



Mercury
PR0710-5ISTA



Intuitive
PR0750-5ISTA

Mercury 2 & Intuitive Mercury 5 Channel Thermostat Installation & User Guide

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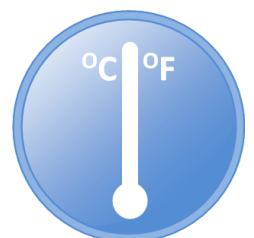


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Ensure that all power is switched off before installing or maintaining this product

The Mercury Mk2 & Intuitive 5 Independent Channel Thermostat From Resource Data Management

Description

The Mercury 5 Channel Thermostat has 5 thermostat channels available for use. Each channel can be configured for independent use, where each channel is controlled by an individual probe or the controller can be configured to operate selected thermostats from one temperature probe. Each channel can be individually configured for heating or cooling applications with a selection of parameters. There is a 7-day timer with two on and off's. Included in the controller is a frost detect parameter. This over-rides the timer function, when the timer is off, to begin heating should the channel probe reach the frost detect value. The controller has the ability to use any of the channels to operate as a timer

The Mercury 5 Independent Channel Thermostat can operate stand-alone or it can be networked through either an "IP" network module or a Mercury IP Switch.

The Intuitive Mercury range is designed to be used in a control panel or electrical tray. This range has the same features as the Mercury Mk2 controller with additional benefits such as higher rated relays each protected by an integral fuse and fuse protection for the incoming power supply and all connections are plug and socket.

The Stat supports the following temperature probes:- PT1000, NTC2k, NTC2k25, NTC470R, NTC700R, NTC3k, NTC5k, NTC6k, NTC10K and NTC10K(2) USA

Variants

Description	Part Number
Mercury Mk2, 5 Independent Channel Thermostat	PR0710-5ISTA
Intuitive Mercury, 5 Independent Channel Thermostat	PR0750-5ISTA

Configuration

There is only one type of configuration in the Mercury 5 Independent Channel Thermostat. (Type 1)

Compatible Network Interfaces

Mercury and Intuitive Mercury controllers are capable of connecting to a TCP/IP local area 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. 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
Mercury IP Switch (IP support for 10 controllers)	PR0018
Mercury IP Switch with Pressure/Humidity Inputs	PR0018-PHI

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. Alternatively an internal network 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



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Front Display Features

LED's: -

Valve (Not Used)

Fans (Not Used)

Lights (On With Timer)

Defrost (Not Used)

On-Line

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

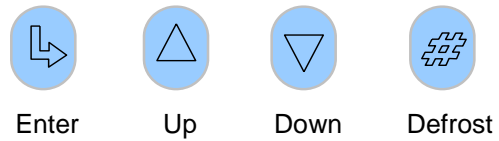
Service

Alarm

HACCP



Keys



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

Main Display



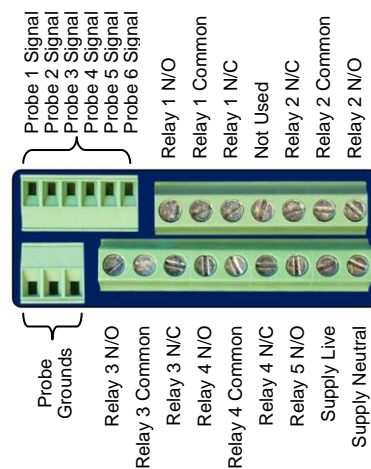
4 character LED display, used to display time and status messages.

Note the Intuitive Mercury display is Green in colour when lit.

Connections

Mercury Mk2

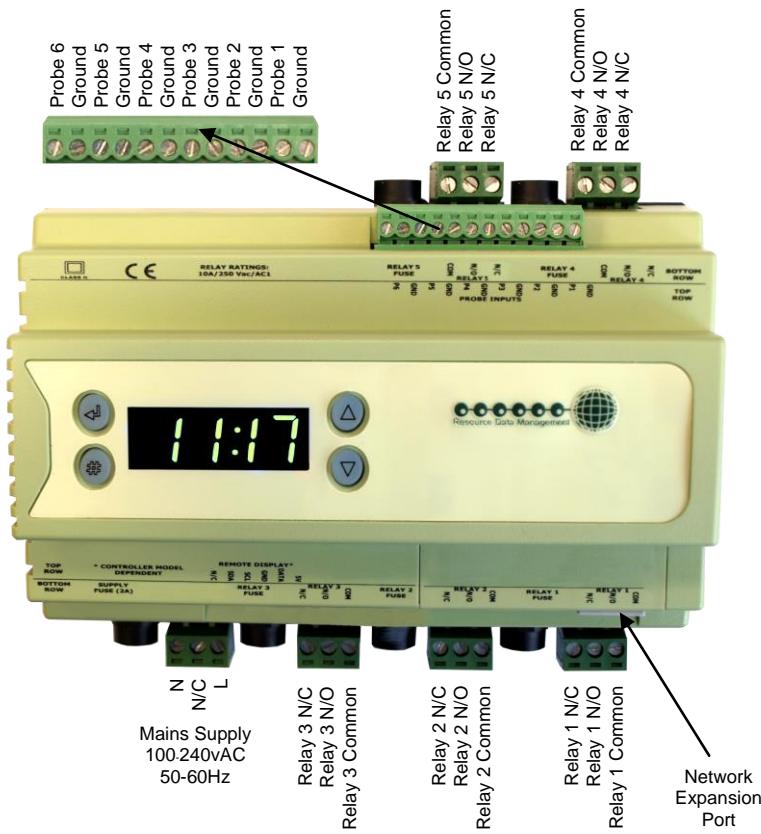
Input and Output connections are made to the back of the controller, the RS232 communication port is on the side. The diagram shows the connection detail. Inputs and outputs are assigned according to the chosen configuration. See [Input/Output](#) tables for further details on connections.



Do not connect an earth.

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Intuitive Mercury Controller



Intuitive Mercury Network Expansion Options

RS232 Network Card (Default)



The Intuitive Mercury is supplied with an RS232 Network Card fitted as standard. Some example optional network cards are shown below

IP Network Card (PR0770)



Rotary Address Switches
Network Collision LED
Network Activity LED

All inputs and outputs are plug and socket. The supply voltage and relay outputs have individual fuse protection.

Input and Output Allocation Tables

I/O	Description	Alarm Action
Probe 1	Probe 1	Yes
Probe 2	Probe 2	Yes
Probe 3	Probe 3	Yes
Probe 4	Probe 4	Yes
Probe 5	Probe 5	Yes
Probe 6	Probe 6	Yes
Relay 1	Channel 1, Wire to N/O contact unless Invert feature is enabled	N/A
Relay 2	Channel 2, Wire to N/O contact unless Invert feature is enabled	N/A
Relay 3	Channel 3, Wire to N/O contact unless Invert feature is enabled	N/A
Relay 4	Channel 4, Wire to N/O contact unless Invert feature is enabled	N/A
Relay 5	Channel 5, Wire to N/O contact unless Invert feature is enabled	N/A

Setting up the controller

Access to the controller can be achieved several ways

- Through the front mounted buttons
- Direct access by PC or palm top into the rear comms port. This requires a software package available on the RDM website
- Through 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. Now press the Enter button again to enter the function menu. IO will be displayed. Scroll up or down to go through the list.

Setup Function Menu (Common to all types)

Display	Option	Explained in Paragraph	Display	Option	Explained in Paragraph
IO	View Inputs / Outputs and States	Input / output table	nEt	Set/view network configuration	Network Configuration
PArA	Set/View Parameters	Set view parameters	SoFt	View software version	
Unit	Probe type and Celsius/Fahrenheit option	Set View Unit	OFSt	Probe Offset	Probe Offset
tyPE	Set/View Controller Type	Set/view controller type	ESC	Exit Setup mode	
Rtc	Set/view Clock (rtc = Real Time Clock)	Real Time Clock			

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

The controller Type is preset at the factory and cannot be changed.

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

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

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	5 for 470R Fahrenheit	10 for NTC2K25 Celsius	15 for 6K Fahrenheit
1 for PT1000 Fahrenheit	6 for 700R Celsius	11 for NTC2K25 Fahrenheit	16 for NTC10K Celsius
2 for NTC2K Celsius	7 for 700R Fahrenheit	12 for 5K Celsius	17 for NTC10K Fahrenheit
3 for NTC2K Fahrenheit	8 for 3K Celsius	13 for 5K Fahrenheit	18 for NTC10K(2) Celsius
4 for 470R Celsius	9 for 3K Fahrenheit	14 for 6K Celsius	19 for NTC10K(2) Fahrenheit

Use the up or down keys to select the units and press enter. This function is now complete



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Parameter Table

Number	Parameter	Range °C (°F)	Step	Units	Default
P-01	Stat 1 Cut In	-49 to 120°C (-56.2 to 248)	0.1	°C	15.0
P-02	Stat 1 Diff	0 to 10°C (-56.2 to 86)	0.1	°C	5.0
P-03	Stat 1 Select	0 = Off, 1 = Timer, 2 = Probe 1, 3 = Probe 2, 4 = Probe 3 5 = Probe 4, 6 = Probe 5, 7 = Probe 6	1		0
P-04	Stat 1 Type	0 = Cooling 1 = Heating	1		0
P-06	Stat 1 Frost Detect	-98 to 128°C (-144 to 262)	0.1	°C	0.0
P-07	Stat 1 High Temp Alarm	-98 to 128°C (-144 to 262)	0.1	°C	25.0
P-08	Stat 1 Low Temp Alarm	-98 to 128°C (-144 to 262)	0.1	°C	0.0
P-09	Stat 1 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00
P-10	Stat 1 Relay Invert	0 = Off 1 = On	1		0
P-11	Stat 2 Cut In	-49 to 120°C (-56.2 to 248)	0.1	°C	15.0
P-12	Stat 2 Diff	0 to 10°C (-56.2 to 86)	0.1	°C	5.0
P-13	Stat 2 Select	0 = Off, 1 = Timer, 2 = Probe 1, 3 = Probe 2, 4 = Probe 3 5 = Probe 4, 6 = Probe 5, 7 = Probe 6	1		0
P-14	Stat 2 Type	0 = Cooling 1 = Heating	1		0
P-16	Stat 2 Frost Detect	-98 to 128°C (-144 to 262)	0.1	°C	0.0
P-17	Stat 2 High Temp Alarm	-98 to 128°C (-144 to 262)	0.1	°C	25.0
P-18	Stat 2 Low Temp Alarm	-98 to 128°C (-144 to 262)	0.1	°C	0.0
P-19	Stat 2 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00
P-20	Stat 2 Relay Invert	0 = Off 1 = On	1		0
P-21	Stat 3 Cut In	-49 to 120°C (-56.2 to 248)	0.1	°C	15.0
P-22	Stat 3 Diff	0 to 10°C (-56.2 to 86)	0.1	°C	5.0
P-23	Stat 3 Select	0 = Off, 1 = Timer, 2 = Probe 1, 3 = Probe 2, 4 = Probe 3 5 = Probe 4, 6 = Probe 5, 7 = Probe 6	1		0
P-24	Stat 3 Type	0 = Cooling 1 = Heating	1		0
P-26	Stat 3 Frost Detect	-98 to 128°C (-144 to 262)	0.1	°C	0.0
P-27	Stat 3 High Temp Alarm	-98 to 128°C (-144 to 262)	0.1	°C	25.0
P-28	Stat 3 Low Temp Alarm	-98 to 128°C (-144 to 262)	0.1	°C	0.0
P-29	Stat 3 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00
P-30	Stat 3 Relay Invert	0 = Off 1 = On	1		0
P-31	Stat 4 Cut In	-49 to 120°C (-56.2 to 248)	0.1	°C	15.0
P-32	Stat 4 Diff	0 to 10°C (-56.2 to 86)	0.1	°C	5.0
P-33	Stat 4 Select	0 = Off, 1 = Timer, 2 = Probe 1, 3 = Probe 2, 4 = Probe 3 5 = Probe 4, 6 = Probe 5, 7 = Probe 6	1		0
P-34	Stat 4 Type	0 = Cooling 1 = Heating	1		0
P-36	Stat 4 Frost Detect	-98 to 128°C (-144 to 262)	0.1	°C	0.0
P-37	Stat 4 High Temp Alarm	-98 to 128°C (-144 to 262)	0.1	°C	25.0
P-38	Stat 4 Low Temp Alarm	-98 to 128°C (-144 to 262)	0.1	°C	0.0
P-39	Stat 4 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00
P-40	Stat 4 Relay Invert	0 = Off 1 = On	1		0
P-41	Stat 5 Cut In	-49 to 120°C (-56.2 to 248)	0.1	°C	15.0
P-42	Stat 5 Diff	0 to 10°C (-56.2 to 86)	0.1	°C	5.0
P-43	Stat 5 Select	0 = Off, 1 = Timer, 2 = Probe 1, 3 = Probe 2, 4 = Probe 3 5 = Probe 4, 6 = Probe 5, 7 = Probe 6	1		0
P-44	Stat 5 Type	0 = Cooling 1 = Heating	1		0
P-46	Stat 5 Frost Detect	-98 to 128°C (-144 to 262)	0.1	°C	0.0
P-47	Stat 5 High Temp Alarm	-98 to 128°C (-144 to 262)	0.1	°C	25.0
P-48	Stat 5 Low Temp Alarm	-98 to 128°C (-144 to 262)	0.1	°C	0.0
P-49	Stat 5 Alarm Delay	00:00 to 99:00	01:00	mm:ss	20:00
P-50	Stat 5 Relay Invert	0 = Off 1 = On	1		0
P-70	Timer Mode	0 = Local, 1 = Remote, 2 = Man Off, 3 = Man On	1		1
P-71	Sunday On Time 1	00:00 to 23:59	00:01	hh:mm	08:00
P-72	Sunday Off Time 1	00:00 to 23:59	00:01	hh:mm	20:00
P-73	Sunday On Time 2	00:00 to 23:59	00:01	hh:mm	08:00
P-74	Sunday Off Time 2	00:00 to 23:59	00:01	hh:mm	20:00
P-75	Monday On Time 1	00:00 to 23:59	00:01	hh:mm	08:00
P-76	Monday Off Time 1	00:00 to 23:59	00:01	hh:mm	20:00
P-77	Monday On Time 2	00:00 to 23:59	00:01	hh:mm	08:00
P-78	Monday Off Time 2	00:00 to 23:59	00:01	hh:mm	20:00



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Number	Parameter	Range °C (°F)	Step	Units	Default
P-79	Tuesday On Time 1	00:00 to 23:59	00:01	hh:mm	08:00
P-80	Tuesday Off Time 1	00:00 to 23:59	00:01	hh:mm	20:00
P-81	Tuesday On Time 2	00:00 to 23:59	00:01	hh:mm	08:00
P-82	Tuesday Off Time 2	00:00 to 23:59	00:01	hh:mm	20:00
P-83	Wednesday On Time 1	00:00 to 23:59	00:01	hh:mm	08:00
P-84	Wednesday Off Time 1	00:00 to 23:59	00:01	hh:mm	20:00
P-85	Wednesday On Time 2	00:00 to 23:59	00:01	hh:mm	08:00
P-86	Wednesday Off Time 2	00:00 to 23:59	00:01	hh:mm	20:00
P-87	Thursday On Time 1	00:00 to 23:59	00:01	hh:mm	08:00
P-88	Thursday Off Time 1	00:00 to 23:59	00:01	hh:mm	20:00
P-89	Thursday On Time 2	00:00 to 23:59	00:01	hh:mm	08:00
P-90	Thursday Off Time 2	00:00 to 23:59	00:01	hh:mm	20:00
P-91	Friday On Time 1	00:00 to 23:59	00:01	hh:mm	08:00
P-92	Friday Off Time 1	00:00 to 23:59	00:01	hh:mm	20:00
P-93	Friday On Time 2	00:00 to 23:59	00:01	hh:mm	08:00
P-94	Friday Off Time 2	00:00 to 23:59	00:01	hh:mm	20:00
P-95	Saturday On Time 1	00:00 to 23:59	00:01	hh:mm	08:00
P-96	Saturday Off Time 1	00:00 to 23:59	00:01	hh:mm	20:00
P-97	Saturday On Time 2	00:00 to 23:59	00:01	hh:mm	08:00
P-98	Saturday Off Time 2	00:00 to 23:59	00:01	hh:mm	20:00
dFLt	Reset to default values				

Relay State and functional operation

Relay State	Function State	Wired Contact
Relay 1 Off	Heating / Cooling / Timer Off	N/O
Relay 1 On	Heating / Cooling / Timer On	N/O
Relay 2 Off	Heating / Cooling / Timer Off	N/O
Relay 2 On	Heating / Cooling / Timer On	N/O
Relay 3 Off	Heating / Cooling / Timer Off	N/O
Relay 3 On	Heating / Cooling / Timer On	N/O
Relay 4 Off	Heating / Cooling / Timer Off	N/O
Relay 4 On	Heating / Cooling / Timer On	N/O
Relay 5 Off	Heating / Cooling / Timer Off	N/O
Relay 5 On	Heating / Cooling / Timer On	N/O



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Parameter Description

Number	Parameter	Description
P-01	Stat 1 Cut In	Thermostat target for Stat 1 temperature. Point at which Heating or Cooling will switch on/off Relay 1. (Depending on what is selected at P-04)
P-02	Stat 1 Diff	Diff above that Heating Relay 1 will turn Off Diff below that Cooling Relay 1 will turn Off
P-03	Stat 1 Select	Selects which probe is used for temperature control with Stat 1 or allows the channel to be configured as a timer. If set as a timer then Relay 1 would turn on and off according to the current timer status. See P-70
P-04	Stat 1 Type	Selects Heating or Cooling for Relay 1
P-06	Stat 1 Frost Detect	Setpoint at which the Frost Detect feature is enabled.
P-07	Stat 1 High Temp Alarm	Over temperature alarm set point
P-08	Stat 1 Low Temp Alarm	Under Temperature alarm set point
P-09	Stat 1 Alarm Delay	Delay applied before an alarm is signalled for over/under temperature alarm
P-10	Stat 1 Relay Invert	Inverts the output operation of Relay 1.
P-11	Stat 2 Cut In	Thermostat target for Stat 2 temperature. Point at which Heating or Cooling will switch on/off Relay 2. (Depending on what is selected at P-14)
P-12	Stat 2 Diff	Diff above that Heating Relay 2 will turn Off Diff below that Cooling Relay 2 will turn Off
P-13	Stat 2 select	Selects which probe is used for temperature control with Stat 2 or allows the channel to be configured as a timer. If set as a timer then Relay 2 would turn on and off according to the current timer status. See P-70
P-14	Stat 2 Type	Selects Heating or Cooling for Relay 2
P-16	Stat 2 Frost Detect	Setpoint at which the Frost Detect feature is enabled.
P-17	Stat 2 High Temp Alarm	Over temperature alarm set point
P-18	Stat 2 Low Temp Alarm	Under Temperature alarm set point
P-19	Stat 2 Alarm Delay	Delay applied before an alarm is signalled for over/under temperature alarm
P-20	Stat 2 Relay Invert	Inverts the output operation of Relay 2.
P-21	Stat 3 Cut In	Thermostat target for Stat 3 temperature. Point at which Heating or Cooling will switch on/off Relay 3. (Depending on what is selected at P-24)
P-22	Stat 3 Diff	Diff above that Heating Relay 3 will turn Off Diff below that Cooling Relay 3 will turn Off
P-23	Stat 3 select	Selects which probe is used for temperature control with Stat 3 or allows the channel to be configured as a timer. If set as a timer then Relay 3 would turn on and off according to the current timer status. See P-70
P-24	Stat 3 Type	Selects Heating or Cooling for Relay 3
P-26	Stat 3 Frost Detect	Setpoint at which the Frost Detect feature is enabled.
P-27	Stat 3 High Temp Alarm	Over temperature alarm set point
P-28	Stat 3 Low Temp Alarm	Under Temperature alarm set point
P-29	Stat 3 Alarm Delay	Delay applied before an alarm is signalled for over/under temperature alarm
P-30	Stat 3 Relay Invert	Inverts the output operation of Relay 3.
P-31	Stat 4 Cut In	Thermostat target for Stat 4 temperature. Point at which Heating or Cooling will switch on/off Relay 4. (Depending on what is selected at P-34)
P-32	Stat 4 Diff	Diff above that Heating Relay 4 will turn Off Diff below that Cooling Relay 4 will turn Off
P-33	Stat 4 select	Selects which probe is used for temperature control with Stat 4 or allows the channel to be configured as a timer. If set as a timer then Relay 4 would turn on and off according to the current timer status. See P-70
P-34	Stat 4 Type	Selects Heating or Cooling for Relay 4
P-36	Stat 4 Frost Detect	Setpoint at which the Frost Detect feature is enabled.
P-37	Stat 4 High Temp Alarm	Over temperature alarm set point
P-38	Stat 4 Low Temp Alarm	Under Temperature alarm set point
P-39	Stat 4 Alarm Delay	Delay applied before an alarm is signalled for over/under temperature alarm
P-40	Stat 4 Relay Invert	Inverts the output operation of Relay 4.
P-41	Stat 5 Cut In	Thermostat target for Stat 5 temperature. Point at which Heating or Cooling will switch on/off Relay 5. (Depending on what is selected at P-44)
P-42	Stat 5 Diff	Diff above that Heating Relay 5 will turn Off Diff below that Cooling Relay 5 will turn Off
P-43	Stat 5 select	Selects which probe is used for temperature control with Stat 5 or allows the channel to be configured as a timer. If set as a timer then Relay 5 would turn on and off according to the current timer status. See P-70
P-44	Stat 5 Type	Selects Heating or Cooling for Relay 5
P-46	Stat 5 Frost Detect	Setpoint at which the Frost Detect feature is enabled.
P-47	Stat 5 High Temp Alarm	Over temperature alarm set point
P-48	Stat 5 Low Temp Alarm	Under Temperature alarm set point



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

Number	Parameter	Description
P-49	Stat 5 Alarm Delay	Delay applied before an alarm is signalled for over/under temperature alarm
P-50	Stat 5 Relay Invert	Inverts the output operation of Relay 5.
P-70	Timer Mode	<ul style="list-style-type: none"> ➤ Use a local schedule following the controller RTC (P-71 to P-98) ➤ Use a remote schedule (Set up in the system front end) ➤ Manually Off ➤ Manually On When the timer is On period the Light LED will be lit.
P-71	Sunday On Time 1	When P-70 is set to Local, Sunday on time 1
P-72	Sunday Off Time 1	When P-70 is set to Local, Sunday off time 1
P-73	Sunday On Time 2	When P-70 is set to Local, Sunday on time 2
P-74	Sunday Off Time 2	When P-70 is set to Local, Sunday off time 2
P-75	Monday On Time 1	When P-70 is set to Local, Monday on time 1
P-76	Monday Off Time 1	When P-70 is set to Local, Monday off time 1
P-77	Monday On Time 2	When P-70 is set to Local, Monday on time 2
P-78	Monday Off Time 2	When P-70 is set to Local, Monday off time 2
P-79	Tuesday On Time 1	When P-70 is set to Local, Tuesday on time 1
P-80	Tuesday Off Time 1	When P-70 is set to Local, Tuesday off time 1
P-81	Tuesday On Time 2	When P-70 is set to Local, Tuesday on time 2
P-82	Tuesday Off Time 2	When P-70 is set to Local, Tuesday off time 2
P-83	Wednesday On Time 1	When P-70 is set to Local, Wednesday on time 1
P-84	Wednesday Off Time 1	When P-70 is set to Local, Wednesday off time 1
P-85	Wednesday On Time 2	When P-70 is set to Local, Wednesday on time 2
P-86	Wednesday Off Time 2	When P-70 is set to Local, Wednesday off time 2
P-87	Thursday On Time 1	When P-70 is set to Local, Thursday on time 1
P-88	Thursday Off Time 1	When P-70 is set to Local, Thursday off time 1
P-89	Thursday On Time 2	When P-70 is set to Local, Thursday on time 2
P-90	Thursday Off Time 2	When P-70 is set to Local, Thursday off time 2
P-91	Friday On Time 1	When P-70 is set to Local, Friday on time 1
P-92	Friday Off Time 1	When P-70 is set to Local, Friday off time 1
P-93	Friday On Time 2	When P-70 is set to Local, Friday on time 2
P-94	Friday Off Time 2	When P-70 is set to Local, Friday off time 2
P-95	Saturday On Time 1	When P-70 is set to Local, Saturday on time 1
P-96	Saturday Off Time 1	When P-70 is set to Local, Saturday off time 1
P-97	Saturday On Time 2	When P-70 is set to Local, Saturday on time 2
P-98	Saturday Off Time 2	When P-70 is set to Local, Saturday off time 2
dFLt		

Network Configuration

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

When logging a Mercury or Intuitive Mercury with an RS232 interface onto a network you must first connect the controller to a communications module, this is either an 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 utilized.

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 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 Manager or Data Director)

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.

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



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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

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 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.

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.

Normal Operation

During normal operation, the controller will show the time, if there are no alarms. If there is a current alarm then an alarm message will be shown on the display and the alarm LED will come on. If the Control Stat is on a network and on-line, the green network LED will be on.



Faults

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

Network

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



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Probe Offset

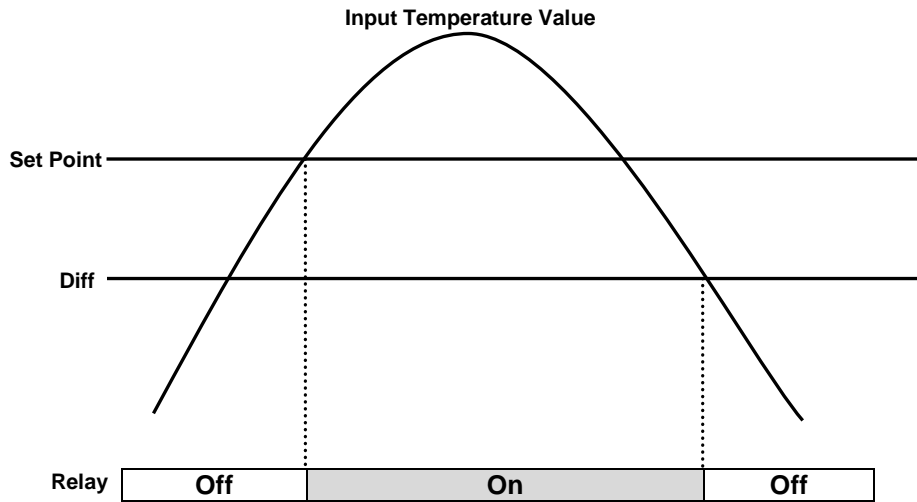
Each probe can be offset by up to $\pm 10^{\circ}\text{C}$ to compensate for long cable runs.

HACCP

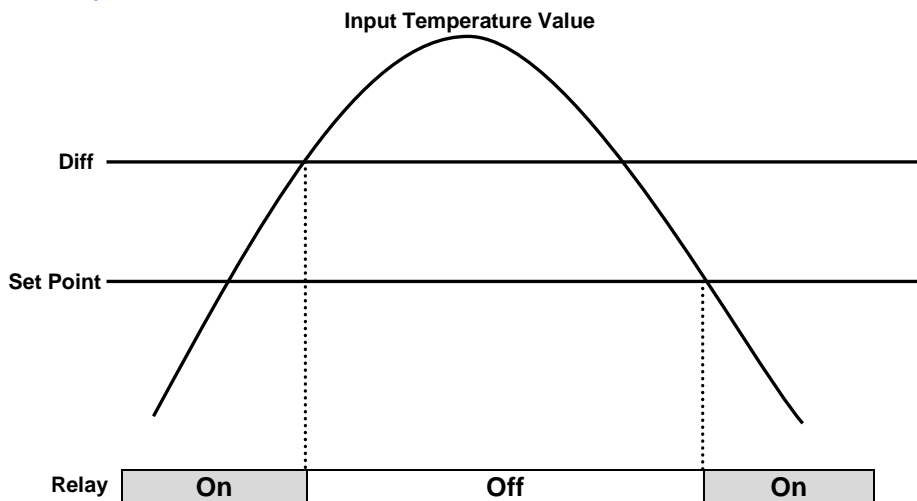
[Remote Commands](#) can be used to turn off/on the HACCP LED.

Operation

Cooling Thermostat Graph



Heating Thermostat Graph



A given thermostat will operate, as detailed in the above graphs, during the on periods of the timer (either local or remote). It is possible to turn the timer permanently on, therefore allowing a thermostat channel to be operate continuously. With the timer configured for local operation, set both on times 1 & 2 to 00:00 and both off times 1 & 2 to 23:59 on the desired days. Alternatively to keep the timer permanently on across all 7 days set P-70 to Man On (3)



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Frost Detect

The frost detect parameter is used to provide heating in an instance where the timer status is off. Each thermostat channel has its own frost detect value that can be configured. Once the temperature drops below the frost detect value the controller channel will heat to the frost detect value plus the channels diff parameter. For example the 5 Channel Thermostat is used to heat a room, the channel configured has a diff of 5°C, a frost detect value of 0°C and the timer is off. The channel will switch its associated relay on when the temperature drops below 0°C. The room will begin to heat and the relay is on, it will stay on until the temperature rises above 5°C. At this point the relay will be turned off. The relay will be turned on again if the room temperature drops below 0°C.

Viewing

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.

Input / Output Table

Number	IO	Range	Step	Units
I-01	Probe 1	-98 to 128°C (-144 to 262)	0.1	°C (°F)
I-02	Probe 2	-98 to 128°C (-144 to 262)	0.1	°C (°F)
I-03	Probe 3	-98 to 128°C (-144 to 262)	0.1	°C (°F)
I-04	Probe 4	-98 to 128°C (-144 to 262)	0.1	°C (°F)
I-05	Probe 5	-98 to 128°C (-144 to 262)	0.1	°C (°F)
I-06	Probe 6	-98 to 128°C (-144 to 262)	0.1	°C (°F)
I-10	Stat 1 Probe	0 (Off), 1 (On)		
I-11	Stat 2 Probe	0 (Off), 1 (On)		
I-12	Stat 3 Probe	0 (Off), 1 (On)		
I-13	Stat 4 Probe	0 (Off), 1 (On)		
I-14	Stat 5 Probe	0 (Off), 1 (On)		
O-01	Relay 1	0 (Off), 1 (On)		
O-02	Relay 2	0 (Off), 1 (On)		
O-03	Relay 3	0 (Off), 1 (On)		
O-04	Relay 4	0 (Off), 1 (On)		
O-05	Relay 5	0 (Off), 1 (On)		
O-06	Timer	0 (Off), 1 (On)		
O-10	SP Offset 1	-18 to 18 °C (-18 to 18)	0.1	°C (°F)
O-11	SP Offset 2	-18 to 18 °C (-18 to 18)	0.1	°C (°F)
O-12	SP Offset 3	-18 to 18 °C (-18 to 18)	0.1	°C (°F)
O-13	SP Offset 4	-18 to 18 °C (-18 to 18)	0.1	°C (°F)
O-14	SP Offset 5	-18 to 18 °C (-18 to 18)	0.1	°C (°F)

Display Messages

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

Display Message	System status
OT 1	Channel 1 Over Temperature Alarm
OT 2	Channel 2 Over Temperature Alarm
OT 3	Channel 3 Over Temperature Alarm
OT 4	Channel 4 Over Temperature Alarm
OT 5	Channel 5 Over Temperature Alarm
UT 1	Channel 1 Under Temperature Alarm
UT 2	Channel 2 Under Temperature Alarm
UT 3	Channel 3 Under Temperature Alarm
UT 4	Channel 4 Under Temperature Alarm
UT 5	Channel 5 Under Temperature Alarm
Prb 1	Channel 1 Probe Fault
Prb 2	Channel 2 Probe Fault
Prb 3	Channel 3 Probe Fault
Prb 4	Channel 4 Probe Fault
Prb 5	Channel 5 Probe Fault



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

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)
Over Temperature	4
Under Temperature	5
Probe Fault	6

GP Timer Set-up

It is possible to set the Control Stat timer for remote operation (P70 = 1). A GP Timer must be set up to control the timer on/off period. For GP Timer set up please refer to the Data Manager user guide found on the RDM website. The following settings should be followed: -

- Output Type – This should be set to "General".
- Output Mask – This should match the "Controller Name".
- Output Channel – Set this to "5". This will allow the GP Timer to control the state of the controller timer.

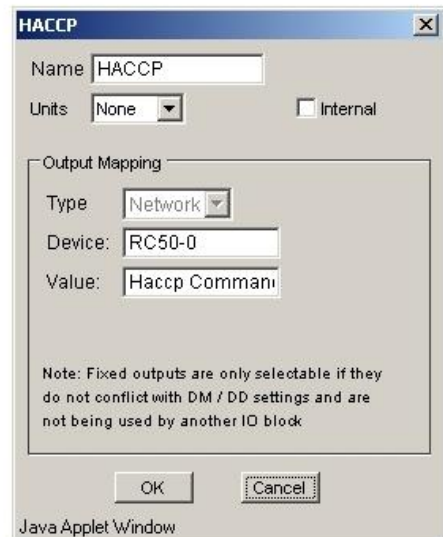
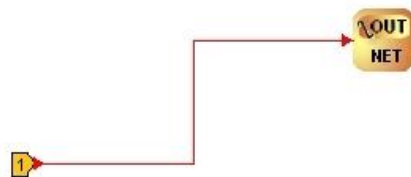
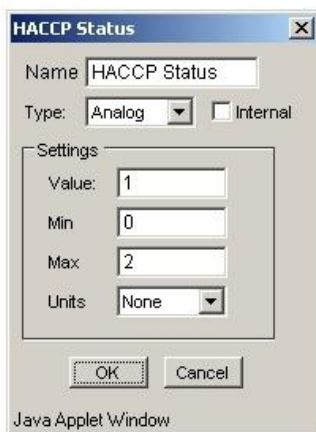
Remote Commands

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

Command	Value to send	Description
Haccp Command	0	HACCP LED OFF
	1	HACCP LED On
	2	HACCP LED Flashes
Button Command	0	Buttons backlights Off
	1	Buttons backlights On
	2	Buttons Backlights Flash
Setpoint Cmd 1 (1 to 5)	Value	Value to offset set point

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 turns on the HACCP LED.



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Specification

	Mercury Mk2 Controller PR0710-5ISTA	Intuitive Mercury controller PR0750-5ISTA
Power requirements		
Supply Voltage Range	100 - 240 Vac $\pm 10\%$	100 - 240 Vac $\pm 10\%$
Supply Frequency	50 - 60 Hz	50 - 60 Hz
Maximum supply current	5.2 Amps (when relay 5 is fully loaded)	2 Amps
Typical supply current	<1 Amp	<1 Amp
General		
Operating temperature range	-10°C to 60°C (14°F to 140°F)	-10°C to 60°C (14°F to 140°F)
Storage temperature range	20°C to 65°C (-4°F to 149°F)	20°C to 65°C (-4°F to 149°F)
Environmental	Indoor use at altitudes up to 2000m, pollution degree 1, installation category II. Voltage fluctuations not to exceed $\pm 10\%$ of nominal voltage.	Indoor use at altitudes up to 2000m, pollution degree 1, installation category II. Voltage fluctuations not to exceed $\pm 10\%$ of nominal voltage.
Size	78mm (W) x 36mm (H) x 110mm (D)	157mm (W) x 67mm (H) x 120 (D)
Approx Weight	170 grams	500 grams
Safety	EN61010	EN61010
EMC	EN61326-1 : 2013	EN61326-1 : 2013
Ventilation	There is no requirement for forced cooling ventilation	There is no requirement for forced cooling ventilation
Class 2 Insulation	No protective Earth is required and none should be fitted	No protective Earth is required and none should be fitted
Supply Fuse	The host equipment must provide a suitable external over-current protection device such as: - Fuse: 6.3A 240 Vac Antisurge (T) HRC conforming to IEC 60127	Built in fuse holder, fuse 2A 240Vac Antisurge (T) HRC conforming to IEC60127, 32 x 6.3mm
Or MCB	6A, 240 VAC Type C conforming to BS EN 60898	2A, 240 VAC Type C conforming to BS EN 60898 (Note: controller has integral 2A fuse)
Relay Fuse	Not Fitted	10A 240Vac Antisurge (T) HRC conforming to IEC60127, 32 x 6.3mm
Relay Specification		
Relays 1-4 Mechanical Type (M) Exclusive common		
Max current	6A Resistive (Cos ϕ = 1) 2A Inductive (Cos ϕ = 0.4)	.10A Resistive (Cos ϕ = 1) 3A Inductive (Cos ϕ = 0.4)
Max voltage	250Vac, 30V dc	250Vac. 30V dc
Relay Fuse	N/A	10A 240Vac Antisurge (T) HRC conforming to IEC60127, 32 x 6.3mm
Relay 5 Mechanical Type (M) Common connected to supply live		Relay 5 Mechanical Type (M) Exclusive common
Max current	3A (non inductive), COS ϕ =0.4 2A (inductive load) 200,000 operations	10A Resistive (Cos ϕ = 1) 3A Inductive (Cos ϕ = 0.4)
Max voltage	250Vac (Internal supply)	250Vac. 30V dc (external supply)
	For compliance with the LVD, relays 3, 4 and 5 commons must be at the same potential as the supply voltage	All relays are independent and can operate at different potentials to the supply voltage.



Warning: Relay 5 output has hazardous voltages (Supply input voltage potential)
This does not apply to the Intuitive Mercury controller

Inputs

Input resistance: 3.01K Ohms (for PTC or NTC type probes)
Input type PT1000 or NTC2K or NTC2K25 or NTC10K (selectable)
Comms: RS232 with flow control

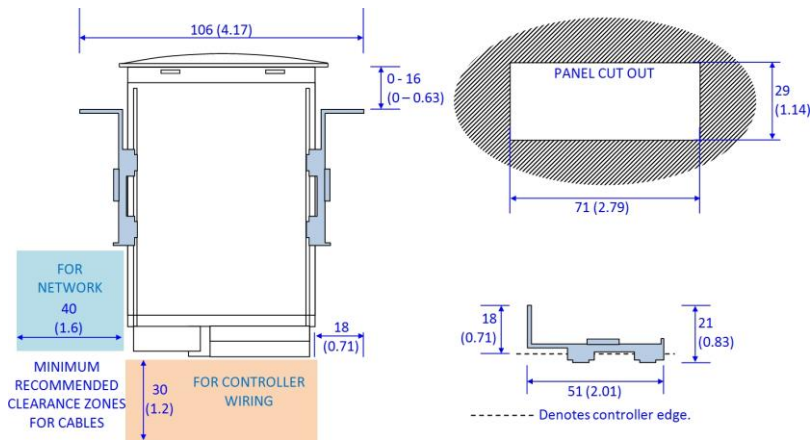


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Installation

Panel Cut-out and Clearances

Mercury Mk2 (Flush mount controller)



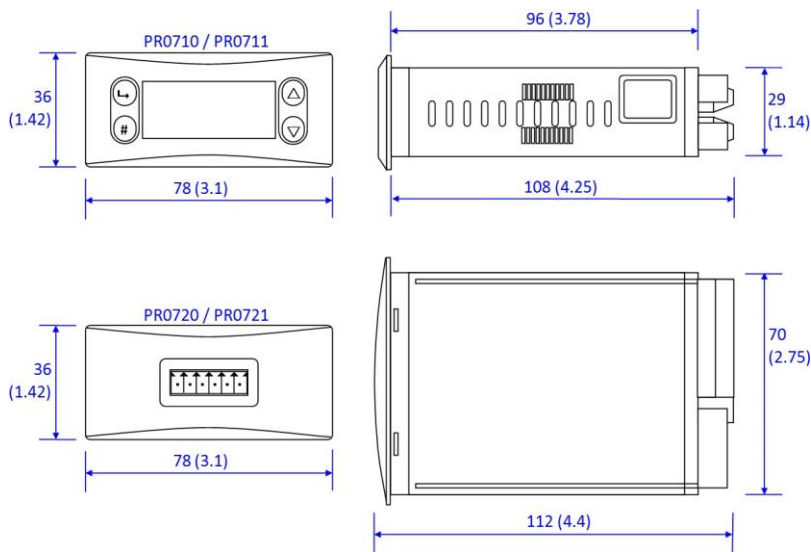
Fixing

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

There is no requirement for forced cooling ventilation

Dimensions

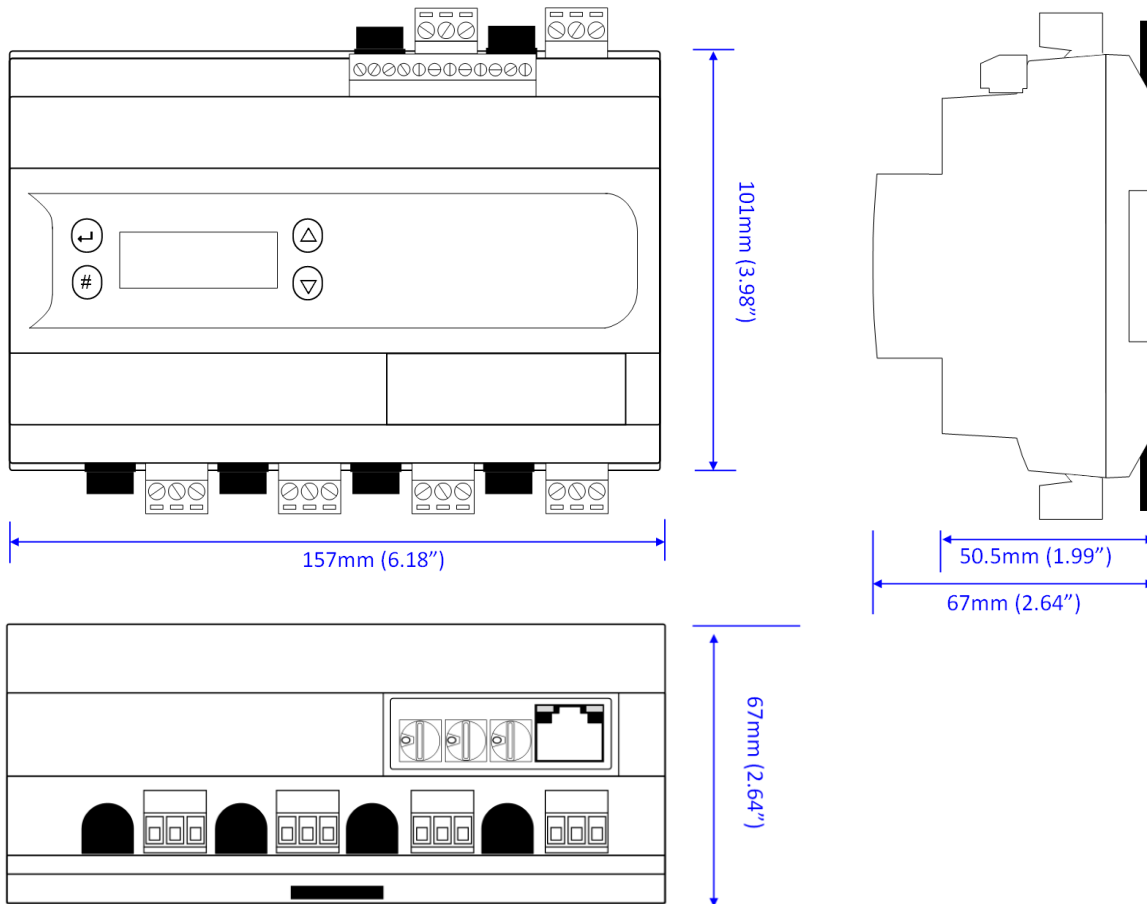
Mercury Mk2



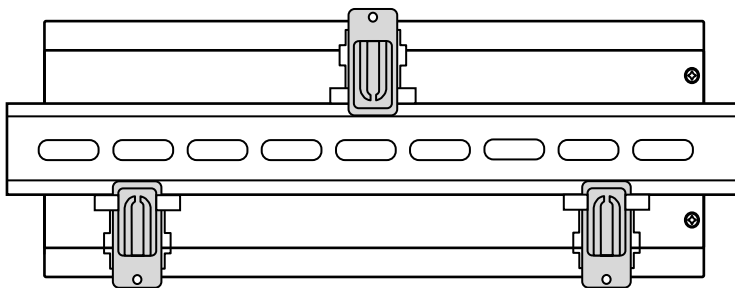
Ensure that all power is switched off before installing or maintaining this product

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

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Revision History

Revision	Date	Changes
1.0	04/05/2011	Introduction of Intuitive range
1.0a	23/12/2014	Intuitive operating range updated.
1.0b	01/06/2013	EMC standard updated.
1.0c	17/05/2017	Operating temperature amended.
1.0d	12/04/2018	Offset range amended.



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