



7000
iris+

7723 UHF Transponder



Installation & Programming

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Introduction

The UHF Transponder has been designed for use with the IRIS+ Receiver. Its purpose is to extend the wireless range of the system, without having to run additional data cables. This is usually necessary when the premises to be protected, occupies a large area or is spread over more than one floor.

The UHF Transponder is a standalone unit, with a built in 240V power supply and backup battery. The UHF Transponder upon receiving an incoming signal, adds its identity to the signal and then re-transmits the signal to the IRIS+ Receiver. The UHF Transponder unit incorporates RX Signal, TX Signal and Mains ON LEDs. The internal battery is trickle charged, whilst mains is connected to the unit.

Tools & Equipment

No special test equipment is necessary when installing the UHF Transponder. Only standard hand tools are required for installation and commissioning.

Transponder Sighting

The maximum range between the UHF Transponder and any transmitter is dependant upon the environment in which the system is operating. In free space, transmitters have a range of up to 250m. The actual range achieved is determined by local site conditions and how well the system has been installed. The maximum range between the UHF Transponder and the IRIS+ Receiver will also depend upon the environment in which the system is operating, in free space a range of 600m between the UHF Transponder and the IRIS+ Receiver can be expected.

When selecting a site for the UHF Transponder, the installing engineer should be aware that the aerials should be as far away from other electrical / electronic equipment as possible and a minimum of 2m from such equipment. Locating the UHF Transponder closer than this will effect the system performance. Metal objects such as filing cabinets, pipe work, radiators and air conditioning ducts will also adversely effect the performance of the system, if they are near the receiver antenna.

Before final installation, carry out site tests to ensure that the Transponder can adequately cover the area assigned to it and that the UHF Transponder can work to the IRIS+ Receiver from its proposed location. This involves ensuring that the Transponders signal can reach the IRIS+ Receiver and that the transmitters that will be working through the Transponder are within range of the UHF Transponder.

Transponder To IRIS+ Test

To ensure that the UHF Transponder is within range of the IRIS+ Receiver, carry out the following sequence of operations. *This test is written on the assumption that a new system is being installed and that the IRIS+ Receiver has not already been fitted.*

A. Place the IRIS+ Receiver in its proposed final position and connect power to it. Ensure that the aerial is fitted to the IRIS+ Receiver.

For full details on how to install the IRIS+ Receiver, refer to the IRIS+ Installation Guide.

B. Place the UHF Transponder in its proposed location and connect power to it. Ensure that the aerial is fitted to the UHF Transponder.

C. Take a transmitter that has already been programmed to the IRIS+ Receiver and whilst standing close enough to the IRIS+ Receiver to observe the screen, make a local transmission.

Observe that the local alarm is displayed on the IRIS+ Receiver screen.

D. Move to the UHF Transponder, using the same transmitter and while within sight of the RX and TX LEDs on the side of the UHF Transponder, make a Full alarm transmission.

Observe that the Receive LED lights, and that after a delay, the transmit LED comes on.

E. Move to the IRIS+ Receiver and observe that the Full alarm transmission is displayed on the screen.

F. If the UHF Transponder signal fails to reach the IRIS+ Receiver, the UHF Transponder must be moved until it is within range. Conversely, the IRIS+ Receiver can be moved if it is more practical.

Repeat steps C to E.

Transmitter To Transponder Test

Having established that the UHF Transponder is within range of the IRIS+ Receiver, it is now necessary to check that all transmitters that are to work with the UHF Transponder are within range of it. To check this, carry out the following:

- A.** Ensure that the IRIS+ Receiver and UHF Transponder are in their proposed final position and switched on.
- B.** Take the transmitter used in the previous test. Working to the site security plan, ensure that the transmitter is in range from all proposed transmitter locations.
- C.** If one or more of the signals fails to be displayed by the IRIS+ Receiver, the transmitter is out of range of the UHF Transponder.
- D.** If all signals were successfully displayed by the IRIS+ Receiver, then the test is complete.

Make a transmission from each proposed transmitter location and ensure that the IRIS+ Receiver receives the alarms.

*A further series of tests will need to be carried out, as outlined in the previous **Transponder To IRIS+ Test** section.*

The UHF Transponder can now be fixed into its final position.

If due to the local environment or other factors, one or more transmitted signals are out of range of the UHF Transponder, additional tests need to be carried out. This involves checking the level of background signal (RF Noise) and signal strength. To do this it is necessary to use the IRIS+ Receiver as a tester. Place the IRIS+ Receiver in the proposed UHF Transponder location, enter the engineering mode and test the signal strength and background levels for the area. Details on how to enter the engineering mode as shown below.

Connect the antenna to the BNC socket on the top of the IRIS+ Receiver and connect power to the unit. On power up, the IRIS+ Receiver will perform a 'Warm Start' and then display the 'System Clear' message on the screen.

Upon Power Up

*Screen will show
(for approx. 5 sec)*

WARM START

Screen changes to

SYSTEM CLEAR

01/08/15

13:26

With the IRIS+ Receiver in 'Monitor Carrier' mode, the screen will show any background signals on and around frequency at which the IRIS+ System operates. A typical screen shot is shown below in Figure 2. Background signals are generated by other electronic equipment such as computers, fax machines, mobile phones, surveillance cameras etc.

Typical Monitor Carrier Display

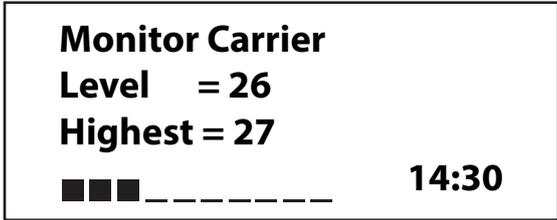


Figure 2

An acceptable level is between 10 and 55. Any higher indication may adversely effect the performance of the system. If the reading is considered to be high, taking Steps A and B outlined in the table below, should improve the situation.

Range Improvement Options

A.	Move the UHF Transponder to a more favourable position, away from the likely source of interference.	
B.	Fit a high gain UHF antenna to the UHF Transponder.	EMS Part No 7329

Using options A or B above, it should be possible to reduce the background carrier signal at the IRIS+ Receiver to an acceptable level. If using a high gain UHF antenna to change the aerial position, ensure that the aerial is connected to the right hand side aerial connection, which is the receiver side of the UHF Transponder.

Monitor Transmitter Signals

With the IRIS+ in 'Monitor Signal' mode, test all of the transmitters at their proposed final location. In the case of portable handpush transmitters, test these from the furthest position away from the IRIS+ Receiver. The 'Monitor Signal' option can be found in the 'Test Menu', previously shown in Figure 1.

With the IRIS+ Receiver in the 'Monitor Signal' mode, it is possible to record the signal strengths from the transmitters. When a transmitter has been tested, the screen will show the transmitter identity and the signal strength from the unit. A typical screen shot is shown below in Figure 3.

Typical Monitor Signal Display

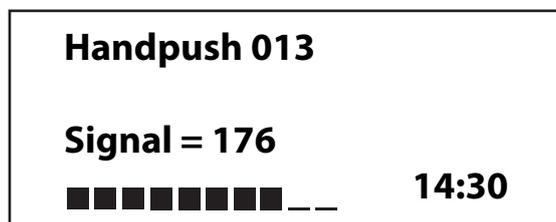


Figure 3

Ensure that all transmitters are tested. The maximum reading obtainable is 255, however in practice, this reading is almost never obtained. Any reading that is 30 above the previously noted background level (page 7) is acceptable, although the higher the signal, the better overall performance will be achieved by the system. Where results are not as good as expected, following the steps outlined in the 'Range Improvement Options' table, will improve the reception from distant transmitters giving weak signals.

Repeat all 'Transmitter To Transponder Test' steps (from page 5 up to this point) for all UHF Transponders where necessary.

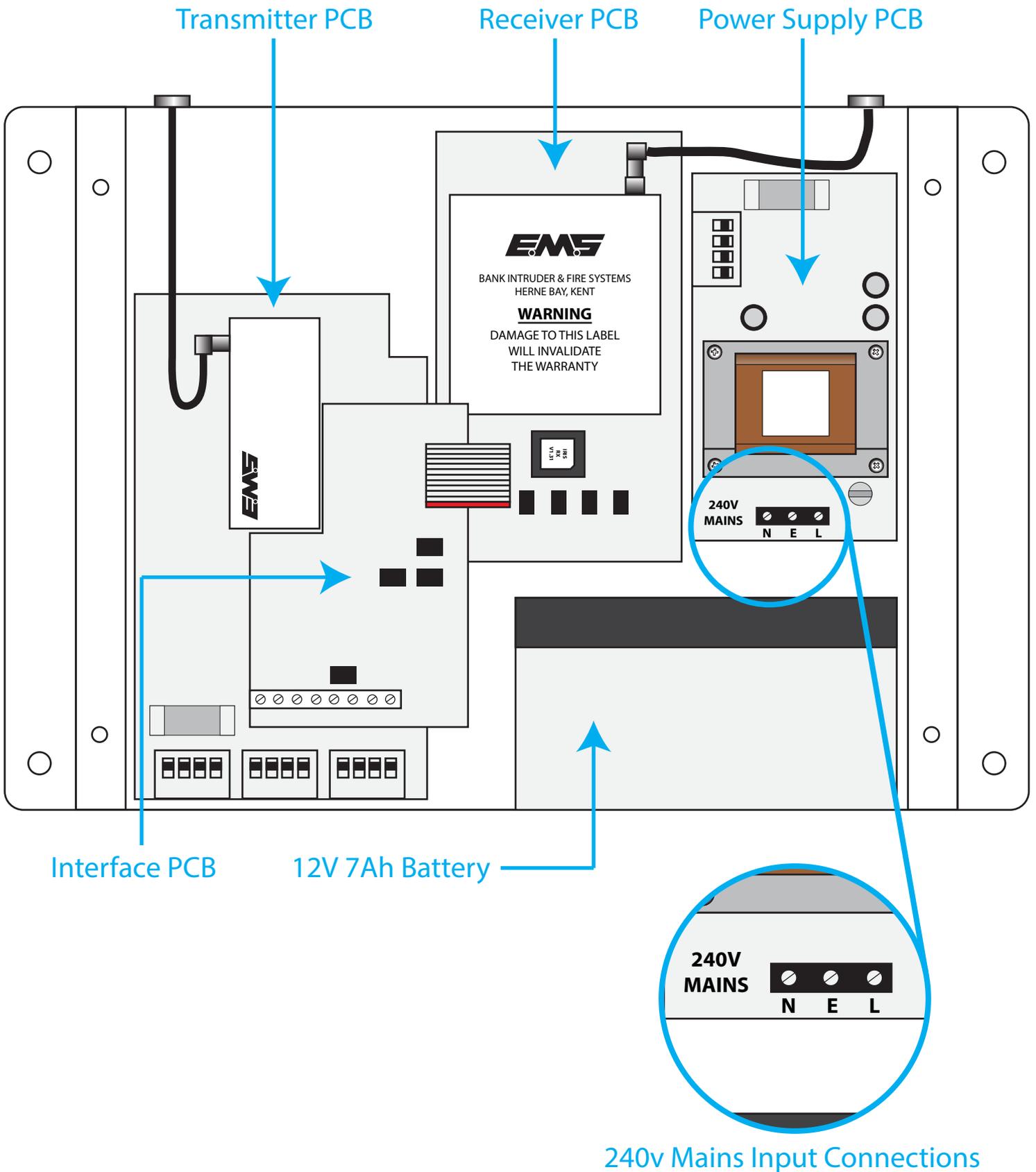
Electrical Installation

Mark, Drill and plug the four mounting holes.

The only electrical connection that needs to be made to the UHF Transponder is a mains supply. Figure 4 shows the internal layout of the UHF Transponder and details the power connection.

CAUTION: Ensure both aerials are connected to the UHF Transponder before connecting power to the unit. Failure to connect the aerials could result in damage to the unit.

Power Connections



Having installed the UHF Transponder, it is necessary to check that the unit is still functioning correctly. Make a transmission from two or three transmitters that gave the weakest signal during testing to establish that they are still able to reach the Transponder and that the Transponder passes alarm signals on to the IRIS+ Receiver.



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