

Connect Control Panel Instruction Manual



Relates to :

Connect Control Panel 2G R868 – 304769

Connect Control Panel 3G R915 – 304768

This product has LongReach Technology Inside

This manual is based on the latest information and is provided subject to alteration.

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Safety Instructions

- This product is intended for indoor use only.
- Only use the power supply that is supplied with the product.
- Do not use the device if it is damaged.
- Only trained personnel should open the device.
- Do not expose the device to corrosive liquids.
- Do not use this device near to water sources.
- This device contains Radio Emitting devices and should not be used near to life support systems.

Note: If the equipment is used in a manner not specified by the manufacturer then the protection provided by the equipment may be impaired.



Pest Connect Overview

Pest Connect is a system that enables remote monitoring of devices. Data from sensors is sent to a Connect Control Panel which establishes a secure connection to a central server where the data is entered into a database.

Typical sensors that are used in the Pest Connect system are the Radar Connect mouse trap and the AutoGate Connect, shown below in Figure 1.

A typical installation will have many sensors communicating to the Connect Control Panel and a single control panel can manage up to 300 sensors. Where necessary multiple Control Panels could be deployed onto a site and up to 8 co-located control panels are permitted. In such a system if the sensors fail to connect to the Control Panel they will scan for alternative Control Panels to ensure high levels of connectivity.



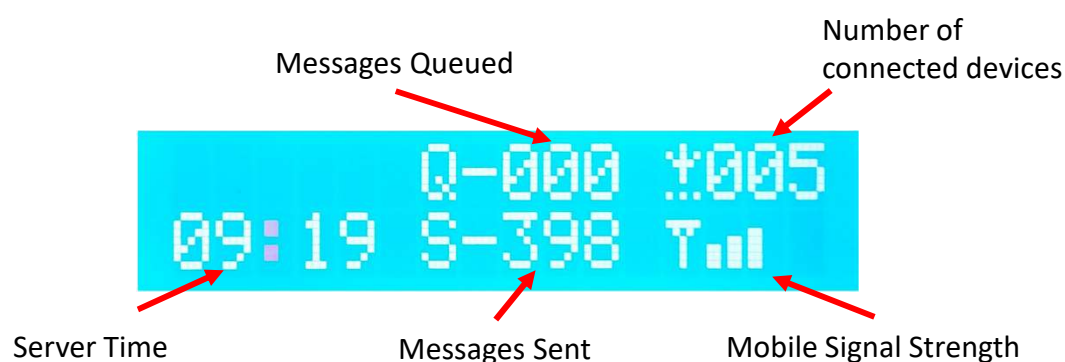
Figure 1: Connect System Overview



Product Description

The control panel is the hub of the on-site installed system as all the data from the sensors is collected here. The Control Panel passes the information onto Rentokil's system servers using mobile data technology. Every significant event is communicated to the servers, together with hourly 'health check' reports, and daily sensor reports. The Control Panel also monitors for devices which fail to make contact for a significant time and reports these to the Rentokil servers to enable further action to be taken.

The Control Panel display shows a number of areas of information that show the current status of the system. These are useful for providing confidence that all devices are connected and can aid limited diagnostics onsite. The parameters displayed are shown below:



Server Time: This is always set to Greenwich Mean Time (GMT+00) and so does not change for daylight saving time.

Number of Connected Devices: This is the number of sensors that are connected to the Control panel. The Control Panel will expect regular data from these devices. If the sensors fail to connect for 3 hours then this number will decrease.

Messages Sent: This is the number of messages from the sensors that have been sent to the server. NOTE: If more than 1000 messages have been sent then the S- will become S+ in this field.

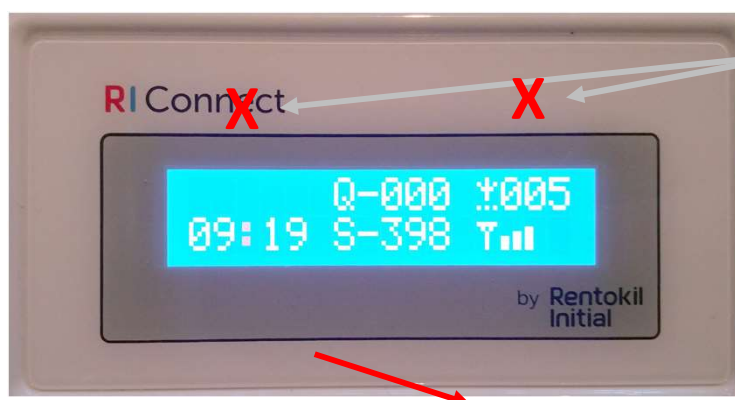
Messages in Queue: This is the number of messages from the sensors that are waiting to be sent to the server. An attempt to send the messages to the server is made every minute. After three attempts if the Control Panel could not connect to the server it will not make any further attempts to contact the server for one hour. Messages received during this hour will be entered on the queue.

Mobile Signal Strength: This is an indicative value of the strength of the mobile signal. If there is no connection then the telephone symbol will be flashing.



Diagnostic Screen

Using the magnet on the service key it is possible to display the diagnostic screen on the Control Panel. Swipe the magnet on the left hand side of the display.



Magnet swipe points

Swiping the magnet over the left hand point (shown above) the diagnostic screen will be shown. This shows firmware versions and the RF network region.



The MCC shows the country that the SIM card connected to and the RGN shows the radio region scheme that was used.



Additional swipes on the left hand point will move to the next screen in the menu. If you swipe over the right hand point this would send a Network Status report to the server



Similarly, swiping on the left hand point will bring up the next menu and swiping the right will send the Control Panel report to the server.



Once the right hand point has been activated it will indicate that it is indeed sending the report.



Inserting the SIM

The LongReach Control Panels are supplied with a global SIM card but if the SIM card needs to be replaced then follow the following steps.

- 1) Ensure that the Control Panel is unplugged from the power supply.
- 2) Open the Control Panel by unscrewing the 4 screws. Take care when the enclosure is open to not detach the antenna connector from the board.
- 3) Insert your SIM card into the slot as shown in Figure 1. The SIM card should be inserted with the gold contacts facing the front of the Control Panel, and with the cut-off corner outermost, see diagram below. IMPORTANT: Note the SIM card number and Control Panel barcode to report to the System Administrator.

Remove screws to
open control panel

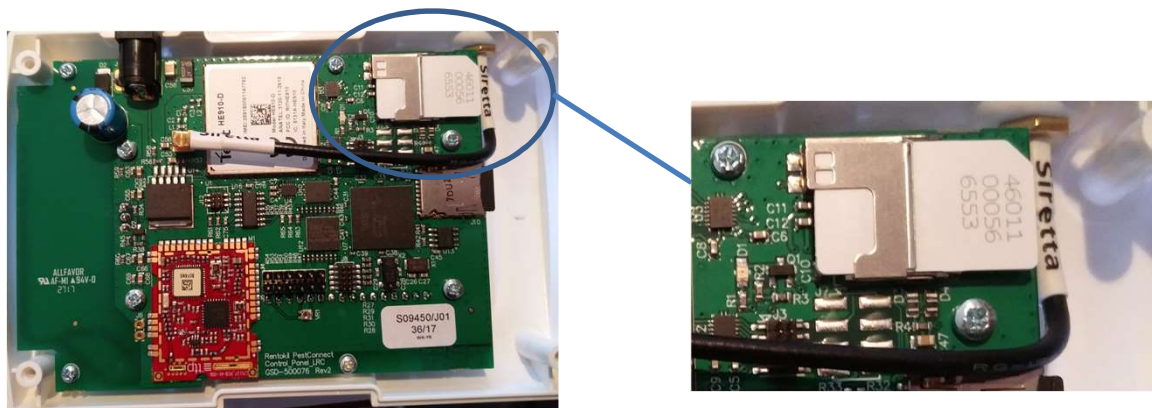
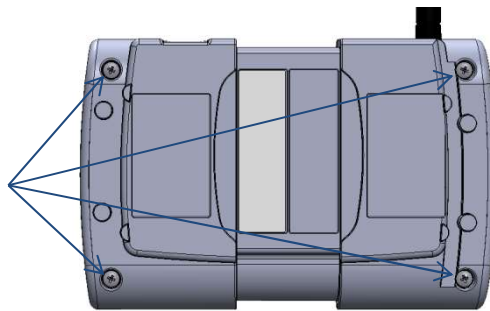


Figure 1: Inserting the SIM Card

- 4) Once you have inserted the SIM close up the Control Panel and re-tighten the screws.
- 5) The correct APN details for the particular SIM card will need to be written to a file on the microSD card. Please contact central support for assistance with this.



Technical Details

Control Panel

Power Supply

Input Rating	110-240Vac 50-60Hz 0.5A
Output Rating	5V dc 2.6A current limited
Protection	Over Voltage: The output voltage shall be clamped by internal protection zener Short Circuit: Output shut down and auto restart Temperature: No ignition, smoke or deformation of the case
Approvals	FCC PART 15 CLASS B, EN55022 CLASS B, VCC CLASS II UL/CUL, GS, CE & RoHs Compliant

Interfaces:

Local Area Network (LAN)	868-928MHz depending on local Approvals Rentokil Initial Proprietary LongReach Application Layer Protocol
Wide Area Network (WAN)	
Connect Control Panel 2G	4 Band GSM/GPRS/EDGE: 850,900,1800,1900MHz Dual UMTS/HSDPA 900/2100 MHz with GSM/GPRS/EDGE 900/1800MHz fallback
Connect Control Panel 3G	

WAN Antenna:

Gain	Moulded Antenna – T Bar GSM/GPRS/3G 2.5m cable SMA male - ANTH7250A0200A11 2.15 dBi
Polarisation	Vertical

Connect Device connectivity

Maximum number of Devices	300
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Logging Capability:

Server time synchronization	+/-500ms accuracy on the real time clock
Event driven logging	Capacity for 125 records of time tagged readings
SD card for long term audit trail	

Physical:

Dimensions	145mm x 95mm x 40mm
Material	C130, 7030 Acrylonitrile Butadiene Styrene/Polycarbonate (ABS/PC)
Weight	256g
Operating Temperature	0°C to +40°C
Environmental rating	IP21
Mounting	Screw mounted with bracket - fixings enclosed

This product contains the LongReach radio module :

FCC ID: 2AK3PGSD-500349

IC ID: 22407-GSD500349

These will be shown on the approval label attached to the product.



Locating the Control Panel

Before fixing the Control Panel to the wall it is important to verify that the location has suitable mobile network coverage. Power up the unit and then temporarily place (or hold) the Panel in the desired location.

When you first power up the unit you will see that the time in the bottom left of the display is 00:00. Within 5 minutes the time is updated to show the server time (Note: The server time is Greenwich Mean Time and so will not necessarily correspond to local time). This means that the Control Panel has successfully made contact with the Rentokil server. The reception strength bars on the bottom right of the display are shown and if the Control Panel is correctly located then this should show 3 or more bars. If the time is not updated or the Signal Strength indicator shows less than 3 bars then you should investigate alternative locations for the Panel. Note: if the Control Panel does not update the time within 5 minutes of being powered on then no further attempts to connect with the server will be made for 1 hour. During a setup phase if power is removed from the Control Panel and re-applied then another sequence of 5 minutely attempts will occur.

There are a number of error messages that can be displayed when the panel is first connecting to the server, this often occurs when a Control Panel is connecting via a new network, the Panel will continue to try to connect, so these messages may clear after a short while. If they are still showing after 10 minutes then you should restart the Panel. If the messages continue to show for 5 minutes a second time, then you should refer to your PestConnect system contact.

Having successfully selected a location and proved that the signal is good, the bracket can be mounted to the wall (as shown in the next section), the Control Panel attached and then powered up. Once the time has updated you are ready to proceed with the installation of the system (please refer to the equipment manuals for the devices that are being installed for more details).



Problems with connection to the Control Panel from Sensors are very rare. Connection issues are typically only related to low signal strength caused by obstructions in the Radio path.

It is useful for the installer to understand the type of obstructions that can cause issues, although radio waves are very complex and sometimes work contrary to initial expectations, so the best method is to try it out.

Example 1 – Warehouse area with large, closely stocked produce containers

Radio frequencies can easily be absorbed by buildings and stock, so it is worth considering this when installing the system. In particular, large, densely stored containers of produce (especially fine product such as grain or nuts) can reduce signals very quickly if you try to go through them.

Finally be aware of empty racking when installing the system. What is empty today might not be tomorrow! This is where the technician's knowledge of the site can be very useful.

Example 2 – Metalwork

Metal reflects radio signals, so often helps bounce the radio waves around. However, radio doesn't like going through metal, especially if the metal is continuous.

A chilled storage area on one site showed much lower signal levels, because the foil coated insulation reduced the signal significantly, compared to those even just outside the room. The solution here was to move the control panel nearer to the effected area. In an extremely bad situation it may be necessary to add an additional control panel. Fixing PestConnect units to metalwork, electrical conduit or cable tray can reduce effectiveness of the system, so should be avoided if possible; ideally units should be at least 20cm clear of such objects.

Example 3 – Adjacent systems

Multiple Pestconnect systems will work perfectly well next to each other, and it is possible for many systems to be present on a single site. In many instances it can lead to a more robust system.

It is important to remember that radio waves do not respect building boundaries. Just because a system is all set up in one building won't mean that it will connect that way. An example of this can be where the end sensors of two systems in separate buildings end up very close to one another. This can then provide a link between the units in both building.

Equally the units don't have to be physically close. A sensor installed at the edge on a warehouse could quite likely find a better signal strength from a control panel in a building 200m away across an open courtyard or car park than it can get from the control panel in the same building 50m away the other side of several rows of fully stocked racking.

Fortunately this doesn't matter, because each sensor is uniquely identifiable and registered to its location, so its data will correctly appear in the server, no matter which route or Control Panel it used to do this.



Installation

Once the best position for mounting the control panel is decided, mount the bracket to the wall. Mark the position of the bracket holes on the wall (57mm between $\text{\O}4\text{mm}$ hole centres, see Figure 4). Drill the appropriate holes to mount the bracket. Care should be taken to avoid any hazards when drilling.

The Connect Control Panel is mounted to the bracket by firstly locating the top into the wall bracket and then pushing the bottom edge into place (see Figure 5).

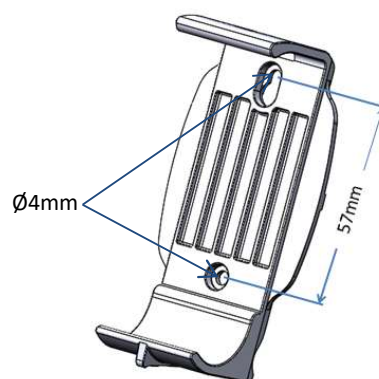


Figure 4. Wall Bracket



Figure 5. Locate the top edge of Control Panel into the wall bracket as shown and then push the bottom into place.



Mounting the Antenna

The extended antenna that is supplied has a 3m (~9ft) cable and should always be mounted at a distance greater than 30cm from the enclosure. The antenna is simply attached to a surface with adhesive tape as shown below.



The antenna should be mounted as high as possible but at least 30cm from the ceiling. It is also advisable to avoid mounting the antenna near to metal shelving or cabinets as this will attenuate the signals.

To obtain the best possible signal strength the antenna should be stuck to a non-conductive surface such as glass or wood. If the surface is metallic then ensure that there is a spacer of at least 5cm from the surface.

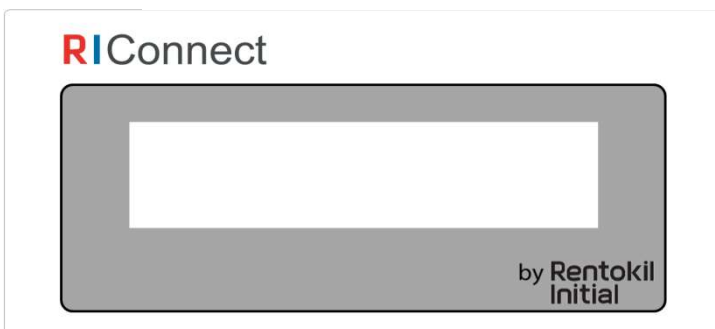
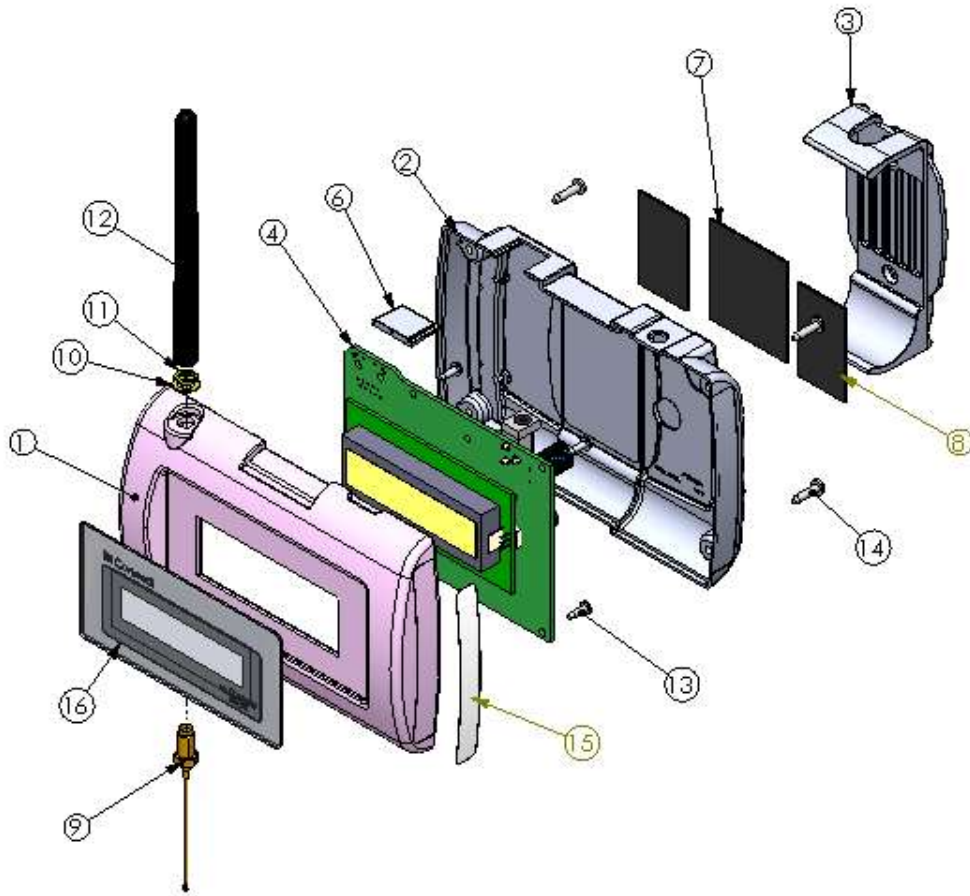


Troubleshooting

Message	Meaning	Possible Cause
No SIM card	Control Panel cannot identify the SIM	<ul style="list-style-type: none"> • SIM inserted wrong way round or upside-down – check and re-insert. • SIM contacts dirty – try cleaning with eraser • SIM faulty – try SIM in another communication device to check that it works correctly.
No Signal	The modem cannot detect a signal from the mobile network	<ul style="list-style-type: none"> • Antenna not fitted, or not screwed on fully. • Control Panel location does not have sufficient mobile network reception – try alternative locations (check other communication devices on the same network to see if they show signal) • Mobile network isn't working – try mobile phone on the same network to check this. • Faulty Antenna – try another antenna if you have one. • Fault on the board – return to factory.
GPRS Fail	The modem can detect a network, but cannot connect to it	<ul style="list-style-type: none"> • Network Problem - The Control Panel will automatically try to connect again. If this is still a problem after 5 minutes then try restarting the Control Panel. • SIM not authorised for data access – verify that the SIM has been enabled by the network provider. – You could try the SIM in another communications device and try connecting to the internet to prove data is enabled.
Modem Fail	The Control Panel software is getting no response from the internal modem	<ul style="list-style-type: none"> • Modem fault – The Control Panel will automatically restart the modem showing the message Restart Modem, if this fails you can try restarting the Control Panel.



Exploded View



Sample Overlay Label



Sample Product Label

