

Resource
Data Management

Mercury 3, 5 Channel Timer

Commissioning/User Guide
Revision 3.2



PR0740/744-TIM

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The Mercury 3 5 Channel Timer

From Resource Data Management

Description

The Mercury 3 Timer is a 5-channel timer module, each channel (relay output) has an independent time clock, which gives a single on/off per day. Each relay can be configured for local or remote operation. The remote option allows the unit to work from time channels running on a system front end such as the GP timer in the RDM Data Manager. Each channel has a local override switch (with alarm) that will turn the channel relay on or off depending on its current state when the channel is operating in local mode. The override feature can operate when the timer clock is in the on or off period. When a channel is set to remote operation the appropriate input has to be mapped, from the controller, to a GP timer to enable an override operation. If the timer is being used in remote mode, and drops offline, it will use its local settings.

There is also a hardware variant (PR0744) with relays to IEC 60079-15 which is specifically for use with hydrocarbon refrigerants.

Ordering Information

When ordering the Mercury 3 controller the following ordering scheme can be used to purchase the desired hardware configuration. This ensures the controller ships with the optional hardware pre-fitted.

X	Description	Y	Z	
0	Standard Specification	D	Local / Integral Display	IP Ethernet Comms
4	Hydrocarbon Specification	R	Remote Display	232 RS232 Comms

Example:

To order a Hydrocarbon spec. with built in IP comms. and remote display, use the following part number:

PR0744 MR IP TIM

Configuration

The controller is shipped pre-configured for 5 channels using the local (internal) timer.

Compatible Network Interfaces

Mercury and Intuitive Mercury controllers which do not have an IP interface built in are capable of connecting to either a TCP/IP local area network, an RS485 Genus compatible network or they can be used in standalone mode with no network output. To connect to a network you must add the correct communications module. Connecting to any of these communication modules will automatically be detected on power up and will affect the 'Net' menu set up screens available to you. **Note** controllers with built in IP will be able to communicate to any IP switch, including the rear ports of the RDM Mercury Hub.

Description	Part Number
IP Futura (Single Mercury to IP Interface)	PR0016
IP Futura, DIN rail mounted	PR0016-DIN
IP Futura, DIN rail mounted with 2 x CAT 5 sockets	PR0016-DUALDIN
Intuitive Switch with 6 x RS232 ports, 4 x Ethernet Ports and a 4-20mA Pressure Transducer connection.	PR0758-6P4E-PHI
Intuitive Switch with 12 x RS232 ports and 4 x Ethernet Ports	PR0758-12P4E
Intuitive Switch with 12 x RS232 ports, 4 x Ethernet Ports and a 4-20mA Pressure Transducer connection.	PR0758-12P4E-PHI
Intuitive Switch with 16 x RS232 ports, 4 x Ethernet Ports and a 4-20mA Pressure Transducer connection.	PR0758-16P4E-PHI
Intuitive Switch with 16 x RS232 ports, 3 x Ethernet Ports and 1 x Fibre connection.	PR0757-16P3E-F
Intuitive Switch with 16 x RS232 ports, 3 x Ethernet Ports, 1 x Fibre connection and a 4-20mA Pressure Transducer connection.	PR0757-16P3E-F-PHI
Bluetooth RS232 Network Module	PR0630




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Front Display Features

LED's:

Valve (Not Used) 


Fans (Not Used) 

Lights (Not Used) 

Defrost (Not used) 

On-Line 

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

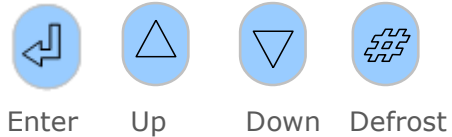
Service (Not Used) 

Alarm 

HACCP (Not Used) 



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

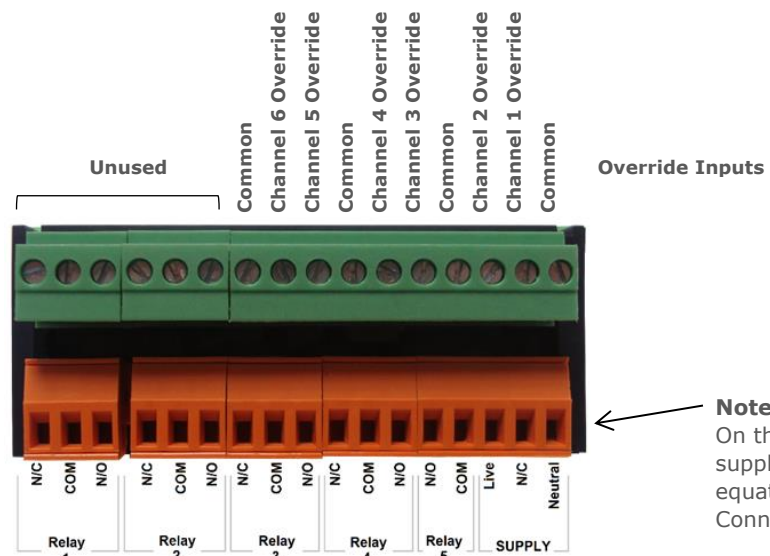
Main Display 

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

Connections

Mercury Mk3 PR0740 Variant

Input and Output connections are made to the back of the controller, the RS232/IP 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.

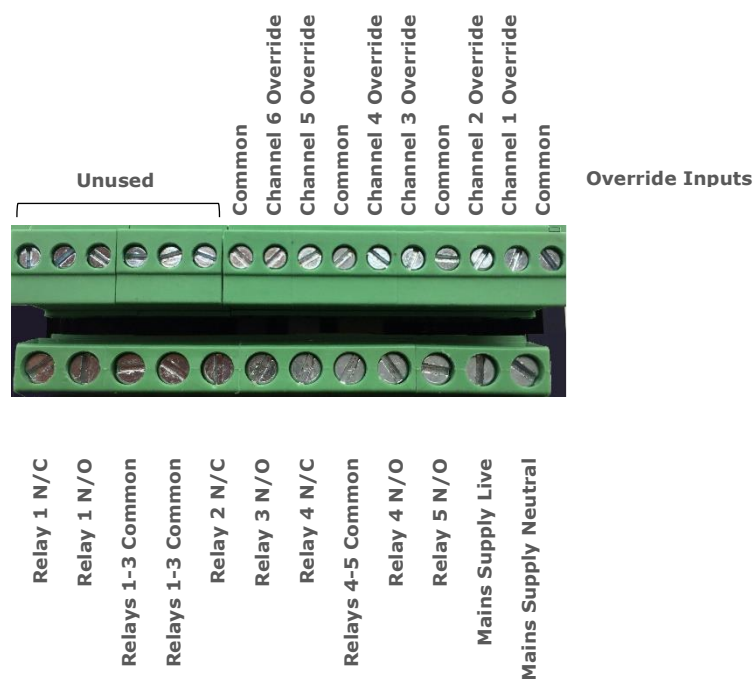


Note: On the power supply, N/C equates to 'No Connection'



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Mercury Mk3 PR0744 Variant



Input and Output Allocation Tables

Input / Output allocation table PR0740

On the PR0740 variant relays 1-4 are changeover with normally closed and normally open connections available, relay 5 has a normally open connection only. Each relay has its own common feed.

	Description	Alarm	Comments
Input 1	Override channel 1	Yes	0 volt return
Input 2	Override channel 2	Yes	0 volt return
Input 3	Override channel 3	Yes	0 volt return
Input 4	Override channel 4	Yes	0 volt return
Input 5	Override channel 5	Yes	0 volt return
Input 6	GP Timer Channel Input	Yes	0 volt return
Relay 1	Time channel 1 output	N/A	N/O or N/C & Individual Common
Relay 2	Time channel 2 output	N/A	N/O or N/C & Individual Common
Relay 3	Time channel 3 output	N/A	N/O or N/C & Individual Common
Relay 4	Time channel 4 output	N/A	N/O or N/C & Individual Common
Relay 5	Time channel 5 output	N/A	N/O only & Individual Common

Input / Output allocation table PR0744

	Description	Alarm	Comments
Input 1	Override channel 1	Yes	0 volt return
Input 2	Override channel 2	Yes	0 volt return
Input 3	Override channel 3	Yes	0 volt return
Input 4	Override channel 4	Yes	0 volt return
Input 5	Override channel 5	Yes	0 volt return
Input 6	GP Timer Channel Input	Yes	0 volt return
Relay 1	Time channel 1 output	N/A	N/O or N/C & Shared Common
Relay 2	Time channel 2 output	N/A	N/C only & Shared Common
Relay 3	Time channel 3 output	N/A	N/O only & Shared Common



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Relay 4	Time channel 4 output	N/A	N/O or N/C & Shared Common
Relay 5	Time channel 5 output	N/A	N/O only & Shared Common

On the PR0744 variant relays 1 and 4 are changeover with normally closed and normally open connections available, relays 2, 3 & 5 have a single N/O or N/C connection as listed above. Relays 1-3 share two common connections and relay 4 & 5 share a single common connection.

It may be advantageous to use the Invert Feature in a lighting application and wire to the N/C contacts where available so any failure of the controller will result in the lights relay de-energising and keeping lights on.

Setting up the controller

Access to the controller can be achieved several ways

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

Display	Option	Explained in Paragraph
IO	View Inputs / Outputs and States	Input / output table
PArA	Set/View Parameters	Set view parameters
Rtc	Set/view Clock (rtc = Real Time Clock)	Real Time Clock
nEt	Set/view network configuration	Network Configuration
SoFt	View software version	
tEst*	Test Mode	See Note
ESC	Exit Setup mode	

***Note:** When first powered up the controller will have the 'tEst' option in the menu setup. This allows the user to toggle the relays for testing purposes. Upon entering the menu, the display will show r-01 (relay 1) to r-05 (relay 5), select the desired output and toggle the value from 0 to 1 (confirm by pressing enter) to switch the selected relay.

This option is only available for 30 seconds after power up. After this time, the menu setup will return to its standard options.

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



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- d. Use up button to select "t-2", press enter
- e. Scroll minutes up or down (0 – 59) press enter
- f. Repeat for t-3 (seconds 0 – 59)
- g. Repeat for t-4 (days up to 31)
- h. Repeat for t-5 (months up to 12)
- i. Repeat for t-6 (year up to 99)
- j. Use up button to display "ESC", press enter to display "rtc"

Time clock is now set

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.

Parameter Table

Number	Parameter	Range	Step	Units	Default
P-01	Relay 1 operation	0 = local, 1 = remote	N/A	N/A	Local
P-02	Ch 1 Invert output	0 = normal, 1 = invert			Normal
P-11	Channel 1 Sun On	00:00 to 23:59	00:01	hh:mm	08:00
P-12	Channel 1 Sun Off	00:00 to 23:59	00:01	hh:mm	20:00
P-13	Channel 1 Mon On	00:00 to 23:59	00:01	hh:mm	08:00
P-14	Channel 1 Mon Off	00:00 to 23:59	00:01	hh:mm	20:00
P-15	Channel 1 Tue On	00:00 to 23:59	00:01	hh:mm	08:00
P-16	Channel 1 Tue Off	00:00 to 23:59	00:01	hh:mm	20:00
P-17	Channel 1 Wed On	00:00 to 23:59	00:01	hh:mm	08:00
P-18	Channel 1 Wed Off	00:00 to 23:59	00:01	hh:mm	20:00
P-19	Channel 1 Thur On	00:00 to 23:59	00:01	hh:mm	08:00
P-20	Channel 1 Thur Off	00:00 to 23:59	00:01	hh:mm	20:00
P-21	Channel 1 Fri On	00:00 to 23:59	00:01	hh:mm	08:00
P-22	Channel 1 Fri Off	00:00 to 23:59	00:01	hh:mm	20:00
P-23	Channel 1 Sat On	00:00 to 23:59	00:01	hh:mm	08:00
P-24	Channel 1 Sat Off	00:00 to 23:59	00:01	hh:mm	20:00
P-90	Relay 2 operation	0 = local, 1 = remote	N/A	N/A	Local
P-03	Ch 2 Invert output	0 = normal, 1 = invert			normal
P-25	Channel 2 Sun On	00:00 to 23:59	00:01	hh:mm	08:00
P-26	Channel 2 Sun Off	00:00 to 23:59	00:01	hh:mm	20:00
P-27	Channel 2 Mon On	00:00 to 23:59	00:01	hh:mm	08:00
P-28	Channel 2 Mon Off	00:00 to 23:59	00:01	hh:mm	20:00
P-29	Channel 2 Tue On	00:00 to 23:59	00:01	hh:mm	08:00
P-30	Channel 2 Tue Off	00:00 to 23:59	00:01	hh:mm	20:00
P-31	Channel 2 Wed On	00:00 to 23:59	00:01	hh:mm	08:00
P-32	Channel 2 Wed Off	00:00 to 23:59	00:01	hh:mm	20:00
P-33	Channel 2 Thur On	00:00 to 23:59	00:01	hh:mm	08:00
P-34	Channel 2 Thur Off	00:00 to 23:59	00:01	hh:mm	20:00
P-35	Channel 2 Fri On	00:00 to 23:59	00:01	hh:mm	08:00
P-36	Channel 2 Fri Off	00:00 to 23:59	00:01	hh:mm	20:00
P-37	Channel 2 Sat On	00:00 to 23:59	00:01	hh:mm	08:00
P-38	Channel 2 Sat Off	00:00 to 23:59	00:01	hh:mm	20:00
P-91	Relay 3 operation	0 = local, 1 = remote	N/A	N/A	Local



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Number	Parameter	Range	Step	Units	Default
P-04	Ch 3 Invert output	0 = normal, 1 = invert			normal
P-39	Channel 3 Sun On	00:00 to 23:59	00:01	hh:mm	08:00
P-40	Channel 3 Sun Off	00:00 to 23:59	00:01	hh:mm	20:00
P-41	Channel 3 Mon On	00:00 to 23:59	00:01	hh:mm	08:00
P-42	Channel 3 Mon Off	00:00 to 23:59	00:01	hh:mm	20:00
P-43	Channel 3 Tue On	00:00 to 23:59	00:01	hh:mm	08:00
P-44	Channel 3 Tue Off	00:00 to 23:59	00:01	hh:mm	20:00
P-45	Channel 3 Wed On	00:00 to 23:59	00:01	hh:mm	08:00
P-46	Channel 3 Wed Off	00:00 to 23:59	00:01	hh:mm	20:00
P-47	Channel 3 Thur On	00:00 to 23:59	00:01	hh:mm	08:00
P-48	Channel 3 Thur Off	00:00 to 23:59	00:01	hh:mm	20:00
P-49	Channel 3 Fri On	00:00 to 23:59	00:01	hh:mm	08:00
P-50	Channel 3 Fri Off	00:00 to 23:59	00:01	hh:mm	20:00
P-51	Channel 3 Sat On	00:00 to 23:59	00:01	hh:mm	08:00
P-52	Channel 3 Sat Off	00:00 to 23:59	00:01	hh:mm	20:00
P-92	Relay 4 operation	0 = local, 1 = remote	N/A	N/A	Local
P-05	Ch 4 Invert output	0 = normal, 1 = invert			normal
P-53	Channel 4 Sun On	00:00 to 23:59	00:01	hh:mm	08:00
P-54	Channel 4 Sun Off	00:00 to 23:59	00:01	hh:mm	20:00
P-55	Channel 4 Mon On	00:00 to 23:59	00:01	hh:mm	08:00
P-56	Channel 4 Mon Off	00:00 to 23:59	00:01	hh:mm	20:00
P-57	Channel 4 Tue On	00:00 to 23:59	00:01	hh:mm	08:00
P-58	Channel 4 Tue Off	00:00 to 23:59	00:01	hh:mm	20:00
P-59	Channel 4 Wed On	00:00 to 23:59	00:01	hh:mm	08:00
P-60	Channel 4 Wed Off	00:00 to 23:59	00:01	hh:mm	20:00
P-61	Channel 4 Thur On	00:00 to 23:59	00:01	hh:mm	08:00
P-62	Channel 4 Thur Off	00:00 to 23:59	00:01	hh:mm	20:00
P-63	Channel 4 Fri On	00:00 to 23:59	00:01	hh:mm	08:00
P-64	Channel 4 Fri Off	00:00 to 23:59	00:01	hh:mm	20:00
P-65	Channel 4 Sat On	00:00 to 23:59	00:01	hh:mm	08:00
P-66	Channel 4 Sat Off	00:00 to 23:59	00:01	hh:mm	20:00
P-93	Relay 5 operation	0 = local, 1 = remote	N/A	N/A	Local
P-06	Ch 5 Invert output	0 = normal, 1 = invert			normal
P-67	Channel 5 Sun On	00:00 to 23:59	00:01	hh:mm	08:00
P-68	Channel 5 Sun Off	00:00 to 23:59	00:01	hh:mm	20:00
P-69	Channel 5 Mon On	00:00 to 23:59	00:01	hh:mm	08:00
P-70	Channel 5 Mon Off	00:00 to 23:59	00:01	hh:mm	20:00
P-71	Channel 5 Tue On	00:00 to 23:59	00:01	hh:mm	08:00
P-72	Channel 5 Tue Off	00:00 to 23:59	00:01	hh:mm	20:00
P-73	Channel 5 Wed On	00:00 to 23:59	00:01	hh:mm	08:00
P-74	Channel 5 Wed Off	00:00 to 23:59	00:01	hh:mm	20:00
P-75	Channel 5 Thur On	00:00 to 23:59	00:01	hh:mm	08:00
P-76	Channel 5 Thur Off	00:00 to 23:59	00:01	hh:mm	20:00
P-77	Channel 5 Fri On	00:00 to 23:59	00:01	hh:mm	08:00
P-78	Channel 5 Fri Off	00:00 to 23:59	00:01	hh:mm	20:00
P-79	Channel 5 Sat On	00:00 to 23:59	00:01	hh:mm	08:00
P-80	Channel 5 Sat Off	00:00 to 23:59	00:01	hh:mm	20:00
dFLt	Factory Defaults				

Note: To set the channel off, set the "On" time to 23:59 and the "Off" time to 00:00

When running in remote mode, if the controller goes off-line the controller will switch to local mode. It may be prudent to set up the parameters for this eventuality.

Network Configuration – RS232 comms

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

When logging a Mercury 3 with an RS232 interface onto a network you must first connect the controller to a communications module, this is either a 485 Legacy, IP Futura, Mercury Switch or Wireless Mesh Interface. For



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Mercury 3's with the IP interface please refer to the [Network Configuration – IP comms](#) section for details of networking.

RS485 Legacy module

Using RS485, the controllers have an auto-initialise function, which will automatically log the device onto the site network. If the wrong address has been entered onto the network, you will have to reset the controller address by setting the address to 00-0, and then re-enter the correct address (you may have to deregister the wrong address from the home system as well).

Connecting an RS485 legacy Module to the controller will govern which set-up screens are made available in the '**Net**' menu. The module will support the "Genus" protocol only. Using RS485 will show the below:

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

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

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

Ensure option '1' is selected (for RS485).

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

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

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

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.

Fast Network Address Reset

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



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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.

Bluetooth Network module

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

Display	Option
485t	1: 485 Genus Network (See RS485 module/ Intuitive Internal RS485 Network card) 2: Bluetooth
485A	Bluetooth device name. As it will appear on DMTouch's device list (RC00-0 – RC99-9)
nI d	Select Bluetooth Network ID (0 – 4)
gAdd	Shows underlying network address assigned to controller
rLog	Re-log the controller back onto the network
ClrA	Clear the address/ name from the controller
ESC	Exit network menu. Note: this option must be selected to save any changes made in this menu.

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

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

IP Futura module

In an IP system there are two options:

- IP-L
- IP-r

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

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

IP-L

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

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

Display	Option
IP-1	IP Address byte 1
IP-2	IP Address byte 2
IP-3	IP Address byte 3
IP-4	IP Address byte 4
nL	Network Mask Length
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



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IP-r

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

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

Network Mask Length

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

Mercury Switch

The method of logging on the Mercury 3 (RS232 comms) will be similar to that of the IP Futura however 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.

Network Configuration – IP comms

Mercury 3 controllers with the IP interface as standard does not require any communications module and will already communicate on the IP network protocol.

When networking the Ethernet variant, the 'Net' menu will have the following menus:

Display	Option
IP-L / IP-r	Read/ Write Static IP address / Read Only DHCP IP address
Id	The 3 digit network address
AtyP	IP-r / IP-L selection
ESC	Exit Menu

Similar to the IP Futura / switch setup IP-L allows you to fix a static IP address into the controller and IP-r allows you to give each controller on the system a unique network number (using the Id).

- To firstly select between IP-L and IP-r navigate to 'AtyP'.

IP-r

Once IP-r is selected the controller must be given a unique 3 digit 'network address' that no other device on the network has (note if logging on to a Data Manager, this will be the device ID). Once the ID has been set connect the controller to the IP network for it then to be given an IP address by the DHCP server. To view the IP address given, within the Net menu, navigate to 'IP-r'.



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IP-L

If IP-L has been selected from the 'AtyP' menu the IP address must be given to the controller by navigating to 'IP-L' within 'Net'. The following menu's will be available:

Display	Option
IP-1	IP Address byte 1
IP-2	IP Address byte 2
IP-3	IP Address byte 3
IP-4	IP Address byte 4
nL	Network Mask Length (see the network mask length table above)
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

Once the IP address has been entered, the controller can be connected to the IP network.

Normal Operation

During normal operation, the controller will display the current time of day. If the Timer is on a network and on-line, the green network LED will be on. If an alarm occurs the red alarm LED will light until the alarm clears.

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



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

From the function menu, select "IO", press enter
You can now scroll through the IO tables as set out below. The tables you view will depend on the controller type configuration

Input/Output table for Timer

Number	IO	Range	Step	Units
I-01	Input 1	0 = open, 1 = 0V	N/A	N/A
I-02	Input 2	0 = open, 1 = 0V	N/A	N/A
I-03	Input 3	0 = open, 1 = 0V	N/A	N/A
I-04	Input 4	0 = open, 1 = 0V	N/A	N/A
I-05	Input 5	0 = open, 1 = 0V	N/A	N/A
I-06	Input 6	0 = open, 1 = 0V	N/A	N/A
O-01	Relay 1	0 = off, 1 = on	N/A	N/A
O-02	Relay 2	0 = off, 1 = on	N/A	N/A
O-03	Relay 3	0 = off, 1 = on	N/A	N/A
O-04	Relay 4	0 = off, 1 = on	N/A	N/A
O-05	Relay 5	0 = off, 1 = on	N/A	N/A



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

Display Messages

The following messages can appear on the Mercury display.

Display	System status
Time	Controller On

Network Alarms

Alarm	Type # (index)
Override on	16 (All channels)

Override Operation

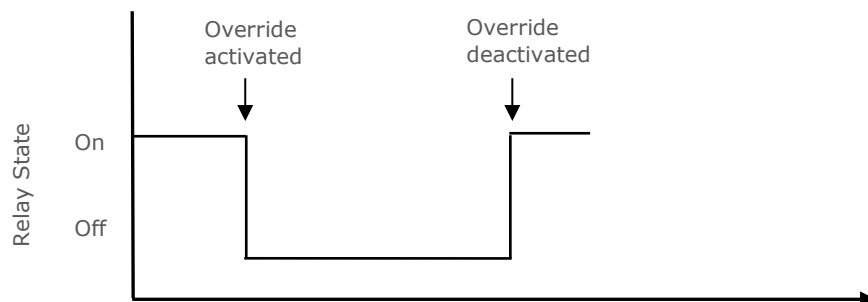
The timer can operate either from its internal channel time settings or from a network Data Manager GP timer channel. If a timer channel relay is set up for remote operation it reverts to local mode if network communications are lost for more than 5 minutes. The timer has a channel setting to invert the output, if this option is used, the output is off when the timer is on and the output is on when the timer is off.

Override:

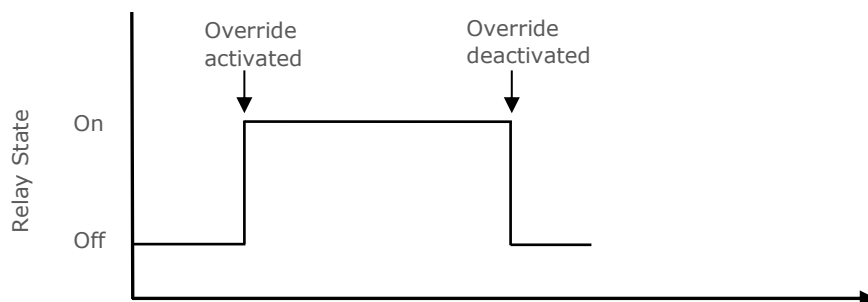
The physical process required to initiate an override is the same whether the timer is set for remote or local operation i.e. the override inputs require a 0V return signal to activate. However if a relay is set for remote operation the corresponding GP timer channel configured must have an "Input Type" defined to map the override input to the relay output. When overrides are removed the relay returns to normal operation.

Local Operation

If the timer channel is set for local operation the following two actions can occur:



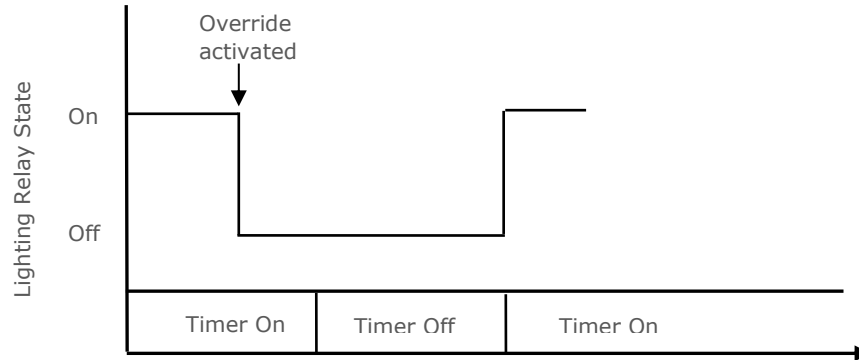
In the above example the timer is in the on state. When the override switch is activated the output of the relay changes state and is off. When the override switch is deactivated the output of the relay changes state and returns to normal operation.



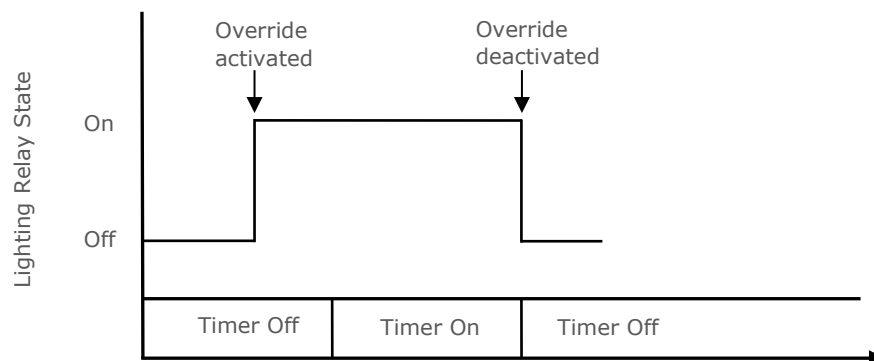
Please ensure all power is switched off before installing or maintaining this product.

In this example the timer is in the off state. When the override switch is activated the output of the relay changes state and is on. When the override switch is deactivated the output of the relay changes state and returns to normal operation.

As shown, the override functions in both the on and off period of the timer. Two example situations, outlining the interaction of the override with the timing parameters, are outlined below.



On viewing the example shown above, a Mercury timer is used to operate store lighting, with the controller set to local operation. The override command can be used to switch the lights off when the timer is in the on period. The lights will remain off until the next scheduled on in the timer parameters or when the override is removed.



As shown above the override command will switch the lights on, when the timer is in the off period. The lights will remain on until the next scheduled off in the timer parameters or when the override is removed. When the override input is activated an alarm, with a fixed delay of 15 seconds, is generated by the controller to highlight the override has been activated. Note when an override is no longer required the override signal should be removed from the appropriate input.



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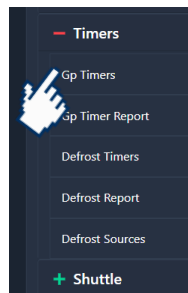
Remote Operation

As mentioned previously when a channel is set to remote operation a GP timer must be configured with on/off times for the relay. If an override is to be used with this channel then the GP timer must also have the input type fields configured to enable the override. This process is outlined below. Please consult the Data Manager commissioning guide for full details regarding configuring a GP timer channel.

GP Timer Configuration

If the Timer is used with an RDM Data Director or a Data Manager, the channels can be configured using the GP timer function. This allows for a much greater flexibility of on/off times, as well as master/slave operation.

From the "Home" screen, follow the links to the GP timer function:



Select a GP timing channel to configure by clicking the mouse on the channel required:

Show programmed Timers					
Channel	Description	Status	Type	Output Type	Mask
1	Store Lighting (RC01-5 Relay 1)	On	Parent	General	RC01-5
2	HT Case Lighting	On	Parent	Case	HT??-?
3	LT Case Lighting	On	Parent	Case	LT??-?
4	GP Timer Channel 4	Off	Parent	Case	
5	GP Timer Channel 5	Off	Parent	Case	
6	GP Timer Channel 6	Off	Parent	Case	
7	GP Timer Channel 7	Off	Parent	Case	
8	GP Timer Channel 8	On	Parent	Case	
9	GP Timer Channel 9	Off	Parent	Case	
10	GP Timer Channel 10	Off	Parent	Case	

There are 32 GP timer channels to choose from and a further 8 Global GP timer channels. Once a channel has been selected, set the channel to master or slave and use the set-up wizard (by clicking on the "Add Schedule" button) to configure the required on/off times and days:

Once the wizard has been completed, add the relevant information in the other fields:

- **ChannelName** - Enter a meaningful name, e.g. Store Lighting (RC01-5 Relay1).
- **Input Type** - If set to "Force On" it will force the relay from off to on, if the timer is in the off period and the output is not inverted, when the input is activated. Note the override will remain on as long as the input is applied and the "Force On" will **not** be removed until the input is de-activated. See Data Manger guide for information regarding further Input types.
- **Input Controller** - Enter the controller name you wish to map the input from.
- **Input Channel** - Set this to the select the origin of the input. Note that this field starts at zero; so setting this to 0 will map Input 1 on the controller to the GP timer channel.
- **Output Type** - set this field to general.
- **Output Mask** - set this to the controller name you want the timer to act on; e.g. RC01-5.
- **Output Channel**- set this to the output number of the relay you want the timer to act on. Note that this field starts at zero; so setting this field to 0 will act on Relay 1 etc.



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Set Channel

Channel Type: Parent

Channel Name: Store Lighting (RC01-5 Relay 1)

Input Type: Toggle | Input Device: RC01-5 | Input Channel: Input 1

Output Type: General | Output Mask: RC01-5 | Output Channel: 0

Invert Output: | Run-On: Not Allowed

Schedule

Remove All | Remove | Add Schedule

Calendar: January 2024

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Key: Daily (Green), Weekly (Purple), Yearly (Blue), Once (Pink), Period (Orange)

Period 1: 07:55 to 19:25

Period 2: 00:00 to 00:00

Click the "Set Channel" once all the field values are correct.

Other GP channels can be used to configure the remaining relays.

Note – When the channel is set to remote and an override is activated there will be a short delay before the relay changes state. This is due to inherent delays in the network. Please allow sufficient time for the relay to change state before activating the override again.

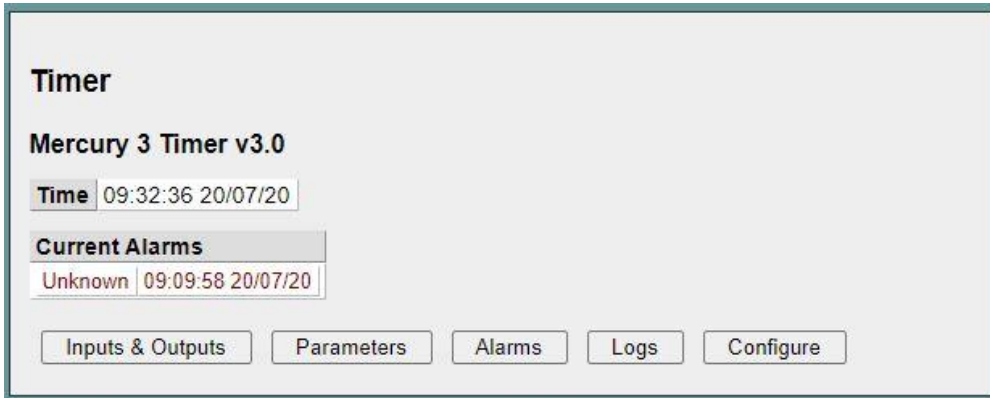


Please ensure all power is switched off before installing or maintaining this product.

Appendix 1: Webpage Appearance

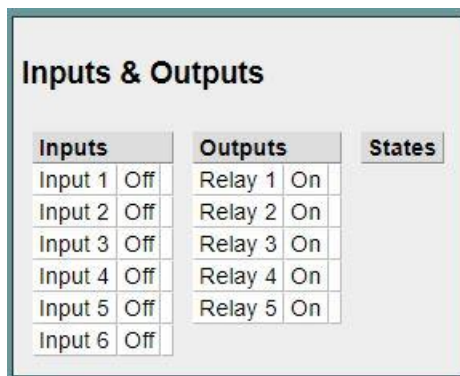
It is possible to view the controller across an IP connection using one of the methods outlined in the [Network Configuration](#) section

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



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

Inputs & Outputs



This is view only screen and shows the states of the inputs and outputs.

Parameters

Parameters														
Channel 1			Channel 2			Channel 3			Channel 4			Channel 5		
Relay 1 Mode	Local		Relay 2 Mode	Local		Relay 3 Mode	Local		Relay 4 Mode	Local		Relay 5 Mode	Local	
Relay 1 Inv	Off		Relay 2 Inv	Off		Relay 3 Inv	Off		Relay 4 Inv	Off		Relay 5 Inv	Off	
SunOn1	08:00	hh:mm	SunOn2	08:00	hh:mm	SunOn3	08:00	hh:mm	SunOn4	08:00	hh:mm	SunOn5	08:00	hh:mm
SunOff1	20:00	hh:mm	SunOff2	20:00	hh:mm	SunOff3	20:00	hh:mm	SunOff4	20:00	hh:mm	SunOff5	20:00	hh:mm
MonOn1	08:00	hh:mm	MonOn2	08:00	hh:mm	MonOn3	08:00	hh:mm	MonOn4	08:00	hh:mm	MonOn5	08:00	hh:mm
MonOff1	20:00	hh:mm	MonOff2	20:00	hh:mm	MonOff3	20:00	hh:mm	MonOff4	20:00	hh:mm	MonOff5	20:00	hh:mm
TueOn1	08:00	hh:mm	TueOn2	08:00	hh:mm	TueOn3	08:00	hh:mm	TueOn4	08:00	hh:mm	TueOn5	08:00	hh:mm
TueOff1	20:00	hh:mm	TueOff2	20:00	hh:mm	TueOff3	20:00	hh:mm	TueOff4	20:00	hh:mm	TueOff5	20:00	hh:mm
WedOn1	08:00	hh:mm	WedOn2	08:00	hh:mm	WedOn3	08:00	hh:mm	WedOn4	08:00	hh:mm	WedOn5	08:00	hh:mm
WedOff1	20:00	hh:mm	WedOff2	20:00	hh:mm	WedOff3	20:00	hh:mm	WedOff4	20:00	hh:mm	WedOff5	20:00	hh:mm
ThuOn1	08:00	hh:mm	ThuOn2	08:00	hh:mm	ThuOn3	08:00	hh:mm	ThuOn4	08:00	hh:mm	ThuOn5	08:00	hh:mm
ThuOff1	20:00	hh:mm	ThuOff2	20:00	hh:mm	ThuOff3	20:00	hh:mm	ThuOff4	20:00	hh:mm	ThuOff5	20:00	hh:mm
FriOn1	08:00	hh:mm	FriOn2	08:00	hh:mm	FriOn3	08:00	hh:mm	FriOn4	08:00	hh:mm	FriOn5	08:00	hh:mm
FriOff1	20:00	hh:mm	FriOff2	20:00	hh:mm	FriOff3	20:00	hh:mm	FriOff4	20:00	hh:mm	FriOff5	20:00	hh:mm
SatOn1	08:00	hh:mm	SatOn2	08:00	hh:mm	SatOn3	08:00	hh:mm	SatOn4	08:00	hh:mm	SatOn5	08:00	hh:mm
SatOff1	20:00	hh:mm	SatOff2	20:00	hh:mm	SatOff3	20:00	hh:mm	SatOff4	20:00	hh:mm	SatOff5	20:00	hh:mm

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



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

Alarms

Alarms		
Reason	Occurred	Cleared
Unknown	09:09:58 20/07/20	

This is a view only screen showing the alarm log.

Logs

Logs								
	09:34:50 20/07/20	09:34:55 20/07/20	09:35:00 20/07/20	09:35:05 20/07/20	09:35:10 20/07/20	09:35:15 20/07/20	09:35:20 20/07/20	09:35:25 20/07/20
Input 4	Off	Off	Off	Off	Off	Off	Off	Off
Input 5	Off	Off	Off	Off	Off	Off	Off	Off
Relay 2	On	On	On	On	On	On	On	On
Relay 3	On	On	On	On	On	On	On	On
Relay 5	On	On	On	On	On	On	On	On

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

Configure

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

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

Username: 'service'

Password: '1234'

Configure
Time
Parameters
Name
Logging
Asset Information

This screen allows the user to configure the controller and set-up the following: - Time, Parameters, Name, Logging and Asset Information.



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

Time Screen

Time

Enter local time:

Year	Rule
----	GMT0BST-1,M3.5.0/01:00:00,M10.5.0/02:00:00
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

This screen allows the user to set the time within the controller. When the controller is used as a standalone device and not connected to a network (e.g. DMTouch), the RTC will automatically follow the British Sumer Time Zone as long as the string above is present. Other time zones rules can be specified in this page. Please contact RDM Technical Support for more information

Parameter Screen

Set Parameters

Use Set Parameters button to save changes before changing section

Parameter Name	Low	High	Default	Value	Units
Relay 1 Mode				Local <input type="button" value="v"/>	
Relay 1 Inv				Off <input type="button" value="v"/>	
SunOn1	00:00	23:59	08:00	<input type="text" value="08:00"/>	hh:mm
SunOff1	00:00	23:59	20:00	<input type="text" value="20:00"/>	hh:mm
MonOn1	00:00	23:59	08:00	<input type="text" value="08:00"/>	hh:mm
MonOff1	00:00	23:59	20:00	<input type="text" value="20:00"/>	hh:mm
TueOn1	00:00	23:59	08:00	<input type="text" value="08:00"/>	hh:mm
TueOff1	00:00	23:59	20:00	<input type="text" value="20:00"/>	hh:mm
WedOn1	00:00	23:59	08:00	<input type="text" value="08:00"/>	hh:mm
WedOff1	00:00	23:59	20:00	<input type="text" value="20:00"/>	hh:mm
ThuOn1	00:00	23:59	08:00	<input type="text" value="08:00"/>	hh:mm
ThuOff1	00:00	23:59	20:00	<input type="text" value="20:00"/>	hh:mm
FriOn1	00:00	23:59	08:00	<input type="text" value="08:00"/>	hh:mm
FriOff1	00:00	23:59	20:00	<input type="text" value="20:00"/>	hh:mm
SatOn1	00:00	23:59	08:00	<input type="text" value="08:00"/>	hh:mm
SatOff1	00:00	23:59	20:00	<input type="text" value="20:00"/>	hh:mm

This screen allows the parameters to be changed. Once the values are changed, the "Set Parameter" button must be clicked to set the parameters into the controller.

A screen will show the number of parameters and the number changed, then revert back to the Home screen.



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

Name

Name

Enter Name:

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

Logging

Logging

Set 1		Set 2	
Log Interval	5s ▾	Log Interval	None ▾
Input 1	<input type="checkbox"/>	Input 1	<input type="checkbox"/>
Input 2	<input type="checkbox"/>	Input 2	<input type="checkbox"/>
Input 3	<input type="checkbox"/>	Input 3	<input type="checkbox"/>
Input 4	<input checked="" type="checkbox"/>	Input 4	<input type="checkbox"/>
Input 5	<input checked="" type="checkbox"/>	Input 5	<input type="checkbox"/>
Input 6	<input type="checkbox"/>	Input 6	<input type="checkbox"/>
Relay 1	<input type="checkbox"/>	Relay 1	<input type="checkbox"/>
Relay 2	<input checked="" type="checkbox"/>	Relay 2	<input type="checkbox"/>
Relay 3	<input checked="" type="checkbox"/>	Relay 3	<input type="checkbox"/>
Relay 4	<input type="checkbox"/>	Relay 4	<input type="checkbox"/>
Relay 5	<input checked="" type="checkbox"/>	Relay 5	<input type="checkbox"/>

This screen allows the user to set the logging features. There are two sets so that values can have different log intervals. Set the interval required on set1 and set 2, tick the required values to be logged, then click "Set Values" to load into the controller. A screen will display "Log configuration set" then revert back to the Home page.



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Asset Information

Asset Information

Controller	
Model	<input type="text"/>
Serial No	<input type="text"/>
Date	<input type="text"/>

Equipment Manufacturer	
Manufacturer	<input type="text"/>
Model	<input type="text"/>
Serial No	<input type="text"/>
Date	<input type="text"/>

Installed Fixture	
Asset	<input type="text"/>
Installer	<input type="text"/>
Date	<input type="text"/>

Refurbished Fixture	
Refurb By	<input type="text"/>
Re-Asset	<input type="text"/>
Installer	<input type="text"/>
Date	<input type="text"/>

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

Caution: This is a once only operation.

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

Set Password

Set Password

DO NOT change the password if you are unsure of the effect it may have.
Note: RDM frontends running earlier versions of software may require the old default password.

Enter Password:

Re-enter Password:

This screen allows the user to change the password from the default '1234'. Please be aware that this could have an adverse effect on communications between a RDM frontend running an older software version. Please contact RDM Technical Support for more information.



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Specifications

Mercury Mk3 Controller PR0740-TIM & PR0744-TIM	
Power Requirements	
Supply Voltage Range	100 - 240 Vac \pm 10%
Supply Frequency	50 - 60 Hz
Maximum supply current	5.2 Amps (when relay 5 is fully loaded)
Typical supply current	<1 Amp
General	
Operating temperature range	-10°C to 60°C (14°F to 140°F)
Storage temperature range	-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.
Size	78mm (W) x 36mm (H) x 110mm (D)
Approx Weight	177 grams
Safety	EN60730
EMC	EN61326; 2013
Ventilation	There is no requirement for forced cooling ventilation
Class 2 Insulation	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
Or MCB	6A, 240 VAC Type C conforming to BS EN 60898
Relay Specification	
Relays 1 – 4	
Max current	PR0740 Only 6A Resistive ($\text{Cos}\phi = 1$) 2A Inductive ($\text{Cos}\phi = 0.4$)
Max current	PR0744 Only 5A Resistive ($\text{Cos}\phi = 1$) Derated from 5A to 3A linearly from 35°C to 55°C 2A Inductive ($\text{Cos}\phi = 0.4$) Conforms to EN60079-0 and EN60069-15
Max voltage	250Vac, 30V dc
Relay Fuse	N/A
Relay 5	
Max current	3A (non inductive), $\text{COS}\phi=0.4$ 2A (inductive load) 200,000 operations
Max voltage	250Vac (Internal supply)
For compliance with the LVD, relays 3, 4 and 5 commons must be at the same potential as the supply voltage	
Safety	Conforms to EN60730-1 based on UL 60950-1; UL 62368-1 as referenced to IEC60730-1
Comms	
Serial Variant	RS232 with flow control
Ethernet Variant	IP comms

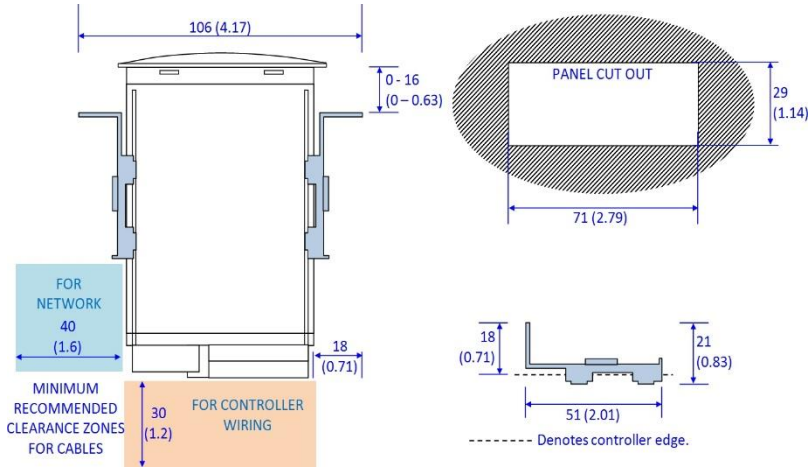


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Installation

Panel Cut-out and Clearances

Mercury Mk3 (Flush mount controller)



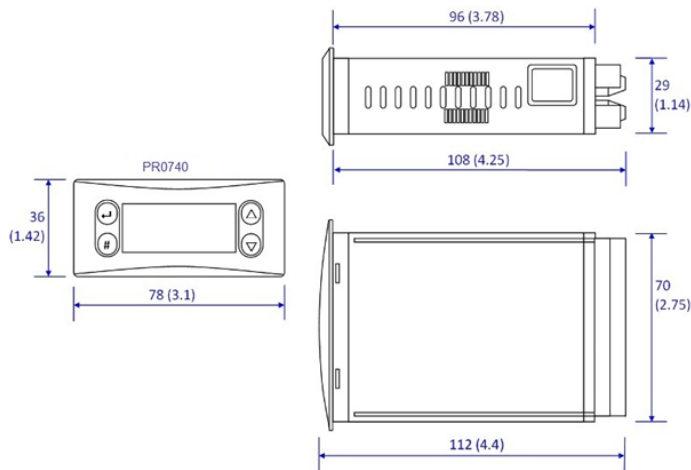
Fixing

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 Mk3



Cleaning

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



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

Warranty Information

www.resourcedm.com/terms-and-conditions/

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.

Revision History

Revision	Date	Changes
3.0	28/08/2015	Introduction of Mercury 3 range.
3.0a	03/11/2015	Connections drawing updated.
3.0b	16/03/2017	New documentation format.
3.0c	17/05/2017	Operating temperature amended.
3.0d	31/05/2019	I/O table updated, Contact details updated.
3.0e	20/01/2020	Update to Specification.
3.0f	20/07/2020	Webpage appearance added.
3.0g	11/08/2020	Ordering information updated.
3.0h	24/12/2020	Warranty information added.
3.1	06/04/2022	PR0744 variant added
3.2	15/01/2024	Support for user time zones added. Support for password change by user added.



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

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