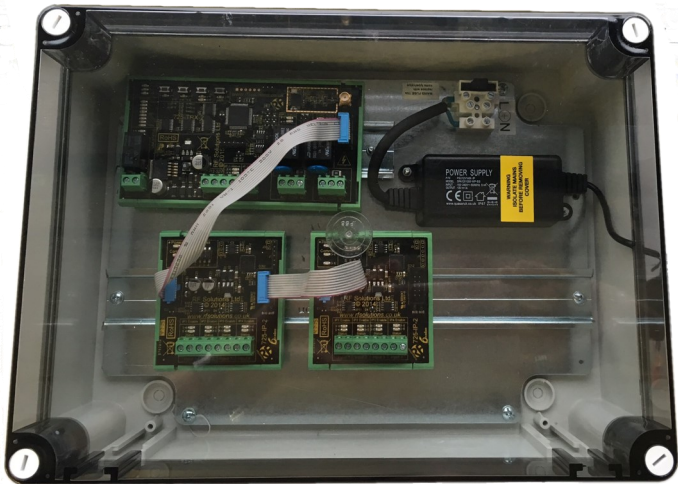


## Professional LoRa Telemetry Radio System



- Ready to Use Telemetry Control
- 10 Channel System with feedback
- Range:
  - Up to 16000 metres 868MHz
- Relay Outputs: Momentary, Latching, Timed
- IP65 rated industrial enclosures
- System supplied pre-paired channels 1-10

### Applications

- Lighting Control
- General Purpose Remote Switching
- Door Control
- Quarry remote Switching
- Access Control
- Machinery control

### Description

Available as a 10 channel system, the PRO-TEL-8S10 is a ready to operate general purpose remote control systems using a highly secure transmission protocol for reliable operation.

Both transmitter and receiver units are supplied in IP65 rated enclosures with integral power supply containing industrial standard 'DIN Rail' (interchangeable). The relay outputs may be user set to operate as latching, momentary or set on timers from 0-60 minutes.

Additional transmitters can be added using the easy learn procedure. Any transmitter switch can be mapped to any individual or combination of receiver output(s).

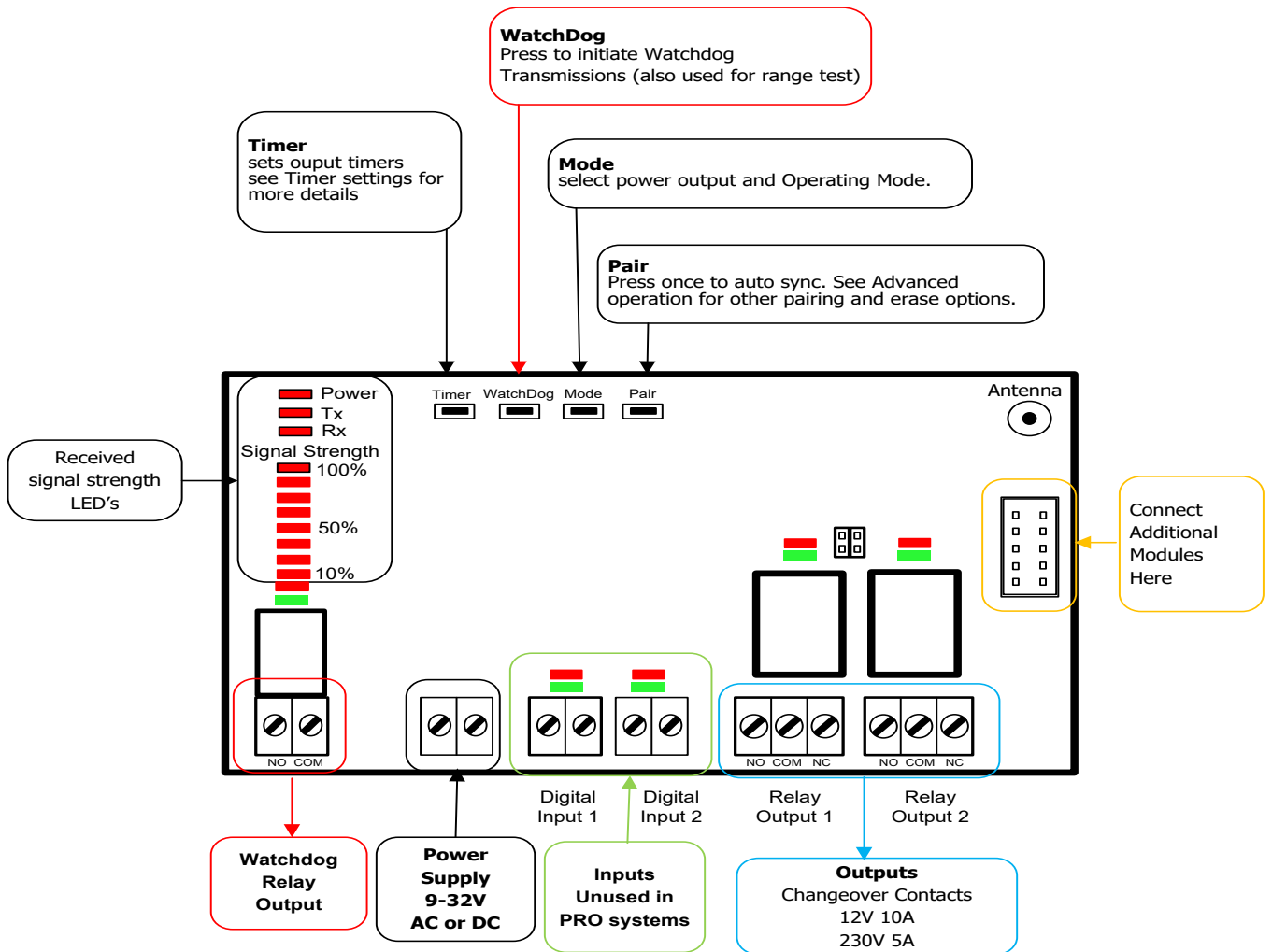
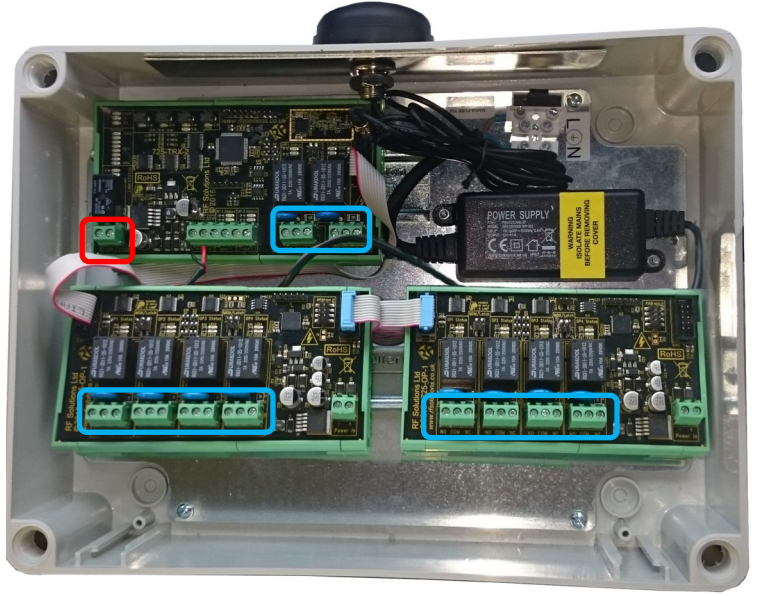
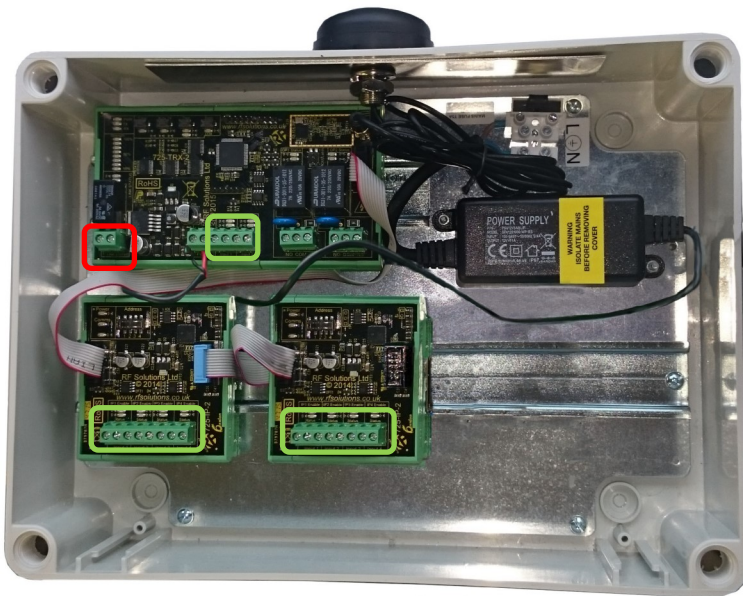
Part Number	Description	Range** (Metres)	Freq (MHz)	Relay Outputs (each @230Vac)
<b>PRO-LORAT1-8S10</b>	10 channel Remote Control System	1,000	869.5	10 x 10A
<b>PRO-LORAT16-8S10</b>	10 channel Remote Control System	16,000	869.5	10 x 10A

\*\* Range stated is optimum, direct line of sight. In worst conditions this can be reduced by up to 50%

## PRO-LORA Overview

PRO-LORA-TXn: Volt free inputs

PRO-LORA-RXn: Volt free outputs



## Overview of Features

**PRO-LORAn-8S10 has many 'optional' features. These are summarised below and explained in detail later in this document.**

**Pairing:** The PRO-LORATn—8S10 system is supplied ready paired if you require further details on pairing or erasing the system please see our PRO-LORA system datasheet

**WatchDog:** This is a relay contact which is held 'ON' as long as the Auto TX signal is received.

**TIMER:** The outputs can be set to Momentary/Latching /Timed

**Additional Modules:** Additional Output modules or can be connect (max 16 of each)

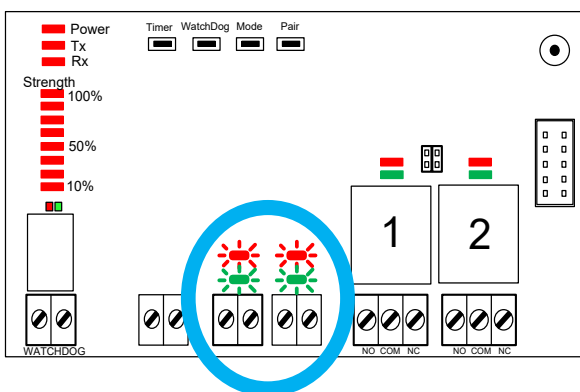
Please note: when using more then 2 output boards VCC must be connected to the 725-OP boards.

## INPUTs Status LEDs

Inputs are activated by a closed contact switch.

When the status of any input is changed PRO-LORA immediatly broadcasts the status (of all inputs).

After receiving the RF transmission, the paired PRO-LORA(s) respond with an ACKNOWLEDGE RF Signal.



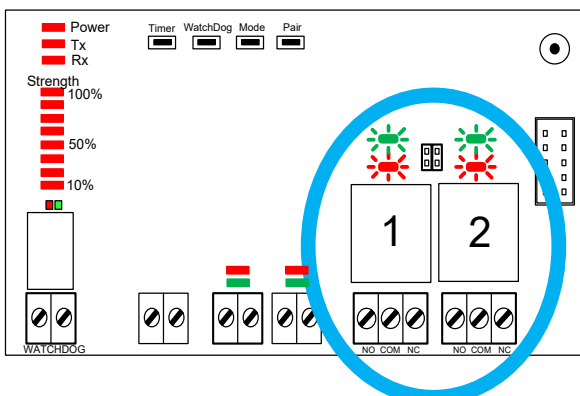
<b>GREEN LED</b>	Status of Input
<b>ON</b>	Input Active / ON
<b>OFF</b>	Input Inactive / OFF

<b>RED LED</b>	Feedback from Receiver
<b>OFF</b>	The paired PRO-LORA Output is in Sync with this input
<b>ON</b>	No acknowledge from the paired PRO-LORA
<b>Flashing</b>	Input is not paired with any Receiver output

## OUTPUTs Status LEDs

When the receiving PRO-LORA gets a valid signal from a paired device it will activate an output.

The status of active relays will be displayed on their corresponding LED's.



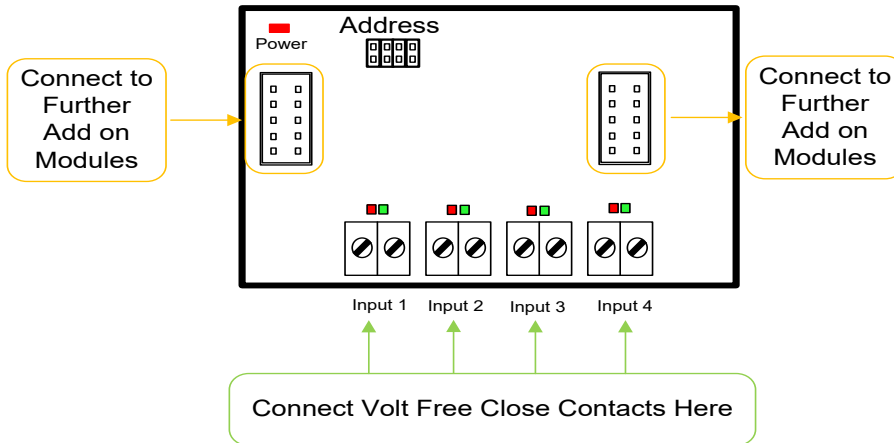
<b>GREEN LED</b>	Status of Output
<b>ON</b>	Relay is Active / ON
<b>OFF</b>	Relay is Inactive / OFF

<b>RED LED</b>	Feedback from Receiver
<b>OFF</b>	The paired PRO-LORA Output is paired with this output
<b>Flashing</b>	Relay is unpaired with any Receiver output

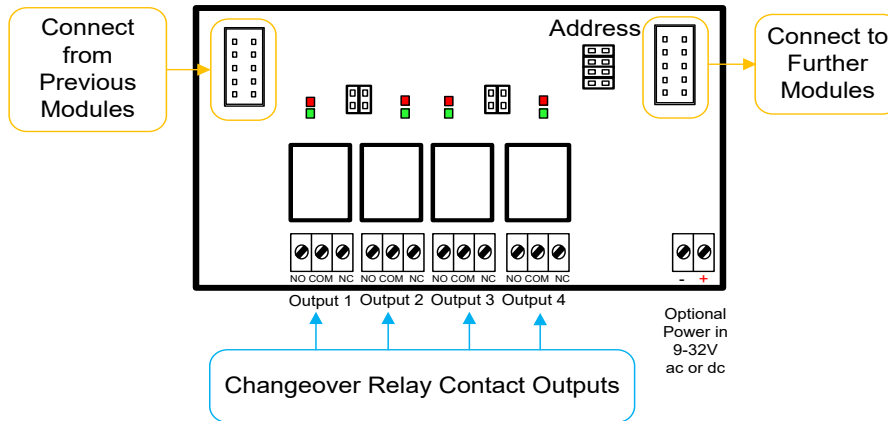
## Additional Input / Output Modules

Upto 16 Input and 16 Output modules can be added (64 inputs and 64 outputs max).  
Cables are supplied to enable the modules to plug and play.  
No other configuration is required the add on modules function as an extension of the PRO-LORA Module

### 725-IP Additional 4- Inputs Module



### 725-OP Additional Outputs Module



## Connecting Add-on Input/Output Modules

### Address settings

Each module must have a unique address set by the Address jumpers (it doesn't matter what the address is)

**Note:** outputs will cycle in address order for pairing, timers and erasing.

### Connect to 725TRX

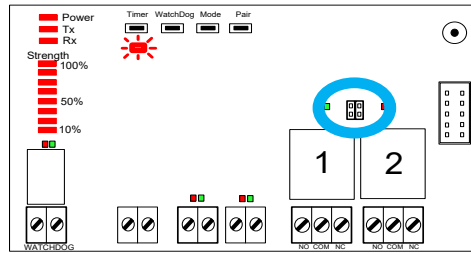
Connect to the 725TRX or previous I/O module using the ribbon cable provided

**Note:** When connecting more than one 725-OP module the power must be connected directly to the 725-OP module screw terminals



## MOMENTARY/LATCHING setting links

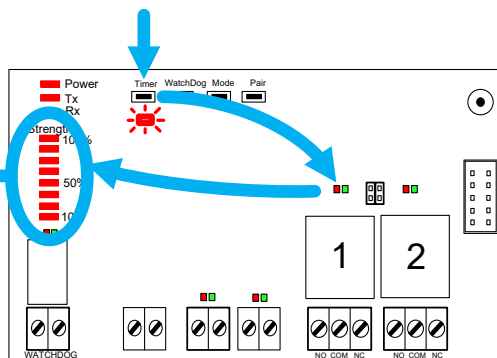
Each Relay Output can be individually preset to Momentary/Latching by fitting or removing the Link Headers



Link fitted	LATCHING	Output changes state on each Transmit signal
Link Removed	MOMENTARY	Output operates for duration of Transmit signal

## TIMER (Setting an Output Time Delay)

LED	Timer Output
8	60 min
7	30 min
6	10 min
5	1 min
4	30 sec
3	10 sec
2	5 sec
1	1/2 sec
0	Mom



### Setting a Timed Output.

1. Briefly press the TIMER Switch .
2. The TIMER and first relay output LED's will flash.
3. Press the TIMER switch again to scroll through relays until the chosen relay LED is flashing.
4. Wait until the chosen relay LED is on constantly.
5. Now Each press of the timer button will increase the timer delay in line with the TIMER OUTPUT Table Displayed on the signal strength LED's.
6. When you have selected the required delay, wait 3 seconds.
7. The Red TIMER LED will Stop flashing to show that the setting is saved

**NOTE:** Settings are saved even after power is removed.

**NOTE:** When zero LED's are lit the relays will operate as per the Momentary/Latching links.

### Erase ALL Timers:

1. Press and hold the TIMER button for 10 seconds,
2. Whilst held the TIMER LED will turn on and then flash fast.
3. When the LED flashes fast release the timer button the erase is complete

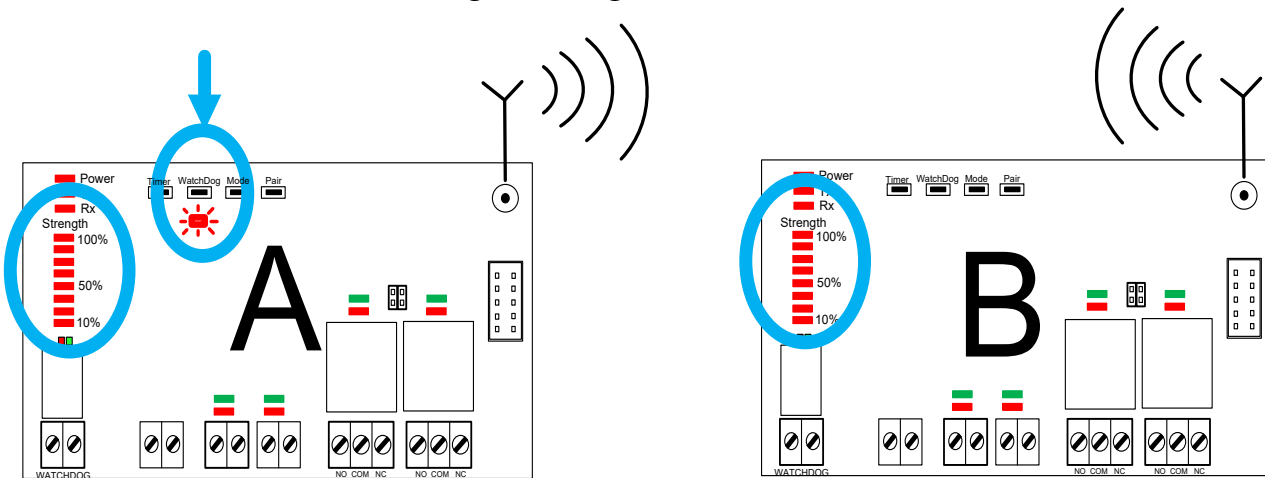
Note: When setting a Time Delay;

If the Jumper Link is Removed the Time delay will restart on each transmission regardless of output Status.

If the Jumper Link is Fitted, the Time delay output Will Latch OFF / ON Timed with each transmission.

## Display Signal Strength

This allows a user to check the signal strength (Walk Test)



Any PRO-LORA will display a received signal on the signal Strength LED bar graph from a compatible transmitter.

**NOTES:** For reliable communications please ensure at least 3 LED's are lit in this test.

1. Press and hold the WatchDog button on the Transmitter for 5 seconds.
2. PRO-LORA emits a special transmission every second,
3. Any PRO-LORA will display the received Beacon on the signal strength LED bar graph.
4. An acknowledge will be sent back to the originating PRO-LORA by any paired PRO-LORA which will also display on its signal Strength LED bar graph.
5. When activated on a paired transmitter, LEDs 1-8 on both devices will show signal strength - the more LEDs flashing, the better the signal.

**NOTES:** For reliable communications please ensure at least 3 LED's are lit in this test.

## Antenna and Range

### 2.1 Antenna

The system includes an antenna, If the range is inadequate then it may be necessary to mount the antenna externally. The antenna cable may be extended however please note that typically there is a 50% range reduction with every 3metres of coax cable used!

### 2.2 Range

The antenna choice and position directly controls the system range. Keep it clear of other metal in the system. The best position is protruding from the top of the product. This is often not desirable for practical or ergonomic reasons and thus a compromise may be needed.

Note that the space around the antenna is as important as the antenna itself. All radio systems are dependant on a radio signal being received through airspace.

The range quoted is the optimal in direct line of sight without obstacles and in good atmospheric conditions.

### 2.3 Signal Integrity

In systems where many encoders are in close proximity there may be occasions when, due to signal overlay between encoders, it is difficult or impossible to guarantee system integrity. In such circumstances it is the responsibility of the installer to ensure that the system performance is adequate for the purposes of the installation.

## Technical Specifications

### Transceiver : PRO-LORA

Dimensions: 136 x 78 x 42 mm

Storage Temperature: -10 to +70°Celsius.

Operating Temperature: -10 to +50°Celsius.

Electrical Characteristics	Min	Typical	Max	Units
Supply Voltage	12		32	Vdc or ac
Frequency:		869.500		MHz
RF Output Power (ERP) @ 869.50 MHz	-	100		mW
Supply Current : Quiescent		50		mA
All output relays operating		+101		mA
Watchdog relay operating		+25		mA
When transmitting		+95		mA

### Input Module: 725-IP

Dimensions: 68 x 78 x 42 mm

Storage Temperature: -10 to +70°Celsius.

Operating Temperature: -10 to +50°Celsius.

Electrical Characteristics	Min	Typical	Max	Units
Supply Voltage		N/A		V
Input Impedance				Ohms
Supply Current		15		mA

### Output Module : 725-OP

Dimensions: 136 x 78 x 42 mm

ELECTRICAL CHARACTERISTICS	MODE	MIN	TYPICAL	MAX	Units
Supply Voltage			N/A		V
Relay Rating* (230Vac) RLY 1-4			5		A(rms)
Time delay from Tx on Switch to Rx Relay operation	FSK		30		mS
	LORA		30-1500		mS
Time delay from Tx sw relax to Rx Relay release	FSK		30		mS
	LORA		30-1500		mS
Supply Current :	Quiescent		12		mA
	All relays operating		+90		mA

Storage Temperature: -10 to +70°Celsius.

Operating Temperature: -10 to +50°Celsius.

## Notes

- Notes The power is derived directly from PRO-LORA
- The relay contacts in this unit are for functional use only and must not be used for isolation purposes

## Enclosure:

DIN Rails mounted on steel plate  
Integrated 12Vdc moulded Power Supply  
5 Amp Fused terminal block  
Material GW PLAST 120 °C  
PUK antenna  
Dimensions  
External 315 x 235 x 130mm  
Internal 300 x 220 x 120mm

## Kit includes:

### TX

1x 725-TRX  
2x 725-IP with ribbon cables  
1x PUK antenna and ground plate  
2x fascia hinges  
2x Glands  
1x 12V 1A 230VAC power supply  
1x Enclosure

### RX

1x 725-TRX  
2x 725-OP with ribbon cables  
1x PUK antenna and ground plate  
2x fascia hinges  
2x Glands  
1x 12V 1A 230VAC power supply  
1x Enclosure

A 12Vdc power supply is incorporated. 12Vdc is presented on a fused terminal block. A Gland is supplied to enable power to enter the enclosure

## RF Solutions Ltd. Recycling Notice

Meets the following EC Directives:

### DO NOT

Discard with normal waste, please recycle.

### ROHS Directive 2002/95/EC

Specifies certain limits for hazardous substances.



### WEEE Directive 2002/96/EC

Waste electrical & electronic equipment. This product must be disposed of through a licensed WEEE collection point. RF Solutions Ltd., fulfills its WEEE obligations by membership of an approved compliance scheme.



### Waste Batteries and Accumulators Directive 2006/66/EC

Where batteries are fitted, before recycling the product, the batteries must be removed and disposed of at a licensed collection point.

Environment Agency producer registration number: WEE/JB0104WV.

### Disclaimer:

Whilst the information in this document is believed to be correct at the time of issue, RF Solutions Ltd does not accept any liability whatsoever for its accuracy, adequacy or completeness. No express or implied warranty or representation is given relating to the information contained in this document. RF Solutions Ltd reserves the right to make changes and improvements to the product(s) described herein without notice. Buyers and other users should determine for themselves the suitability of any such information or products for their own particular requirements or specification(s). RF Solutions Ltd shall not be liable for any loss or damage caused as a result of user's own determination of how to deploy or use RF Solutions Ltd's products. Use of RF Solutions Ltd products or components in life support and/or safety applications is not authorised except with express written approval. No licences are created, implicitly or otherwise, under any of RF Solutions Ltd's intellectual property rights. Liability for loss or damage resulting or caused by reliance on the information contained herein or from the use of the product (including liability resulting from negligence or where RF Solutions Ltd was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict QuasarUK Ltd's liability for death or personal injury resulting from its negligence.

[www.rfsolutions.co.uk](http://www.rfsolutions.co.uk)

### RF Solutions Ltd

William Alexander House, William Way, Burgess Hill, West Sussex, RH15 9AG  
Sales: +44(0)1444 227 910 Tech Support: +44(0)1444 227909