



PR0266

Mercury 11-5C Condenser Controller Installation & User Guide

Resource Data Management Ltd

80 Johnstone Avenue, Hillington Industrial Estate,
Glasgow, Scotland G52 4NZ UK

☎ +44(0)141 810 2828

✉ support@resourcedm.com

✉ sales@resourcedm.com

Switchboard

Technical Support

Sales Enquiries



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

The Mercury Range

From Resource Data Management

This documentation refers to the Mercury 11-5C Condenser Controller

Description

The Mercury 11-5C is a versatile controller intended for Condenser control. A "Fuzzy logic" based control algorithm allows for enhanced control and reduces the number of input parameters required with only a target pressure needed. The "staged" type allows the user to program the output stages to the desired elements with the required delay between stages.

There are 5 relay outputs that are configurable as an Inverter Enable, Condenser Fan, Condenser Split, Spray Valve, Heat Reclaim or Inverter Disable. There is a temperature probe input for measuring the ambient air temperature for use in Floating Head pressure control. There are two 4-20mA inputs, one is for a pressure transducer and is used to measure discharge pressure, and the second is available for use with a liquid level sensor. There are 5 Stage Inputs which can be assigned for Condenser Section Fault Inputs. There are 5 Digital Inputs which can be assigned as either Heat Reclaim enable or as a Standby input.

The 11-5C has an analogue output (0-10V dc or 4-20mA or 0-20mA) to control a variable speed device.

The controller can operate from a supply voltage range of 100 - 250 Vac and each relay can switch in excess of 2 Amps. Like all Mercury controllers the 11-5C has a serial output that can connect directly to a PC for quick set-up (PC running RDM Communicator application) or to one of RDMs' network modules.

Type (Configuration)

The controller has one configuration Type.

Networks

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

To connect to an IP network you must connect through the appropriate communications module.

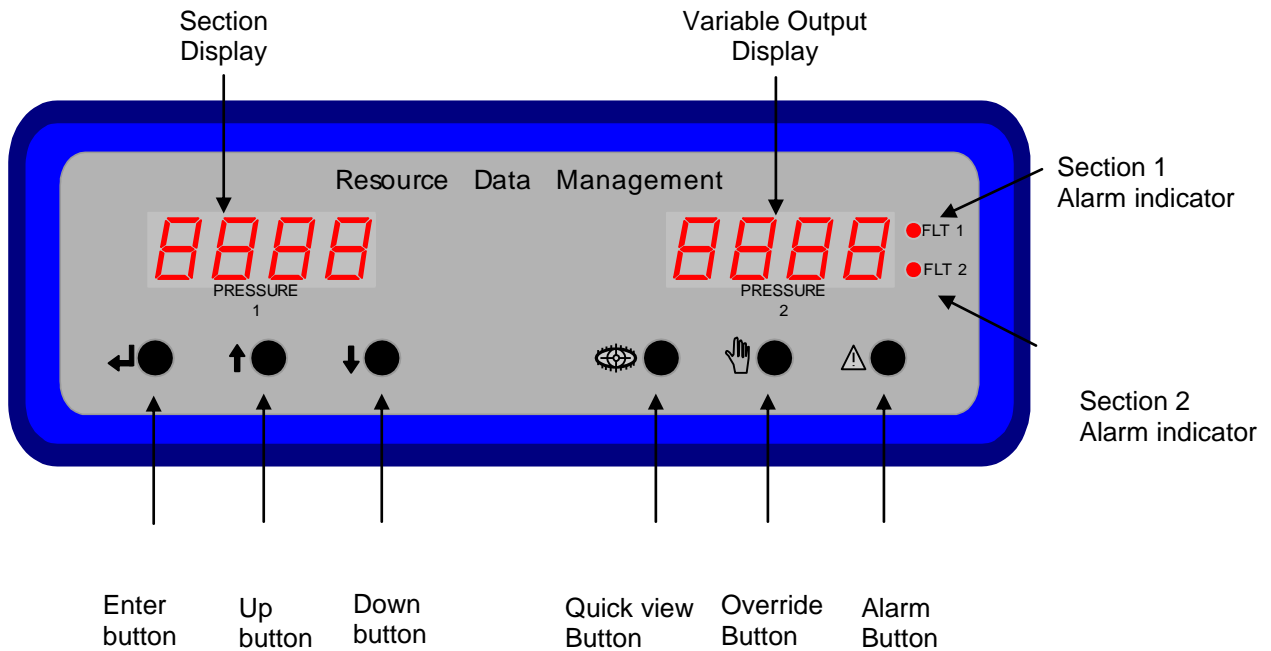
- IP Futura module (Part No. PR0016)
- Mercury Serial Hub / Switch (Part No. PR0018 or PR0018-PHI)

Connecting to any of these communication modules will automatically be detected on power up and this will affect the set up screens made available to you. See [Network Configuration](#).



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Front Panel: -



Section Display

4 character display, shows the Discharge pressure
 In set-up mode, this display shows the set-up menu items
 In quick view mode the display indicates the target pressure

Variable Output Display

4 character display, shows the percentage of the analogue output.
 In set-up mode, display is blank

Front Panel Buttons

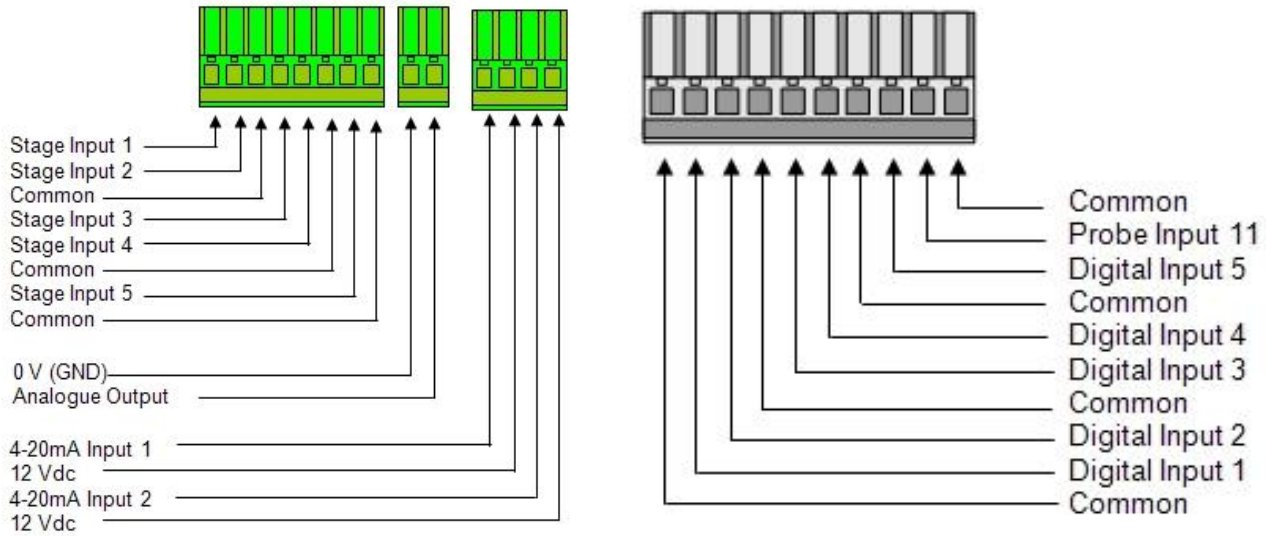
- Enter Button:** - Used to enter menu items.
- Up Button:** - Used to scroll up
- Down Button:** - Used to scroll down
- Quick View Button:** - Used to view the target pressure (See [Quickview](#) section)
- Override Button:** - Not used
- Alarm Button:** - Not used



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Connections

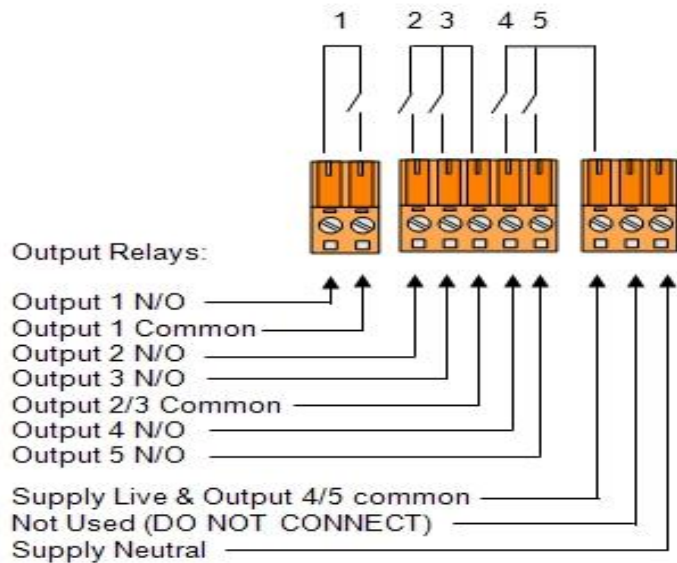
All connections are made to the back of the controller. The diagram below shows the connection detail. Inputs and outputs are assigned according to the chosen configuration. See [Specification](#) and wiring for further details on connections.



Probe Input 11 is PT1000 only

Do not connect an earth.

RELAYS



Analogue Output Selector



0-10V DC 0-20mA
 4-20mA

Configure the jumper switch to the desired position to select between V or mA output. Please see [Out](#) section for further details.



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Input/Output Allocation Tables

All Types	Description	Alarm Action	Comments
Stage Input 1	0V return	Yes	See Stage Inputs for further details.
Stage Input 2	0V return	Yes	
Stage Input 3	0V return	Yes	
Stage Input 4	0V return	Yes	
Stage Input 5	0V return	Yes	
Digital Input 1	0V return	Yes	See Digital Inputs for further details.
Digital Input 2	0V return	Yes	
Digital Input 3	0V return	Yes	
Digital Input 4	0V return	Yes	
Digital Input 5	0V return	Yes	
Probe Input 11	PT1000 Temperature	Yes	
4-20mA Input 1	Discharge Pressure transducer	Yes	See Note 1
4-20mA Input 2	Liquid Level Sensor	Yes	See Liquid Level
Analogue output	Variable voltage/current output	N/A	See Out
Relay 1	N/O	N/A	See Note 2
Relay 2	N/O	N/A	
Relay 3	N/O	N/A	
Relay 4	N/O	N/A	
Relay 5	N/O	N/A	

Note 1

Pressure transducers must be of the current loop 4-20mA type. Excitation voltage (12 Vdc) is provided for each transducer input. The range of the transducer will vary according to the application, this can be set to match the transducer by changing the "[span and offset](#)" in the controller parameters.

Note 2

All relay outputs are normally open. The functional allocation depends on the set-up parameters

Out

The variable output is selectable as either 0-10V DC or 0-20mA or 4-20mA. From the controller software menu select "Out".

If link is in 0-20mA/4-20mA position then the following applies: -
If link in 0-10 V position then Out must be set to 0: -

0 = 0-20mA 1 = 4-20mA
0 = 0-10V 1 = Should not be used



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Setting up the controller

Set-up access to the controller can be achieved several ways

- Through the front mounted buttons
- Direct access by PC into the rear comms port. This requires a software package available on the RDM website (Communicator)
- Through the RDM Data Manager.
- Across an IP network

Set-up through front buttons

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

Set-up Menu

LH Display	RH Display	Option	Menu Item seen in type:	Explained in Paragraph
IO		View Input/Output States	All types	View Input/Output States
PArA		Set/view Parameters	All types	Set/view parameters
Unit		Set/View units	All types	Set/View Units
TyPE		Set/View Controller Type	All types	Set/view product type
rLy		Set/View Relay Invert	All types	Set/View Relay Invert
Out		Set 0-20mA or 4-20mA	All types	Out
Rtc		Set/view Clock (rtc = Real Time Clock)	All types	Real Time Clock
nEt		Set/view network configuration	All types	Network Configuration
SoFt		View software version	All types	
OFSt		Temperature probe Calibration (C-06)	All Types	Probe Offset
ESC		Exit set-up 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)

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

Time clock is now set



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Set/View Relay Invert

When enabled this feature will invert all relay operation on the controller e.g. if relay 1 is off and the relay invert feature is enabled it will invert the relay to on. This feature affects all relays on the controller.

- 0 = Normal Relay Operation (Default)
- 1 = Inverted Relay Operation

PArA. Set/view parameters

(We recommend setting parameters from "Communicator" or the network front end such as "Data Manager")

1. From the function menu scroll to PArA
2. 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 Table](#) to find what parameter number corresponds to which actual parameter.

Pressing the Enter button will show the current value of the selected parameter. Press Up or Down to modify the value and press Enter again to save the value. The parameter list number will be displayed again.

Two other options are present in the parameter menu – dFLt and ESC. Selecting ESC will exit the parameter set-up mode. Selecting dFLt will reset all parameters back to the default values for the current controller type.

Set/View Units

This option allows the user to set the pressure units to either PSI or BAR. The user can also select an option to display the monitoring probe temperature, if used, in °F.

- 0 = BAR °C (default)
- 1 = BAR °F
- 2 = PSI °C
- 3 = PSI °F

Once activated, the controller parameters and display units will be in the set units

Network Configuration

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

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

- IP Futura PR0016
- Mercury Hub / Switch PR0018 / PR0018-PHI

IP Futura module

In an IP system there are two options

- IP-L
- IP-r

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

IP-r (normally used mode) 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

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.

- From the function menu select nEt
- Press enter and the display will show "IP-r", press enter
- You can now view the address given by the DHCP server

OFSt. Temperature Probe Offset.

This allows the temperature probe reading to be offset to compensate for resistance drops due to long cable runs.

1. From the function menu scroll to "OFSt", press enter
2. Use the up/down buttons to scroll through the probe inputs C-01 to C-06, in this controller only probe 6 is used (C-06)
3. Press enter to select C-06, the current offset is shown, press the up and down buttons to adjust
4. Press enter to save.



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Parameter Table

Number	Parameter	Range psi (Bar)	Step	Units	Default (PSI)
P-01	Transducer Span	-50 – 725 (-3.4 - 50)	1	psi (Bar)	500
P-02	Transducer Offset	-50 – 725 (-3.4 - 50)	1	psi (Bar)	0
P-03	Target Pressure	-50 – 725 (-3.4 - 50)	1	psi (Bar)	185
P-04	Target Above	-50 – 725 (-3.4 - 50)	1	psi (Bar)	7
P-05	Target Below	-50 – 725 (-3.4 - 50)	1	psi (Bar)	7
P-06	Split Target	-50 – 725 (-3.4 - 50)	1	psi (Bar)	144
P-07	Split Diff	-50 – 725 (-3.4 - 50)	1	psi (Bar)	7
P-08	Spray Target	-50 – 725 (-3.4 - 50)	1	psi (Bar)	400
P-10	Spray Diff	-50 – 725 (-3.4 - 50)	1	psi (Bar)	7
P-22	Heat Offset	-50 – 725 (-3.4 - 50)	1	psi (Bar)	15
P-12	Stage On Delay	00:00 – 60:00	00:01	min:sec	00:10
P-13	Stage Off Delay	00:00 – 60:00	00:01	min:sec	00:10
P-15	Response On	1 – 60	1	-	5
P-16	Response Off	1 – 60	1	-	5
P-17	Inverter min	0 - 100	1	%	0
P-18	Inverter Max	0 - 100	1	%	100
P-20	Inverter Cut-Off	1 - 100	1	%	20
P-21	Inverter diff	0 - 100	1	%	7
P-19	Pressure Fail Value	0 - 100	1	%	45
P-26	Night Set Back	0 = Off 1 = On 2 = Local 3 = Remote	1	-	0
P-27	Night Reduction	0 - 100	1	%	30
P-28	Night Set On	00:00 – 23:59	00:01	hr:min	20:00
P-29	Night Set Off	00:00 – 23:59	00:01	hr:min	08:00
P-30	Night Set Pressure Limit	-50 – 725 (-3.4 - 50)	1	psi (Bar)	250
P-31	Day Reduction	0 - 100	1	%	0
P-32	Day Set Pressure Limit	-50 – 725 (-3.4 - 50)	1	psi (Bar)	250
P-35	Control Type	0 = Fixed Fuzzy 1 = Float Fuzzy 2 = Fixed Staged 3 = Float Staged	1	-	0
P-38	Liquid Level	0 = off, 1 = on	1	-	0
P-39	High Liquid Level	0 - 100	1	%	80
P-40	Low Liquid Level	0 - 100	1	%	20
P-80	Condenser Offset	-49 – 60	1	C (F)	0
P-81	Refrigerant Type	See List Below	1		0
P-82	Pressure Type	0 = Absolute 1 = Gauge	1		1
P-87	Low Pressure Limit	-50 – 725 (-3.4 - 50)	1	psi (Bar)	
P-88	High Pressure Limit	-50 – 725 (-3.4 - 50)	1	psi (Bar)	
P-50	HP Alarm Pressure	-50 – 725 (-3.4 - 50)	1	psi (Bar)	260
P-51	LP Alarm Pressure	-50 – 725 (-3.4 - 50)	1	psi (Bar)	100
P-52	LP Shut-Down Pressure	-50 – 725 (-3.4 - 50)	1	psi (Bar)	90
P-53	Alarm Delay	00:00 – 99:00	01:00	min:sec	05:00
P-54	Low Delay	00:00 – 99:00	01:00	min:sec	00:00
P-54	Status Delay	00:00 – 05:00	00:01	min:sec	00:10
P-55	General Alarm Delay	00:00 – 05:00	00:01	min:sec	00:10
P-56	Liquid Level Delay	00:00 – 99:00	01:00	min:sec	05:00
P-60	Stage 1	0 = None 1 = Unused 2 = Inverter 3 = Fan 4 = Split 5 = Spray 6 = Heat 7 = Inv Dis	1	-	0
P-64	Stage 5				
P-65	Stage Input 1	0 = N/O 1 = N/C 2 = Unused	1	-	2
P-69	Stage Input 5				



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P-70 ↓	Digital Input 1 ↓	0 = Unused 1 = Std N/O 2 = Std N/C 3 = Ht N/O 4 = Ht N/C	1	-	0
P-74	Digital Input 5				
dFLt	Restore Default Settings				
ESc					

* Span and Offset allows for the full range of the transducer to be used by the controller.
Span is the full range of the transducer
Offset is the value below zero.

e.g. Danfoss AKS 33 with range: -1 bar to 12 bar
Span would be 190 psi (13 bar)
Offset would be -15 psi (-1 bar)

Refrigerant Table

0 = None. 1 = R12. 2 = R13. 3 = R13B1. 4 = R22. 5 = R23. 6 = R32. 7 = R114. 8 = R134A. 9 = R142B. 10 = R227. 11 = R401. 12 = R401A. 13 = R401B. 14 = R402. 15 = R402A. 16 = R402B. 17 = R404A. 18 = R407A. 19 = R407B. 20 = R407C. 21 = R500. 22 = R502. 23 = R503. 24 = R507. 25 = R717. 26 = R290 (Propane). 27 = R744. 28 = R407F. 29 = R410A

Parameter Description:

Number	Parameter	Description
P-01	Transducer Span	Range of the transducer
P-02	Transducer Offset	Transducer value below zero
P-03	Target Pressure	Pressure target, control will try to maintain this pressure
P-04	Target Above P-03	Set-point above the target, used to obtain a "dead-band"
P-05	Target Below P-03	Set-point below the target, used to obtain a "dead-band"
P-06	Split Target	If pressure is above this value the Condenser Split Relay will come on
P-07	Split Diff	If the pressure falls by this amount below P-06 the Condenser Split Relay will go off
P-08	Spray Target	If the pressure rises above this value then the Spray Solenoid relay will come on
P-10	Spray Diff	If the pressure falls by this amount below P-08 the Spray Solenoid will go off
P-22	Heat Offset	The target pressure will be raised by this amount when Heat Reclaim is On (Split P-06 and Spray P-08 will also be raised by this amount)
P-12	Stage On Delay	Delay time between stages on (Staged types only)
P-13	Stage Off Delay	Delay time between stages off (Staged types only)
P-15	Response On	Allows the user to speed up/slow down the Inverter speed or stages. Operates with Fuzzy control only. (Option: - 1 to 60 with 60 being fastest response)
P-16	Response Off	Allows the user to speed up/slow down the Inverter speed or stages. Operates with Fuzzy control only. (Option: - 1 to 60 with 60 being fastest response)
P-17	Inverter min	The minimum percentage the variable output will operate to, output will not go below this value e.g. if set to 30% the variable output will never go below this value
P-18	Inverter Max	The maximum percentage the variable output will operate to, output will not go above this value e.g. if set to 80% the variable output will never go above this value
P-20	Inverter Cut-Off	If variable output % falls to this value the control algorithm will turn off the Inverter Disable relay (One Relay must be selected as "Inv Dis") Note: This can't be set for 0 %.
P-21	Inverter diff	Turns On Inverter Disable Relay at this setting above P-20
P-19	Pressure Fail Value	The inverter output value will stay at this value if the pressure transducer fails
P-26	Night Set Back	Turns on the night set back level. Note: This feature is intended to be used when all of the fans are controlled by the inverter. If fan relays are selected, they will never come on as the inverter is required to go to 100% before staging the next fan. There are 4 options : - Off: Night Feature is not used. Controller uses what is set in Day Reduction. (P-31) On : Night Reduction (P-27) is always used Local : Uses times in Night Set On and Night Set Off parameters (P-28) (P-29) to determine Day / Night Remote : Uses GP Timer to determine Day / Night
P-27	Night Reduction	Reduces inverter output by this amount during night settings.
P-28	Night Set On	Time for the night set back feature to operate
P-29	Night Set Off	Time for the night set back feature to go off
P-30	Night Set Pressure Limit	Pressure set-point to disable the night set back feature. Night set back is disabled above this level and enabled below it.
P-31	Day Reduction	Reduces the inverter output by this amount when the timer is not in its night zone.



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P-32	Day Set Pressure Limit	Pressure set-point to disable the day reduction feature. Day reduction is disabled above this level and enabled below it.
P-35	Control Type	Selects between Fixed Staged or Fixed Fuzzy or Floating Staged or Floating Fuzzy Fixed : Uses the set-point parameter (P-03) as its target) Floating : Uses the temperature of probe converted to a pressure as the set-point (Floating Head). Staged : Uses stage on/off delays (P-12/13). For example as the pressure rises above the setpoint the next stage will be active once the stage on delay expires. Fuzzy : Uses response on/off times (P-15/16). For example as the pressure rises above the setpoint the higher the response on time the quicker the next stage will be active.
P-38	Liquid Level	Enable for Liquid Level feature. See : Liquid Level
P-39	High Liquid Level	Setting at which High Liquid Level alarm is generated
P-40	Low Liquid Level	Setting at which Low Liquid Level alarm is generated
P-80	Condenser Offset	Allows for an offset to be added to the ambient temperature probe used in the "floating" set-point feature.
P-81	Refrigerant Type	Type of refrigerant used in system
P-82	Pressure Type	Absolute or Gauge
P-87	Low Pressure Limit	Stops the floating pressure target from going below this level
P-88	High Pressure Limit	Stops the floating pressure target from going above this level
P-50	HP Alarm Pressure	HP alarm set-point
P-51	LP Alarm Pressure	LP alarm set-point
P-52	LP Shut-Down Pressure	LP shut-down set-point, all stages go off when this is reached
P-53	Alarm Delay	Delay before HP and LP alarms are signalled
P-89	LP Shutdown Delay	Delay before LP shutdown once shutdown pressure is reached
P-54	Status Delay	Time delay before status faults are activated
P-55	General Alarm Delay	Time delay before Standby Alarm is activated
P-56	Liquid Level Delay	Delay applied before the Low or High liquid alarm is generated.
P-60	Stage 1	Selects the output device for this stage
↓	↓	
P-64	Stage 5	
P-65	Stage Input 1	Used to select the type of input required
↓	↓	
P-69	Stage Input 5	
P-70	Digital Input 1	Used to detect Heat Reclaim Enable or Controller to go to Standby
↓	↓	
P-74	Digital Input 5	

Configuration of Inputs and Outputs:

Stage Inputs

Stage Inputs can be configured as Normally Open, Normally closed or Unused. Each input, when assigned will attach to the corresponding section stage.

Digital Inputs

Digital Inputs can be configured as Unused, Standby N/O, Standby N/C, Heat N/O, and Heat N/C

Section Stages

Section stages can be configured as None, Unused, Inverter Enable, Fan, Split, Spray, Heat or Inverter Disable. These parameters determine which relay is assigned to the section outputs.

Note: If there is an output stage configured as "Unused" at the end of the relay assignment, this Relay will become a "General Alarm" Relay.



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Stage P-60 – P-64	Description
None (0)	Relay is not used.
Unused (1)	Used to enable an Alarm relay : If a stage is set to unused controller will use this as an alarm relay Relay. Relay energised for no alarm.
Inverter Enable (2)	Used as Inverter Enable : Relay will come on to enable the Inverter when pressure rises above Set Point P-03 plus Diff P-04 and will go off when pressure falls below Set Point P-03 minus Diff P-05 and inverter has ramped down to 0%
Condenser Fan (3)	Used for Condenser Fan : Will turn on fans when target pressure rises above P-03 plus Target above P-04 and Stage On Delay P-12 has expired and the variable output has reached 100% (if Inverter selected) Will turn fans off when target pressure drops below P-03 – Target below P-05 and Stage off Delay P-13 has expired and the variable output has reached 100% (if Inverter selected)
Condenser Split (4)	Used to split Condenser : Will turn Off Condenser Split Relay if pressure drops below Split Target P-06 minus Split Diff P-07 and will turn Split Relay On when pressure rises above Split Target P-06
Spray (5)	Brings on Spray Cooling : Will turn on Spray Cooling Relay when pressure rises above Spray Target P-08 and will turn Spray relay off again when pressure falls below Spray Target P-08 minus Spray Diff P-10
Heat (6)	Brings on Heat Reclaim : Will raise the Target Pressure P-03 by amount set in Heat Offset P-22 when any stage is set for Heat and a Digital Input P-70 to P74 is set for Heat and configured input is activated.
Inverter Disable (7)	Used to disable Inverter : Will turn Off Inverter Disable relay when Inv Dis is selected and pressure falls below Inverter Cut-Off P-20 and will turn relay On again when pressure rises above Inverter Cut-Off P-20 plus Inverter Diff P-21

Floating Head Pressure

When the condenser controller is used in the “Floating Head pressure” mode, parameters P81 to P86 must be used to profile a pressure curve from the temperature probe. The temperature probe would be situated such that it’s reading ambient air temperature. This pressure conversion from the ambient temperature becomes the “Target Setpoint” and P03 is only used as by default for instances when the probe is disconnected or develops a fault. P87 and P88 allow for a lower and upper limit to be set for the pressure range. P80 can be used to add an offset to the ambient temperature probe.

Night Set-back

The controller has a “Night Set-back” feature. The variable output can be reduced to a predetermined level; either by an internal timer or by times sent to the controller over the network. (Use a GP Timer channel in a Data Manager). When the feature is active the variable output will not ramp above the predetermined level. There is a High pressure limit, over which the night set-back feature will be turned off. As the pressure reduces under this limit the night set-back feature is switched on again.

Day Set-back

Similarly the controller has a day Set-Back feature. The Day Set-Back feature uses the local night Set-Back clock, (if it’s out of the night set-back time, day set-back will be on)

Note:

When either day or night Set-Back mode is on no further fan stages will come on unless the variable output reaches 100%, either by reaching the high pressure point or Set-Back going off.

Pressure Fail Value

Loss of the Discharge pressure transducer will result in the variable output going the value defined in P19.

Liquid Level

A Liquid level detector can be fitted to 4–20mA Input 2 (Input 1 being used for Discharge Pressure Transducer). Liquid level sensor must be of the current loop 4-20mA type. Excitation voltage (12V dc) is provided for sensor input. See parameters P-38 (Enable) P-39 (High Liquid Level Alarm Set Point) P-40 (Low Liquid Level Alarm Set Point). P-56 (Liquid Level Alarm delay). 4mA equates to 0% and 20ma equates to 100%.



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Viewing

Inputs and Outputs

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

1. From the function menu, select "IO", press enter
2. You can now scroll through the IO tables as set out below

Input/Outputs

Number	IO	Range psi (Bar)	Units
I-01	Discharge Pressure	-50 – 725 (-3.4 - 50)	psi (Bar)
I-11	Stage Input 1	0 = Alarm 1 = OK 2 = Unused	
I-15	Stage Input 5		
I-20	Digital Input 1	0 = Off 1 = On 2 = Unused	
I-24	Digital Input 5		
I-31	Temperature Probe	-58 – 248 (-49 - 118)	°F (°C)
I-40	Liquid Level	0 – 100	%
O-41	Floating Target	-50 – 725 (-3.4 - 50)	psi (Bar)
O-01	Relay 1	(0) Off (1) On	
O-5	Relay 5		
O-31	Variable Output	0 - 100	%
O-32	Night set Back	0 = Off 1 = On	
O-33	Day Set Back	0 = Off 1 = On	
O-34	Setpoint Offset	-50 – 725 (-3.4 - 50)	
S-01	Section 1 Control States	(0) Stabilize (1) Initial (2) Normal (3) High Pressure (4) Low Pressure (5) Low Shut-down (6) Probe Fail (7) Stand-by	

Quickview

Pressing the "quickview" button during normal operation displays the target pressure. Press the "quickview" button again to go back to the normal display or wait for the time-out period to elapse.

Standby Mode

When the configured input is active the controller will go into standby mode. All fans will be turned off, the variable output will go to 0% and an alarm (controller in standby) is generated.



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Display Messages

The following messages can appear on the Mercury display during normal operation.

Display	System status
hiPr	High Pressure alarm
LoPr	Low Pressure alarm
Ft	Transducer Fault
LoSh	Low Pressure Shut-down
ConF	Configuration Fault

Network Alarms

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

Alarm text	Type #
Cond High Pressure	12
Cond Low Pressure	11
Cond Low Shutdown	11
Cond Pressure Probe Fault	6
Stage 1 Fault	3
Stage 2 Fault	3
Stage 3 Fault	3
Stage 4 Fault	3
Stage 5 Fault	3
Configuration Error	20
Controller in standby	20
Liquid Level Fault	6
Liquid Level High	4
Liquid Level Low	5
Temperature Probe	6

Specification

Power requirements

Supply Voltage Range: 100 - 240 Vac $\pm 10\%$
 Supply Frequency: 50 - 60 Hz $\pm 10\%$
 Maximum supply current: <1 Amp (with no relay loads)
 12.5 Amps (with relays 4, 5, 9 and 10 fully loaded)
 Typical supply current: <1.0 Amp
 Class 2 Insulation: **No** protective Earth is required and **none** should be fitted.

The host equipment must provide a suitable external over-current protection device such as: -
 Fuse: 10A, 240 Vac Antisurge (T) HRC conforming to IEC 60127
 Or MCB: 10A, 240 Vac Type C conforming to BS EN 60898

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

General

Operating temperature range: -10°C to $+60^{\circ}\text{C}$
 Operating Humidity: 80% maximum
 Storage temperature range: -20°C to $+65^{\circ}\text{C}$
 Environmental: Indoor use at altitudes up to 2000m, Pollution Degree 1, Installation Category II.
 Voltage fluctuations not to exceed $\pm 10\%$ of nominal voltage
 Size: 180mm (W) x 68mm (H) x 110mm (D)
 Weight: 260 Grams
 Safety: EN61010
 EMC: EN61326; 1997 +Amdt. A1; 1998
 Ventilation: There is no requirement for forced cooling ventilation



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Inputs:

Probe Input type	PT1000 for all versions
Digital Input type	0 volt return (internal pull-up resistor give hi state when there is no return)
Comms:	RS232 with flow control
4-20mA	4-20mA current loop, use the 12 Vdc output to feed the pressure transducer

Analogue Output

0 to 10 Volts DC or 4-20mA, (jumper on the back of the controller selects).

Relay Ratings

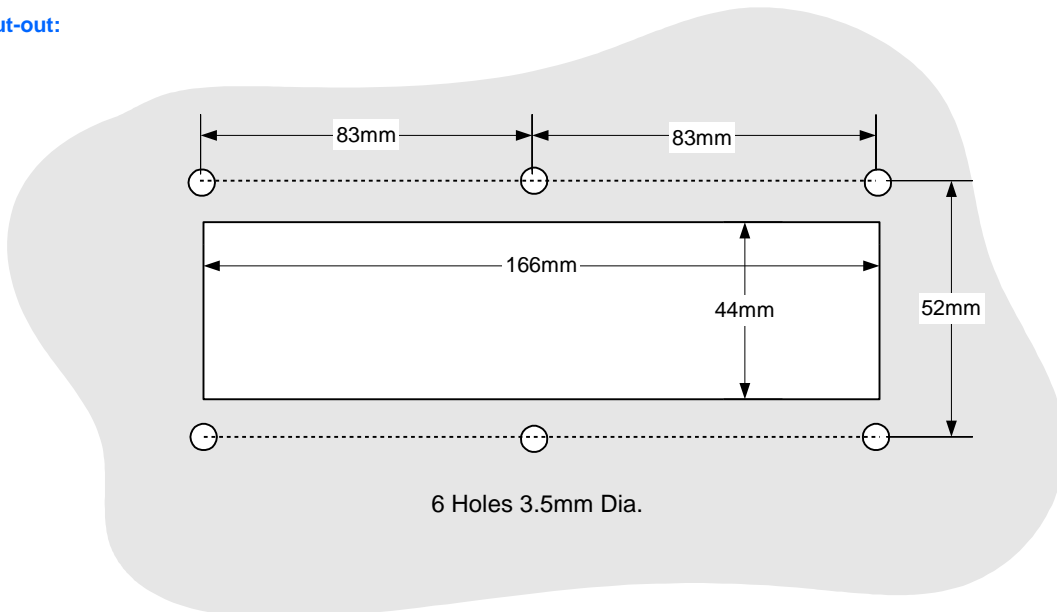
Max current relay 1: Max Voltage relay 1:	6A (non inductive) 260Vac (external supply)	Exclusive common
Max current relay 2: Max Voltage relay 2: Shared common with relay 3	4A (non inductive) 260Vac (external supply)	Relays 2 and 3 share a common supply line and the loads have a combined total 8A
Max current relay 3: Max Voltage relay 3: Shared common with relay 2	4A (non inductive) 260Vac (external supply)	Relay 2 or 3 can switch a maximum of 6A provided the other is at 2A or lower
Max current relay 4: Max Voltage relay 4: Common connected to supply "live"	3A (non inductive) 260Vac (Internal supply)	
Max current relay 5: Max Voltage relay 5: Common connected to supply "live"	3A (non inductive) 260Vac (Internal supply)	

Important Safety Notice:

PR0266 must use a voltage level the same as the supply input voltage on all of the relays common.

Installation:

Panel Cut-out:



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Fixing:

6 X M3 screws from the rear fix the controller.

DIN rail: Use PR0039 to mount the controller to a DIN rail.

Clearances:

The controller must have 5mm clearance above the top and below bottom, and 25mm clearance from the sides. Clearance at the rear is dependent on the wiring.

There is no requirement for forced cooling ventilation



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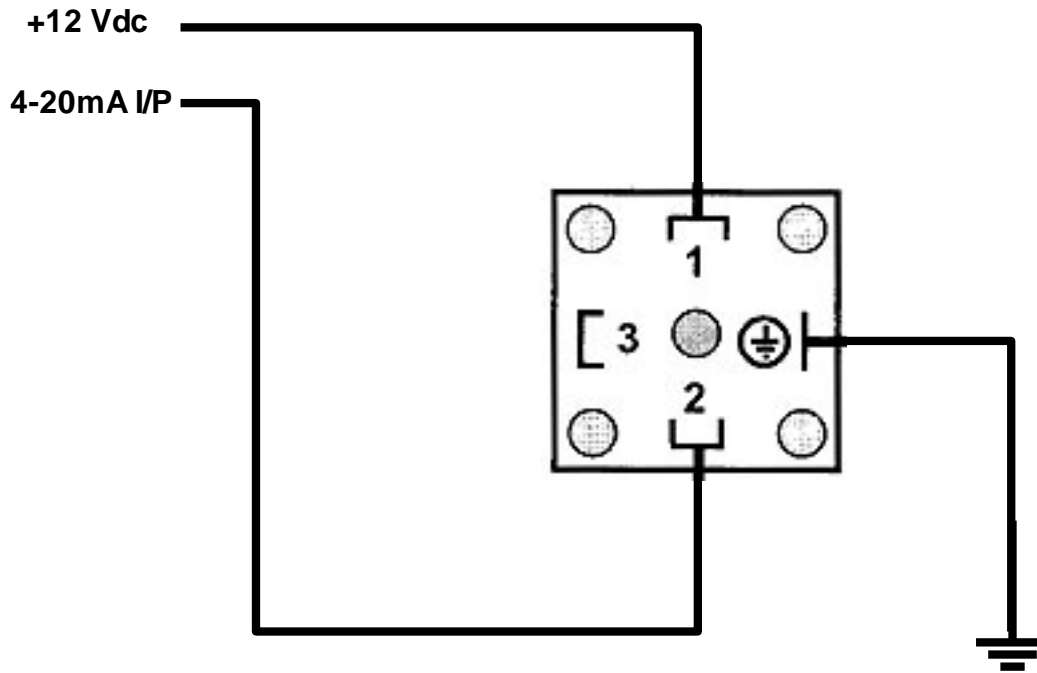
Cleaning:

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

Appendix 1

Example Transducer Connection:

For 4-20mA type transducers the diagram below shows the connections to the Mercury 11-5C: -



Note: The Earth connection is not necessary unless in a noisy environment.

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
1.0	01/08/2009	1 st Issue
1.1	09/11/2009	Various descriptions felids updated.
1.1a	02/02/2010	Inverter cut off range updated P-20
1.1b	26/07/2012	New Look
2.0	15/07/2013	Gas selection table added, units changed default (0) is now Bar C
2.0a	06/01/2015	Operating temperature range updated.



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