

Resource
Data Management

Mercury T

Commissioning/User Guide
Revision 1.2a



PR0700 Mercury-TM
PR0700 Mercury-TE

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The Mercury T

From Resource Data Management

This controller is intended as a replacement for a variety of Honeywell-Elm Tuscan controllers.

IMPORTANT:-

There are many versions of the Tuscan in existence, and the RDM Mercury-T will not be compatible with every controller. Before you replace a Tuscan controller, ensure that the Mercury-T application software and hardware connections will be a suitable replacement.

RDM accepts no responsibility for the misuse of this Mercury-T product.

This product is a PCB replacement and as such must be housed in a suitable enclosure. It has been developed to be a form and fit replacement for the Honeywell-Elm Tuscan and fits into the Tuscan enclosures apart from the original folded steel type. Please note that the enclosure lid must be earthed after fitting this board.

The functionality of this controller is very similar to the Mercury 2 range; features are turned on/off by parameter changes. Most popular Tuscan versions will be able to be replaced with this controller by suitable parameter changes and minor hardware wiring changes. Please ensure that when replacing a Tuscan, the parameters are set up correctly and the relay connections are checked for correct application.

Note the Honeywell-Elm handheld setup unit will not operate with the Mercury T and should not be used. The controller display will allow for the setup of the controller and this process is similar to the Mercury range of case controller.

Variants: -

Mercury-TE EEV valve type with Genus and IP protocol (PR0701-Mercury-TE)
Mercury-TM LLV valve type with Genus and IP protocol (PR0700-Mercury-TM)

Configuration

The controllers are delivered pre-configured: -

Mercury TM as type 4

Mercury TE as type 4

The controller gives you up to six configuration options: -

Display value	TM	TE
1	Integral controller HT	N/A
2	Integral controller LT	N/A
3	Remote case controller LT	Remote case controller LT
4	Remote case controller HT	Remote case controller HT
5	Coldroom controller LT	Coldroom controller LT
6	Coldroom controller HT	Coldroom controller HT



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Networks

The controller is capable of connecting to either a RS485 network (Genus compatible) or a TCP/IP local area network or controlling in standalone mode with no network output.

RS485 (Genus compatible) network function is built into the controller; if IP network function is required the controller must be connected to either: -

IP Futura module (Part No PR0016)

Mercury Hub (Part No PR0018)

If no Cat5 cable is connected to the controllers IP output, the controller will automatically be configured as a RS485 network (Genus compatible) and the RS485 connections are such that no re-wiring of the network connector is required, when replacing a Tuscan.

If IP network is required, connect the IP output to a suitable IP network module and follow the standard IP log-on procedures.

Display

The Mercury T can use the Mercury 6-5 & Mercury 2 remote displays; it is also compatible with the Honeywell-Elm DIN display.

Note when using the Honeywell-Elm DIN display with keyswitch, the key switch has to be wired to the appropriate X and/or plant inputs. (The same wiring as the Tuscan)

An RDM display with keyswitch operates the keyswitch functions through the one display cable, wiring to the X/Plant inputs is not necessary.

Setting up the controller

Access to the controller can be achieved several ways

- Through the front mounted buttons on the remote display
- Direct access by PC or palm top into the IP 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

Setup Mode

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. Now press the Enter button again to enter the function menu. IO will be displayed. Scroll up or down to go through the list.



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Setup Function Menu

(Common to all types)

Display	Option	Explained in Paragraph
IO	View Inputs / Outputs and States	Input / output table
PARA	Set/View Parameters	Set view parameters
Unit	Probe type and Celsius/Fahrenheit option	Set View Unit
tyPE	Set/View Controller Type	Set/view controller type
rtc	Set/view Clock (rtc = Real Time Clock)	Real Time Clock
nEt	Set/view network configuration	Network Configuration
SoFt	View software version	
dEF	Start Defrost	Defrost
FANS	Toggle Fans Only mode	Fans
CASE	Toggle Case Off mode	Case Off
Lits	Toggle Lights Only mode	Lights
OFSt	Probe Offsets	Probe Offset
ESC	Exit Setup mode	

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 case/coldroom configuration types. (see [configuration table on page 3](#))
- Press enter
- Scroll to select "ESC"
- Press enter

Controller type configuration is now set



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

- a. From the function menu scroll to select PArA
- b. 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.

Unit. Set/view temperature unit and Probe type

From the function menu scroll to select Unit

Press enter and the value will be displayed: -

Probe Types

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

Note: Temperature range for PT1000 is restricted to -42 °C to +60 °C for probe inputs with a secondary function (switched resistors).

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

This function is now complete

Logging On (RS485 Option)

Go to the "net" section of the display menu and select "485A"

After pressing enter at the 485A screen, use the up/down keys to select the desired address e.g. 10-1

Press enter to return to the 485A screen

Use the up key to select the "ESC" screen, press enter at this point and the controller will log-on as "RC10-1"



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Parameter Tables:

Parameter table for Case Controller M (Type 3 and Type 4)

Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
P-01	Cut-in Temp	-42 to 30 (-43.6 to 86)	0.1	Deg	-20 (-4)	0.0 (32)
P-02	Diff	0 to 10 (0 to 18)	0.1	Deg	2 (3.6)	1.5 (2.7)
P-03	Control Weight	0 to 100	1	%	50	50
P-04	Display Weight	0 to 100	1	%	50	50
P-12	Relay 2 Mode	0 = Suction Line 1 = Trim Heater 2 = Alarm 3 = Remote			0	0
P-13	Trim in Defrost	0 (Off), 1(On)			0	0
P-14	Trim Level	0 to 100	1	%	100	100
P-85	Key switch Mode	0 = Case Off 1 = Fans Only 2 = Toggle	1		0	0
P-87	Control Probe type	0 = Use Air on Probe 1 = Use Log Probe	1		0	0
P-92	Fans temperature mode	0 = Off 1 = Temperature 2 = Over-temperature 3 = Temp/OT	1		0	0
P-93	Fans Off Temperature	-42 to 30 (-43.6 to 86)	0.1	Deg	-10 (14)	8 (46.4)
P-15	Probe 5 Select	0 = Defrost, 1 = Monitor	1		0	0
P-16	Relay 5 Mode	0 = Lights, 1 = Alarm	1		0	0
P-97	Control fail, Valve level	0 - 100%	1		0	0
P-20	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	-30 (-22)	-2 (28.4)
P-22	OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-15 (5)	5 (41)
P-23	Log Probe Type	0 (Off), 1 (Logging), 2 (Logging/Alarm)			Off	Off
P-24	Slug Log Probe	0 (Off), 1 (On)			Off	Off
P-25	Log Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	20:00
P-26	Log UT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-35 (-31)	-1 (30.2)
P-27	Log OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-12 (10.4)	6 (42.8)
P-28	Monitor OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	20 (68)	20 (68)
P-40	Defrost Mode	0 (Local), 1 (Remote), 2 (External)			Local	Local
P-41	Defrost Start	00:00 to 23:59	00:01	hh:mm	01:00	01:00
P-42	Defrosts per Day	0 to 8	1		6	6
P-43	No Defrost Time	0 to 25	1	hours	8	8
P-44	Def Terminate	-42 to 30 (-43.6 to 86)	0.1	Deg	14 (57.2)	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



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Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
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		Time	Time
P-49	Fan Delay	00:00 to 99:00	01:00	mm:ss	00:00	00:00
P-88	Fan Delay Temp	-42 to 30 (-43.6 to 86)	0.1	Deg	-20 (-4)	0.0 (32)
P-50	Fans In Defrost	0 (Off), 1 (On)			On	On
P-94	Defrost Hold	0 (Off), 1 (On)			Off	Off
P-95	Defrost Skip	0 (Off), 1 (On)			Off	Off
P-96	Defrost Skip Time	00:00 to 99:00	01;00	mm:ss	12:00	12:00
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
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
dFLt	Restore default values					

Parameter table for Mobile Controller M (Type 1 and Type 2)

Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
P-01	Cut-in Temp	-42 to 30 (-43.6 to 86)	0.1	Deg	-20 (-4)	3.5 (38.3)
P-02	Diff	0 to 10 (0 to 18)	0.1	Deg	2.5 (4.5)	2.5 (4.5)
P-03	Control Weight	0 to 100	1	%	40	30
P-04	Display Weight	0 to 100	1	%	40	30
P-05	Lag Comp Delay	00:00 to 15:00	00:05	mm:ss	00:40	00:10
P-06	Anti SC Time	00:00 to 15:00	00:05	mm:ss	03:00	03:00
P-07	Lag Cut Out Diff	0 to 10 (0 to 18)	0.1	Deg	2.5 (4.5)	2.5 (4.5)
P-85	Key switch Mode	0 = Case Off 1 = Fans Only 2 = Toggle	1		0	0
P-87	Control Probe type	0 = Use Air on Probe 1 = Use Log Probe	1		0	0
P-92	Fans temperature mode	0 = Off 1 = Temperature	1		0	0



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Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
		2 = Over-temperature 3 = Temp/OT				
P-93	Fans Off Temperature	-42 to 30 (-43.6 to 86)	0.1	Deg	-10 (14)	8 (46.4)
P-15	Probe 5 Select	0 = Defrost, 1 = Monitor	1		0	0
P-16	Relay 5 Mode	0 = Lights, 1 = Alarm	1		0	0
P-20	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	-30 (22)	-2 (28.4)
P-22	OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-15 (5)	5 (41)
P-23	Log Probe Type	0 (Off), 1 (Logging), 2 (Logging/Alarm)			Off	Off
P-24	Slug Log Probe	0 (Off), 1 (On)			Off	Off
P-25	Log Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	20:00
P-26	Log UT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-35 (-31)	-1 (30.2)
P-27	Log OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-12 (10.4)	6 (42.8)
P-28	Monitor OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	20 (68)	20 (68)
P-40	Defrost Mode	0 (Local), 1 (Remote), 2 (External)			Local	Local
P-41	Defrost Start	00:00 to 23:59	00:01	hh:mm	01:00	01:00
P-42	Defrosts per Day	0 to 8	1		6	6
P-43	No Defrost Time	0 to 25	1	hours	8	5
P-44	Def Terminate	-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	25:00	30:00
P-47	Drain Down	00:00 to 24:00	00:15	mm:ss	01:30	00:30
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	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	-20 (-4)	0.0 (32)
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-95	Defrost Skip	0 (Off), 1 (On)			Off	Off
P-96	Defrost Skip Time	00:00 to 99:00	01:00	mm:ss	12:00	12:00
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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Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
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
dFLt	Restore default settings					

Parameter table for Coldroom Controller M (Type 5 and Type 6)

Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
P-01	Cut-in Temp	-42 to 30 (-43.6 to 86)	0.1	Deg	-20 (-4)	0 (32)
P-02	Diff	0 to 10 (0 to 18)	0.1	Deg	2 (35.6)	1.5 (34.7)
P-03	Control Weight	0 to 100	1	%	50	50
P-04	Display Weight	0 to 100	1	%	50	50
P-12	Relay 2 Mode	0 = Suction Line 1 = Alarm 2 = Remote			0	0
P-85	Key switch Mode	0 = Case Off 1 = Fans Only 2 = Toggle	1		0	0
P-87	Control Probe type	0 = Use Air on Probe 1 = Use Log Probe	1		0	0
P-92	Fans temperature mode	0 = Off 1 = Temperature 2 = Over-temperature 3 = Temp/OT	1		0	0
P-93	Fans Off Temperature	-42 to 30 (-43.6 to 86)	0.1	Deg	-10 (14)	8 (46.4)
P-15	Probe 5 Select	0 = Defrost, 1 = Monitor	1		0	0
P-16	Relay 5 Mode	0 = Lights, 1 = Alarm	1		0	0
P-97	Control fail, Valve level	0 - 100%	1		0	0
P-20	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	-30 (22)	-2 (28.4)
P-22	OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-15 (5)	5 (41)
P-23	Log Probe Type	0 (Off), 1 (Logging), 2 (Logging/Alarm)			Off	Off
P-24	Slug Log Probe	0 (Off), 1 (On)			Off	Off
P-25	Log Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	20:00
P-26	Log UT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-30 (22)	-2 (28.4)
P-27	Log OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-15 (5)	5 (41)
P-28	Monitor OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	20 (68)	20 (68)
P-40	Defrost Mode	0 (Local), 1 (Remote), 2 (External)			Local	Local



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

Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
P-41	Defrost Start	00:00 to 23:59	00:01	hh:mm	01:00	01:00
P-42	Defrosts per Day	0 to 8	1		6	6
P-43	No Defrost Time	0 to 25	1	hours	8	8
P-44	Def Terminate	-42 to 30 (-43.6 to 86)	0.1	Deg	14 (57.2)	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	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	-20 (-4)	0.0 (32)
P-50	Fans In Defrost	0 (Off), 1 (On)			Off	Off
P-94	Defrost Hold	0 (Off), 1 (On)			Off	Off
P-95	Defrost Skip	0 (Off), 1 (On)			Off	Off
P-96	Defrost Skip Time	00:00 to 99:00	01:00	mm:ss	12:00	12:00
P-80	Door alarm dly	00:00 to 99:00	01:00	mm:ss	20:00	20:00
P-81	Door Closes LL	0 (No), 1 (Yes)			No	No
P-82	Door Stops Fan	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
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-60	Lights Mode	0 (Local), 1 (Remote), 2 (Man Off), 3 (Man On)			Local	Local



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

Parameter table for Case Controller E (Type 3 and Type 4)

Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
P-01	Cut-in Temp	-42 to 30 (-43.6 to 86)	0.1	Deg	-20 (-4)	0.0 (32)
P-02	Diff	0 to 10 (0 to 18)	0.1	Deg	2 (3.6)	1.5 (2.7)
P-03	Control Weight	0 to 100	1	%	50	50
P-04	Display Weight	0 to 100	1	%	50	50
P-08	Superheat Ref	4 to 12 (7.2 to 21.6)	0.1	Deg	6 (10.8)	6 (10.8)
P-09	Response on	1 to 30	1		10	10
P-10	Response off	1 to 30	1		10	10
P-11	Control Type	0 = EEV, 1 = EET	1		0	0
P-12	Relay 2 Mode	0 (Suction Line), 1 (Trim Heater)			0	0
P-13	Trim in Defrost	0 (Off), 1(On)			0	0
P-14	Trim Level	0 to 100	1	%	100	100
P-85	Key switch Mode	0 = Case Off 1 = Fans Only 2 = Toggle	1		0	0
P-87	Control Probe type	0 = Use Air on Probe 1 = Use Log Probe	1		0	0
P-92	Fans temperature mode	0 = Off 1 = Temperature 2 = Over-temperature 3 = Temp/OT	1		0	0
P-93	Fans Off Temperature	-42 to 30 (-43.6 to 86)	0.1	Deg	-10 (14)	8 (46.4)
P-15	Probe 5 Select	0 = Defrost, 1 = Monitor	1		0	0
P-16	Relay 5 Mode	0 = Lights, 1 = Alarm	1		0	0
P-17	Suction Select	0 = Local 1 = Remote	1		0	0
P-97	Control fail, Valve level	0 - 100%	1		0	0
P-20	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	-30 (-22)	-2 (28.4)
P-22	OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-15 (5)	5 (41)
P-23	Log Probe Type	0 (Off), 1 (Logging), 2(Logging/Alarm)			Off	Off
P-24	Slug log probe	0 (No), 1 (Yes)			No	No
P-25	Log Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	20:00
P-26	Log UT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-35 (-31)	-1 (30.2)
P-27	Log OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-12 (10.4)	6 (42.8)
P-28	Monitor OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	20 (68)	20 (68)
P-40	Defrost Mode	0 (Local), 1 (Remote), 2 (External)			Local	Local
P-41	Defrost Start	00:00 to 23:59	00:01	hh:mm	01:00	01:00
P-42	Defrosts per Day	0 to 8	1		6	6
P-43	No Defrost Time	0 to 25	1	hours	12	12
P-44	Def Terminate	-42 to 30 (-43.6 to 86)	0.1	Deg	14 (57.2)	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



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

Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
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	00:00 to 99:00	01:00	mm:ss	00:00	00:00
P-88	Fan Delay Temp	-42 to 30 (-43.6 to 86)	0.1	Deg	-20 (-4)	0.0 (32)
P-50	Fans In Defrost	0 (Off), 1 (On)			On	On
P-94	Defrost Hold	0 (Off), 1 (On)			Off	Off
P-95	Defrost Skip	0 (Off), 1 (On)			Off	Off
P-96	Defrost Skip Time	00:00 to 99:00	01;00	mm:ss	12:00	12:00
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
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
dFLt	Restore default settings					

Parameter table for Coldroom Controller E (Type 5 and Type 6)

Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
P-01	Cut-in Temp	-42 to 30 (-43.6 to 86)	0.1	Deg	-20 (-4)	0.0 (32)
P-02	Diff	0 to 10 (0 to 18)	0.1	Deg	2 (3.6)	1.5 (2.7)
P-03	Control Weight	0 to 100	1	%	50	50
P-04	Display Weight	0 to 100	1	%	50	50
P-08	Superheat Ref	4 to 12 (7.2 to 21.6)	0.1	Deg	6 (10.8)	6 (10.8)
P-09	Response on	1 to 30	1		10	10
P-10	Response off	1 to 30	1		10	10
P-11	Control Type	0 = EEV, 1 = EET	1		0	0
P-12	Relay 2 Mode	0 = Suction Line 1 = Alarm 2 = Remote			0	0
P-85	Key switch Mode	0 = Case Off 1 = Fans Only	1		0	0



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

Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
		2 = Toggle				
P-87	Control Probe type	0 = Use Air on Probe 1 = Use Log Probe	1		0	0
P-92	Fans temperature mode	0 = Off 1 = Temperature 2 = Over-temperature 3 = Temp/OT	1		0	0
P-93	Fans Off Temperature	-42 to 30 (-43.6 to 86)	0.1	Deg	-10 (14)	8 (46.4)
P-15	Probe 5 Select	0 = Defrost, 1 = Monitor	1		0	0
P-16	Relay 5 Mode	0 = Lights, 1 = Alarm	1		0	0
P-17	Suction Select	0 = Local 1 = Remote	1		0	0
P-97	Control fail, Valve level	0 - 100%	1		0	0
P-20	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	-30 (-22)	-2 (28.4)
P-22	OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-15 (5)	5 (41)
P-23	Log Probe Type	0 (Off), 1 (Logging), 2 (Logging/Alarm)			Off	Off
P-24	Slug Log Probe	0 (Off), 1 (On)			Off	Off
P-25	Log Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00	20:00
P-26	Log UT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-35 (-31)	-1 (30.2)
P-27	Log OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	-12 (10.4)	6 (42.8)
P-28	Monitor OT Alarm	-49 to 60 (-56.2 to 140)	0.1	Deg	20 (68)	20 (68)
P-40	Defrost Mode	0 (Local), 1 (Remote), 2 (External)			Local	Local
P-41	Defrost Start	00:00 to 23:59	00:01	hh:mm	01:00	01:00
P-42	Defrosts per Day	0 to 8	1		6	6
P-43	No Defrost Time	0 to 25	1	hours	12	12
P-44	Def Terminate	-42 to 30 (-43.6 to 86)	0.1	Deg	14 (57.2)	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	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	-20 (-4)	0.0 (32)
P-50	Fans In Defrost	0 (Off), 1 (On)			On	On
P-94	Defrost Hold	0 (Off), 1 (On)			Off	Off
P-95	Defrost Skip	0 (Off), 1 (On)			Off	Off
P-96	Defrost Skip Time	00:00 to 99:00	01:00	mm:ss	12:00	12:00
P-80	Door alarm delay	00:00 to 99:00	01:00	mm:ss	20:00	20:00
P-81	Door Closes EEV	0 (No), 1 (Yes)			No	No
P-82	Door Stops Fan	0 (No), 1 (Yes)			No	No
P-60	Lights Mode	0 (Local), 1 (Remote), 2 (Man Off), 3 (Man On)			Local	Local



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

Number	Parameter	Range °C (°F)	Step	Units	Def. LT °C (°F)	Def. HT °C (°F)
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
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
dFLt	Restore default settings					



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

Parameters Description:

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 lead compressor switches off when below this temperature
P-03	Control Weight	Percentage of the Air-On temperature that is used to calculate the control temp. The remaining percentage will be used on the Air-Off temperature Example, P-03 set to 30% Control temp = 30% Air-on + 70% Air-off
P-04	Display Weight	As above only applied to the display temperature
P-05	Lag Comp Delay	Delay before the second compressor is switched on if the temperature is still above set-point. Note. The lead and lag compressors swap after each defrost to even the run times.
P-06	Anti SC Time	Allows the user to set the compressor for a given number of starts/hour
P-07	Lag Cut Out Diff	Diff below the set point for the lag compressor
P-08	Superheat Ref	The controller will attempt to maintain this superheat value
P-09	Response on	Allows the user to speed up the EEV on time
P-10	Response off	Allows the user to speed up the EEV off time
P-11	Control Type	Allows the user to select either EEV control or EET control EEV uses the superheat as its main reference with the cabinet temperature as a secondary control. EET use the cabinet temperature as its main reference.
P-12	Relay 2 Mode	Sets Relay 2 to be a Suction, Trim Heater, and Alarm, Remote or Trim Hub relay. <ul style="list-style-type: none"> ➤ Suction - set for Suction Line Valve operation. ➤ Trim Heater - set as trim relay which pulses in accordance with P-14 or the Data Manager energy feature trim control. ➤ Alarm - 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. ➤ Remote - The relay is available for remote purposes such as the Data Manager GP timer channel or Data Builder software.
P-51	EEV Minimum Opening	Sets the minimum valve opening level, during normal operation the valve will not go below this level.
P-52	Superheat Problem	Sets the point at which the algorithm will go to the "EEV Problem" state
P-53	EEV Problem Opening	Sets the valve open position for entering the "EEV Problem" state
P-54	EEV Problem Time	Sets the time the algorithm stays in the "EEV Problem" state
P-55	Average Valve Opening	Normally the valve during recovery will open to the last average position, this setting allows for that value to be reduced by the said percentage.
P-57	EEV Divide value	This parameter only takes effect when the controller is used in conjunction with a Mercury Switch pressure application. When the Mercury Switch generates the MOP alarm the controller reduces the maximum valve opening to this percentage. For example if this parameter is set to 50% and the MOP alarm is generated then the maximum valve opening will be limited to 50%. Therefore as the controller pulses the valve the maximum the valve will open is 50%. Note P-51 EEV Minimum opening overrides the valve output operation and the valve will not pulse below this setting. Please see MOP note.



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

Number	Parameter	Description
		Please note parameters P-51 through to P-57 should not be altered without first understanding the effects they may have on the case operation. If incorrectly set they may have undesired affects.
P-13	Trim in Defrost	Allows the trims to be off or on during a defrost
P-14	Trim Level	Sets a percentage level of a 5-minute pulse to the trim heaters. Example: - P-14 set to 50% = 2.5 minutes on, 2.5 minutes off.
P-85	Key switch mode	Sets the function of the key switch to case-off, lights-only or toggle (toggle allows for the first turn of the switch to be case-off, the 2 nd turn of the switch to be lights-only)
P-87	Control Probe type	Switches between using the air-on probe and Logging probe. Note the control and display temperature will still be a derivative of the weighted Average of the control probe + Air-off probe
P-92	Fans temperature mode	Allows the user to set the fans to turn off when: - <ul style="list-style-type: none"> ➤ A pre-determined temperature is reached (P93) ➤ When an over-temperature alarm is present ➤ When either P93 is reached or an OT alarm is present
P-93	Fans Off Temperature	Temperature for the above (P92) operation
P-15	Probe 5 Select	This input can be used as a defrost termination probe (default) or as a monitor probe with an OT alarm level (P-28)
P-16	Relay 5 mode	This changes the function of relay 5 from Lights (default) to an alarm relay. If set as an alarm relay, the relay goes active on an alarm and stays active until all alarms are clear.
P-17	Suction Select	This allows the control algorithm to use a remote temperature input in place of the evaporator in value. In the event of no remote value being received, the control algorithm will revert to using the evaporator in probe value until the remote value is restored.
P-93	Control Fail Valve value	This value is used in the event of a control probe fail; the valve will remain at this opening until the probe fault has been cleared
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 control temperature)
P-22	OT Alarm	Over temperature alarm set point. This alarm uses the air-off temperature
P-23	Log Probe Type	Allows the user to set the logging probe mode: - <ul style="list-style-type: none"> ➤ Off ➤ Logging with no alarms ➤ Logging with alarms
P-24	Slug Log Probe	Applies a damping factor. This can be used to make a standard probe have the same temperature response as a logging probe.
P-25	Log Alarm Delay	Delay for the Logging probe over and under-temperature alarms
P-26	Log UT Alarm	Logging probe under temperature alarm set point
P-27	Log OT Alarm	Logging probe over temperature alarm set point
P-28	Monitor OT Alarm	Monitor probe over temperature alarm set point
P-40	Defrost Mode	Allows the user to set the defrost mode: - <ul style="list-style-type: none"> ➤ Local (Uses the internal parameters P-41 and P-42) ➤ Remote (Requires a defrost schedule in the front end) ➤ External (uses a link across X2/X4, if the link is not removed, the controller will go back to normal operation after the defrost, and then defrost using the "No Defrost" time until the link is removed.
P-41	Defrost Start	When defrost mode is set to "Local", this is the start time for the 1 st defrost
P-42	Defrosts per Day	When defrost mode is set to "Local", this is the number of defrosts per day equally spaced from the start time.
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 1 hour over the normal defrost period.
P-44	Def Terminate	The defrost will terminate (defrost control relay off) when the temperature of the defrost termination probe reaches this value.



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

Number	Parameter	Description
		<p>If the "defrost termination" probe is not fitted, defrost termination will occur when: -</p> <ul style="list-style-type: none"> The "coil in" probe reaches the set point (If fans are selected as "off during defrost") Or The "air off" probe reaches the set point (If fans are selected as "on during defrost") <p>If the "coil in" probe is not fitted, the "air off" probe will be used.</p>
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 defrost cycle 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. Note that if the air-off temperature is still above the OT alarm setpoint when this period expires, an immediate OT alarm occurs; there is not 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 terminate.
P-49	Fan Delay	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. Note 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 until a remote command from the front end starts the recovery process.
P-95	Defrost Skip	Allows user to enable/disable defrost skip. This feature allows the controller to skip defrosts. If the current defrost terminates on temperature then the controller will skip the next scheduled defrost providing the previous defrost terminated before the defrost skip time (P-96). Operates only when the controller is set to local defrost scheduling.
P-96	Defrost Skip Time	Used to determine if the next defrost will be skipped; if the current defrost terminates within this period.
P-91	Defrost Type	Allows the user to select electric or gas defrost, if gas is selected, the compressor is kept running for the duration of the defrost.
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 or EEV if the door opens.
P-82	Door Stops Fan	This parameter is used to stop the fans if the door opens.
P-60	Lights Mode	<p>Allows the user to set the lights mode: -</p> <ul style="list-style-type: none"> ➤ Always off ➤ Always on ➤ Use a local schedule P-61 to P-74) ➤ Use a remote schedule (Set up in the system front end)
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



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

Number	Parameter	Description
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-72	Fri Lights Off	When P-60 is set to Local, Friday off time
P-73	Sat Lights On	When P-60 is set to Local, Saturday on time
P-74	Sat Lights Off	When P-60 is set to Local, Saturday off time
dFLt	Restore default values	Restores all of the parameters to their default values

Relay State and functional operation

Relay State:	Function State	Wired contact	Comments
Relay 1 off (LLV)	Valve on	N/C	
Relay 1 on (LLV)	Valve off	N/C	
Relay 1 off (EEV)	Valve off	N/C *	See note below
Relay 1 on (EEV)	Valve on	N/C *	See note below
Relay 2 off	Suction or Trims off	N/O	Trim or SLV mode
Relay 2 on	Suction or Trims on	N/O	Trim or SLV mode
Relay 2 off	Alarm on	N/C	Alarm mode
Relay 2 on	Alarm off	N/C	Alarm mode
Relay 3 off	Defrost control off	N/O	
Relay 3 on	Defrost control on	N/O	
Relay 4 off	Fans on	N/C	
Relay 4 on	Fans off	N/C	
Relay 5 off	Lights on	N/O	Lights mode
Relay 5 on	Lights off	N/O	Lights mode
Relay 5 off	Alarm On	N/C	Alarm Mode
Relay 5 on	Alarm Off	N/C	Alarm Mode

* **Note** The N/C connection position is used, but the SSR is of a normally open type. This is intentional and not a bug.

Defrost Termination

Defrost termination will be when the temperature parameter "def terminate" has been reached on the "defrost termination" probe. If the "defrost termination" probe is not fitted, defrost termination will occur when: -

- The "coil in" probe reaches the set point (If fans are selected as "off during defrost")
- Or The "air off" probe reaches the set point (If fans are selected as "on during defrost")

If the "coil in" probe is not fitted, the "air off" probe will be used.



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

Fan Delay after Defrost

The fans will come back on when: -

The fan delay time has elapsed if the "fan delay mode" is set to time

Or

If the fan delay mode is set to "temp", the fans will come on when the defrost termination probe reaches the fan delay set point, or on the time parameter, whichever occurs first.

If the "defrost termination" probe is not fitted, the fans will come on when: -

Or The "coil in" probe reaches the control set point (If fans are selected as "off during defrost")
 The "air off" probe reaches the control set point (If fans are selected as "on during defrost")

Network Configuration

The Mercury T has an integrated RS485 network (Genus compatible protocol). To set up a network address, use the display menu item "net" and set the desired address at the "485A" screen. After this address has been set, move to the "ESC" screen under the "Net" items and press enter. The controller will then log-on to the front end system.

If the controller is to be used in an IP network, connect the controller to an IP communications device such as:-

- IP Futura
- Mercury Hub

Note, the controller must be reset (power off/on) for the communications module to be detected. Set the appropriate network ID and the controller will automatically log-on to the front end system.

RS485 Network Menu options: -

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. N.B. this option must be selected to save any changes made in this menu

* These options are only available when the network type is set to Genus compatible.

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

Value	Network Type
1	Genus compatible (all versions)

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

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

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

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.



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

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.

IP Futura module

Connect an IP Futura module or Mercury Hub to the Mercury T RS232 comms connector

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. N.B. this option must 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.

2. nEt. From the function menu you can now select nEt
 - Press enter and the display will show "IP-r", press enter
 - 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

Please refer to the Mercury Switch user guide, which can be obtained from the RDM website, for information regarding connecting a controller to a network.

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.



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

Input/Output table for Case Controller M (Type 3 and Type 4)

Number	IO	Range (dependant on probe type) °C (°F)	Step	Units
I-01	Control Temp.	-42 to 60 (-43.6 to 140)	0.1	Deg
I-02	Display temp	-42 to 60 (-43.6 to 140)	0.1	Deg
I-03	Air on Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-04	Air off Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-05	Evaporator Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-06	Suction Line Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-07	Superheat	-30 to 60 (-54 to 108)	0.1	Deg
I-08	Logging Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-09	Defrost Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-10	Plant Fault	0 (OK), 1 (Alarm)		
I-11	Case Clean	0 (Off), 1 (On)		
I-15	Monitor Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-17	MOP	0 (Off), 1 (On)		
O-01	Liquid Line Valve	0 (Off), 1 (On)		
O-05	Defrost Control	0 (Off), 1 (On)		
O-06	Lights	0 (Off), 1 (On)		
O-07	Case Fans	0 (Off), 1 (On)		
O-10	Last Def. Time	00:00 to 23:59		hh:mm
O-11	Last Def. Length	00:00 to 03:00		hh:mm
O-12	Last Def. Ctrl Temp.	-42 to 60 (-43.6 to 140)	0.1	Deg
O-13	Last Def. Type	0 (None), 1 (Internal), 2 (External), 3 (Network), 4 (Display), 5 (Timed)		
O-14	Suction Line Valve/Trim Heaters	0 (Open/Off), 1 (Closed/On)		
O-15	Alarm Relay (Relay2)	0 (Unused), 1 (OK), 2 (Alarm)		
O-30	Set Point Offset	-49 to 60 (-56.2 to 140)	0.1	Deg
O-31	Trim Off Period	00:00 to 05:00	00:01	mm:ss
S-01	Control State	0 (Stabilise), 1 (Normal), 2 (Defrost Min), 3 (Defrost 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 (Defrost Hold)		



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

Input/Output table for Coldroom Controller M (Type 5 and Type 6)

Number	IO	Range (dependant on probe type) °C (°F)	Step	Units
I-01	Control Temp.	-42 to 60 (-43.6 to 140)	0.1	Deg
I-02	Display temp	-42 to 60 (-43.6 to 140)	0.1	Deg
I-03	Air on Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-04	Air off Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-05	Evaporator Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-06	Suction Line Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-07	Superheat	-30 to 60 (-54 to 108)	0.1	Deg
I-08	Logging Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-09	Defrost Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-10	Plant Fault	0 (OK), 1 (Alarm)		
I-12	Door Sensor	0 (Closed), 1 (Open)		
I-13	Person Trapped	0 (OK), 1 (Alarm)		
I-14	Plant Fault 2	0 (OK), 1 (Alarm)		
O-01	Liquid Line Valve	0 (Off), 1 (On)		
O-02	Suction Line Valve	0 (Off), 1 (On)		
O-05	Defrost Control	0 (Off), 1 (On)		
O-06	Lights	0 (Off), 1 (On)		
O-07	Case Fans	0 (Off), 1 (On)		
O-10	Last Def. Time	00:00 to 23:59		hh:mm
O-11	Last Def. Length	00:00 to 03:00		hh:mm
O-12	Last Def. Ctrl Temp.	-42 to 60 (-43.6 to 140)	0.1	Deg
O-13	Last Def. Type	0 (None), 1 (Internal), 2 (External), 3 (Network), 4 (Display), 5 (Timed)		
O-15	Alarm Relay (Relay1)	0 (Unused), 1 (OK), 2 (Alarm)		
O-16	Alarm Relay (Relay2)	0 (Unused), 1 (OK), 2 (Alarm)		
O-17	Remote Relay (Relay 2)	0 (Off), 1 (On)		
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	Set Point Offset	-49 to 60 (-56.2 to 140)	0.1	Deg
S-01	Control State	0 (Stabilise), 1 (Normal), 2 (Defrost Min), 3 (Defrost 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 (Defrost Hold)		



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

Input/Output table for Mobile Controller M (Type 1 and Type 2)

Number	IO	Range (dependant on probe type) °C (°F)	Step	Units
I-01	Control Temp.	-42 to 60 (-43.6 to 140)	0.1	Deg
I-02	Display temp	-42 to 60 (-43.6 to 140)	0.1	Deg
I-03	Air on Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-04	Air off Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-05	Evaporator Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-06	Suction Line Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-07	Superheat	-30 to 60 (-54 to 108)	0.1	Deg
I-08	Logging Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-09	Defrost Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-10	Plant Fault	0 (OK), 1 (Alarm)		
I-11	Case Clean	0 (Off), 1 (On)		
I-14	Plant Fault 2	0 (OK), 1 (Alarm)		
I-15	Monitor Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
O-03	Compressor A	0 (Off), 1 (On)		
O-04	Compressor B	0 (Off), 1 (On)		
O-05	Defrost Control	0 (Off), 1 (On)		
O-06	Lights	0 (Off), 1 (On)		
O-07	Case Fans	0 (Off), 1 (On)		
O-10	Last Def. Time	00:00 to 23:59		hh:mm
O-11	Last Def. Length	00:00 to 03:00		hh:mm
O-12	Last Def. Ctrl Temp.	-42 to 60 (-43.6 to 140)	0.1	Deg
O-13	Last Def. Type	0 (None), 1 (Internal), 2 (External), 3 (Network), 4 (Display), 5 (Timed)		
O-16	Alarm Relay	0 (Unused), 1 (OK), 2 (Alarm)		
O-30	Set Point Offset	-49 to 60 (-56.2 to 140)	0.1	Deg
S-01	Control State	0 (Stabilise), 1 (Normal), 2 (Defrost Min), 3 (Defrost 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 (Defrost Hold)		



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

Input/Output table for Case Controller E (Type 3 and Type 4)

Number	IO	Range (dependant on probe type) °C (°F)	Step	Units
I-01	Control Temp.	-42 to 60 (-43.6 to 140)	0.1	Deg
I-02	Display temp	-42 to 60 (-43.6 to 140)	0.1	Deg
I-03	Air on Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-04	Air off Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-05	Evaporator Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-06	Suction Line Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-07	Superheat	-30 to 60 (-54 to 108)	0.1	Deg
I-08	Logging Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-09	Defrost Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-10	Plant fault	0 (OK), 1 (Alarm)		
I-11	Case Clean Switch	0 (Off), 1 (On)		
I-15	Monitor Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-17	MOP	0 (Off), 1 (On)		
O-05	Defrost Control	0 (Off), 1 (On)		
O-06	Lights	0 (Off), 1 (On)		
O-07	Case Fans	0 (Off), 1 (On)		
O-09	EEV Opening	0 to 100	0.1	%
O-10	Last Def. Time	00:00 to 23:59		hh:mm
O-11	Last Def. Length	00:00 to 03:00		hh:mm
O-12	Last Def. Ctrl Temp.	-42 to 60 (-43.6 to 140)	0.1	Deg
O-13	Last Def. Type	0 (None), 1 (Internal), 2 (External), 3 (Network), 4 (Display), 5 (Timed)		
O-14	Suction Line Valve	0 (Open), 1 (Closed)		
O-15	Alarm Relay (Relay1)	0 (Unused), 1 (OK), 2 (Alarm)		
O-16	Alarm Relay (Relay2)	0 (Unused), 1 (OK), 2 (Alarm)		
O-17	Remote Relay (Relay 2)	0 (Off), 1 (On)		
O-30	Set Point Offset	-49 to 60 (-56.2 to 140)	0.1	Deg
O-31	Trim Off Period	00:00 to 05:00	00:01	mm:ss
S-01	Control State	0 (Stabilise), 1 (Normal), 2 (Defrost Min), 3 (Defrost 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 (Defrost Hold)		



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

Input/Output table for Coldroom Controller E (Type 5 and Type 6)

Number	IO	Range (dependant on probe type) °C (°F)	Step	Units
I-01	Control Temp.	-42 to 60 (-43.6 to 140)	0.1	Deg
I-02	Display temp	-42 to 60 (-43.6 to 140)	0.1	Deg
I-03	Air on Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-04	Air off Probe	-42 to 60 (-43.6 to 140)	0.1	Deg
I-05	Evaporator Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-06	Suction Line Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-07	Superheat	-30 to 60 (-54 to 108)	0.1	Deg
I-08	Logging Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-09	Defrost Probe	-49 to 60 (-56.2 to 140)	0.1	Deg
I-10	Plant fault	0 (OK), 1 (Alarm)		
I-12	Door Sensor	0 (Off), 1 (On)		
I-13	Person trapped	0 (OK), 1 (Alarm)		
O-02	Suction Line Valve	0 (Open), 1 (Closed)		
O-05	Defrost Control	0 (Off), 1 (On)		
O-07	Case Fans	0 (Off), 1 (On)		
O-08	Lights	0 (Off), 1 (On)		
O-09	EEV Opening	0 to 100	0.1	%
O-10	Last Def. Time	00:00 to 23:59		hh:mm
O-11	Last Def. Length	00:00 to 03:00		hh:mm
O-12	Last Def. Ctrl Temp.	-42 to 60 (-43.6 to 140)	0.1	hh:mm
O-13	Last Def. Type	0 (None), 1 (Internal), 2 (External), 3 (Network), 4 (Display), 5 (Timed)		
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	Set Point Offset	-49 to 60 (-56.2 to 140)	0.1	Deg
S-01	Control State	0 (Stabilise), 1 (Normal), 2 (Defrost Min), 3 (Defrost 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 (Defrost Hold)		



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

Alarm Messages

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

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

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)
Missed defrost	15
Plant Fault 1	3
Case over temperature	4
Case under temperature	5
Probe 1 Faulty	6
Probe 2 Faulty	6
Probe 3 Faulty	6
Probe 4 Faulty	6
Probe 5 Faulty	6
Probe 6 Faulty	6
Door Left Open	2
Product over temperature	8
Product under temperature	9
Person Trapped	1
Plant Fault 2	3



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Modifying controller states

During normal operation you can change the following states from the function menu

Defrost "dEF"

Selecting the defrost option starts a defrost cycle. Selecting this option will exit the setup menu automatically. The display will show "dEF"

Defrosts can also be manually started by pressing and holding the display # button.

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 will put the controller into the Fans Only state if the current state is not 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 keyswitch is being used, this function can be invoked by turning the keyswitch to the fans only position (90 degrees clockwise) with parameter P85 set to "fans"

Case Off "CASE"

Selecting the Case Off option will put the controller into the Case Off state if the current state is not 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"

If a remote display with keyswitch is being used, this function can be invoked by turning the keyswitch to the case-off position. (Clockwise 90 degrees) with parameter P85 set to "case"

Lights Only "LitS"

Selecting the Lights Only option will put the controller into the Lights Only state if the current state is not 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

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.



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

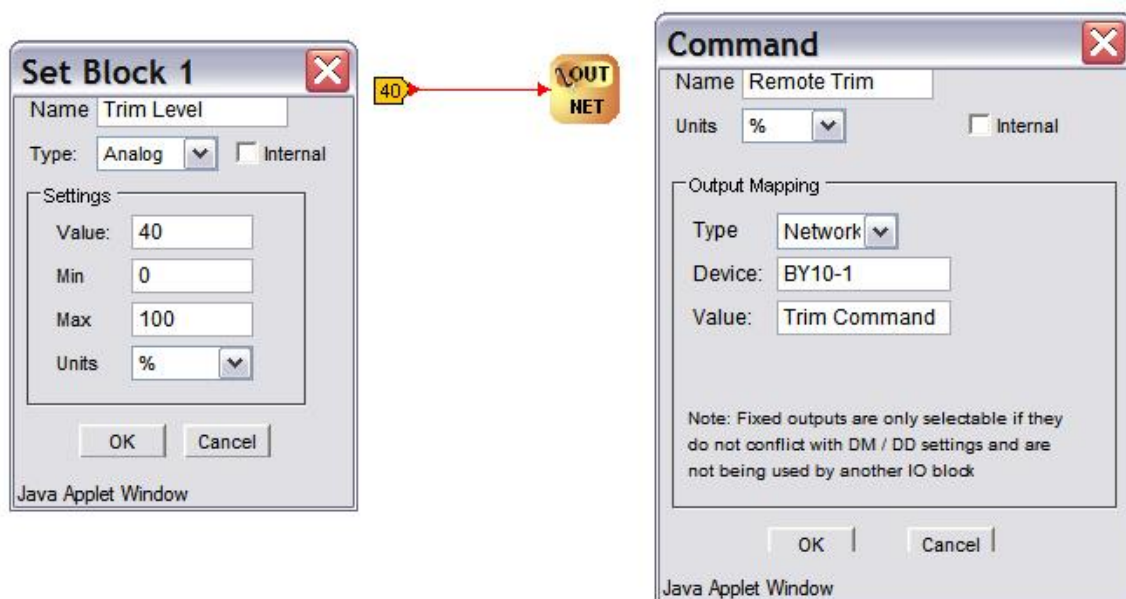
Remote Commands:

The following commands can be used by a Data Builder program when used in the IP comms mode: -

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
Trim Command	0 to 100%	Sets the trim level to this value (Trim period is 5 minutes)	Relay 4 mode: Trim Heater
Setpoint Command	$\pm 20^{\circ}\text{C}$ ($\pm 34^{\circ}\text{F}$)	Is added to or subtracted from the setpoint	
Case Off Command	5 8 0	Sets the controller to Case Off Sets the controller to Lights Only Restores the controller from Case Off / Lights Only to Normal	
Haccp Command	0 1 2	HACCP LED OFF HACCP LED On HACCP LED Flashes	Operates with the Mercury Mk2 display only
Button Command	0 1 2	Buttons backlights Off Buttons backlights On Buttons Backlights Flash	Operates with the Mercury Mk2 display only
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.

See Example below, which sets the Trim Heater to BY10-1 at 40%



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

Specification

Power requirements:

Supply Voltage Range:	100 – 240 Vac \pm 10%
Supply Frequency:	50 – 60 Hz
Maximum supply current:	1 Amp (No relay loads)
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.
Size:	Voltage fluctuations not to exceed \pm 10% of nominal voltage 285mm (L) x 135mm (W) x 30mm (H)
Weight:	400 Grams (PCB only, not enclosure)
Safety:	EN61010
EMC:	EN61326; 1997 +Amdt. A1; 1998
Ventilation:	There is no requirement for forced cooling ventilation
Earthing:	Ensure, when inside a Tuscan enclosure, the lid is Earthed

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

Fuse:	1A 240 Vac Antisurge (T) HRC conforming to IEC 60127
Or MCB:	1A, 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:	10A (non inductive) 5A @ $\text{Cos}\Phi=0.4$	M
Max Voltage relay 1:	260Vac, 30V dc	M
Exclusive common		
Max current relay 1:	3.0A	E
Max Voltage relay 1:	280Vac	E
Exclusive common		
Max current relay 2:	10A (non inductive) 5A @ $\text{Cos}\Phi=0.4$	
Max Voltage relay 2:	260Vac, 30V dc	
Exclusive common		
Max current relay 3:	10A (non inductive) 5A @ $\text{Cos}\Phi=0.4$	
Max Voltage relay 3:	260Vac, 30V dc	
Exclusive common		
Max current relay 4:	10A (non inductive) 5A @ $\text{Cos}\Phi=0.4$	
Max Voltage relay 4:	260Vac, 30V dc	
Exclusive common		
Max current relay 5:	10A (non inductive) 5A @ $\text{Cos}\Phi=0.4$	
Max Voltage relay 5:	260Vac, 30V dc	

Inputs:

6 x probe inputs	Prb1 – Prb6
2 x Auxiliary inputs	X2/X4 and X3/X4
4 x Plant inputs	P2 – P5 (Use P1 as the common and return to the input)

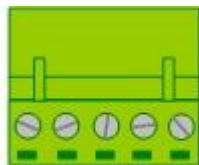


Please ensure all power is switched off before installing or maintaining this product.

Display Port

The display port is configured to accept a Honeywell-Elm DIN display (1), it will not function with any other Honeywell-Elm display. To connect an RDM display, wire as (2) below: -

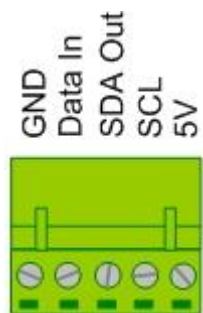
(1)



Blue
Green
Yellow
White
Red

Display
Connector

(2)



Green
Brown
White
Red
Blue & Black

RDM Display

Installation:

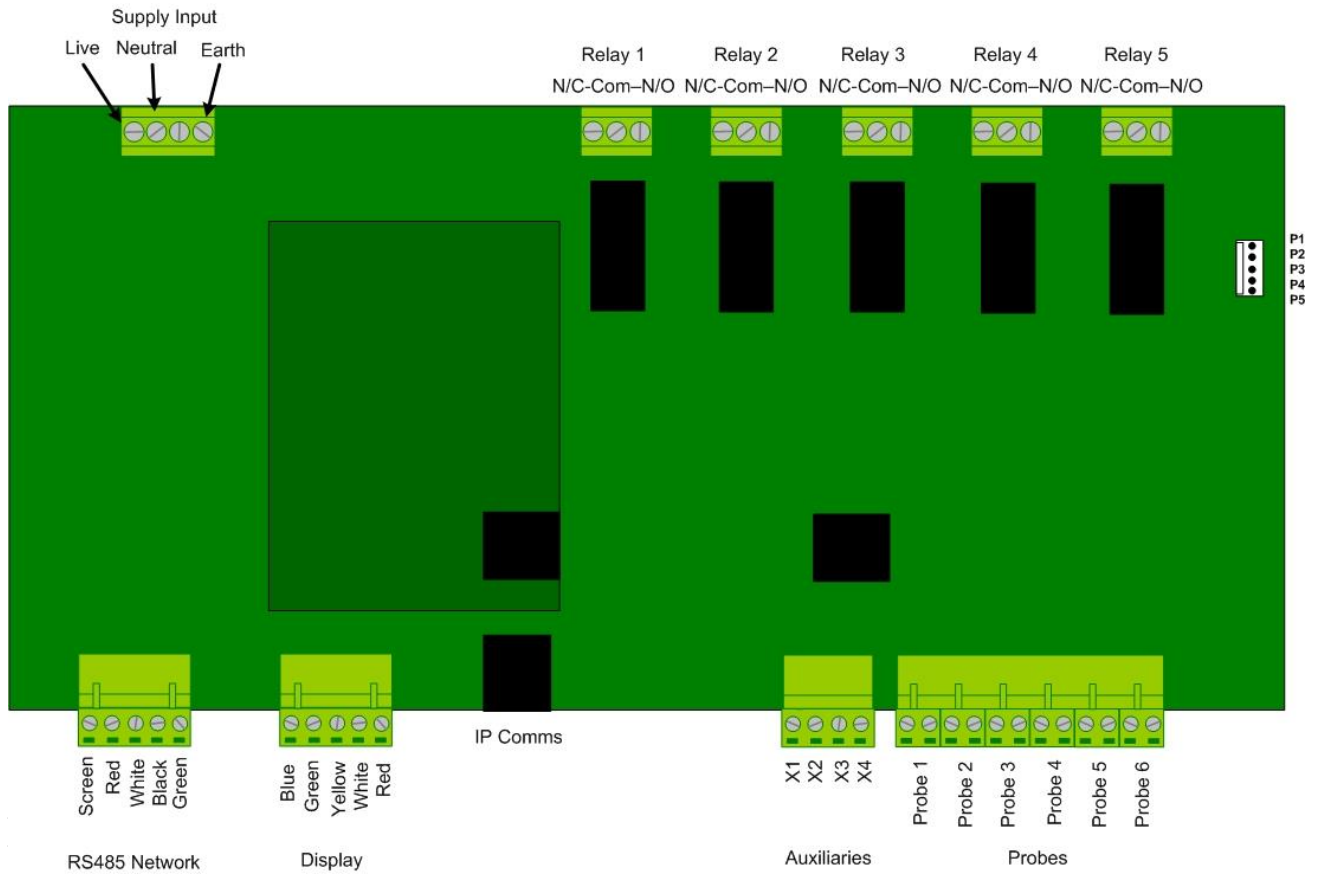


Replace the old Tuscan board with the new RDM Mercury T board and secure all fixings. Ensure the lid is earthed and secured before use.



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

Wiring



Note: The door switch input and external defrost control is wired exactly the same as the original Tuscan, using X2 and X4.



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X and P input descriptions:

Case types 3&4

X2/X4	open	Normal
X2/X4	10k	Fans Only mode
X2/X4	5k	Lights Only Mode
X2/X4	short	External defrost (If set-up for external defrost in the parameters)

P5/P1	open	normal
P5/P1	short	Case off

P3/P1	open	normal
P3/P1	short	Plant Fault 2

P4/P1	open	normal
P4/P1	short	Plant Fault 1

Coldroom types 5&6

X3/X4	Open	Door switch not used
X3/X4	5k	Door Closed
X3/X4	short	Door open

P5/P1	open	normal
P5/P1	short	Case off

P4/P1	open	normal
P4/P1	short	Plant fault

P2/P1	open	normal
P2/P1	short	Man-trap

Integral types 1&2 (PR0700 Only)

X2/X4	open	Normal
X2/X4	Short	External defrost (If set-up for external defrost in the parameters)

P4/P1	open	normal
P4/P1	short	Case off

P3/P1	open	normal
P3/P1	short	Plant fault



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Mercury T/Tuscan Connection List

Mercury T

Mercury T	Relay 1	Relay 2	Relay 3	Relay 4	Relay 5	X2/X4	X3/X4	P2	P3	P4	P5
Case	LLV	Trim, Suction, Alarm or Remote	Defrost	Fans	Lights Or Alarm	Fans Lights Defrost	Not Used	Not used	Plant Fault 2	Plant Fault 1	Case Off
Integral	Comp 1	Comp 2	Defrost	Fans	Alarm	Defrost	Not Used	Not used	Plant Fault 2	Plant Fault 1	Case Off
Coldroom	LLV	Trim, Suction, Alarm or Remote	Defrost	Fans	Lights Or Alarm	Fans Lights Defrost	5K resistor Door Switch	Man trap	Plant Fault 2	Plant Fault 1	Case Off

Tuscan (YCA)

Mercury T	Relay 1	Relay 2	Relay 3	Relay 4	Relay 5	X2/X4	X3/X4	P2	P3	P4	P5
Case	LLV	Suction	Defrost	Fans	Lights	Fans Lights Defrost	Not Used	Not used	Not used	Plant Fault 1	Case Off
Coldroom	Comp 1	Comp 2	Defrost	Fans	Alarm	Defrost	5K resistor Door Switch	Not used	Not used	Plant Fault 1	Case Off
Glass Door	LLV	Defrost	Trim	Fans	Lights	Fans Lights Defrost	Not Used	Not used	Not used	Plant Fault 1	Case Off

Note 1. The plant inputs require a connection from P1 to be returned to the appropriate P input.

Note 2. The Honeywell-Elm Set Up Unit (SUU) is not compatible with the Mercury T and should not be used.

Probe Assignments: -

Probe 1	Air On
Probe 2	Air Off
Probe 3	Evaporator In
Probe 4	Evaporator Out
Probe 5	Defrost Termination
Probe 6	logging

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.



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Appendix 1 Trim Heater Control via Mercury Range of Controllers

Energy savings via the Mercury range of case controllers can be achieved in a number of ways. One of which is pulsing the trim heater relay off for a given period of time. One way to pulse the trim heater is by configuring P-14. For greater energy savings the Data Manager energy feature trim control or the Mercury Switch trim control feature can be used. These two options pulse the trim relay dependant on the actual shop floor humidity levels. Thus if the shop floor humidity is relatively low the trim heaters can be pulsed off for longer durations. Please see the relevant user guides for further details.

RDM recommend that the Trim Heater Pulse Module (PR0723) is used in all instances of trim control. This module is fitted in between the trim heater of the case and the relay output of the Mercury Controller which is pulsing the heater. The trim heater module output provides a smoother power distribution, compared to using the relay output direct, as it switches at the zero voltage crossover point. Switching the trim heater on and off via a normal relay, without using the RDM trim heater pulse module, may damage the trim heater and reduce the operational life of the heater. Therefore RDM recommend the use of this module in every trim heater control application. Please see the Trim Heater Pulse Module user guide for further details.

Revision History

Revision	Date	Comments
1.0	21/03/2008	1 st issue.
1.1	19/05/2008	Parameter table corrected, relay connections corrected. X and P input description added.
1.1a	20/03/2009	Man-trap inputs added P2/P1.
1.1b	09/04/2009	Added alarm relay and remote option on Relay 2. Added the ability to do MOP when used in conjunction with Mercury pressure switch. Added monitor probe option. User document revision brought into line with the controller software. Trim heater note added.
1.1c	01/05/2009	Defrost Skip description modified.
1.1d	29/06/2012	Corrected Remote Command for EEV Command. New look.
1.1e	11/05/2015	Coldroom door switch connection clarified.
1.2	15/11/2017	Lights Only remote command added.
1.2a	05/01/2018	New documentation format.



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