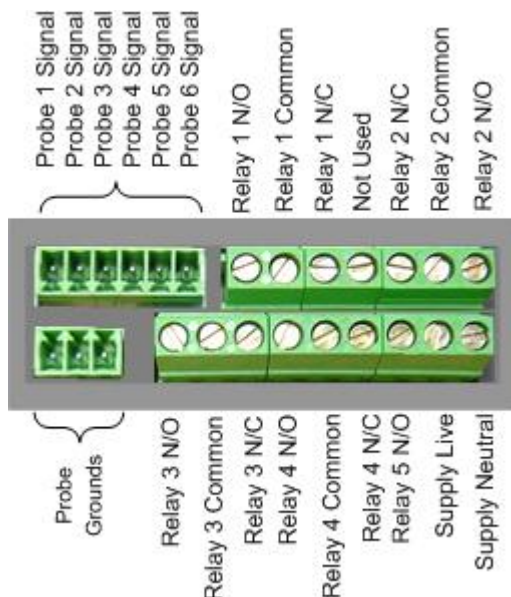


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## Connections

All connections are made to the back of the controller. The diagram below shows the connection detail. Inputs and outputs are assigned according to the chosen configuration. See [Specification](#) for further details on connections.



Note:

Suitable mechanical restraints on the wiring to the controller may be required; dependant on cable types, to prevent undue stress or distortion on the controller connectors.



**Do not connect an earth.**

## Input/Output Allocation Tables

### Type 1

Defrost states can be achieved by switching in a fixed value resistor in parallel with the probe inputs as shown in the table below.

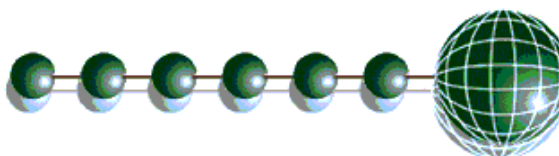
Monitor	Description	Alarm Action	(Switched Resistor)*
Probe 1	Probe 1 or Plant Fault 1	Yes	Defrost signal 1
Probe 2	Probe 2 or Plant Fault 2	Yes	Defrost signal 2
Probe 3	Probe 3 or Plant Fault 3	Yes	Defrost signal 3
Probe 4	Probe 4 or Plant Fault 4	Yes	Defrost signal 4
Probe 5	Probe 5 or Plant Fault 5	Yes	Defrost signal 5
Probe 6	Probe 6 or Plant Fault 6	Yes	Defrost signal 6
Relay 1	Alarm **	N/A	See : <a href="#">Relay Outputs</a> below
Relay 2	Any channel on Defrost	N/A	See : <a href="#">Relay Outputs</a> below
Relay 3	Remote relay 1	N/A	See : <a href="#">Relay Outputs</a> below
Relay 4	Remote relay 2	N/A	See : <a href="#">Relay Outputs</a> below
Relay 5	Remote relay 3	N/A	See : <a href="#">Relay Outputs</a> below

\* For PT1000 probes use 820 Ohm (see [Defrost Signal Resistors](#) section)  
 For NTC2000 and NTC2k25 probes use 590 Ohm  
 For NTC10k probes use 2k7 resistors

\*\* The alarm relay is energised for no alarm. Use the NC and Common for “Loop make” on alarm or use the NO and Common for “Loop break” on alarm



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### Relay Outputs

- Relay 1 (Alarm) : (Software) Outputs shows OK = Relay Energised
- Relay 2 (Defrost) : (Software) Outputs shows Off = Relay Energised
- Relay 3 (Remote) : (Software) Outputs shows Off = Relay Energised
- Relay 4 (Remote) : (Software) Outputs shows Off = Relay De-Energised
- Relay 5 (Remote) : (Software) Outputs shows Off = Relay De-Energised

### Type 2

Probe Tester	Description	Alarm Action	(Switched Resistor)*
Probe 1	Probe 1	N/A	N/A
Probe 2	Probe 2	N/A	N/A
Probe 3	Probe 3	N/A	N/A
Probe 4	Probe 4	N/A	N/A
Probe 5	Probe 5	N/A	N/A
Probe 6	Probe 6	N/A	N/A
Relay 1	Not Used	N/A	
Relay 2	Not Used	N/A	
Relay 3	Not Used	N/A	
Relay 4	Not Used	N/A	
Relay 5	Not Used	N/A	

### Type 3

LT Monitor	Description	Alarm Action	(Switched Resistor)*
Probe 1	Probe 1 or Plant Fault 1	Yes	N/A
Probe 2	Probe 2 or Plant Fault 2	Yes	N/A
Probe 3	Probe 3 or Plant Fault 3	Yes	N/A
Probe 4	Probe 4 or Plant Fault 4	Yes	N/A
Probe 5	Probe 5 or Plant Fault 5	Yes	N/A
Probe 6	Probe 6 or Plant Fault 6	Yes	N/A
Relay 1	Alarm *	N/A	See <a href="#">Relay States</a> below
Relay 2	Remote relay 1	N/A	See <a href="#">Relay States</a> below
Relay 3	Remote relay 2	N/A	See <a href="#">Relay States</a> below
Relay 4	Remote relay 3	N/A	See <a href="#">Relay States</a> below
Relay 5	Remote relay 4	N/A	See <a href="#">Relay States</a> below

\* The alarm relay is energised for no alarm. Use the NC and Common for “Loop make” on alarm or use the NO and Common for “Loop break” on alarm

### Relay States

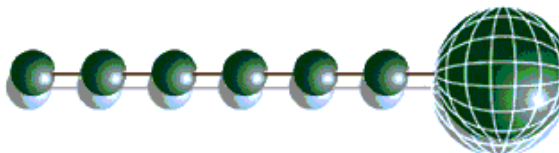
- Relay 1 (Alarm) : (Software) Outputs shows OK = Relay Energised
- Relays 2 to 4 : (Software) Outputs shows Off = Relay Energised
- Relay 5 : (Software) Outputs shows Off = Relay De-Energised

### Remote Relays

Relays outlined as “Remote relay” can be used as remote relays by the Data Builder and GP Timer. Refer to the appropriate guide for further information.



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Text strings for remote relay use: -

Relay	Use text string (Data Builder)	Gp Timer (General) Output Channel
1	Remote relay ?	0
2	Remote relay ?	1
3	Remote relay ?	2
4	Remote relay ?	3
5	Remote relay ?	4

Where “?” is determined by the controller type selected

### Setting up the controller

Access to the controller can be achieved several ways

- Through the front mounted buttons
- Direct access by PC or palm top into the rear comms port. This requires a software package available on the RDM website
- Through legacy front end panels on 485 networks
- Through the RDM Data Director or Data Manager.

### Set-up Mode

#### Set-up through front buttons



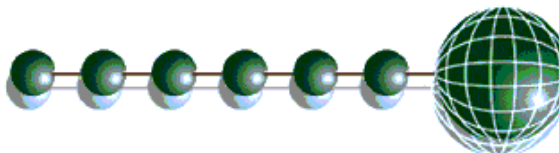
To enter set-up mode, hold the Enter and Down buttons together for approximately 3 seconds until the message “Ent” appears on the display. Now press the Enter button again to enter the function menu. IO will be displayed. Scroll up or down to go through the list.

#### Set-up Function Menu

Display	Option	Explained in Paragraph
IO	View Input/Output States	<a href="#">View Input/Output States</a>
PArA	Set/view Parameters	<a href="#">Set/view parameters</a>
Unit	Set Probe type and units ( °C or °F)	<a href="#">Set/view units</a>
TyPE	Set/View Controller Type	<a href="#">Set/view product type</a>
rtc	Set/view Clock (rtc = Real Time Clock)	<a href="#">Real Time Clock</a>
nEt	Set/view network configuration	<a href="#">Network Configuration</a>
SoFt	View software version	



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OFSt	Probe offset	<a href="#">Probe Offset</a>
inh1	Inhibit Channel 1*	<a href="#">Inhibit channel</a>
inh2	Inhibit Channel 2*	<a href="#">Inhibit channel</a>
inh3	Inhibit Channel 3*	<a href="#">Inhibit channel</a>
inh4	Inhibit Channel 4*	<a href="#">Inhibit channel</a>
inh5	Inhibit Channel 5*	<a href="#">Inhibit channel</a>
Inh6	Inhibit Channel 6*	<a href="#">Inhibit channel</a>
ESC	Escape back to normal operation	

\* Inhibit function available in type 2 only.

### Recommended set-up method

If you are not connecting to a network and want to set up the controller through the buttons we recommend you use the following order from the function menu.

#### rtc. Real time clock (This will automatically synchronise on network systems)

- Use the up or down buttons to scroll through the display until the display reads “rtc”
- Press enter. The display will show “t-1”. press enter again
- Scroll hours up or down (0 – 23) press enter
- Use up button to select “t-2”, press enter
- Scroll minutes up or down (0 – 59) press enter
- Repeat for t-3 (seconds 0 – 59)
- Repeat for t-4 (Days up to 31)
- Repeat for t-5 (months up to 12)
- Repeat for t-6 (Year up to 99)
- Use up button to display “ESC”, press enter to display “rtc”

Time clock is now set

#### type. Set/view controller type

- From the function menu scroll to select type, press enter
- Use the up/down buttons to scroll through monitor/tester configuration types. (see configuration table on page 4)
- Press enter.
- Scroll to select “ESC”
- Press enter

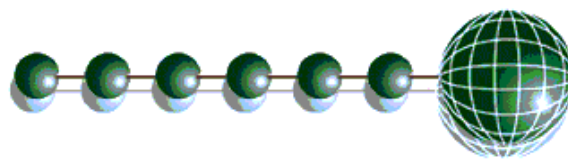
Controller type configuration is now set

#### PArA. Set/view parameters (This can be achieved at the network front end)

- From the function menu scroll to select PArA
- Pressing Enter while PArA is displayed will enter the parameter menu. The first parameter option will be displayed as P-01. Pressing the Up or Down button will present the other parameter options P-02, P-03 etc. See the parameter list below to find what parameter number corresponds to which actual parameter. Pressing the Enter button will show the current value of the selected parameter. Press Up or Down to modify the value and press Enter again to save the value. The parameter list number will be displayed again. Two other options are present in the parameter menu – dFLt and ESC. Selecting ESC will exit setup mode. Selecting dFLt will reset all parameters back to the default values for the current type of controller.



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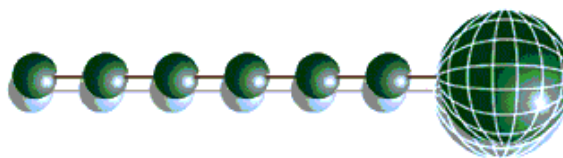
### Parameter Tables:

#### Parameter table for Monitor (Type 1)

Number	Parameter	Range	Step	Units	Default	Comments
P-01	Channel 1 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-02	C1 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-03	Channel 1 UT	-42 - 128°C	0.1	Deg	-2.0	Under temperature alarm
P-04	Channel 1 OT	-42 - 128°C	0.1	Deg	5.0	Over temperature alarm
P-05	C1 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-06	C1 Recovery	00:00 to 99:00	01:00	mm:ss	20:00	<a href="#">Defrost recovery period</a>
P-07	C1 Inhibit	00:00 to 99:00	01:00	mm:ss	30:00	<a href="#">Inhibit alarms</a>
P-08	Defrost Over-run	00:00 to 99:00	01:00	mm:ss	60:00	<a href="#">Defrost Over-run</a>
P-11	Channel 2 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-12	C2 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-13	Channel 2 UT	-42 - 128°C	0.1	Deg	-2.0	Under temperature alarm
P-14	Channel 2 OT	-42 - 128°C	0.1	Deg	5.0	Over temperature alarm
P-15	C2 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-16	C2 Recovery	00:00 to 99:00	01:00	mm:ss	20:00	<a href="#">Defrost recovery period</a>
P-17	C2 Inhibit	00:00 to 99:00	01:00	mm:ss	30:00	<a href="#">Inhibit alarms</a>
P-18	Defrost Over-run	00:00 to 99:00	01:00	mm:ss	60:00	<a href="#">Defrost Over-run</a>
P-21	Channel 3 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-22	C3 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-23	Channel 3 UT	-42 - 128°C	0.1	Deg	-2.0	Under temperature alarm
P-24	Channel 3 OT	-42 - 128°C	0.1	Deg	5.0	Over temperature alarm
P-25	C3 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-26	C3 Recovery	00:00 to 99:00	01:00	mm:ss	20:00	<a href="#">Defrost recovery period</a>
P-27	C3 Inhibit	00:00 to 99:00	01:00	mm:ss	30:00	<a href="#">Inhibit alarms</a>
P-28	Defrost Over-run	00:00 to 99:00	01:00	mm:ss	60:00	<a href="#">Defrost Over-run</a>
P-31	Channel 4 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-32	C4 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-33	Channel 4 UT	-42 - 128°C	0.1	Deg	-2.0	Under temperature alarm
P-34	Channel 4 OT	-42 - 128°C	0.1	Deg	5.0	Over temperature alarm
P-35	C4 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-36	C4 Recovery	00:00 to 99:00	01:00	mm:ss	20:00	<a href="#">Defrost recovery period</a>



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**Parameter table for Monitor (Type 1) Continued.....**

Number	Parameter	Range	Step	Units	Default	Comments
P-37	C4 Inhibit	00:00 to 99:00	01:00	mm:ss	30:00	<a href="#">Inhibit alarms</a>
P-38	Defrost Over-run	00:00 to 99:00	01:00	mm:ss	60:00	<a href="#">Defrost Over-run</a>
P-41	Channel 5 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-42	C5 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-43	Channel 5 UT	-42 - 128°C	0.1	Deg	-2.0	Under temperature alarm
P-44	Channel 5 OT	-42 - 128°C	0.1	Deg	5.0	Over temperature alarm
P-45	C5 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-46	C5 Recovery	00:00 to 99:00	01:00	mm:ss	20:00	<a href="#">Defrost recovery period</a>
P-47	C5 Inhibit	00:00 to 99:00	01:00	mm:ss	30:00	<a href="#">Inhibit alarms</a>
P-48	Defrost Over-run	00:00 to 99:00	01:00	mm:ss	60:00	<a href="#">Defrost Over-run</a>
P-51	Channel 6 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-52	C6 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-53	Channel 6 UT	-42 - 128°C	0.1	Deg	-2.0	Under temperature alarm
P-54	Channel 6 OT	-42 - 128°C	0.1	Deg	5.0	Over temperature alarm
P-55	C6 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-56	C6 Recovery	00:00 to 99:00	01:00	mm:ss	20:00	<a href="#">Defrost recovery period</a>
P-57	C6 Inhibit	00:00 to 99:00	01:00	mm:ss	30:00	<a href="#">Inhibit alarms</a>
P-58	Defrost Over-run	00:00 to 99:00	01:00	mm:ss	60:00	<a href="#">Defrost Over-run</a>

**Parameter table for Probe Tester (Type 2)**

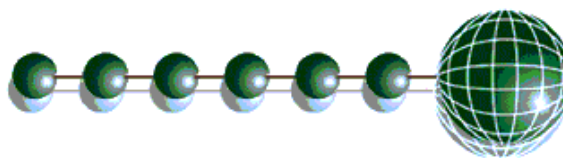
Number	Parameter	Range	Step	Units	Default
P-81	Channel 1 select	0 (Off), 1 (ON)			1
P-82	Channel 2 select	0 (Off), 1 (ON)			1
P-83	Channel 3 select	0 (Off), 1 (ON)			1
P-84	Channel 4 select	0 (Off), 1 (ON)			1
P-85	Channel 5 select	0 (Off), 1 (ON)			1
P-86	Channel 6 select	0 (Off), 1 (ON)			1

**Parameter table for Low Temperature Monitor (Type 3)**

Number	Parameter	Range	Step	Units	Default	Comments
P-01	Channel 1 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-02	C1 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-03	Channel 1 UT	-98 to 128°C	0.1	Deg	-2.0	Under temperature alarm
P-04	Channel 1 OT	-98 to 128°C	0.1	Deg	5.0	Over temperature alarm
P-05	C1 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-11	Channel 2 Select	0 (Off), 1 (Probe),			1	Channel not used Temperature probe



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		2 (Plant N/C), 3 (Plant N/O)				No 0 volt return = alarm 0 volt return = alarm
P-12	C2 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-13	Channel 2 UT	-98 to 128°C	0.1	Deg	-2.0	Under temperature alarm
P-14	Channel 2 OT	-98 to 128°C	0.1	Deg	5.0	Over temperature alarm
P-15	C2 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-21	Channel 3 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-22	C3 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-23	Channel 3 UT	-98 to 128°C	0.1	Deg	-2.0	Under temperature alarm
P-24	Channel 3 OT	-98 to 128°C	0.1	Deg	5.0	Over temperature alarm
P-25	C3 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-31	Channel 4 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-32	C4 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-33	Channel 4 UT	-98 to 128°C	0.1	Deg	-2.0	Under temperature alarm
P-34	Channel 4 OT	-98 to 128°C	0.1	Deg	5.0	Over temperature alarm
P-35	C4 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-41	Channel 5 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-42	C5 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-43	Channel 5 UT	-98 to 128°C	0.1	Deg	-2.0	Under temperature alarm
P-44	Channel 5 OT	-98 to 128°C	0.1	Deg	5.0	Over temperature alarm
P-45	C5 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
P-61	Channel 6 Select	0 (Off), 1 (Probe), 2 (Plant N/C), 3 (Plant N/O)			1	Channel not used Temperature probe No 0 volt return = alarm 0 volt return = alarm
P-62	C6 Slug Probe	0 (No), 1 (Yes)			0	Electronic slugging
P-63	Channel 6 UT	-98 to 128°C	0.1	Deg	-2.0	Under temperature alarm
P-64	Channel 6 OT	-98 to 128°C	0.1	Deg	5.0	Over temperature alarm
P-65	C6 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	Alarm delay period
dflt						Back to factory settings

### Units and Probe Type

Change the probe type to: -

**0** = PT1000 °C

**1** = PT1000 °F

**2** = NTC2K °C

**3** = NTC2K °F

**4** = NTC2k25 °C

**5** = NTC2k25 °F

**6** = NTC10k °C

**7** = NTC10k °F

Type 1 and 2

Range -42.0 to 128.0 °C

Range -43.6 to 262.4 °F

Range -42.0 to 128.0 °C

Range -43.6 to 262.4 °F

Range -42.0 to 128.0 °C

Range -43.6 to 262.4 °F

Range -42.0 to 128.0 °C

Range -43.6 to 262.4 °F

Type 3

Range -98.0 to 128.0 °C

Range 0 To 162.4 °F

Range -98.0 to 128.0 °C

Range 0 To 162.4 °F

Range -98.0 to 128.0 °C

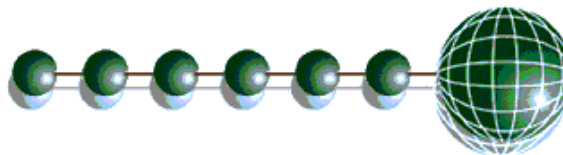
Range 0 To 162.4 °F

Range -98.0 to 128.0 °C

Range 0 To 162.4 °F



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## Network Configuration

The final section to set-up is the network address. In all instances, this must be done before the controller is plugged into the site network. The controllers have an auto-initialise function, which will automatically log the device onto the site network. If the wrong address has been entered onto the network, you will have to reset the controller address by setting the address to 00-0, and then re-enter the correct address. (You may have to deregister the wrong address from the home system as well).

To set the controller onto a network you must first connect the controller to a communications module. This is either a: -

- 485 Legacy, or
- RDM Wireless Mesh System
- IP Futura
- Mercury Switch (Hub)

### 485 Legacy module

- This product supports Genus compatible network protocol

Connecting a 485 legacy module to the controller will determine which set up screens are made available. Note: °F values are not supported on a RS485 network system.

Display	Option
485t	485 Network Type
485A	485 Address/Name
gAdd	Show underlying network address assigned to controller
rLog	Re-log the controller back onto the network
ClrA	Clear the address/name from the controller
ESC	Exit network menu. <b>N.B.</b> this option <b>must</b> be selected to save any changes made in this menu

The 485t option shows a value representing the network type. The possible values are:

Value	Network Type
1	Genus compatible (all versions)
2	RDM Wireless Mesh System (Wireless Mesh)

The 485A option shows a value representing either the name of the controller in a Genus compatible or Wireless Mesh network.

### Wireless Mesh Communication Module

RDM Wireless Mesh System

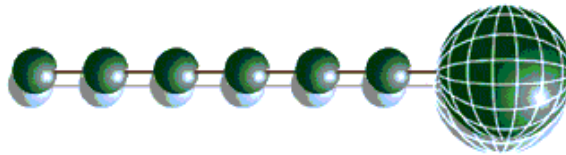
Please refer to the RDM Wireless Mesh Communication Module user guide, which can be obtained from the RDM website, for information regarding connecting a controller to a Wireless Mesh network.

The value shown is of the form 05-6. This means the controller would try to log onto a Genus compatible or RDM Wireless Mesh network using the name 'RC05-6'.

The following options are also available when the network type is set to Genus or Wireless Mesh compatible.



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## Mercury 2 Monitor – Installation Guide

The `gAdd` option displays (in hexadecimal format) the underlying network address assigned to the controller when it was logged onto the network.

The `rLog` option allows the controller to be logged back onto the network with its current name. The 'rLog' message will flash for confirmation. Press the Enter button to execute the command, Up or Down buttons to cancel.

### Fast Network Address Reset

The `ClrA` option will clear out the network address and name in the controller. The 'ClrA' message will flash for confirmation. Press the Enter button to execute the command, Up or Down buttons to cancel.

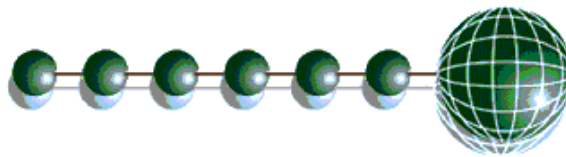
To enter this mode, hold the Enter, Up and Down buttons together for approximately 3 seconds until the message `ClrA` appears on the display. `ClrA` is the first option in the menu consisting of the following options:

Display	Option
ClrA	Clear the address/name from the controller
ESC	Exit Setup mode

Pressing the Enter button to select the `ClrA` option will cause the 'ClrA' message to flash for confirmation, if the network type is set to Genus compatible. Press the Enter button to execute the command, Up or Down buttons to cancel. If the network type is not set to Genus compatible then the `ClrA` message will not flash and the ESC option can be used to exit the menu.



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## IP Futura module

In an IP system there are two options

- IP-L
- IP-r

IP-L allows you to fix an IP address into the controller, which you would use when you are connecting the controllers onto a customer's local area network. This would allow the customer to view each controller using Internet Explorer

IP-r allows you to give each controller on the system a unique number. This number is then allocated a dynamic IP address by the system DHCP server (such as the RDM Data Director)

### IP-L

To configure the communication module for IP-L, set all three rotary switches to zero. The module should then be connected to the controller.

1. nEt. From the function menu you can now select nEt
  - Press enter and the display will show "IP-L", press enter
  - You can now set the address using the table below

Display	Option
IP-1	IP Address byte 1
IP-2	IP Address byte 2
IP-3	IP Address byte 3
IP-4	IP Address byte 4
nL	Network Mask Length
gt-1	Gateway Address byte 1
gt-2	Gateway Address byte 2
gt-3	Gateway Address byte 3
gt-4	Gateway Address byte 4
ESC	Exit network menu. <b>N.B.</b> this option <b>must</b> be selected to save any changes made in this menu

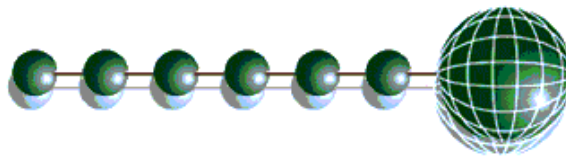
### IP-r

To configure the communication module for IP-r, set the three rotary switches to give each controller a unique identifier. The module should then be connected to the controller and the network.

The green network LED on the controller will flash until it has been logged on to the network. The Green network LED will remain permanently on while it is on-line.



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## Normal Operation

During normal operation, the controller will display the current time, if there are no alarms and no defrost actions. If there is a current alarm(s) the time will alternate with the alarm status. If the Monitor is on a network and on-line, the green network LED will be on.



## Defrost (Type 1 only)

If a defrost signal is received (switched resistor) the Monitor will indicate which channel is in the defrost state and the amber defrost LED will come on. All alarms on that channel will be inhibited during the time the resistor is switched in. Alarms will continue to be inhibited for the duration of the recovery period after the resistor is switched out. (Note: if the defrost over-run parameter is set to 00:00, the channel will remain in the defrost state until the resistor is removed).

When any channel is in a defrost state, the defrost relay is energised.

## Defrost Over-run (Type 1 only)

A defrost over-run period can be set into the monitor on a per channel basis, if the defrost exceeds this period, the channel will revert to normal operations. Setting this parameter to 00:00 inhibits this function.

## Faults

If a fault is detected, the Monitor will indicate the fault on the display and the red alarm LED will come

## Network

The Network green LED flashes if the controller goes off-line or loses its given address.

## Probe Offset

Each probe can be offset by up to  $\pm 10^{\circ}\text{C}$  to compensate for long cable runs.

## Inhibit Alarms (Type 1 only)

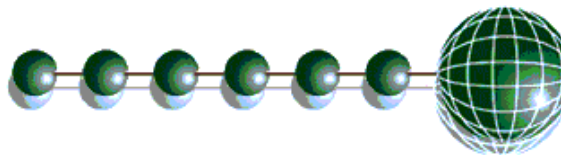
Probe alarms can be inhibited on a probe-by-probe basis by selecting the desired channel parameter in the set up mode and pressing "enter". This state can be changed back by repeating the above procedure. There is also a timeout function on the alarm inhibit (see parameter table for timeout values)

**Note.** If the channel temperature is **not** within the set alarm limits before the inhibit timeout has elapsed, the channel will stay inhibited and **not** give an alarm.

**--XXX Use this feature with caution XXX--**



Ensure that all power is switched off before installing or maintaining this product



### Alarm Relay Action:

The alarm relay has its' common, NO and NC contact available for use.

This relay will normally be energised (no alarm) and be de-energised when an alarm occurs (after the alarm delay time-out)

The table below shows the Alarm relay action

State	Alarm Delay	Alarm Relay
Probe Fault	Fixed 10 Seconds	✘
Channel Under temp	Variable (parameter)	✓
Channel Over temp	Variable (parameter)	✓
Plant Fault	Variable (parameter)	✓

### Viewing

Apart from setting up the controller, you can also view the status of the inputs and outputs.

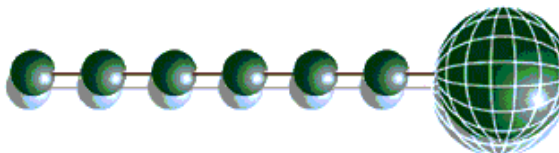
1. IO. View Inputs / Outputs and States
  - a. From the function menu, select "IO", press enter
  - b. You can now scroll through the IO tables as set out below. The tables you view will depend on the controller type configuration.

### Input/Output table for Monitor (Type 1)

Number	IO	Range	Step	Units
I-01	Probe 1	-42 to 128 °C	0.1	Deg
I-02	Probe 2	-42 to 128 °C	0.1	Deg
I-03	Probe 3	-42 to 128 °C	0.1	Deg
I-04	Probe 4	-42 to 128 °C	0.1	Deg
I-05	Probe 5	-42 to 128 °C	0.1	Deg
I-06	Probe 6	-42 to 128 °C	0.1	Deg
I-11	Defrost 1	0 (Off), 1 (On)		
I-12	Defrost 2	0 (Off), 1 (On)		
I-13	Defrost 3	0 (Off), 1 (On)		
I-14	Defrost 4	0 (Off), 1 (On)		
I-15	Defrost 5	0 (Off), 1 (On)		
I-16	Defrost 6	0 (Off), 1 (On)		
I-21	Plant Fault 1	0 (Ok), 1 (Alarm)		
I-22	Plant Fault 2	0 (Ok), 1 (Alarm)		
I-23	Plant Fault 3	0 (Ok), 1 (Alarm)		
I-24	Plant Fault 4	0 (Ok), 1 (Alarm)		
I-25	Plant Fault 5	0 (Ok), 1 (Alarm)		
I-26	Plant Fault 6	0 (Ok), 1 (Alarm)		
O-01	Alarm Relay	0 (Ok), 1 (Alarm)		
O-11	Defrost Relay	0 (Off), 1 (On)		
O-21	Relay 3	0 (Off), 1 (On)		
O-22	Relay 4	0 (Off), 1 (On)		
O-23	Relay 5	0 (Off), 1 (On)		



Ensure that all power is switched off before installing or maintaining this product

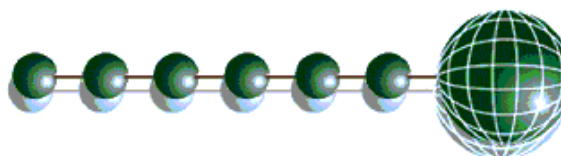


Input/Output table for Monitor (Type 1) cont.....

Number	IO	Range
S-01	Control State 1	0 (Off) 1 (Stabilise), 2 (Normal), 3 (Defrost), 4 (Recovery), 5 (Alarm), 6 (Inhibit)
S-02	Control State 2	0 (Off) 1 (Stabilise), 2 (Normal), 3 (Defrost), 4 (Recovery), 5 (Alarm), 6 (Inhibit)
S-03	Control State 3	0 (Off) 1 (Stabilise), 2 (Normal), 3 (Defrost), 4 (Recovery), 5 (Alarm), 6 (Inhibit)
S-04	Control State 4	0 (Off) 1 (Stabilise), 2 (Normal), 3 (Defrost), 4 (Recovery), 5 (Alarm), 6 (Inhibit)
S-05	Control State 5	0 (Off) 1 (Stabilise), 2 (Normal), 3 (Defrost), 4 (Recovery), 5 (Alarm), 6 (Inhibit)
S-06	Control State 6	0 (Off) 1 (Stabilise), 2 (Normal), 3 (Defrost), 4 (Recovery), 5 (Alarm), 6 (Inhibit)



Ensure that all power is switched off before installing or maintaining this product



### Input/Output table for Probe Tester (Type 2)

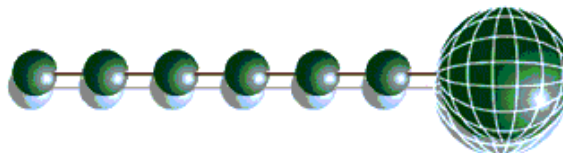
Number	IO	Range	Step	Units
I-01	Probe 1	-42 to 128 °C	0.1	Deg
I-02	Probe 2	-42 to 128 °C	0.1	Deg
I-03	Probe 3	-42 to 128 °C	0.1	Deg
I-04	Probe 4	-42 to 128 °C	0.1	Deg
I-05	Probe 5	-42 to 128 °C	0.1	Deg
I-06	Probe 6	-42 to 128 °C	0.1	Deg

### Input/Output table for Low temperature Monitor (Type 3)

Number	IO	Range	Step	Units
I-01	Probe 1	-98 to 120 °C	0.1	Deg
I-02	Probe 2	-98 to 120 °C	0.1	Deg
I-03	Probe 3	-98 to 120 °C	0.1	Deg
I-04	Probe 4	-98 to 120 °C	0.1	Deg
I-05	Probe 5	-98 to 120 °C	0.1	Deg
I-06	Probe 6	-98 to 120 °C	0.1	Deg
I-21	Plant Fault 1	0 (Ok), 1 (Alarm)		
I-22	Plant Fault 2	0 (Ok), 1 (Alarm)		
I-23	Plant Fault 3	0 (Ok), 1 (Alarm)		
I-24	Plant Fault 4	0 (Ok), 1 (Alarm)		
I-25	Plant Fault 5	0 (Ok), 1 (Alarm)		
I-26	Plant Fault 6	0 (Ok), 1 (Alarm)		
O-01	Alarm Relay	0 (Ok), 1 (Alarm)		
O-21	Relay 3	0 (Off), 1 (On)		
O-22	Relay 4	0 (Off), 1 (On)		
O-23	Relay 5	0 (Off), 1 (On)		
S-01 To S-06	Control State	0 (Off) 1 (Stabilise), 2 (Normal), 3 (Alarm)		



Ensure that all power is switched off before installing or maintaining this product



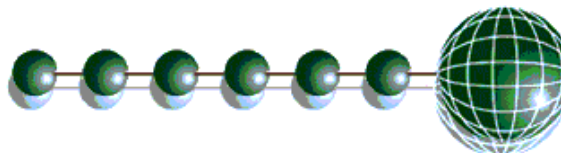
## Display Messages

The following messages can appear on the Mercury display.

Display	System status
on	Controller On
Prb1	Probe 1 Fault
Prb2	Probe 2 Fault
Prb3	Probe 3 Fault
Prb4	Probe 4 Fault
Prb5	Probe 5 Fault
Prb6	Probe 6 Fault
Pd 1	Control State in Recovery
Pd 2	Control State in Recovery
Pd 3	Control State in Recovery
Pd 4	Control State in Recovery
Pd 5	Control State in Recovery
Pd 6	Control State in Recovery
deF1	Control Sate in Defrost
deF2	Control Sate in Defrost
deF3	Control Sate in Defrost
deF4	Control Sate in Defrost
deF5	Control Sate in Defrost
deF6	Control Sate in Defrost
Inh1	Inhibit alarms for probe 1
Inh2	Inhibit alarms for probe 2
Inh3	Inhibit alarms for probe 3
Inh4	Inhibit alarms for probe 4
Inh5	Inhibit alarms for probe 5
Inh6	Inhibit alarms for probe 6
Ot 1	Over Temperature Alarm probe 1
Ot 2	Over Temperature Alarm probe 2
Ot 3	Over Temperature Alarm probe 3
Ot 4	Over Temperature Alarm probe 4
Ot 5	Over Temperature Alarm probe 5
Ot 6	Over Temperature Alarm probe 6
Ut 1	Under Temperature Alarm probe 1
Ut 2	Under Temperature Alarm probe 2
Ut 3	Under Temperature Alarm probe 3
Ut 4	Under Temperature Alarm probe 4
Ut 5	Under Temperature Alarm probe 5
Ut 6	Under Temperature Alarm probe 6
PLt1	Plant fault 1
PLt2	Plant fault 2
PLt3	Plant fault 3
PLt4	Plant fault 4
PLt5	Plant fault 5
PLt6	Plant fault 6



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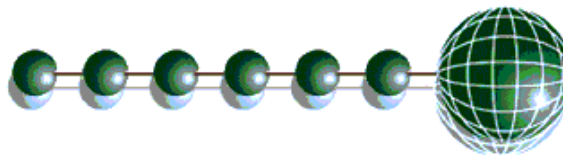
## Network Alarms

The table below shows the text and associated type number that is sent to the system “front end”. The type number is normally used to provide different alarm actions.

Alarm text	Type
Probe 1 Faulty	6
Probe 2 Faulty	8
Probe 3 Faulty	11
Probe 4 Faulty	14
Probe 5 Faulty	17
Probe 6 Faulty	6
Channel 1 over temperature	4
Channel 2 over temperature	9
Channel 3 over temperature	12
Channel 4 over temperature	15
Channel 5 over temperature	18
Channel 6 over temperature	4
Channel 1 under temperature	5
Channel 2 under temperature	10
Channel 3 under temperature	13
Channel 4 under temperature	16
Channel 5 under temperature	19
Channel 6 under temperature	5
Plant 1 Fault	6
Plant 2 Fault	8
Plant 3 Fault	11
Plant 4 Fault	14
Plant 5 Fault	17
Plant 6 Fault	6
Channel 1 defrost overrun	20
Channel 2 defrost overrun	20
Channel 3 defrost overrun	20
Channel 4 defrost overrun	20
Channel 5 defrost overrun	20
Channel 6 defrost overrun	20



Ensure that all power is switched off before installing or maintaining this product



## Specification

### General

#### Power requirements:

Supply Voltage Range:	100 – 240 Vac $\pm$ 10%
Supply Frequency:	50 – 60 Hz
Maximum supply current:	5.2 Amps (when relay 5 is fully loaded)
Typical supply current:	<1 Amp
Operating temperature range:	+5°C to +50°C
Operating Humidity:	80% maximum
Storage temperature range:	-20°C to +65°C
Environmental:	Indoor use at altitudes up to 2000m, Pollution Degree 1, Installation Category II. Voltage fluctuations not to exceed $\pm$ 10% of nominal voltage
Size:	78mm (W) x 36mm (H) x 110mm (D)
Approx Weight:	170 Grams
Safety:	EN61010
EMC:	EN61326; 1997 +Amdt. A1; 1998
Ventilation:	There is no requirement for forced cooling ventilation
Class 2 Insulation:	<b>No</b> protective Earth is required and <b>none</b> should be fitted.

The host equipment must provide a suitable external over-current protection device such as: -

Fuse:	6.3A 240 Vac Antisurge (T) HRC conforming to IEC 60127
Or MCB:	6A, 240 VAC Type C conforming to BS EN 60898

The host equipment must provide adequate protection against contact to hazardous live parts.

### Relays

Max current relay 1:	6A (non inductive) $\text{COS}\phi=0.4$ 2A (inductive load) 200,000 operations
Max Voltage relay 1:	250Vac, 30V dc
Exclusive common	
Max current relay 2:	6A (non inductive) $\text{COS}\phi=0.4$ 2A (inductive load) 200,000 operations
Max Voltage relay 2:	250Vac , 30V dc
Exclusive common	
Max current relay 3:	6A (non inductive) $\text{COS}\phi=0.4$ 2A (inductive load) 200,000 operations
Max Voltage relay 3:	250Vac , 30V dc
Exclusive common	
Max current relay 4:	6A (non inductive) $\text{COS}\phi=0.4$ 2A (inductive load) 200,000 operations
Max Voltage relay 4:	250Vac , 30V dc
Exclusive common	
Max current relay 5:	3A (non inductive) $\text{COS}\phi=0.4$ 2A (inductive load) 200,000 operations
Max Voltage relay 5:	250Vac (Internal supply)
Common connected to Supply Live	

For compliance with the LVD, relays 3, 4 and 5 commons must be at the same potential as the supply voltage.

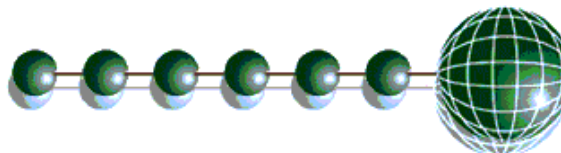


#### Warning:

Relay 5 output has hazardous voltages (Supply input voltage potential).



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## Mercury 2 Monitor – Installation Guide

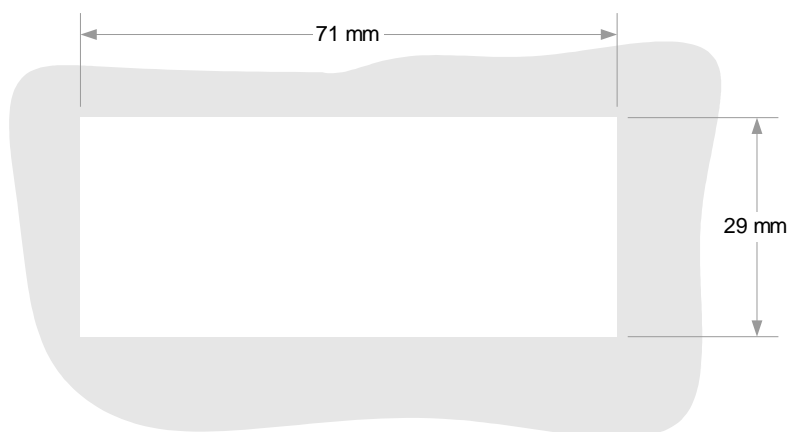
### Inputs:

Input resistance: 3.01K Ohms (for PTC or NTC type probes)  
Input type: PT1000 (820 Ohm resistor for defrost input)  
NTC2000 (590 Ohm resistor for defrost inputs)  
NTC2k25 (590 Ohm resistor for defrost inputs)  
NTC10k (2k7 Ohm resistor for defrost inputs)

Comms: RS232 with flow control

### Installation:

#### Panel Cut-out:



The Mercury 2 fascia is 78mm x 36mm and is central around the cut-out.

#### Fixing:

The controller is fixed by sliding the 2 plastic retaining clips up to rear of the panel. These clips have a ratchet action and can be removed by holding in the clip sides and sliding back.

#### Clearances:

Space required behind the panel: 120mm + space for cable bends

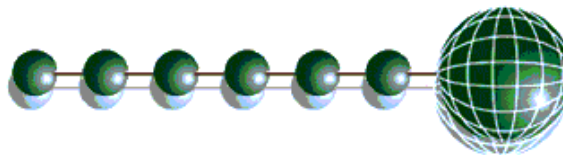
Space required behind the panel on the right hand side (looking from the front): 30mm + bend radius for a Cat5 patch lead

Space required behind the panel on the left hand side (looking from the front): 20mm

There is no requirement for forced cooling ventilation

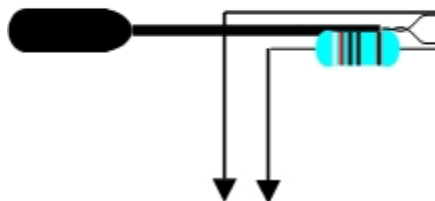


Ensure that all power is switched off before installing or maintaining this product



### Defrost Signal Resistors:

Example of 820-Ohm resistor



Signals to a defrost switch or relay

### Fuse:

The host equipment must provide a suitable external over-current protection device such as: -

Fuse: 6.3A 240 Vac Antisurge (T) HRC conforming to IEC 60127  
Or MCB: 6A, 240 VAC Type C conforming to BS EN 60898

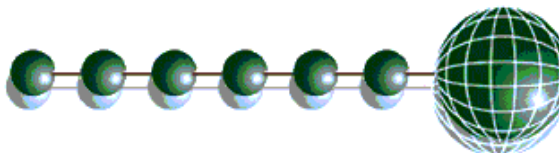
### Cleaning:

Do not wet the controller when cleaning. Clean the front by wiping with slightly dampened lint free cloth.

**Please note: The specifications of the product detailed on this set up guide may change without notice. RDM Ltd shall not be liable for errors or for incidental or consequential damages, directly or indirectly, in connection with the furnishing, performance or misuse of this product or document.**



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## Revision History

Revision	Date	Changes	Comments
1.0	07/05/2007	1 <sup>st</sup> Issue	
1.1	08/05/2007	Relay 2 connections corrected, part number changed from PR0714 to PR0710-Mon, Alarm relay changed to relay 1. Additional IO tables added for LT and Probe tester.	
1.5	29/07/2009	Parameter on type 3 changed and revision harmonised with software.	
1.6	18/09/2009	Technical specification amended	
1.6A	14/01/2010	Technical specification amended	
1.6B	05/07/2010	RDM Wireless Mesh Network added	
1.6C	10/08/2010	Input/Output allocation table amended	



Ensure that all power is switched off before installing or maintaining this product