

Resource  
Data Management

# Intuitive Mercury Four Section Controller

Commissioning/User Guide  
Revision 3.0a



PR07XX FOUR

## Contents

Contents .....	2
The Intuitive Mercury Range.....	4
Description .....	4
Hardware Variants.....	4
Configuration .....	4
Compatible Network Interfaces.....	5
Front Display Features.....	5
Intuitive Mercury I/O Connections .....	6
Intuitive Mercury Network Expansion Options .....	6
Input and Output Allocation Tables .....	7
Input / Output allocation table .....	7
Switched Resistor Values.....	7
Switched Resistor Example Wiring .....	8
Setting up the controller .....	8
Setup through front buttons .....	8
Setup Function Menu (Common to all types).....	8
Recommended set-up method .....	9
rtc. Real time clock (This will automatically synchronise on network systems).....	9
type. Set/ view controller type .....	9
PARA. Set/ view parameters.....	9
Unit. Set/ view temperature unit and Probe type .....	9
Display .....	10
Parameter Tables.....	10
Parameter Descriptions .....	12
Relay State and functional operation .....	14
Network Configuration.....	14
RS485 Legacy module / Intuitive Internal RS485 Network card .....	14
IP Futura module / Intuitive Internal IP Network card .....	15
Mercury Switch .....	16
Viewing I/O.....	16
Input / Output Table.....	16
Display Messages.....	18
Network Alarms.....	18
Modifying controller states .....	18
Defrost "dEF" .....	18
Fans Only "FAnS" .....	18
Case Off "CASE" .....	19
Lights Only "Ligt" .....	19
Probe Offset "OFSt".....	19
Operation .....	19
Display Operation.....	19
Remote Commands.....	20



Please ensure all power is switched off before installing or maintaining this product.

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Specification .....	21
Power requirements.....	21
General.....	21
Relay Specification .....	21
Installation / Dimensions .....	22
Intuitive Mercury controller .....	22
Intuitive Mercury Mounting Instructions .....	22
Cleaning.....	22
Disclaimer.....	22
Appendix 1 : Webpage Appearance .....	23
Appendix 2 Defrost Cycles.....	30
Revision History .....	31



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# The Intuitive Mercury Range

From Resource Data Management

## Description

This controller is for use with up to 4 refrigeration sections. Each section has an individual air off probe, where the temperatures from the sections can be averaged, or the highest value taken, to then control an LLV or compressor.

It has 6 different controller types to accommodate various display cases such as HT/LT piped, integrals and cold-rooms. The controller uses the Mercury Intuitive hardware which operates the LLV using an electro-mechanical relay and is therefore not suitable for use with EEV operations.

The Intuitive Mercury range is designed to be used in a control panel or electrical tray with the benefits of having higher rated relays, each of which can be protected by an optional integral fuse and fuse protection for the incoming power supply. All connections are plug in socket. There are multiple network interfaces to choose from including Ethernet.

The controller supports PT1000, NTC2K, 470R, 700R, 3K, 5K, 6K, NTC2K25 or NTC10K temperature probes (note: probe types cannot be mixed). The use of switched resistors further increases the IO by adding Plant faults, Door switch, Entrapment and case clean digital inputs.

## Hardware Variants

Description	Part Number
Intuitive Mercury Four Section Controller, internal display, fused with 3 probe daughter card	PR0750-FOUR-3P
Intuitive Mercury Four Section Controller, remote display, fused with 3 probe daughter card	PR0760-FOUR-3P
Intuitive Mercury Four Section Controller, internal display, IP, fused with 3 probe daughter card	PR0750-IP-FOUR-3P
Intuitive Mercury Four Section Controller, remote display, IP, fused with 3 probe daughter card	PR0760-IP-FOUR-3P
Intuitive Mercury Four Section Controller, internal display, non-fused with 3 probe daughter card	PR0750-NF-FOUR-3P
Intuitive Mercury Four Section Controller, remote display, non-fused with 3 probe daughter card	PR0760-NF-FOUR-3P
Intuitive Mercury Four Section Controller, internal display, IP, non-fused with 3 probe daughter card	PR0750-NF-IP-FOUR-3P
Intuitive Mercury Four Section Controller, remote display, IP, non-fused with 3 probe daughter card	PR0760-NF-IP-FOUR-3P

## Configuration

The controller gives you up to six configuration options;

Display value	Configuration Type
1	4 Section Integral controller HT
2	4 Section Integral controller LT
3	4 Section Remote piped case controller HT
4	4 Section Remote piped case controller LT
5	4 Section Coldroom controller HT
6	4 Section Coldroom controller LT

The controllers are delivered pre-configured as 4 Section Integral controller HT (Type 1).



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## Compatible Network Interfaces

The Intuitive Mercury controllers are capable of connecting to either a TCP/IP local area network, an RS485 Genus compatible network or they can be used in standalone mode with no network output. To connect to a network you must add the correct communications module or network card. Connecting to any of these communication modules will automatically be detected on power up and will affect the set up screens available to you.





Description	Part Number
IP Futura (Single Mercury to IP Interface)	PR0016
RS485 Interface (Single Mercury to RS485 Interface)	PR0026
Mercury IP Switch (IP support for 10 controllers)	PR0018
Mercury IP Switch with Pressure/ Humidity Inputs	PR0018-PHI
Bluetooth RS232 Network Module	PR0630

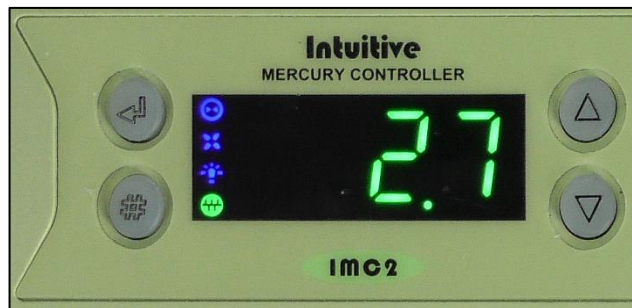
The Intuitive Mercury Controller is supplied as standard with an internal RS232 network card, this allows connection to any of the above external network interfaces. Alternative internal network cards are also available, these can be supplied factory fitted as an option or purchased separately as an interface kit.

Description	Part Number
Intuitive Internal IP Network Card Interface Kit	PR0770
Intuitive Internal RS485 Network Card Interface Kit	PR0771

## Front Display Features

LED's: -

- Valve Icon 
- Fans Icon 
- Lights Icon 
- Defrost Icon 
- On-Line 
- Service 
- Alarm 
- HACCP 



- Keys
-  Enter
  -  Up
  -  Down
  -  Defrost

**Note:** Function keys illuminate when pressed, illumination is turned off 20 seconds after the key is used.

**Defrost:** Press and hold the defrost button to force a manual defrost

Main Display

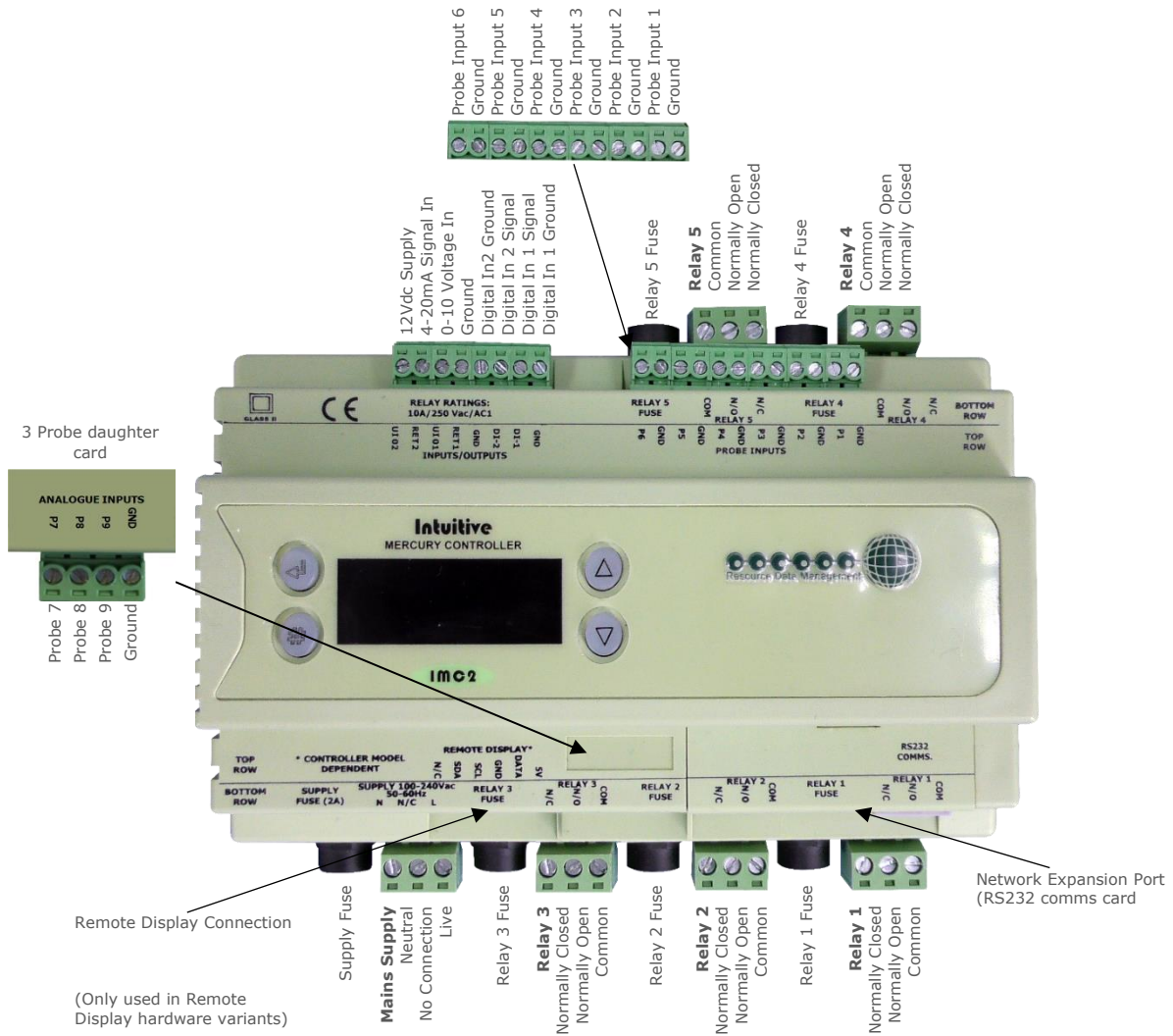


4 character LED display, used to display a value.



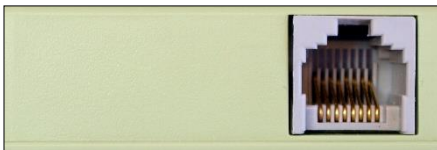
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## Intuitive Mercury I/O Connections



## Intuitive Mercury Network Expansion Options

### RS232 Network Card (Default)



The Intuitive Mercury is supplied with an RS232 Network Card fitted as standard.

### IP Network Card (PR0770)



Rotary Address Switches  
Network Collision LED  
Network Activity LED

### RS485 Network Card (PR0771)



Ground B- Ground A+ Screen  
Network Activity LED



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## Input and Output Allocation Tables

The following tables indicate, on a controller type basis, the functions of the inputs and outputs. Also shown are the digital inputs that are derived by switching in a fixed value resistor across the input (see [switched resistor values](#) for more details).

### Input / Output allocation table

TYPE	Integral Case Types 1&2	Remote Case Types 3&4	Coldroom Controller Types 5&6	Alarm Action	Plant Input (Switched Resistors)
Input 1	Air off Section 1	Air off Section 1	Air off Section 1	Yes	
Input 2	Air off Section 2	Air off Section 2	Air off Section 2	Yes	Man Trap (Types 5 & 6)
Input 3	Air off Section 3	Air off Section 3	Air off Section 3	Yes	Plant fault 1
Input 4	Air off Section 4	Air off Section 4	Air off Section 4	Yes	Case Clean
Input 5	Monitoring Probe	Monitoring Probe	Monitoring Probe	No	Plant fault 2 (Types 3 & 4) Door Switch (Types 5 & 6)
Input 6	Defrost Section 1	Defrost Section 1	Defrost Section 1	No	
Input 7	Defrost Section 2	Defrost Section 2	Defrost Section 2	No	
Input 8	Defrost Section 3	Defrost Section 3	Defrost Section 3	No	
Input 9	Defrost Section 4	Defrost Section 4	Defrost Section 4	No	
Relay 1	Compressor (N/C)	Liquid Line Valve (N/C)	Liquid Line Valve (N/C)	N/A	
Relay 2	Fans (N/C)	Fans (N/C)	Fans (N/C)	N/A	
Relay 3	Lights / Alarm (N/C)	Lights / Alarm (N/C)	Lights / Alarm (N/C)	N/A	
Relay 4	Remote (N/O) / Alarm (N/C) / Trims (N/O)	Remote (N/O) / Alarm (N/C) / Trims (N/O)	Remote (N/O) / Alarm (N/C)	N/A	
Relay 5	Defrost (N/O)	Defrost (N/O)	Defrost (N/O)	N/A	

### Switched Resistor Values

For PT1000 probes use 820 Ohm switched resistors.

For NTC2K, NTC2K25 and 3K probes use 590 Ohm switched resistors.

For 5K and 6K use 1K Ohm switched resistors.

For NTC10K probes use 2k7 Ohm switched resistors.

The resistors used must have a tolerance of 1% or better and the resistor must have a power rating of 0.25W. For improved accuracy whilst using switched resistors RDM recommend resistors with 0.1% accuracy are used.

**Note:** the switched resistor features will **not** function when using 470R or 700R probes. When a resistor is switched across the appropriate input it signals to the Mercury to enable the switched resistor function described for that input (see [input/ output allocation table](#)) whilst still recording the probe temperature on the input.

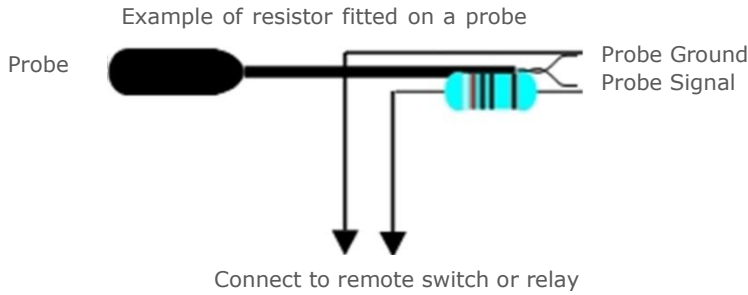
Temperature range for all probe types is -49°C to +60°C for probe inputs which do not have a secondary function (switched resistors). Inputs which have a secondary function are restricted to -42°C to +60°C. If the full temperature range is required on all inputs and no switch resistor features are needed then please see Switch Resistor parameter P-19

**Note:** switched resistors will operate in LT (Low Temperature) and HT (High Temperature) applications using PT1000, NTC2K or NTC2K25 probe types only. For all other probe types the switched resistor inputs will work in HT applications only.



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### Switched Resistor Example Wiring



### Setting up the controller

Access to the controller can be achieved several ways

- Through the front mounted buttons
- Direct access by PC into the controller’s RS232 comms port. This requires a software package available on the RDM website
- Through legacy front end panels on 485 networks
- Through the RDM Data Manager.
- Across an IP network. (Current controller IP address required)

### Setup through front buttons



To enter setup mode;

Hold the 'Enter' and 'Down' buttons together for approximately 3 seconds until the message "Ent" appears on the display.

### Setup Function Menu (Common to all types)

Display	Option	Explained in Paragraph	Display	Option	Explained in Paragraph
IO	View Inputs / Outputs and States	<a href="#">Input / output table</a>	nEt	Set/view network configuration	<a href="#">Network Configuration</a>
PArA	Set/View Parameters	<a href="#">Set view parameters</a>	SoFt	View software version	
Unit	Probe type and Celsius/Fahrenheit option	<a href="#">Set View Unit</a>	FANS	Toggle Fans Only mode	<a href="#">Fans Only</a>
diSP	Display whole units or decimal	<a href="#">Display</a>	CASE	Toggle Case Off mode	<a href="#">Case Off</a>
tyPE	Set/View Controller Type	<a href="#">Set/view controller type</a>	Ligt	Toggle Lights Only mode	<a href="#">Lights Only</a>
rtc	Set/view Clock (rtc = Real Time Clock)	<a href="#">Real Time Clock</a>	OFSt	Probe Offset	<a href="#">Probe Offset</a>
			ESC	Exit Setup mode	



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## 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 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 also 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 the setup mode and save all changes.
- Selecting dFLt will reset all parameters back to the default values for the current type of controller.

From the function menu scroll to, and select Unit. Press enter and the value will be displayed;

### Unit. Set/ view temperature unit and Probe type

#### Probe Types

0 for PT1000 Celsius	9 for 3K Fahrenheit
1 for PT1000 Fahrenheit	10 for NTC2K25 Celsius
2 for NTC2K Celsius	11 for NTC2K25 Fahrenheit
3 for NTC2K Fahrenheit	12 for 5K Celsius
4 for 470R Celsius	13 for 5K Fahrenheit
5 for 470R Fahrenheit	14 for 6K Celsius
6 for 700R Celsius	15 for 6K Fahrenheit
7 for 700R Fahrenheit	16 for NTC10K Celsius
8 for 3K Celsius	17 for NTC10K Fahrenheit

Use the up or down keys to select the units and press enter.

**This function is now complete**



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## Display

From the function menu scroll to and select diSP.

Press enter and one of the following values will be shown;

0. Controller display will show the whole number and tenths value of a temperature reading. (Default)
1. Controller display will show temperatures as a whole number.

## Parameter Table

Not all parameters apply to all controller types, for example P-06 is the anti-short cycle time which applies to integral cases only (types 1 & 2). This parameter will not appear if the controller is set up as a type 3, 4, 5 or 6 (static case or coldroom). In the following table, the type columns on the right hand side will be greyed out if that parameter does not apply to that controller type.

Number	Parameter	Range °C ( °F )	Step	Units	Default HT °C ( °F )	Default LT °C ( °F )	Type 1&2	Type 3&4	Type 5&6
P-01	Cut-in Temp.	-42 to 30(-43.6 to 86)	0.1	Deg	0.0 (32)	-20 (-4)		✓	✓
	Cut-in Temp. (Integral)	-42 to 30(-43.6 to 86)	0.1	Deg	3.5 (38.3)	-20 (-4)	✓		
P-02	Diff.	0 to 10 (0 to 18)	0.1	Deg	1.5 (2.7)	2 (3.6)		✓	✓
	Diff. (Integral)	0 to 10 (0 to 18)	0.1	Deg	2.5 (4.5)	2.5 (4.5)	✓		
P-51	Control Type	0 = Highest 1 = Average	1		Highest	Highest	✓	✓	✓
P-52	Number of Sections	1 - 4	1		4	4	✓	✓	✓
P-85	Key-switch mode	0 = case off 1 = fans only 2 = toggle	1		0	0	✓	✓	✓
P-90	Resistor Case Off	0 = Disabled 1 = Enabled			0	0	✓	✓	✓
P-92	Fans temperature mode	0 = Off 1 = Temperature 2 = Over Temperature 3 = Over Temp/ OT	1		0	0	✓	✓	
P-93	Fans Off Temperature	-42 to 30(-43.6 to 86)	0.1	Deg	8 (46.4)	-10 (14)	✓	✓	
P-16	Relay 3 mode	0 = Lights 1 = Alarm	1		0	0	✓	✓	✓
P-12	Relay 4 mode	0 = Remote 1 = Alarm 2 = Trim Heater 3 = Trim Hub	1		0	0	✓	✓	✓
P-13	Trim in Defrost	0 = Disabled 1 = Enabled	1		0	0		✓	
P-14	Trim Level	0 - 100%	1	%	100	100		✓	
P-06	Anti-SC Time	00:00 to 15:00	00:05	mm:ss	03:00	03:00	✓		
P-20	OT/ UT Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	20:00	✓	✓	✓
P-21	UT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-2 (28.4)	-30 (-22)	✓	✓	✓
P-22	OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	5 (41)	-15 (5)	✓	✓	✓
P-40	Defrost Mode	0 = Local 1 = Remote			Local	Local	✓	✓	✓
P-41	Defrost Start	00:00 to 23:59	00:01	hh:mm	01:00	01:00	✓	✓	✓



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P-42	Defrosts per Day	0 to 8	1		6	6	✓	✓	✓
P-43	No Defrost Time	0 to 25	1	hours	12	12	✓	✓	✓
P-56	Def Terminate section 1	-42 to 30(-43.6 to 86)	0.1	Deg	10 (50)	14 (57.2)		✓	✓
	Def Terminate section1 (Integral)	-42 to 30(-43.6 to 86)	0.1	Deg	10 (50)	10 (50)	✓		
P-57	Def Terminate section 2	-42 to 30(-43.6 to 86)	0.1	Deg	10 (50)	14 (57.2)		✓	✓
	Def Terminate section 2 (Integral)	-42 to 30(-43.6 to 86)	0.1	Deg	10 (50)	10 (50)	✓		
P-58	Def Terminate section 3	-42 to 30(-43.6 to 86)	0.1	Deg	10 (50)	14 (57.2)		✓	✓
	Def Terminate section 3 (Integral)	-42 to 30(-43.6 to 86)	0.1	Deg	10 (50)	10 (50)	✓		
P-59	Def Terminate section 4	-42 to 30(-43.6 to 86)	0.1	Deg	10 (50)	14 (57.2)		✓	✓
	Def Terminate section 4 (Integral)	-42 to 30(-43.6 to 86)	0.1	Deg	10 (50)	10 (50)	✓		
P-45	Def Min Time	00:00 to 99:00	01:00	mm:ss	05:00	05:00	✓	✓	✓
P-46	Def Max Time	00:00 to 99:00	01:00	mm:ss	24:00	24:00	✓	✓	✓
P-47	Drain Down	00:00 to 24:00	00:15	mm:ss	01:30	01:30	✓	✓	✓
P-48	Recovery Time	00:00 to 99:00	01:00	mm:ss	30:00	30:00	✓	✓	✓
P-89	Pump Down Time	00:00 to 99:00	01:00	mm:ss	00:00	00:00	✓	✓	✓
P-86	Fan Delay mode	0 = Time 1 = Temp	1		0	0	✓	✓	✓
P-49	Fan Delay Time Types (Cabinet)	00:00 to 99:00	01:00	mm:ss	00:00	00:00		✓	
	Fan Delay Time Types (Integral & Coldroom)	00:00 to 99:00	01:00	mm:ss	03:00	03:00	✓		✓
P-88	Fan Delay Temp	-42 to 30(-43.6 to 86)	0.1	Deg	0.0 (32)	-20 (-4)	✓	✓	✓
P-50	Fans In Defrost	0 = Off 1 = On			On	On	✓	✓	
P-91	Defrost Type	0 = Electric 1 = Gas	1		0	0	✓		
P-94	Defrost Hold	0 = Off 1 = On			Off	Off	✓	✓	✓
P-80	Door alarm delay	00:00 to 99:00	01:00	mm:ss	20:00	20:00			✓
P-81	Door closes LLV	0 = No 1 = Yes			No	No			✓
P-82	Door stops fans	0 = No 1 = Yes			No	No			✓
P-60	Lights Mode	0 = Local 1 = Remote 2 = Man Off 3 = Man On			Local	Local	✓	✓	✓
P-61	Sun Lights On	00:00 to 23:59	00:01	hh:mm	08:00	08:00	✓	✓	✓
P-62	Sun Lights Off	00:00 to 23:59	00:01	hh:mm	20:00	20:00	✓	✓	✓
P-63	Mon Lights On	00:00 to 23:59	00:01	hh:mm	08:00	08:00	✓	✓	✓
P-64	Mon Lights Off	00:00 to 23:59	00:01	hh:mm	20:00	20:00	✓	✓	✓
P-65	Tue Lights On	00:00 to 23:59	00:01	hh:mm	08:00	08:00	✓	✓	✓
P-66	Tue Lights Off	00:00 to 23:59	00:01	hh:mm	20:00	20:00	✓	✓	✓
P-67	Wed Lights On	00:00 to 23:59	00:01	hh:mm	08:00	08:00	✓	✓	✓
P-68	Wed Lights Off	00:00 to 23:59	00:01	hh:mm	20:00	20:00	✓	✓	✓
P-69	Thu Lights On	00:00 to 23:59	00:01	hh:mm	08:00	08:00	✓	✓	✓



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P-70	Thu Lights Off	00:00 to 23:59	00:01	hh:mm	20:00	20:00	✓	✓	✓
P-71	Fri Lights On	00:00 to 23:59	00:01	hh:mm	08:00	08:00	✓	✓	✓
P-72	Fri Lights Off	00:00 to 23:59	00:01	hh:mm	20:00	20:00	✓	✓	✓
P-73	Sat Lights On	00:00 to 23:59	00:01	hh:mm	08:00	08:00	✓	✓	✓
P-74	Sat Lights Off	00:00 to 23:59	00:01	hh:mm	20:00	20:00	✓	✓	✓
P-18	Service Time	0 - 128	1	K Hrs	80	80	✓	✓	✓
dFLt	Restore defaults						✓	✓	✓
Esc	Escape menu						✓	✓	✓

## Parameter Descriptions

Number	Parameter	Description
P-01	Cut-in Temp	Temperature at which the LLV or compressor will switch on.
P-02	Diff	Differential temperature below the cut-in temperature. The LLV or Compressor switches off when below this temperature.
P-51	Control Type	Uses the Highest Temperature from the selected number of sections as Control Temperature or uses Average Temperature for Control Temperature.
P-52	Number of Sections	Select the number of sections to be used in the control strategy.
P-85	Key-switch Mode	When used in conjunction with a display that has a key switch. Select function of key switch as; <ul style="list-style-type: none"> <li>• Single turn for case off (Case off mode)</li> <li>• Single turn for Fans only (Fans Mode)</li> <li>• Single turn for case off, double turn for fans only (Toggle mode)</li> </ul>
P-90	Resistor Case Off	Turns on/ off the switched resistor case off function. See <a href="#">Switched resistor values</a> and <a href="#">IO table</a>
P-92	Fans temperature mode	Allows the user to set the fans to turn off when; <ul style="list-style-type: none"> <li>• A pre-determined temperature is reached (P93)</li> <li>• When an over-temperature alarm is present</li> <li>• When either P93 is reached or an OT alarm is present</li> </ul>
P-93	Fans Off Temperature	Temperature for P92 operation. <b>Note:</b> the defrost termination probes are the source of the temperature reading used in this feature. If any probe goes above the temperature it will switch the fans off. If defrost termination probes are not fitted then it will use the air off probes.
P-16	Relay 3 mode	This changes the function of relay 3 from Lights (default) to an alarm relay. 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.
P-20	Alarm Delay	Delay for the Over and under-temperature alarms.
P-21	UT Alarm	Under temperature alarm set point. This alarm uses the air off temperature on each section to generate the alarm. <b>Note:</b> The controller will generate Section 1, 2, 3 & 4 UT alarms independently.
P-22	OT Alarm	Over temperature alarm set point. This alarm uses the air off temperature on each section to generate the alarm. <b>Note:</b> The controller will generate Section 1, 2, 3 & 4 OT alarms independently.
P-40	Defrost Mode	Allows the user to set the defrost mode; <ul style="list-style-type: none"> <li>• Local (Uses the internal parameters P-41 and P-42)</li> <li>• Remote (Requires a defrost schedule setup in the Data Manager)</li> </ul>
P-41	Defrost Start	When defrost mode (P-40) is set to 'Local', this is the start time for the 1st defrost. Ignored when set to 'Remote'.
P-42	Defrosts per Day	When defrost mode (P-40) is set to 'Local', this is the number of defrosts per day, equally spaced from the start time. Ignored when set to 'Remote'.
P-43	No Defrost Time	If the controller misses a defrost command for any reason, a defrost will initiate after this time has elapsed from the last defrost. Normally set to 2 hours over the normal defrost period.
P-56	Section 1 Def Term	The temperature at which section 1 will 'terminate' its defrost (only during Df Max). It uses the Section 1 defrost probe as its source when fitted. Else it will use the section 1 air off probe. When this value is met, the defrost length is captured. The controller will only move on to the next phase of the <a href="#">defrost cycle</a> when all active sections reach this temperature (or if Defrost Max P-46 time is met).



Please ensure all power is switched off before installing or maintaining this product.

P-57	Section 2 Def Term	The temperature at which section 2 will 'terminate' its defrost (only during Df Max). It uses the Section 2 defrost probe as its source when fitted. Else it will use the section 2 air off probe. When this value is met, the defrost length is captured. The controller will only move on to the next phase of the <u>defrost cycle</u> when all active sections reach this temperature (or if Defrost Max P-46 time is met).
P-58	Section 3 Def Term	The temperature at which section 3 will 'terminate' its defrost (only during Df Max). It uses the Section 3 defrost probe as its source when fitted. Else it will use the section 3 air off probe. When this value is met, the defrost length is captured. The controller will only move on to the next phase of the <u>defrost cycle</u> when all active sections reach this temperature (or if Defrost Max P-46 time is met).
P-59	Section 4 Def Term	The temperature at which section 4 will 'terminate' its defrost (only during Df Max). It uses the Section 4 defrost probe as its source when fitted. Else it will use the section 4 air off probe. When this value is met, the defrost length is captured. The controller will only move on to the next phase of the <u>defrost cycle</u> when all active sections reach this temperature (or if Defrost Max P-46 time is met).
P-45	Def Min Time	Minimum time that a defrost will use (Defrost can't terminate until this time has elapsed). If termination temperature is reached during this period, the defrost control relay is turned off, but the controller will not continue the <u>defrost cycle</u> until the end of the defrost min period.
P-46	Def Max Time	Time period after defrost minimum that defrosts are allowed to terminate.
P-47	Drain Down	A period after defrost max to allow the draining of any surplus water
P-48	Recovery Time	The LLV is switched on at the start of this period to allow the temperature to recover to the normal operating point. This period also inhibits the OT alarm. <b>Note:</b> If the Air Off temperature is still above the OT alarm setpoint when this period expires, an immediate OT alarm occurs; there is <b>not</b> a further alarm delay.
P-89	Pump Down Time	Time period before the defrost min period to allow for a pump down.
P-86	Fan Delay mode	This parameter allows the fans start after a drain-down period to be delayed, either by time (P-49) or when the temperature point (P-88) is reached. This parameter uses the same probe strategy as the defrost termination, defrost probe if fitted, air off probe otherwise.
P-49	Fan Delay Time	Time after a drain-down period before the fans start if P-86 is set to time
P-88	Fan Delay Temp	Temperature at which the fans start after a drain-down period when P-86 is set to temperature.
P-50	Fans In Defrost	Allows the user to set the fans on or off in defrost. <b>Note:</b> if the fans are set to 'on' in defrost, they will go off for the drain-down period and then follow the P-86 rules.
P-94	Defrost Hold	Turns the defrost hold feature on and off. When switched on, the controller can be held in 'defrost hold' until a remote command from the Data Manager end starts the recovery process.
P-80	Door alarm delay	Delay after the door open input is activated before the alarm occurs.
P-81	Door Closes Valve	This parameter is used to close the LLV if the door opens. If the door remains open then the valve will resume normal operation on the expiry of the door alarm delay (P-80).
P-82	Door Stops Fan	This parameter is used to stop the fans if the door opens. If the door remains open then the fans will resume normal operation on the expiry of the door alarm delay (P-80).
P-60	Lights Mode	Allows the user to set the lights mode; <ul style="list-style-type: none"> <li>• Use a local schedule (P-61 to P-74)</li> <li>• Use a remote schedule (Set up in the system front end)</li> <li>• Manually Forced off</li> <li>• Manually Forced on</li> </ul>
P-61	Sun Lights On	When P-60 is set to Local, Sunday on time.
P-62	Sun Lights Off	When P-60 is set to Local, Sunday off time.
P-63	Mon Lights On	When P-60 is set to Local, Monday on time.
P-64	Mon Lights Off	When P-60 is set to Local, Monday off time.
P-65	Tue Lights On	When P-60 is set to Local, Tuesday on time
P-66	Tue Lights Off	When P-60 is set to Local, Tuesday off time.
P-67	Wed Lights On	When P-60 is set to Local, Wednesday on time.
P-68	Wed Lights Off	When P-60 is set to Local, Wednesday off time.
P-69	Thu Lights On	When P-60 is set to Local, Thursday on time.
P-70	Thu Lights Off	When P-60 is set to Local, Thursday off time.
P-71	Fri Lights On	When P-60 is set to Local, Friday on time.
P-18	Service Time	Time delay before a service icon appears on the controller's display.
dFLt	Restore Default	Restores all parameters to their default values (see <u>parameter tables</u> )
Esc	Escape Menu	Returns to <u>Main Setup</u> menu.



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## Relay State and functional operation

Relay 1-3 State	Function State	Wired contact
Relay 1 off	Valve / Compressor on	N/C
Relay 1 on	Valve / Compressor off	N/C
Relay 2 off	Fans on	N/C
Relay 2 on	Fans off	N/C
Relay 3 off	Lights on	N/C
Relay 3 on	Lights off	N/C
Relay 3 off	Alarm Relay = Alarm	N/C
Relay 3 on	Alarm Relay = OK	N/C

Relay 4-5 State	Function State	Wired contact
Relay 4 off	Remote Relay off	N/O
Relay 4 on	Remote Relay on	N/O
Relay 4 off	Alarm Relay = Alarm	N/C
Relay 4 on	Alarm Relay = OK	N/C
Relay 4 off	Trim Relay off	N/O
Relay 4 on	Trim Relay on	N/O
Relay 5 off	Defrost Relay off	N/O
Relay 5 on	Defrost Relay on	N/O

## Network Configuration

The final section to setup is the network address. In all instances, this must be done before the controller is connected to the site network.

When logging the Intuitive Mercury with an RS232 interface onto a network you must first connect the controller to a communications module, this is either a 485 Legacy, IP Futura or Mercury Switch. When using an Intuitive Mercury controller, the controller has to have the correct network card fitted (see [Compatible network interfaces](#)). For connection to a Mercury Switch (Hub) or an external network interface, the standard fitment RS232 network card is utilised.

### RS485 Legacy module / Intuitive Internal RS485 Network card

Using RS485, 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).

Connecting an RS485 legacy Module or an Intuitive Internal RS485 network card to the controller will govern which set up screens are made available in the 'Net' menu. Both modules support the "Genus" protocol only. Using RS485 will show the below;

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	Bluetooth

Ensure option '1' is selected.

The **485A** option shows a value representing the name of the controller in a Genus compatible network. For example, if the value shown in 485A is shown as "05-6". The controller would try to log onto a Genus compatible network using the name 'RC05-6'.

The **gAdd** option displays (in hexadecimal format) the underlying network address assigned to the controller when it was logged onto the network. NB this is automatically assigned by the Data Manager.

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



Please ensure all power is switched off before installing or maintaining this product.

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.

## Bluetooth Network module

Connecting a Bluetooth Network Module to the controller will update the screens available under the 'Net' menu. They are detailed below;

Display	Option
485t	1: 485 Genus Network (See <a href="#">RS485 module/ Intuitive Internal RS485 Network card</a> ) 2: Bluetooth
485A	Bluetooth device name. As it will appear on DMTouch's device list (RC00-0 - RC99-9)
nI d	Select Bluetooth Network ID (0 - 4)
gAdd	Shows 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>Note:</b> this option <b>must</b> be selected to save any changes made in this menu.

- Ensure the 485t is set to '2' (Bluetooth)
- Provide a unique device alias under the 485A menu (e.g. 01-5)
- Select the Network ID. Please see the Bluetooth wireless mesh setup guide for more details.
- Press the 'ESC' to save

The green network LED will flash to show it is attempting to log on and go solid when connected.

## IP Futura module / Intuitive Internal IP Network card

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 a generic Internet browser.

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

### IP-L

To configure the communication module or network card for IP-L, set all three rotary switches to zero. The module should then be connected to the controller. In the case of an Intuitive Mercury controller where the network card is already fitted, the controller should be powered off, all three rotary switches set to zero and the controller powered on.

- From the function menu you can now select 'nEt'.
- Press enter and the display will show "IP-L", press enter once more.
- You can now set the IP network settings by 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 (see below table)
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



Please ensure all power is switched off before installing or maintaining this product.

## 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. In the case of an Intuitive Mercury controller where the IP network card is already fitted, the three rotary switches must be set when the controller is powered off. The controller should then be powered on to connect to the network.

- From the function menu you can now select 'nEt'
- Press enter and the display will show "IP-r", press enter once more.
- You can now view (only) the address given by the DHCP server.

To ease setup, a single network mask length value is used. If the address has been specified with a network mask value in dotted IP format e.g. 255.255.255.0 then the table below gives the conversion:

Mask	Length	Mask	Length	Mask	Length
		255.255.254.0	23	255.254.0.0	15
255.255.255.252	30	255.255.252.0	22	255.252.0.0	14
255.255.255.248	29	255.255.248.0	21	255.248.0.0	13
255.255.255.240	28	255.255.240.0	20	255.240.0.0	12
255.255.255.224	27	255.255.224.0	19	255.224.0.0	11
255.255.255.192	26	255.255.192.0	18	255.192.0.0	10
255.255.255.128	25	255.255.128.0	17	255.128.0.0	09
255.255.255.0	24	255.255.0.0	16	255.0.0.0	08

## Mercury Switch

Using a Mercury switch will provide the same method of logging the device on as an individual IP Futura / Intuitive IP network card. For more details please refer to the Mercury Switch user guide, which can be obtained from the RDM website.

## Viewing I/O

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

From the function menu, select "I/O", press enter. You can now scroll through the IO table as set out below. Inputs and outputs that do not apply to a particular controller type will be greyed out.

## Input / Output Table

Number	IO	Range*	Step	Units	Types 1&2	Types 3&4	Types 5&6
		°C ( °F )					
I-01	Control Temp.	-42 to 60 (-43.6 to 140)	0.1	Deg	✓	✓	✓
I-08	Logging Probe	-49 to 60 (-56.2 to 140)	0.1	Deg	✓	✓	✓
I-10	Plant Fault 1	0 (OK), 1 (Alarm)			✓	✓	✓
I-11	Case Clean	0 (Off), 1 (On)			✓	✓	✓
I-12	Door Sensor	0 (Closed), 1 (Open)					✓
I-13	Person Trapped	0 (Ok), 1 (Alarm)					✓
I-14	Plant Fault 2	0 (Off), 1 (On)			✓	✓	
I-17	MOP	0 (Off), 1 (On)				✓	✓
I-18	Hub Trim Level	0 to 100	1	%		✓	
I-33	Section 1 Air Off temp.	-49 to 60 (-56.2 to 140)	0.1	Deg	✓	✓	✓
I-34	Section 1 Defrost Probe temp.	-49 to 60 (-56.2 to 140)	0.1	Deg	✓	✓	✓
I-38	Section 2 Air Off temp.	-49 to 60 (-56.2 to 140)	0.1	Deg	✓	✓	✓
I-39	Section 2 Defrost Probe temp.	-49 to 60 (-56.2 to 140)	0.1	Deg	✓	✓	✓
I-40	Section 3 Air Off temp.	-49 to 60 (-56.2 to 140)	0.1	Deg	✓	✓	✓
I-41	Section 3 Defrost Probe temp.	-49 to 60 (-56.2 to 140)	0.1	Deg	✓	✓	✓
I-42	Section 4 Air Off temp.	-49 to 60 (-56.2 to 140)	0.1	Deg	✓	✓	✓
I-43	Section 4 Defrost Probe temp.	-49 to 60 (-56.2 to 140)	0.1	Deg	✓	✓	✓



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O-01	LLV	0 (Off), 1 (On)				✓	✓
O-03	Compressor	0 (Off), 1 (On)			✓		
O-05	Defrost Control	0 (Off), 1 (On)			✓	✓	✓
O-06	Lights	0 (Off), 1 (On)			✓	✓	✓
O-07	Fans	0 (Off), 1 (On)			✓	✓	✓
O-08	Remote	0 (Off), 1 (On)			✓	✓	✓
O-10	Last Defrost Time	00:00 to 23:59	00:01	hh:mm	✓	✓	✓
O-13	Last defrost Type	0=None,1=Internal 2=External, 3=Network 4=Display, 5=Timed, 6=Forced.			✓	✓	✓
O-14	Trims	0 (Off), 1 (On)				✓	
O-16	Alarm Relay	0=Unused,1=Ok, 2=Alarm			✓	✓	✓
O-18	Run Time	K hrs the device has run for		K hrs	✓	✓	✓
O-20	Door Open Time	00:00 to 23:59		hh:mm			✓
O-21	Door Open Length	00:00 to 03:00		hh:mm			✓
O-30	Setpoint Offset	-49 to 60 (-56.2 to 140)	0.1	Deg	✓	✓	✓
O-33	Section 1 Last Defrost Length	00:00 to Df Max	00:01	hh:mm	✓	✓	✓
O-34	Section 2 Last Defrost Length	00:00 to Df Max	00:01	hh:mm	✓	✓	✓
O-35	Section 3 Last Defrost Length	00:00 to Df Max	00:01	hh:mm	✓	✓	✓
O-36	Section 4 Last Defrost Length	00:00 to Df Max	00:01	hh:mm	✓	✓	✓
O-37	Section 1 Last Defrost Temp	-42 to 60 (-43.6 to 140)	0.1	Deg	✓	✓	✓
O-38	Section 2 Last Defrost Temp	-42 to 60 (-43.6 to 140)	0.1	Deg	✓	✓	✓
O-39	Section 3 Last Defrost Temp	-42 to 60 (-43.6 to 140)	0.1	Deg	✓	✓	✓
O-40	Section 4 Last Defrost Temp	-42 to 60 (-43.6 to 140)	0.1	Deg	✓	✓	✓
S-01	Section 1 Control State	0=Stabilise,1=Normal 2=Df Min, 3=Df Max 4=Drain Down, 5=Fan Delay, 6=Recovery, 7=OT Alarm, 8=UT Alarm, 9=Fans Only, 10=Lights Only,11=Case Off 12=Pump Down,13=Df Hold)			✓	✓	✓
S-02	Section 2 Control State	0=Stabilise,1=Normal 2=Df Min, 3=Df Max 4=Drain Down, 5=Fan Delay, 6=Recovery, 7=OT Alarm, 8=UT Alarm, 9=Fans Only, 10=Lights Only,11=Case Off 12=Pump Down,13=Df Hold)			✓	✓	✓
S-03	Section 3 Control State	0=Stabilise,1=Normal 2=Df Min, 3=Df Max 4=Drain Down, 5=Fan Delay, 6=Recovery, 7=OT Alarm, 8=UT Alarm, 9=Fans Only, 10=Lights Only,11=Case Off 12=Pump Down,13=Df Hold)			✓	✓	✓
S-04	Section 4 Control State	0=Stabilise,1=Normal 2=Df Min, 3=Df Max 4=Drain Down, 5=Fan Delay, 6=Recovery, 7=OT Alarm, 8=UT Alarm, 9=Fans Only, 10=Lights Only,11=Case Off 12=Pump Down,13=Df Hold)			✓	✓	✓



Please ensure all power is switched off before installing or maintaining this product.

## Display Messages

The following alarms and messages can appear on the Mercury or Intuitive display.

Display Message	System status	Display Message	System status
Ft	Control Fault	AL	Control State in Alarm
Prb1	Probe 1 Fault	FAnS ONLY	Controller in Fans Only
Prb2	Probe 2 Fault	Ligt ONLY	Controller in Lights Only
Prb3	Probe 3 Fault	CASE OFF	Controller in Case Off
Prb4	Probe 4 Fault	Ot	Over Temperature Alarm
Prb5	Probe 5 Fault	Ut	Under Temperature Alarm
Prb6	Probe 6 Fault	door	Door Open Alarm
rEC	Control State in Recovery	TrAP	Person Trapped Alarm
dEF	Control Sate in Defrost	PLnt	Plant Fault

## 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 # (index)	Alarm text	Type # (index)
Section 1 Over Temperature	4	Missed defrost	1
Section 2 Over Temperature	4	Probe 1,2,3,4,5 or 6 Faulty	6
Section 3 Over Temperature	4	Door Left Open	2
Section 4 Over Temperature	4	Person Trapped	7
Section 1 Under Temperature	5	Plant Fault 1	3
Section 2 Under Temperature	5	Plant Fault 2	3
Section 3 Under Temperature	5		
Section 4 Under Temperature	5		

## Modifying controller states

During normal operation you can change the following states from the function menu (accessed Enter & Down keys).

### Defrost "dEF"

Pressing and holding the Defrost button (#) will begin the defrost cycle. It will follow the defrost cycle as set up in parameters (see [Defrost Cycle](#)). The display will show "dEF". There is also a remote defrost command which starts a defrost cycle from the network front end or remote system.

### Fans Only "FAnS"

Selecting the Fans Only option from within the function menu, will place the controller into the Fans Only state (if the current state is not already Fans Only). If the current state is Fans Only, then the controller will change to the Normal state. Selecting this option will exit the setup menu automatically. The display will show "FAnS OnLy".

If a remote display with key switch is being used, this function can be invoked by turning the key switch to the fans only position (90 degrees clockwise) with parameter P85 set to "fans".



Please ensure all power is switched off before installing or maintaining this product.

## Case Off "CASE"

Selecting the Case Off option from the function menu, will place the controller into the Case Off state (if the current state is not already Case Off). If the current state is Case Off, then the controller will change to the Normal state. Selecting this option will exit the setup menu automatically. The display will show "CASE OFF". An alarm is generated, fixed delay of 1 minute, when the controller is placed into the Case Off state. If a remote display with key switch is being used, this function can be invoked by turning the key switch to the case-off position. (Clockwise 90 degrees) with parameter P85 set to "case".

## Lights Only "Ligt"

Selecting the Lights Only option from the function menu, will place the controller into the Lights Only state (if the current state is not already Lights Only). If the current state is Lights Only, then the controller will change to the Normal state. Selecting this option will exit the setup menu automatically. The display will show "LitS OnLy".

**Note:** When lights are being used in "Remote" mode with a timing channel;  
If the controller goes offline, the lights are turned ON after a delay of 5 minutes. The lights will stay on until the controller comes back on-line where they will revert to the state of the timing channel being used.

## Probe Offset "OFSt"

This feature allows each probe value to be modified by an "offset". Offset values are from -10°C (-18°F) to +10°C (+18°F) and on a channel basis. Example C1 = Probe 1, C2 = Probe 2 etc.

## Operation

The LLV (or compressor) relay will operate a thermostatic function based on values of the air probes of the 'active' sections (selectable with parameter P-52). If "Highest" is set, then the relay will operate on the greater of the section values. If "Average" is selected, then it will operate on the combined average of all the sections. Either the highest or averaged value will be displayed as the control temperature (also displayed on the display if fitted).

Once a defrost has been initiated, the normal defrost states will apply to all sections (Def Min, Max, Drain down etc), although all sections must terminate before a drain down (or recovery) occurs. Please see [Defrost Cycle](#) for operation.

## Display Operation

The display indication will be either the highest value of the active sections or average of all the sections, depending on the parameter P-51.



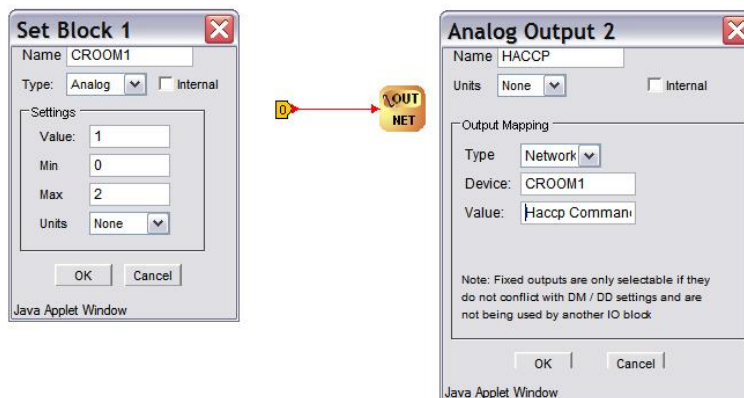
Please ensure all power is switched off before installing or maintaining this product.

## Remote Commands

The following commands can be used by a Data Builder program:

Command	Value to send	Description	Conditions
Defrost Command	1	Initiates a defrost cycle	Defrost mode: remote
Defrost Command	3	Terminates the defrost	Defrost mode: remote Defrost hold: On Defrost min state complete
Setpoint Command	±18°C	Is added to or subtracted from the setpoint. Note - OT and UT alarms will also be offset.	
Case Off Command	5 0	Sets the controller to Case Off Restores the controller from Case Off to Normal	
Haccp Command	0 1 2	HACCP LED OFF HACCP LED On HACCP LED Flashes	
Button Command	0 1 2	Buttons backlights Off Buttons backlights On Buttons Backlights Flash	
EEV Command	2 1	Shuts the valve off Restores the valve to normal operation	

Use an "Analogue Out" block configured to the controller name and in the value field type in the command you require. Use a "Setting block" as the input to the "Analogue Out" block to send the Value.



Please ensure all power is switched off before installing or maintaining this product.

## Specification

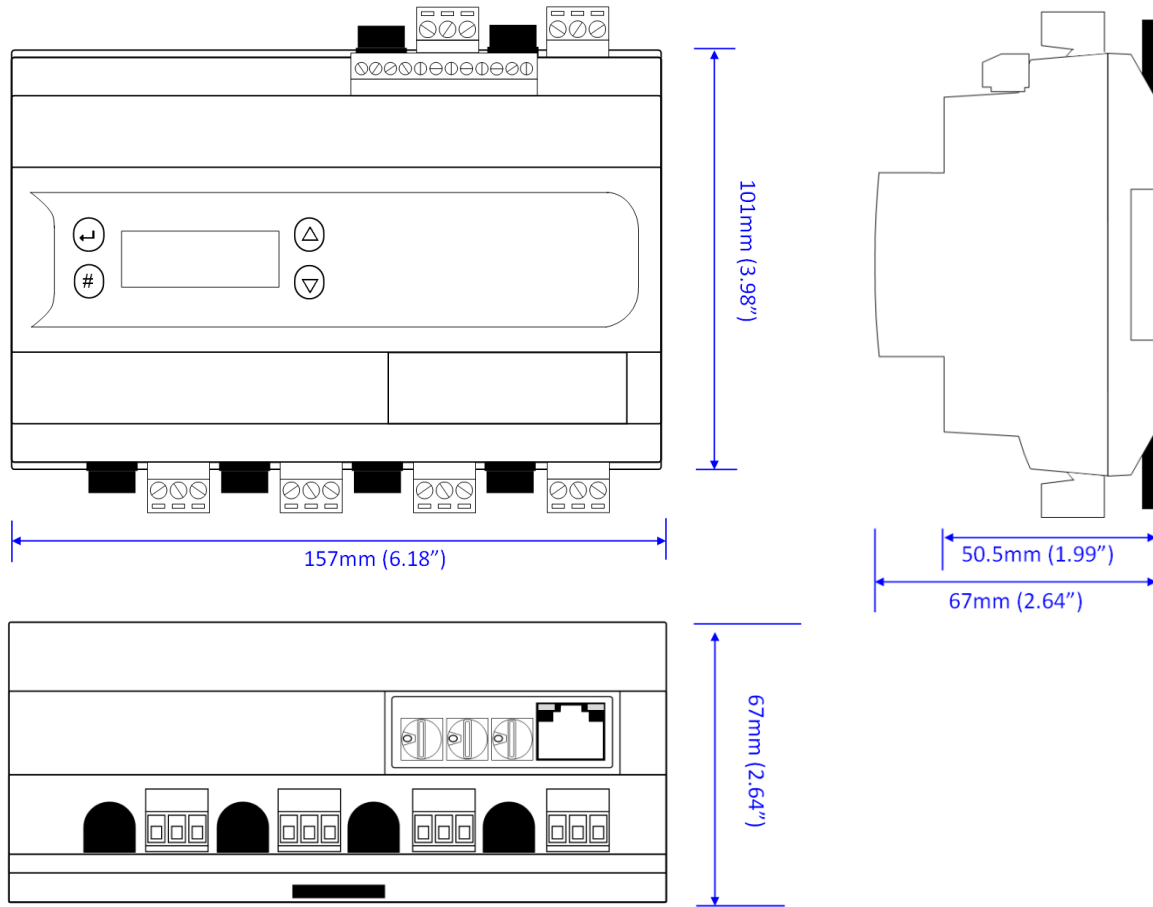
	<b>Intuitive Mercury controller</b> PR0750/ PR0760-FOUR
<b>Power requirements</b>	
<b>Supply Voltage Range</b>	100 - 240 Vac $\pm$ 10%
<b>Supply Frequency</b>	50 - 60 Hz
<b>Maximum supply current</b>	2 Amps
<b>Typical supply current</b>	<1 Amp
<b>General</b>	
<b>Operating temperature range</b>	-10°C to +60°C (14°F to 140°F)
<b>Storage temperature range</b>	-20°C to +65°C (-4°F to 149°F)
<b>Environmental</b>	Indoor use at altitudes up to 2000m, pollution degree 2, installation category II. Voltage fluctuations not to exceed $\pm$ 10% of nominal voltage.
<b>Size</b>	157x67x120mm / 6.18x2.63x4.72 in (WxHxD)
<b>Approx Weight</b>	500 grams
<b>Safety</b>	EN61010-1
<b>EMC</b>	EN61326:2013
<b>Ventilation</b>	There is no requirement for forced cooling ventilation
<b>Class 2 Insulation</b>	<b>No</b> protective Earth is required and <b>none</b> should be fitted
<b>Supply Fuse</b>	Built in fuse holder, fuse 2A 240Vac Anti-surge (T) HRC conforming to IEC60127, 32 x 6.3mm
<b>Or MCB</b>	2A, 240 VAC Type C conforming to BS EN 60898 (Note: controller has integral 2A fuse)
<b>Relay Fuse</b>	10A 240Vac Antisurge (T) HRC conforming to IEC60127, 32 x 6.3mm
<b>Relay Specification</b>	
<b>Max current</b>	10A Resistive (Cos $\phi$ = 1) 3A Inductive ( Cos $\phi$ = 0.4)
<b>Max voltage</b>	250Vac. 30V dc
<b>Relay Fuse</b>	10A 240Vac Antisurge (T) HRC conforming to IEC60127, 32 x 6.3mm
	All relays are independent and can operate at different potentials to the supply voltage.
<b>Inputs</b>	
<b>Input resistance</b>	3.01K Ohms (for PTC or NTC type probes)
<b>Input type</b>	Selectable – see <a href="#">Units</a> section
<b>Comms</b>	
<b>RS232</b>	with flow control
<b>IP</b>	
<b>RS485 Genus compatible</b>	



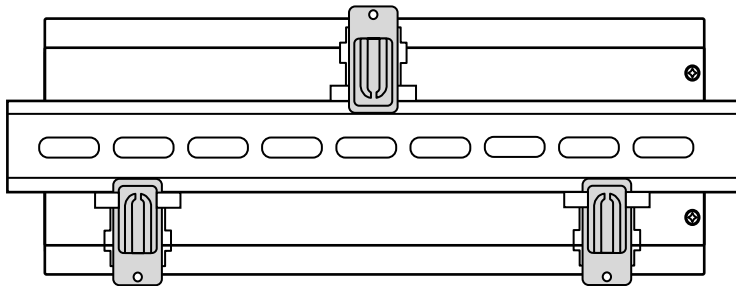
Please ensure all power is switched off before installing or maintaining this product.

## Installation / Dimensions

### Intuitive Mercury controller



### Intuitive Mercury Mounting Instructions



Three clips fix the Intuitive Mercury securely to DIN rail. Pull each clip until it "clicks" to remove the controller. Each clip has a mounting hole to provide an alternative fixing mechanism to DIN mounting.

### Cleaning

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

### Disclaimer

The specifications of the product detailed in this document may change without notice. RDM Ltd shall not be liable for errors or omissions, for incidental or consequential damages, directly or indirectly, in connection with the furnishing, performance or misuse of this product or document.



Please ensure all power is switched off before installing or maintaining this product.

## Appendix 1 : Webpage Appearance

It is possible to view the controller across an IP connection using one of the methods outlined in the [Network Configuration](#) section

The following screens are samples of how values and settings appear when viewed through a PC/Laptop connection.

### Mercury 3a Four Section

#### Coldroom Controller (HT)

**Mercury3a 4 Section 3.0**

**IO Board** 3 Probes V1.3

**Time** 15:33:38 29/07/20

Current Status		
Control temp.	26.8	°C
Sect 1 Air off	26.3	°C
Sect 1 State	Normal	
Sect 2 Air off	26.6	°C
Sect 2 State	Normal	
Sect 3 Air off	26.8	°C
Sect 3 State	Normal	
Sect 4 Air off	26.3	°C
Sect 4 State	Normal	

**Current Alarms**  
None

The user has a choice of entering the following pages: - **Inputs & Outputs, Parameters, Alarms, Logs & Configure.**

### Inputs & Outputs

#### Inputs & Outputs

Inputs			Outputs			States	
Control temp.	26.8	°C	Liq. Line Valve	Open		Sect 1 State	Normal
Sect 1 Air off	26.3	°C	Case Fans	On		Sect 2 State	Normal
Sect 1 Defrost	14.5	°C	Lights	On		Sect 3 State	Normal
Sect 2 Air off	26.6	°C	Remote	Off		Sect 4 State	Normal
Sect 2 Defrost	14.8	°C	Defrost Control	Off			
Sect 3 Air off	26.8	°C	Last Def. Time	13:00	hh:mm		
Sect 3 Defrost	14.8	°C	Last S1 Def Len	00:00	hh:mm		
Sect 4 Air off	26.3	°C	Last S2 Def Len	00:00	hh:mm		
Sect 4 Defrost	14.4	°C	Last S3 Def Len	00:00	hh:mm		
Logging Probe	14.4	°C	Last S4 Def Len	00:00	hh:mm		
Case Clean	Off		Last S1 Def Temp	26.2	°C		
Plant Fault 1	OK		Last S2 Def Temp	26.6	°C		
Plant Fault 2	OK		Last S3 Def Temp	26.9	°C		
Door Sensor	Closed		Last S4 Def Temp	26.4	°C		
Person Trapped	OK		Last Def. Type	Timed			
MOP	Off		Door Open Time	00:00	hh:mm		
Load Shed	Off		Door Open Length	00:00	hh:mm		
			Setpoint Offset	N/A	°C		
			Alm Relay	Unused			
			Run Time	0	K Hrs		



Please ensure all power is switched off before installing or maintaining this product.

Parameters

### Parameters

Control
Alarms
Defrost
Door
Lights

Parameter Name	Value	Units
Cut-in temp	0.0	°C
Cut-in diff.	1.5	°C
Control Type	Highest	
No. Of Sections	4	
Key Switch	Case	
Resistor Case Off	Off	
Fans Temp Mode	Off	
Fans Off Temp	8.0	°C
Relay 3 Mode	Lights	
Relay 4 Mode	Remote	
Load Shedding	Off	
Service Time	80	K Hrs

This is a view only screen and shows the parameter settings.

Alarms

### Alarms

Reason	Occurred	Cleared
Section 3 Under Temperature	12:11:18 24/07/20	12:12:17 24/07/20
Section 2 Under Temperature	12:10:11 24/07/20	12:12:17 24/07/20
Section 4 Under Temperature	12:09:05 24/07/20	12:12:17 24/07/20
Section 1 Under Temperature	12:04:52 24/07/20	12:12:17 24/07/20
Section 1 Over Temperature	12:00:31 24/07/20	12:02:52 24/07/20
Section 4 Over Temperature	11:56:01 24/07/20	12:02:52 24/07/20
Section 4 Over Temperature	11:53:12 24/07/20	11:53:18 24/07/20
Section 2 Over Temperature	11:53:12 24/07/20	12:02:52 24/07/20
Section 3 Over Temperature	11:36:18 24/07/20	12:02:52 24/07/20

This is a view only screen showing the alarm log.

Logs

### Logs

<<<
<<
<
>
>>
>>>

	15:53:25 29/07/20	15:53:30 29/07/20	15:53:35 29/07/20	15:53:40 29/07/20	15:53:45 29/07/20	15:53:50 29/07/20	15:53:55 29/07/20	15:54:00 29/07/20
Control temp.	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
Sect 1 Air off	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2
Sect 1 Defrost	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
Sect 2 Air off	26.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5
Sect 2 Defrost	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
Sect 3 Air off	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
Sect 3 Defrost	14.8	14.8	14.8	14.8	14.8	14.7	14.7	14.7
Sect 4 Air off	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2
Sect 4 Defrost	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
Logging Probe	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3
Liq. Line Valve	Open	Open	Open	Open	Open	Open	Open	Open
Case Fans	On	On	On	On	On	On	On	On
Lights	On	On	On	On	On	On	On	On

This is a view only screen showing the device's log.



Please ensure all power is switched off before installing or maintaining this product.

## Configure

Alternatively, click on the **Configure** button to access the setup menu.

**Note:** login credentials required to access Configure menu are as follows;

Username: `service`

Password: `1234`

### Configure

Time

Parameters

Controller Type

Temperature Units

Display Units

Display Type

Remote Defrost

Name

Logging

Asset Information

Probe Offsets

## Time

### Time

Enter time:

Enter the time and date in the format displayed and press "Set Time" to update the controller. A screen showing the set time will be displayed, and then revert to the initial (Home) screen.



Please ensure all power is switched off before installing or maintaining this product.

Parameters

### Set Parameters

**Use Set Parameters button to save changes before changing section**

Control
Alarms
Defrost
Door
Lights

Parameter Name	Low	High	Default	Value	Units
Cut-in temp	-42.0	30.0	0.0	<input type="text" value="0.0"/>	°C
Cut-in diff.	0.0	10.0	1.5	<input type="text" value="1.5"/>	°C
Control Type				<input type="text" value="Highest"/>	
No. Of Sections	1	4	4	<input type="text" value="4"/>	
Key Switch				<input type="text" value="Case"/>	
Resistor Case Off				<input type="text" value="Off"/>	
Fans Temp Mode				<input type="text" value="Off"/>	
Fans Off Temp	-42.0	30.0	8.0	<input type="text" value="8.0"/>	°C
Relay 3 Mode				<input type="text" value="Lights"/>	
Relay 4 Mode				<input type="text" value="Remote"/>	
Load Shedding				<input type="text" value="Off"/>	
Service Time	0	128	80	<input type="text" value="80"/>	K Hrs

This screen allows the parameters to be changed. Once the values are changed, the "Set Parameter" button must be clicked to set the parameters into the controller. A screen will show the number of parameters and the number changed, then revert back to the Home screen.

Controller Type

### Controller Type

This screen allows the user to select the controller type.

Temperature Units

### Temperature Units

This screen allows the user to set the probe type for the controller and if it's in degrees Centigrade or Fahrenheit.



Please ensure all power is switched off before installing or maintaining this product.

### Display Units

#### Display Units

Decimal ▾

Set Display Units

This screen allows the user to set if the display on the controller will display only whole numbers (Whole) or whole numbers and tenths (Decimal).

### Display Type

#### Display Type

Mercury ▾

Set Display Type

This screen allows the user to choose if the display they are using is a Mercury or Coldroom display.

### Remote Defrost

#### Force Remote Defrost

Remote Defrost

This screen allows the user to send a remote defrost to the controller (note: defrost mode must be set to local).

### Name

#### Name

Enter Name:

Set Name

This screen allows the user to give the controller a name. Type in a name of your choice (upper or lower case alpha-numeric) up to 32 characters. Click "Set Name" to load into the controller. A screen will show the name has been set and then revert back to the Home screen. (The Home screen will also now show the controller name).



Please ensure all power is switched off before installing or maintaining this product.

Logging

### Logging

Set 1		Set 2	
Log Interval	5s ▾	Log Interval	10s ▾
Control temp.	<input checked="" type="checkbox"/>	Control temp.	<input type="checkbox"/>
Sect 1 Air off	<input checked="" type="checkbox"/>	Sect 1 Air off	<input checked="" type="checkbox"/>
Sect 1 Defrost	<input checked="" type="checkbox"/>	Sect 1 Defrost	<input type="checkbox"/>
Sect 2 Air off	<input checked="" type="checkbox"/>	Sect 2 Air off	<input checked="" type="checkbox"/>
Sect 2 Defrost	<input checked="" type="checkbox"/>	Sect 2 Defrost	<input type="checkbox"/>
Sect 3 Air off	<input checked="" type="checkbox"/>	Sect 3 Air off	<input checked="" type="checkbox"/>
Sect 3 Defrost	<input checked="" type="checkbox"/>	Sect 3 Defrost	<input type="checkbox"/>
Sect 4 Air off	<input checked="" type="checkbox"/>	Sect 4 Air off	<input checked="" type="checkbox"/>
Sect 4 Defrost	<input checked="" type="checkbox"/>	Sect 4 Defrost	<input type="checkbox"/>
Logging Probe	<input checked="" type="checkbox"/>	Logging Probe	<input checked="" type="checkbox"/>
Liq. Line Valve	<input checked="" type="checkbox"/>	Liq. Line Valve	<input checked="" type="checkbox"/>
Case Fans	<input checked="" type="checkbox"/>	Case Fans	<input type="checkbox"/>
Lights	<input checked="" type="checkbox"/>	Lights	<input type="checkbox"/>
Remote	<input type="checkbox"/>	Remote	<input type="checkbox"/>
Defrost Control	<input type="checkbox"/>	Defrost Control	<input type="checkbox"/>

This screen allows the user to set the logging features. There are two sets so that values can have different log intervals.

Set the interval required on set1 and set 2, tick the required values to be logged, then click "Set Values" to load into the controller.

A screen will display "Log configuration set" then revert back to the Home page.

Asset Information

### Asset Information

Controller		Equipment Manufacturer	
Model		Manufacturer	
Serial No		Model	
Date		Serial No	
		Date	
Installed Fixture		Refurbished Fixture	
Asset		Refurb By	
Installer		Re-Asset	
Date		Installer	
		Date	

This screen allows the user to set asset information into the controller.

Caution: This is a once only operation.

Click "Set Information" and follow the on screen instructions to set up your asset information.



Please ensure all power is switched off before installing or maintaining this product.

## Probe Offsets

**Probe Offsets**

Probe	Low	High	Value	Units
1	-10	10	<input type="text" value="0.0"/>	°C
2	-10	10	<input type="text" value="0.0"/>	°C
3	-10	10	<input type="text" value="0.0"/>	°C
4	-10	10	<input type="text" value="0.0"/>	°C
5	-10	10	<input type="text" value="0.0"/>	°C
6	-10	10	<input type="text" value="0.0"/>	°C

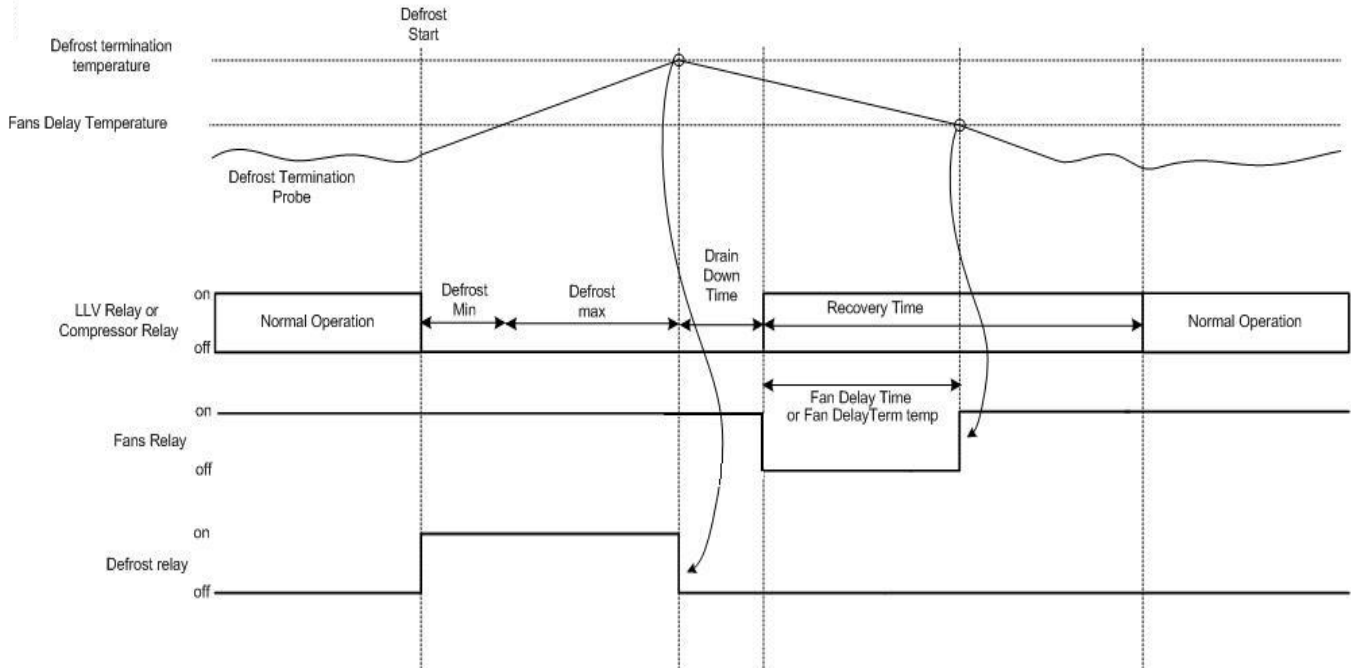
This screen allows the user to set a probe offset between to any of the six probes connected to the controller.



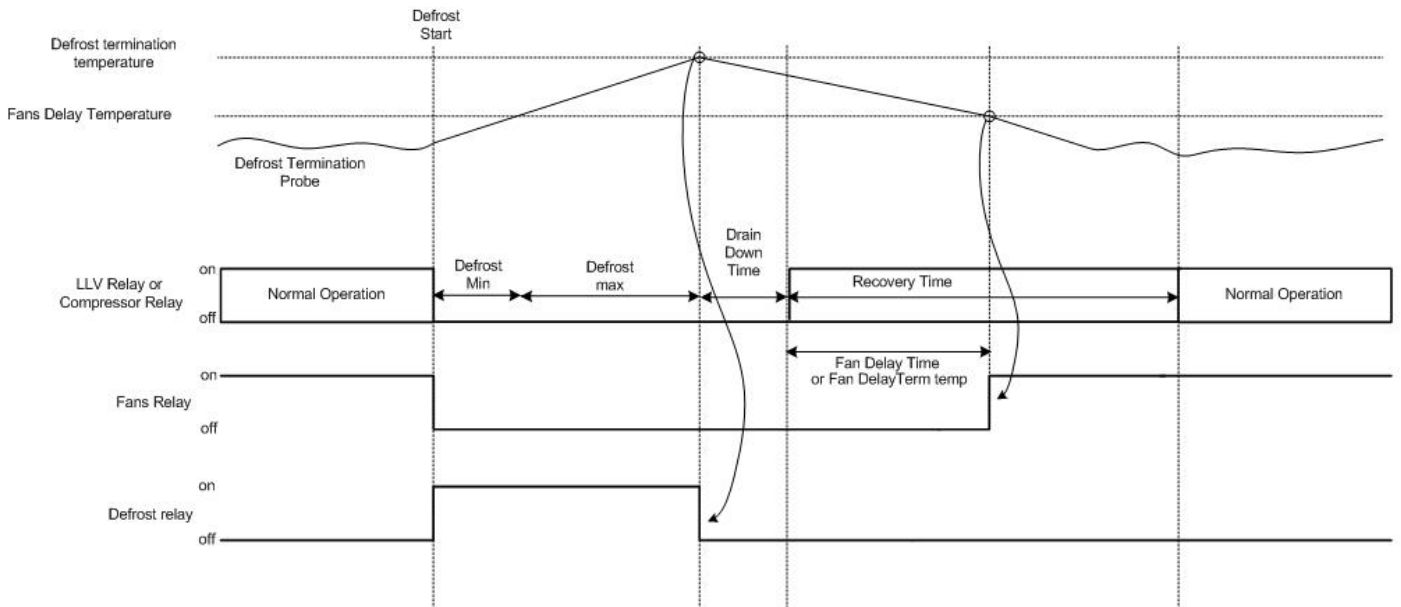
Please ensure all power is switched off before installing or maintaining this product.

## Appendix 2 Defrost Cycles

### Fans On in Defrost



### Fans Off in Defrost



**Note:** Please be aware that there are individual defrost termination probes used for the active sections. When the defrost termination temperature has been met, the defrost length for that section is captured. The controller will only move on to the next phase of the defrost cycle when all active sections reach this temperature or if Defrost Max (P-46) time is met.



Please ensure all power is switched off before installing or maintaining this product.

## Warranty Information

[www.resourcedm.com/terms-and-conditions/](http://www.resourcedm.com/terms-and-conditions/)

## Revision History

Revision	Date	Changes
3.0	04/08/2020	First Release
3.0a	02/02/2022	Bluetooth network support added



Please ensure all power is switched off before installing or maintaining this product.

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