

# PERMACONN

## PM45-4G v3

Installation Manual  
Australia



PERMACONN™

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## Introduction

The Permaconn system provides two-way communication between supervised premises and the Monitoring Centre. The Permaconn PM45-4G v3 is a versatile state of the art microprocessor based 4G and IP security communicator. This unit can interface with a range of alarm panels using RS232, Contact ID.

The Permaconn PM45-4G v3: reports Contact ID events on the 4G and IP networks.  
The Permaconn PM45-4G v3: polls according to the registered fault recognition time.

## Features of the Permaconn PM45

- Interfaces with any Contact ID alarm panel.
- Configure IP settings using cellular 4G remote connection.
- Remote alarm panel Upload/Download available using 4G / 3G / IP.
- Dual SIM + IP alarm communicates on 4G Optus and Telstra networks.
- Three (3) Inputs / Three (3) Outputs function control using Atlas and/or Pocket Secure.
- Contact ID interface / Securitel interface.
- Up to 2.4K baud Modem for upload / download.
- 4G Reporting.
- Monitors and reports status of alarm panel dialler interface lead.
- Non volatile memory stores all setup information in the event of a power failure.
- No onsite programming required.
- RF signal strength indicator.
- LED status indicators for easy onsite diagnostics

## Atlas Web Platform



Atlas is a secure web portal that enables users to activate and interrogate their Permaconn 4G/IP communicators remotely for diagnostic and control purposes. This portal can be accessed via the web using any Smartphone, Tablet or PC. We strongly recommend using the portal primary and backup connection to verify your install.

Apply online: [www.permaconn.com](http://www.permaconn.com)

## Poll Plans

<b>Supervisory Period</b>	<b>Single SIM</b>	<b>Single SIM + IP</b>	<b>Dual SIM</b>	<b>Dual SIM + IP</b>
<b>Class 2 12 Hour</b>	<b>P2</b>			
<b>Class 2+ 1 Hour</b>		<b>P8</b>	<b>P9</b>	
<b>Class 3 120 Seconds</b>		<b>P13</b>	<b>P14</b>	<b>P15</b>
<b>Class 4 60 Seconds</b>			<b>P19</b>	<b>P20</b>
<b>Class 5 20 Seconds</b>				<b>P25</b>

**Offline events are sent when NO polling has been received over the given supervisory period.**

## PM45-4G v3 - LED Status Indicators



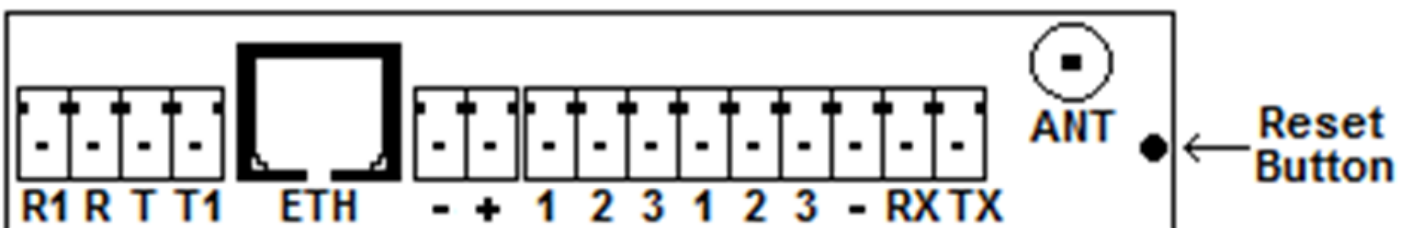
PM45 - LED Status Indicators		
LED	Activity	Indication
CID	Green On*	Permaconn has received data from alarm panel
	Off	Dialler is in idle
	Orange On	Alarm panel has sent a valid CID event but R1 & T1 has not restored
	Red On	Alarm panel dialler lead faulty
IP	Green On*	Unit is connected on IP network
	Green Flashing	Permaconn to router is OK Permaconn has no internet
Mobile	Flash Red	Data traffic on 3G/4G
	Green Flashing	Only 1 sim working Applies only to Dual sim plans
	Green On*	Unit is Online
HB	Green Flashing *	Signal strength OK / Processor OK
	Red Flashing	Signal strength low or trying to reconnect

\* Normal operation

## Resetting the PM45-4G v3

- With DC power applied use the small green screwdriver supplied in the box with the PM45-4G v3 insert screwdriver into reset slot shown and depress reset button for:
  - Five (5) seconds to reset.

LEDS will all flash together for four (4) seconds to confirm successful default.
- Re-powering the PM45-4G v3 will cause:
  - The GPRS to reconnect to the mobile network.
  - IP to reconnect.



## Outputs

There are three (3) outputs available.

- Outputs are 'Open Collector' @50mA switching 12vDC negative—for heavier loads a relay must be used.
- Ensure there is a common negative between the PM45-4G v3 and the device being switch.
- The outputs can be opened, closed or pulsed using the Atlas web portal
- The output can only be pulsed when using the Pocket Secure App.
- Refer to the technical addendums for detail keyswitch information.



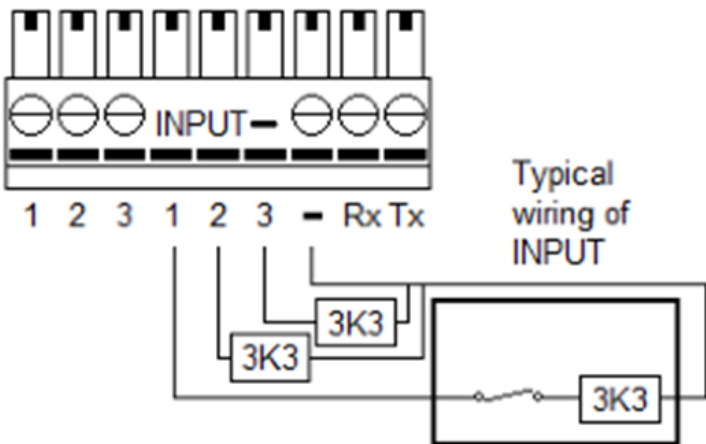
Compatible with 'Pocket Secure' remote control App. Available on the Apple , Google Play and Windows store

[www.permaconn.com](http://www.permaconn.com) / Installer Zone / Technical Addendums

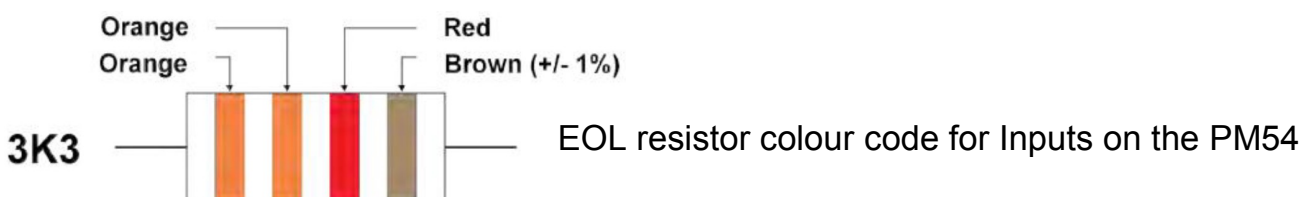
## Inputs

- There are three (3) inputs on the PM45-4G v3
- Inputs are programmed as 24hour Instant Zone types.
- Inputs are sealed with a 3k3Ω resistor if used.

**NB: Do not seal inputs if not in use.**



Input	CID	Part	Zone
AUX 1	140	0	981
AUX 2	140	0	982
AUX 3	140	0	983



## Antenna Installation

- Antennas can have their performance maximised using a 'Ground Plane', any metal mounting surface will suffice. Please use the supplied 'Ground Plane' plate if you are not mounting this antenna on a metal surface. A significant reduction in performance occurs if an antenna does not have an adequate ground plane.
- If signal strength is low, a high gain aerial may be required. The Permaconn Part N# is '**ANTH3G**'
- Extension cables for the high gain aerial are available

Length in Meters	Part N#
3	<b>EXT3</b>
5	<b>EXT5</b>
10	<b>EXT10</b>

**NB: Do not exceed 10 meters.**

## Activating the PM45-4G v3

Before powering up the PM45-4G v3 the device **MUST** be Activated.

The unit can be activated by: Control Room Administrators and Bureau Administrators with activation rights.

**NB: Control Rooms can restrict Bureaus from activating their own devices.**

**By doing so the Bureau may perform the activation procedure but must be approved by the Control Room.**

Activating the PM45-4G v3

1. Login to Atlas.
2. Select the 'Fleet' tab.
3. Click the 'Activate' button.
4. Input Permaconn serial number.
5. Fill in and follow the prompts.

**NB: If the unit is powered up before activation, simply follow the Reset procedure set out on page 5 of this manual.**

## Installation Procedure PM45-4G v3

- ✓ Current draw has been determined.
- ✓ PM45-4G v3 has been activated.

Power up the PM45-4G v3.

The PM45-4G v3 can take up to three (3) minutes to come 'online'. Times can vary.

Connection to the cellular network is indicated by the 'MOBILE' LED = [Green – Steady On]

The 'HB' LED indicates signal strength and if the microprocessor is operating.  
Operational + Good Signal = [Green – Blinking]  
Operational + Low Signal = [Red - Blinking]

If the signal strength is low you need to reposition the unit or make use of a high gain antenna. The communicator needs to be power cycled to refresh the signal strength indicators whenever repositioned.

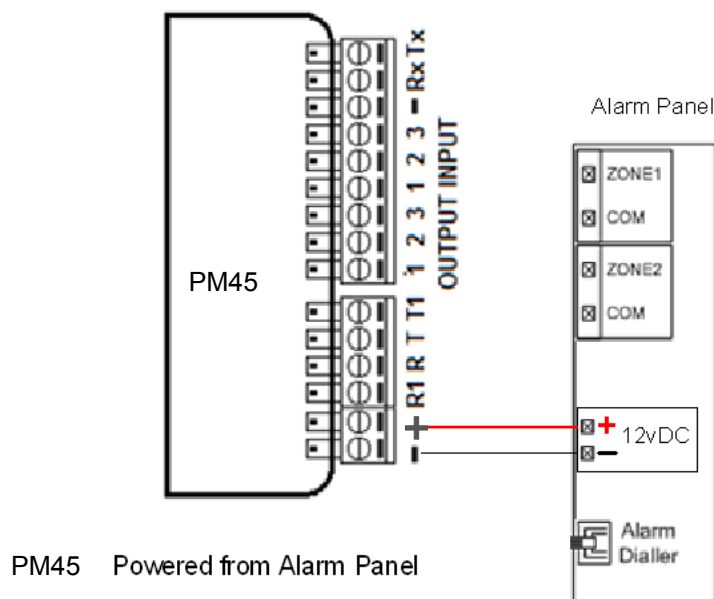
Alternatively 'Ping' the communicator using your Atlas 'App'. Signal strength must be better than -94dBm for reliable communications.

Connection to the Internet

If you are using the Ethernet port, connect a CAT5 cable between the customers internet router or switch to the PM45-4G v3 LAN port. Re-power the device after connecting the cable.

The PM45-4G v3 will automatically obtain an IP address if it is set to DHCP (default).

- Power is normally obtained from the Alarm Panel. In case of AC loss the PM45-4G v3 will continue to work using the alarm panels battery backup.





## Installation Procedure PM45-4G v3 continued.....

There are Two (2) methods of communication.

- 1) Using the alarm panels dialler. (Must be connected if using Panel Client).
- 2) Securitel Interface (STU , Cardax & RDC Protocol).

Using the alarm panels dialler.

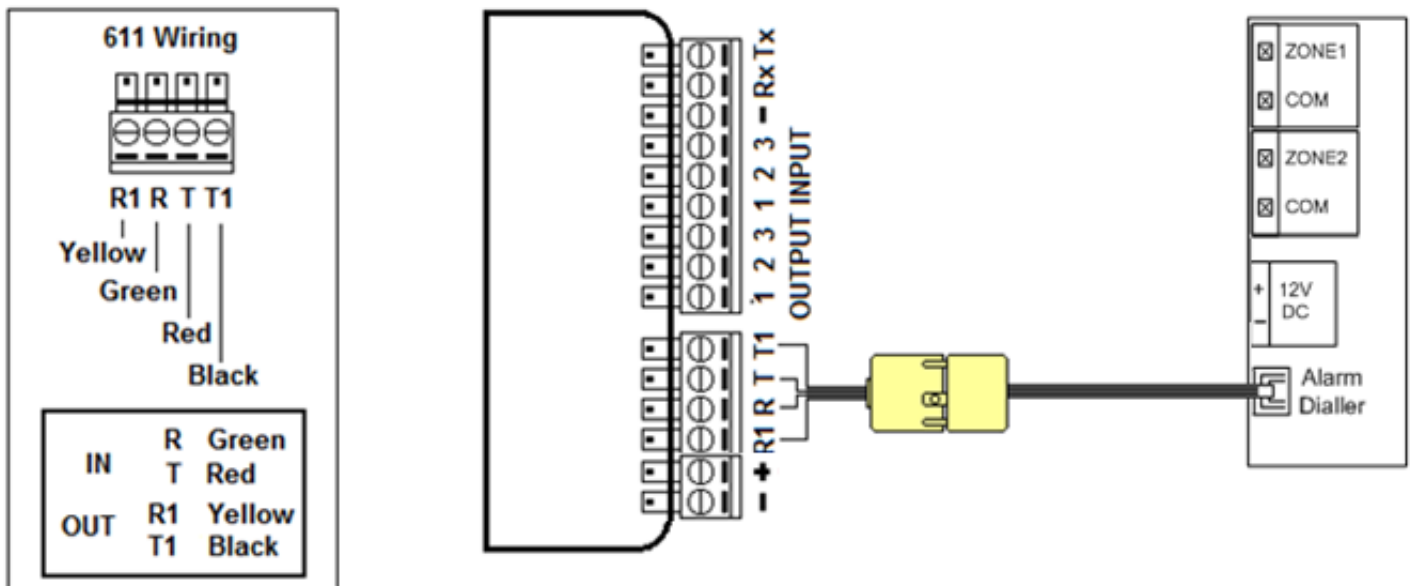
A four wire connection is required between the Alarm Panel dialler and the PM45.

*Option 1:* Plug the original alarm panel dialler lead into the 611 socket on the PM45 to connect the alarm panel.

*Option 2:* Use a 4 core cable between PM45 and alarm panel dialler terminals.

(Refer to our Technical Addendums on our web site [www.permaconn.com/InstallZone](http://www.permaconn.com/InstallZone))

PM45-4G v3



'R' & 'T' : when an event occurs the panel seizes the line, Contact ID data is sent from the alarm panel to R & T of the PM45-4G v3

'R1' & 'T1' are return lines back from the alarm panel. If the return line is not connected the 'CID' LED will be [Red - On] indicating a fault. This lead is also used to monitor the interconnectivity between the Alarm Panel dialler and the PM45-4G v3. If the dialler lead is removed a 'Dialler Lead Interface Fail' event will be sent to the Monitoring Centre. This will indicate that the panel has lost connectivity with the PM45-4G v3.

**NB: This method is used for remote upload / download with Panel Client and Alarm Panel software**

Connection using the internet is indicated by the 'IP' LED = [Green – Steady On]

### Using the Alarm Panels dialler

The alarm panel must be programmed with:

- ✓ Contact ID (format)
- ✓ Tone / DTMF dialling
- ✓ Four digit Panel ID number
- ✓ 8 digit telephone number (e.g. 12345678)
- ✓ Arm & Disarm reporting must be enabled. (This is required for the Pocket Secure App)

Force the alarm panel to send a Contact ID event to the monitoring station

The PM45-4G v3 obtains the Panel ID directly from the Alarm Panel after the first valid contact ID event is sent.

If a fixed Account ID is required - Contact the Monitoring Centre before and have them fix it in the PM45-4G v3.

### Testing

Ping the PM45-4G v3 using Atlas

Initially the CID Led will be off

Force the alarm panel to send a Contact ID event to the monitoring station

The panel dialler will seize the dialler line and send data on 'R' & 'T'.

The 'CID' LED = [Green - Blinking].

**NB: When the panel seizes the dialler line the voltage between on R1 & T1**

**The voltage on R & T drops from 48vDC to 6-12vDC**

**Atlas will display Dialler Interface FAIL (normal)**

When a valid Contact ID event is sent from the alarm panel and the panel releases the line. The 'CID' LED = [Green - Steady On].

**NB: When the panel releases the dialler line it restores the 48vDC on R1 & T1 Atlas will display Dialler Interface OK (normal)**

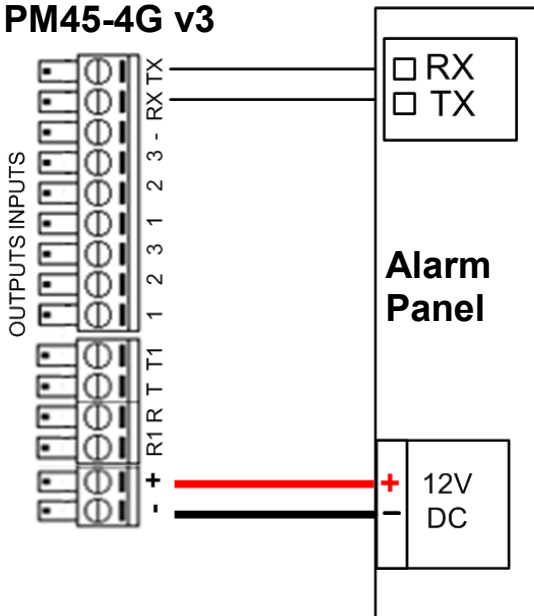
### Using the Securitel Interface

The alarm panel must be programmed with:

- ✓ Serial Data (contact ID format)
- ✓ Account ID

Compatible Panels	Set as in Atlas
Tecom	STU
Concept	STU
MCM icon	STU
Siemens	RDC Serial Interface
Cardax	Cardax
<b>NB: This is set during activation process</b>	

### PM45-4G v3

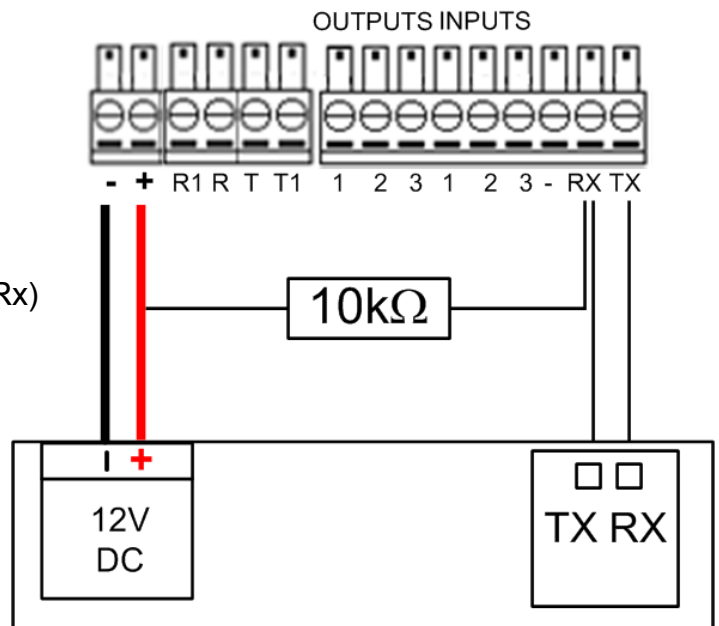


- Tecom
- MCM Icon
- Siemens
- Cardax . (IFM-CDX required)

### InnerRange Concept

- Concept 2000 / 3000 / 4000

(10K resistor must be fitted between +12v and Rx)



## IP Setup

To view or change the IP settings,  
Before you start you need the following:

- Access to Atlas portal.
- Connect the PM45-4G v3 to the same LAN with standard Ethernet cable).
- The PM45-4G v3 must be online and can be pinged with Atlas.

**Important** – If the PM45-4G v3 is an online existing unit a power cycle may be required to enable the IP.

To change values, simply modify the fields and select [Update]. When the PM45 is switched on it initialises with the default settings, so a large percentage of installations should work right away. You only need to modify the setup for Static IP networks, if this is required un-tick the DHCP box and enter the settings the select [Update].

All settings below are also available using the Atlas web portal, if the PM PM45 has a cellular network connection.

If using the customers router ensure:

Port 55300

Port 59680

Port 59682

Port 55540

These ports are not blocked, are open in UDP.

The screenshot displays the IP Setup configuration page. At the top, there are navigation tabs: Account, Billing, Cancel, Change Log, Ping, and a search bar. Below the search bar is a 'Ping!' button. The main configuration area is divided into sections: Req, Info, I/O, IP, and History. The IP section is active, showing the following settings:

- Use DHCP for IP address detection:
- Address: 192.168.0.1
- Mask: 255.255.255.0
- Gateway: 192.168.0.1
- Use DNS below:
- DNS 1: 61.9.194.49
- DNS 2: 61.9.195.193
- MAC Address: 00:00:00:00:00:00
- Local Port: 55300
- Remote Port: 55300
- Download Port: 59680
- Primary Server Address: 203.41.28.1
- Secondary Server Address: 125.7.41.129

An 'Update' button is located at the bottom of the configuration area.

## IP Setup continued.....

### **Obtain IP address automatically DHCP**

If ticked, DHCP is enabled and the unit will obtain the **IP Address**, **IP Mask** and the **Gate Way** automatically. Otherwise you must enter these values yourself. Please note that these values must be specific for the clients LAN the PM45 is communicating on.

### **Fixed IP address Static**

Un-tick the DHCP box and modify the IP, Subnet mask, and Gateway setting then select update.

### **Use DNS below**

If ticked, you must enter valid IP addresses that point to the available domain name servers. If not ticked, it is filled in by the DHCP service of the LAN. Note that a DNS is only required if you are using a domain name for the primary and/or secondary server addresses.

### **Local Port** [55300] UDP

You can use any port above 10000, not critical.

### **Remote Port** [55300] UDP

This must match the 'listen' port of the Permaconn server, the default should be correct for your country. This port is vital - if incorrect the unit will not be able to connect.

### **Download Port** [59680] UDP

### **MAC Address**

This is set by default and is unique for each unit. It should only be changed if the instructed by the IT department responsible for that network.

### **Primary and Secondary Server Connection**

This is also set by default and is correct for your location. This is also a vital setting and must be correct; otherwise the unit will not be able to connect.

This field can be either an IP address or a domain name.

### **Upload / Download Connection**

If the PM45-4G v3 has an IP connection and upload / download functionality is required ensure that port 55540 UDP is not blocked.

## Transmission Delay Times

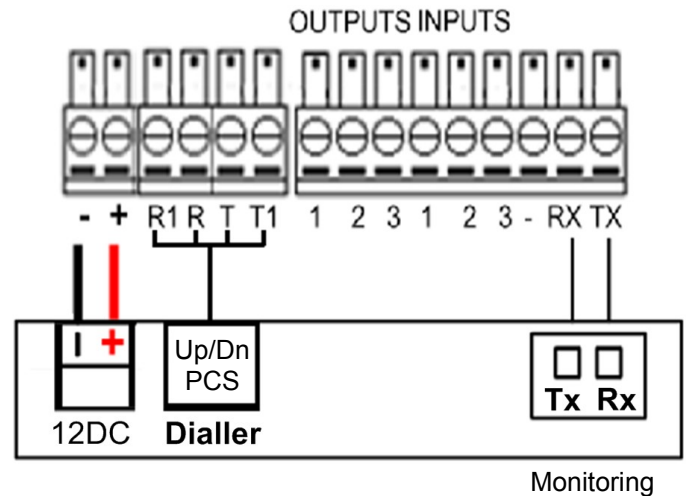
- Messages originating from the Alarm Panel are forwarded immediately.
- Alarm Panel 'Dialler Interface Lead Fail' is sent if not restored within 90 seconds.
- Arm / Disarm reporting may occur at the end of exit delay (Pocket Secure).

## Upload / Download *(Using Permaconn 4G or IP)*

Panel Client Software (PCS) is a virtual modem application that enables remote access to the alarm panels using wireless 4G or Ethernet connection.

If using Serial Data as a monitoring path,

Connect the panels dialler to the PM45-4G v3 to allow for upload / Download (PCS) capability an example of this the Tecom & Concept panel



*Note: Disable fax machine defeat and call back.  
Enable one (1) call to answer. Three (3) rings*

Panel	Software
Tecom V8 & V10	Titan v3.02+/ Forcefield v6.4+
NX4 / 16 / 128 Reliance	DL900 v4.01+
DL150 / 250 / 300	DASLOAD v6.0
Solution 844 / 16 / 880	A-Link Plus v4.12+
Solution 16i / 16 Plus / 64	Solution Link v1.2.3+
Solution 6000	Solution Link v2.1.1+
DSC PC4020 / PC1616	DLS2002
DSC PC1616 / PC1864 / NEO	DLS-5 (v4.2)
Crow Runner 8 / 16	ULD16 (v2.0.0.1+)
Paradox MG-5050 & EVO-192	Winload (v5.50+)
Ness D8	NessComms (v5.6.0.0+)
Risco LightSYS	Config Software (v2.1+)
MCM Icon8	MCM Connect v5.45
Concept 3000 & 4000	Insight Installer (v5.4.10) & Wdirect 6.0+
Digiflex Vision 16 / 64	Vision Link
Protege' LE	Protege' SE
Texecom	Wintex

## Permaconn Contact ID Event Template.

<b>Event ID</b>	<b>Part</b>	<b>Point ID</b>	<b>Description</b>
313	0	954	Engineering Reset— No Action Required
350	0	953	Fail to Communicate—Communicator experienced trouble sending signals, Do not expect restore.
352	0	956	Dialler Interface Lead Fail—Issue with dialler lead between Permaconn communicator and Alarm Panel.
356	0	968	Permaconn Communicator—IP path poll fail.
356	0	969	Permaconn Communicator—Cellular network path poll fail.
356	0	970	Permaconn Communicator—Communicator is offline.
140	0	981	Auxiliary 1—Auxilliary input alarm on communicator.
140	0	982	Auxiliary 2—Auxilliary input alarm on communicator.
140	0	983	Auxiliary 3—Auxilliary input alarm on communicator.
300	0	984	Panel ID Clash— When two (2) Permaconn devices are reporting to the same Control Room on the same line number using the same account number.  Check in Atlas for duplicate account number.

## PM45-4G v3 Specifications

Housing Material	ABS plastic – green
Dimensions	110mm (h) x 25mm (d) x 80mm (w)
Weight	120g
Operating Environment	0° - 50° @ 15% to 85% humidity (non condensing)
Antenna	Triple band 3G & Triple band 4G
Modem	Quectel EC21
Data Modem	14400 baud modem for upload / download
Power	10 – 15V DC. Terminal or plug pack socket available Plug pack must have approval
Power Consumption	PM45: Standby: 0.08A @13.8V DC Transmitting: 0.19A @ 13.8V DC
Communication Protocol	Ethernet (10/100BASE-T)
Network Protocol	DHCP or Static IP
Serial Port	High Speed RS232 interface
Auxiliary Input	3 x 24hr inputs – state change detected every second EOL 3.3K
Auxiliary Output	3 x Open Collector outputs @ 50mA (max) Function control using Atlas web portal and/or 'Pocket Secure'
Data Security	AES Encryption
Supported Modulation	BELL-103, ITU-V21/22/V22B
Approvals	EN55022:2006/A1:2007, AS/CA S042.1-2011 AS/CA S042.4-201, AS/NZ60950.1-2011, AES2201.5:2008, EN62311:2008, EN301489-1 EN301489-24, EN301908-1, EN60950-1



## Warning

**INSTALLATION MUST BE CARRIED OUT BY SERVICE PERSONNEL ONLY**

The socket-outlet must be installed near the equipment and easily accessible.

The unit must only be operated with the supplied antennas. Install the PM45-4G v3 in a location that no person[s] is closer than 200 mm to the antennas at all times.

Telephone plugs and connectors must be installed inside the metal enclosure of the unit. Interconnecting cables must be placed in conduit.

The unit must be installed in accordance with this manual for proper operation.

Standards require regular service by qualified and licensed technicians and regular testing.

## Liability

**ANY LIABILITY FOR CONSEQUENTIAL AND INCIDENTAL DAMAGES IS EXPRESSLY DISCLAIMED. RDCCO Pty Ltd AND PERMACONN LIABILITY IN ALL EVENTS IS LIMITED TO, AND SHALL NOT EXCEED, THE PURCHASE PRICE PAID.**