Mercury 2

Pulse Reader

User Guide

For Product: -

PR0710-PLS

Qualified for Energy Technology List www.eca.gov.uk

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

Table of Contents:

THE MERCURY RANGE **3**

Description **3**
Configuration **3**
Networks **3**
Front Panel Features **4**
Alarm LED **4**
Display: 4
Enter Button: 4
Up Button: 4
Down Button: 4
Network LED: 4
Alarm Led: 4
Connections **5**
Input/Output Allocation Table: **5**
Setting up the controller **6**
Setup Mode 6
Setup through front buttons 6
Setup Function Menu 6
Recommended set-up method **7**
rtc. 7
PArA. 7
Parameter Table: **8**
Parameter Description **10**
Network Configuration **11**
485 Legacy module 11
485t 11
485A 11
gAdd 11
rLog 11
ClrA 12
IP Futura module 12
IP-L 13
IP-r 13
Clear Channels **13**
Alarm Messages **14**
Network Alarms **14**
Operation **14**
Specification **15**
Power requirements: 15
Relays 15
Warning: 15
Inputs: 16
Reader Specification 16
Installation: **16**
Fixing: 16
Clearances: 16
Wiring: **17**
Fuse: **17**
Cleaning: **17**

REVISION HISTORY **18**

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

The Mercury Range

Description

The Mercury Pulse Reader has 6 independent inputs that can be configured for pulse counting from the pulse relay of most utility meters. The input is activated by the use of a 0 volt return through the normally open and common contacts of the relay inside the utility meter.
In addition to the 6 inputs, the 5 on board relays can be used remotely by "The Data Builder".
The Pulse Reader will accumulate pulses on a per channel basis to give a running total. It also has 3 time slots (cans) on a per channel basis that counts the number of pulses during the time interval. These “can” times are globally configurable for: -

- 5 minute
- 15 minute
- 30 minute
- 1 hour
- 12 hour
- 24 hour

A scaling parameter is available that ensures compatibility with the majority of utility meter scale factors.

Note that the Pulse Reader is unit-less; item aliasing can be used on the Data Manager/Director to

indicate units

Configuration

The Pulse Reader is delivered pre-configured with all 6 channels "off"

Networks

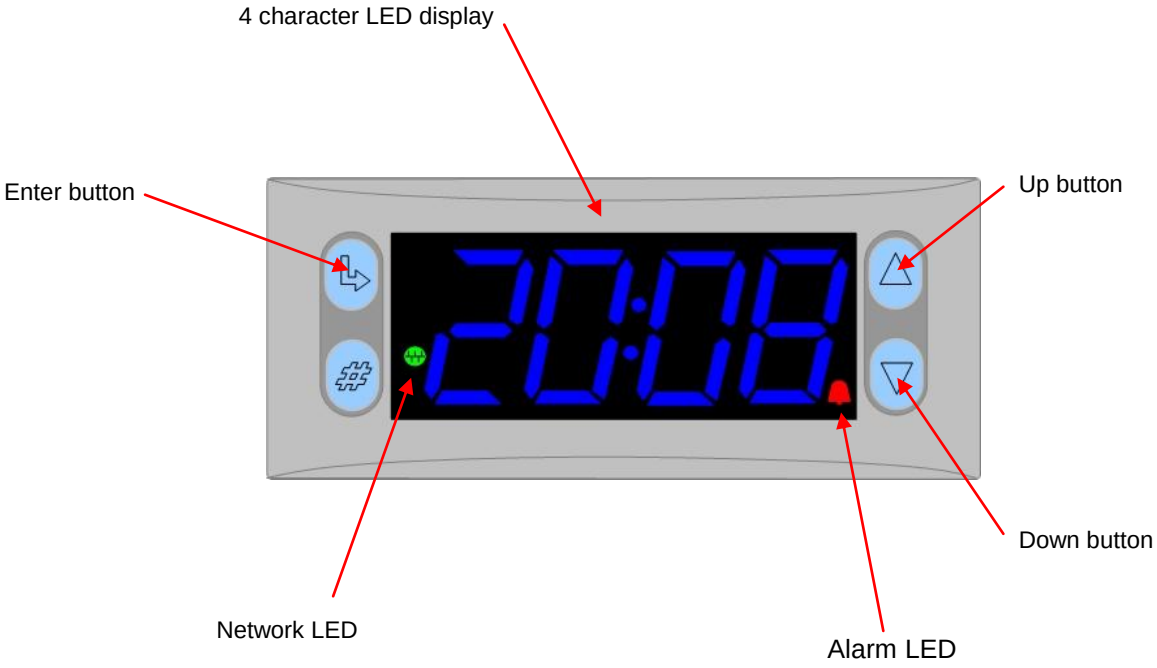
The controllers are capable of connecting to either a TCP/IP local area network or a RS485 network or controlling in standalone mode with no network output.

To connect to a network you must add the correct communications module.

- 485 Legacy module (Part No PR0026)
- IP Futura module (Part No PR0016)

Connecting to either of these communication modules will automatically be detected on power up and this will affect the set up screens made available to you.

Front Panel Features



Display:

4 character red LED display, used to display temperature and status messages.

Enter Button:

Button used to enter values front the menu system.

Up Button:

Button used to scroll up through the menu items

Down Button:

Button used to scroll down through the menu items

Network LED:

Green LED used to indicate network Status:

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

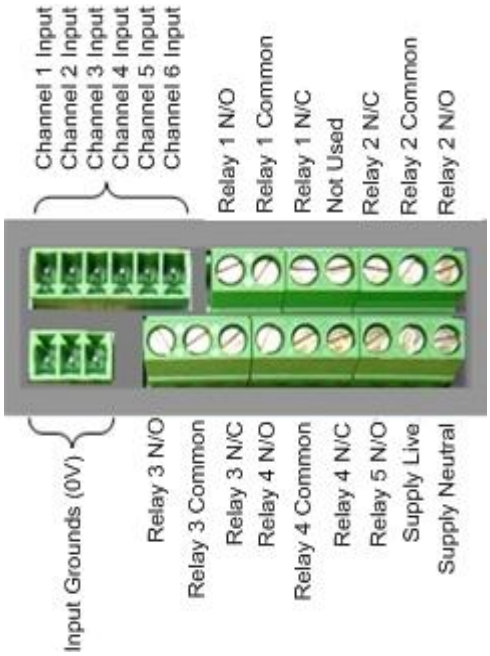
Alarm Led:

- Off – No current alarms
- On – Current alarms

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

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 for further details on connections.



Do not connect an earth.

Input/Output Allocation Table:

Pulse Reader	Description	Alarm Action
Input 1	Channel 1 (0 volt return)	Yes
Input 2	Channel 2 (0 volt return)	Yes
Input 3	Channel 3 (0 volt return)	Yes
Input 4	Channel 4 (0 volt return)	Yes
Input 5	Channel 5 (0 volt return)	Yes
Input 6	Channel 6 (0 volt return)	Yes
Relay 1	Remote Relay 1	N/A
Relay 2	Remote Relay 2	N/A
Relay 3	Remote Relay 3	N/A
Relay 4	Remote Relay 4	N/A
Relay 5	Remote Relay 5	N/A

Relay 1 to 4 : (Software) Outputs shows Off = Relay Energised
Relay 5 : (Software) Outputs shows Off = Relay De-Energised

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

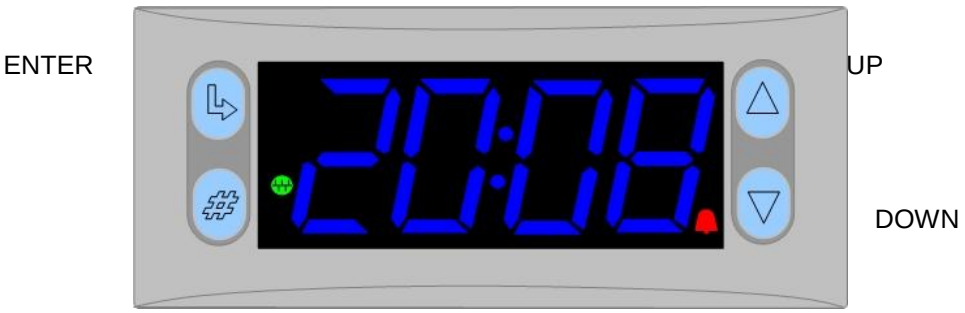
Setting up the controller

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 Director or Data Manager

Setup Mode

Setup through front buttons



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

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	
Clr	Clear Channels	Clear Channels
ESC	Exit Setup mode	

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

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)

a. Use the up or down buttons to scroll through the display until the display reads “rtc”
b. Press enter. The display will show “t-1”. press enter again
c. Scroll hours up or down (0 – 23) press enter
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	Value
P-01	Channel 1 set	0 - 6	1	0 = off (default) 1 = 1 pulse/100Units 2 = 1 pulse/10Units 3 = 1 pulse/Unit 4 = 10 pulse/Unit 5 = 100 pulse/Unit 6 = 1000 pulse/Unit
P-02	Ch 1 Can A (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-03	Ch 1 Can A (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-04	Ch 1 Can B (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-05	Ch 1 Can B (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-06	Ch 1 Can C (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-07	Ch 1 Can C (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-08	Ch 1 Scale Factor	0 – 99.9	0.1	1.0
P-11	Channel 2 set	0 - 6	1	0 = off (default) 1 = 1 pulse/100Units 2 = 1 pulse/10Units 3 = 1 pulse/Unit 4 = 10 pulse/Unit 5 = 100 pulse/Unit 6 = 1000 pulse/Unit
P-12	Ch 2 Can A (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-13	Ch 2 Can A (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-14	Ch 2 Can B (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-15	Ch 2 Can B (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-16	Ch 2 Can C (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-17	Ch 2 Can C (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-18	Ch 2 Scale Factor	0 – 99.9	0.1	1.0
P-21	Channel 3 set	0 - 6	1	0 = off (default) 1 = 1 pulse/100Units 2 = 1 pulse/10Units 3 = 1 pulse/Unit 4 = 10 pulse/Unit 5 = 100 pulse/Unit 6 = 1000 pulse/Unit
P-22	Ch 3 Can A (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-23	Ch 3 Can A (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-24	Ch 3 Can B (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-25	Ch 3 Can B (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-26	Ch 3 Can C (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-27	Ch 3 Can C (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-28	Ch 3 Scale Factor	0 – 99.9	0.1	1.0
P-31	Channel 4 set	0 - 6	1	0 = off (default) 1 = 1 pulse/100Units 2 = 1 pulse/10Units 3 = 1 pulse/Unit 4 = 10 pulse/Unit 5 = 100 pulse/Unit 6 = 1000 pulse/Unit

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

P-32	Ch 4 Can A (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-33	Ch 4 Can A (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-34	Ch 4 Can B (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-35	Ch 4 Can B (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-36	Ch 4 Can C (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-37	Ch 4 Can C (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-38	Ch 4 Scale Factor	0 – 99.9	0.1	1.0
P-41	Channel 5 set	0 - 6	1	0 = off (default) 1 = 1 pulse/100Units 2 = 1 pulse/10Units 3 = 1 pulse/Unit 4 = 10 pulse/Unit 5 = 100 pulse/Unit 6 = 1000 pulse/Unit
P-42	Ch 5 Can A (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-43	Ch 5 Can A (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-44	Ch 5 Can B (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-45	Ch 5 Can B (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-46	Ch 5 Can C (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-47	Ch 5 Can C (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-48	Ch 5 Scale Factor	0 – 99.9	0.1	1.0
P-51	Channel 6 set	0 - 6	1	0 = off (default) 1 = 1 pulse/100Units 2 = 1 pulse/10Units 3 = 1 pulse/Unit 4 = 10 pulse/Unit 5 = 100 pulse/Unit 6 = 1000 pulse/Unit
P-52	Ch 6 Can A (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-53	Ch 6 Can A (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-54	Ch 6 Can B (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-55	Ch 6 Can B (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-56	Ch 6 Can C (x1000 Counter) alarm level	0 - 9999	1	0 (default)
P-57	Ch 6 Can C (Units Counter) alarm level	0 - 999.9	0.1	0.0 (default)
P-58	Ch 6 Scale Factor	0 – 99.9	0.1	1.0
P-61	Can A size (Global)	0 = 5 min 1 = 15 min 2 = 30 min 3 = 1 hour 4 = 12 hours 5 = 24 hours	1	1 hour
P-62	Can B size (Global)	0 = 5 min 1 = 15 min 2 = 30 min 3 = 1 hour 4 = 12 hours 5 = 24 hours	1	12 hours
P-63	Can C size (Global)	0 = 5 min 1 = 15 min 2 = 30 min 3 = 1 hour 4 = 12 hours 5 = 24 hours	1	24 hours

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

Parameter Description

Number	Parameter	Range	Description
P-*1	Channel 1 set	0 - 6	0 = off (default) 1 = 1 pulse/100Units 2 = 1 pulse/10Units 3 = 1 pulse/Unit 4 = 10 pulse/Unit 5 = 100 pulse/Unit 6 = 1000 pulse/Unit
P-*2	Ch 1 Can A (x1000 Counter) alarm level	0 - 9999	Can A will alarm when this value + P-*3 value is reached
P-*3	Ch 1 Can A (Units Counter) alarm level	0 - 999.9	Unit value of Can A alarm level
P-*4	Ch 1 Can B (x1000 Counter) alarm level	0 - 9999	Can B will alarm when this value + P-*5 value is reached
P-*5	Ch 1 Can B (Units Counter) alarm level	0 - 999.9	Unit value of Can B alarm level
P-*6	Ch 1 Can C (x1000 Counter) alarm level	0 - 9999	Can C will alarm when this value + P-*7 value is reached
P-*7	Ch 1 Can C (Units Counter) alarm level	0 - 999.9	Unit value of Can B alarm level
P-*8	Ch 1 Scale Factor	0 – 99.9	Use in conjunction with P-*1 to achieve the desired scaling factor. Example: if a scale factor of 50 is required, set P-01 to 1 and P-08 to 50.0
P-61	Can A size (Global)	0 = 5 min 1 = 15 min 2 = 30 min 3 = 1 hour 4 = 12 hours 5 = 24 hours	Set this to the time interval required for Can A. Note this is a global value, it sets all 6 channels
P-62	Can B size (Global)	0 = 5 min 1 = 15 min 2 = 30 min 3 = 1 hour 4 = 12 hours 5 = 24 hours	Set this to the time interval required for Can B. Note this is a global value, it sets all 6 channels
P-63	Can C size (Global)	0 = 5 min 1 = 15 min 2 = 30 min 3 = 1 hour 4 = 12 hours 5 = 24 hours	Set this to the time interval required for Can C. Note this is a global value, it sets all 6 channels

Note. Parameters values are split into 2 components: - x1 units and x1000 units. The pulses count, however will come through as a single value, it's just the parameters that are split.

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).

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

- 485 Legacy, or
- IP Futura

485 Legacy module

In a legacy system, the only option is Genus compatible.

Connecting a 485 legacy module to the controller will govern which set up screens are made available.

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

485t

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

Value	Network Type
1	Genus compatible (all versions)
2	Not available

485A

This option shows a value that represents the name of the controller in a Genus compatible network.

The value shown is of the form 05-6. This means the controller would log onto a Genus compatible network using the name ‘RC05-6’. Use the up/down keys to select the desired address.

gAdd

This option displays (in hexadecimal format) the underlying network address (given address) assigned to the controller when it was logged onto the network.

rLog

This option allows the controller to be logged back onto the network with its current name. The ‘rLog’ message will flash for confirmation. Press the Enter button to execute the command, Up or Down buttons to cancel.

Fast Network Address Reset

ClrA

This option will clear out the network address and name in the controller. The 'ClrA' message will flash for confirmation. Press the Enter button to execute the command, Up or Down buttons to cancel.

To enter this mode, hold the Enter, Up and Down buttons together for approximately 3 seconds until the message `CLrA` appears on the display. `CLrA` is the first option in the menu consisting of the following options:

Display	Option
`CLrA`	Clear the address/name from the controller
`ESC`	Exit Setup mode

Pressing the Enter button to select the `CLrA` option will cause the '`CLrA`' message to flash for confirmation, if the network type is set to Genus compatible. Press the Enter button to execute the command, Up or Down buttons to cancel. If the network type is not set to Genus compatible then the `ClrA` message will not flash and the ESC option can be used to exit the menu.

IP Futura module

In an IP system there are two options

- IP-L
- IP-r

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

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

IP-L

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

1. nEt. From the function menu you can now select nEt
   - Press enter and the display will show "IP-L", press enter
   - You can now set the address using the table below

Display	Option
IP-1	IP Address byte 1
IP-2	IP Address byte 2
IP-3	IP Address byte 3
IP-4	IP Address byte 4
nL	Network Mask Length
gt-1	Gateway Address byte 1
gt-2	Gateway Address byte 2
gt-3	Gateway Address byte 3
gt-4	Gateway Address byte 4
ESC	Exit network menu. **N.B.** this option **must** be selected to save any changes made in this menu

IP-r

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

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

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

Mask	Length
255.255.255.252	30
255.255.255.248	29
255.255.255.240	28
255.255.255.224	27
255.255.255.192	26
255.255.255.128	25
255.255.255.0	24

Mask	Length
255.255.254.0	23
255.255.252.0	22
255.255.248.0	21
255.255.240.0	20
255.255.224.0	19
255.255.192.0	18
255.255.128.0	17
255.255.0.0	16

Mask	Length
255.254.0.0	15
255.252.0.0	14
255.248.0.0	13
255.240.0.0	12
255.224.0.0	11
255.192.0.0	10
255.128.0.0	09
255.0.0.0	08

Clear Channels

Channels can be reset to zero by using the clear channel option. Press enter at the "Clr" screen, then select Clr-1 through to Clr-6, then press enter to clear the channel.

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

Alarm Messages

Alarms are indicated by the red LED only, no screen messages are displayed.

Network Alarms

Alarm message	Type (index Number)
Channel 1 Can A Count	21
Channel 1 Can B Count	22
Channel 1 Can C Count	23
Channel 2 Can A Count	21
Channel 2 Can B Count	22
Channel 2 Can C Count	23
Channel 3 Can A Count	21
Channel 3 Can B Count	22
Channel 3 Can C Count	23
Channel 4 Can A Count	21
Channel 4 Can B Count	22
Channel 4 Can C Count	23
Channel 5 Can A Count	21
Channel 5 Can B Count	22
Channel 5 Can C Count	23
Channel 6 Can A Count	21
Channel 6 Can B Count	22
Channel 6 Can C Count	23

Operation

Connect a 0v line from the reader through the utility meters volt free pulse relay back to the desired input. Set the channel parameters to correspond with the meters pulse information. The reader will accumulate the pulse information from the meter. The pulse will be displayed as a single value.

Specification

Power requirements:

Supply Voltage Range:	100 - 240 Vac ±10%
Supply Frequency:	50 - 60 Hz
Maximum supply current:	5.2 Amps (when relays 4 and 5 are fully loaded)
Typical supply current:	<1 Amp
Operating temperature range:	$+5^0$C to $+50^0$C
Operating Humidity:	80% maximum
Storage temperature range:	-20^0C to $+65^0$C
Environmental:	Indoor use at altitudes up to 2000m, Pollution Degree 1, Installation Category II. Voltage fluctuations not to exceed ±10% of nominal voltage
Size:	110mm (W) x 60mm (H) x 100mm (D)
Approx Weight:	170 Grams
Safety:	EN61010
EMC:	EN61326; 1997 +Amdt. A1; 1998
Ventilation:	There is no requirement for forced cooling ventilation
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:	6.3A 240 Vac Antisurge (T) HRC conforming to IEC 60127
Or MCB:	6A, 240 VAC Type C conforming to BS EN 60898

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

Relays

Max current relay 1:	6A (non inductive), COSϕ=0.4 2A (inductive load) 200,000 operations
Max Voltage relay 1:	250Vac, 30V dc

Exclusive common

Max current relay 2:	6A (non inductive), COSϕ=0.4 2A (inductive load) 200,000 operations
Max Voltage relay 2:	250Vac , 30V dc

Exclusive common

Max current relay 3:	6A (non inductive), COSϕ=0.4 2A (inductive load) 200,000 operations
Max Voltage relay 3:	250Vac , 30V dc

Exclusive common

Max current relay 4:	6A (non inductive), COSϕ=0.4 2A (inductive load) 200,000 operations
Max Voltage relay 4:	250Vac , 30V dc

Exclusive common

Max current relay 5:	3A (non inductive), COSϕ=0.4 2A (inductive load) 200,000 operations
Max Voltage relay 5:	250Vac (Internal supply)

Common connected to Supply Live

For compliance with the LVD, relays 2 and 3 common must be at the same potential as the supply voltage.

Warning:
Relays 5 output have hazardous voltages (Supply input voltage potential).

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

Inputs:

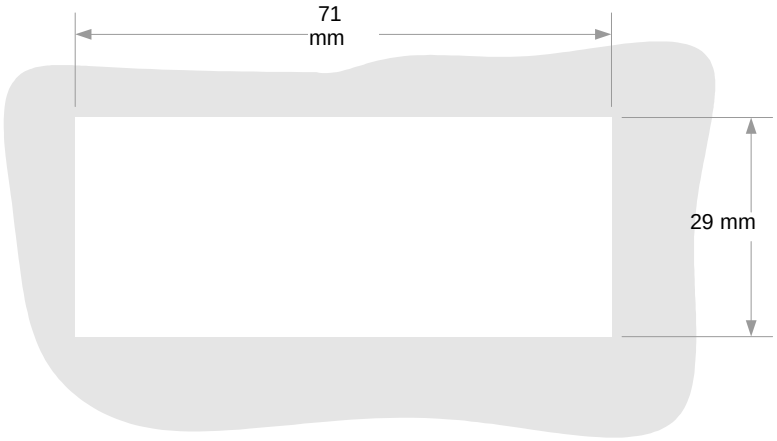
Input resistance:	3.01K Ohms
Input type	0 Volt return
Comms:	RS232 with flow control

Reader Specification

Pulse High Duration:	100ms minimum
Pulse Low Duration:	100ms minimum
1 hour store maximum:	3276 counts
12 hour store maximum:	3276 counts
24 hour store maximum:	3276 counts
Main accumulator maximum:	9,999,999.9 counts
Pulse Voltage:	0v return from reader

Installation:

Panel Cut-out:



The Mercury 2 fascia is 78mm x 36mm and is central around the cut-out.

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.

Clearances:

Space required behind the panel: 120mm + space for cable bends

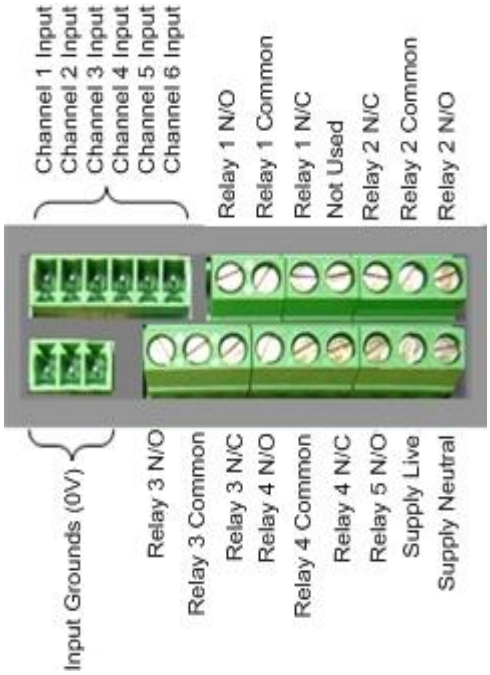
Space required behind the panel on the right hand side (looking from the front): 30mm + bend radius for a Cat5 patch lead

Space required behind the panel on the left hand side (looking from the front): 20mm

There is no requirement for forced cooling ventilation

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

Wiring:



Relay 5 N/O is fed from the supply input

Note:
Suitable mechanical restraints on the wiring to the controller may be required; dependant on cable types, to prevent undue stress or distortion on the controller connectors.

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

Cleaning:

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

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

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

Revision History

Revision	Date	Changes	Comments
1.0	15/03/2007	1st Issue	
1.1	18/09/2009	Technical specification amended	
1.2	29/12/2009	Technical specification amended	
1.2A	10/08/2010	Input/Output allocation table amended	