



- Up to 100metres Range
- 1 – 3 Button versions
- 12-30Vdc Or 230Vac versions
- Reliable FM Technology
- Up to four 1000W Relay switches
- Waterproof Receiver (IP68)
- Momentary or Latching Relays
- Any Switch Map to Any Relay Output
  
- **General Purpose Remote Switching**
- **Electric Gates**
- **Roller Shutter Doors**
- **Garden Lighting**



## Description

Supplied complete ready to go the HORNET is a rugged IP68 weatherproof remote control system. Built in mounting points and easy wiring using High Quality screw Terminals.

With a range of up to 100m the HORNET is ideal for a wide variety of switching applications.

Additional transmitters may be added using the 'learn' process, any button on the transmitter can be used to control one or many outputs of the receiver.

## HORNET-S1 / HORNET-S2 / HORNET-S3 (12-32Vdc Receivers)

The HORNET system provides up to 4 isolated switches each capable of switching up to 6A @230V

1. Open the enclosure by removing the two fixing screws from the base of the enclosure and remove the antenna, the board should then slide out.
2. Wire the power as shown on Fig 1. 1
3. Wire your chosen switch as required
4. Once the receiver is set-up; transmitter button 1 will switch relay 1 (button two to relay two and so on). Each button press will change the state of the relay (i.e. one press for on, one press for off).

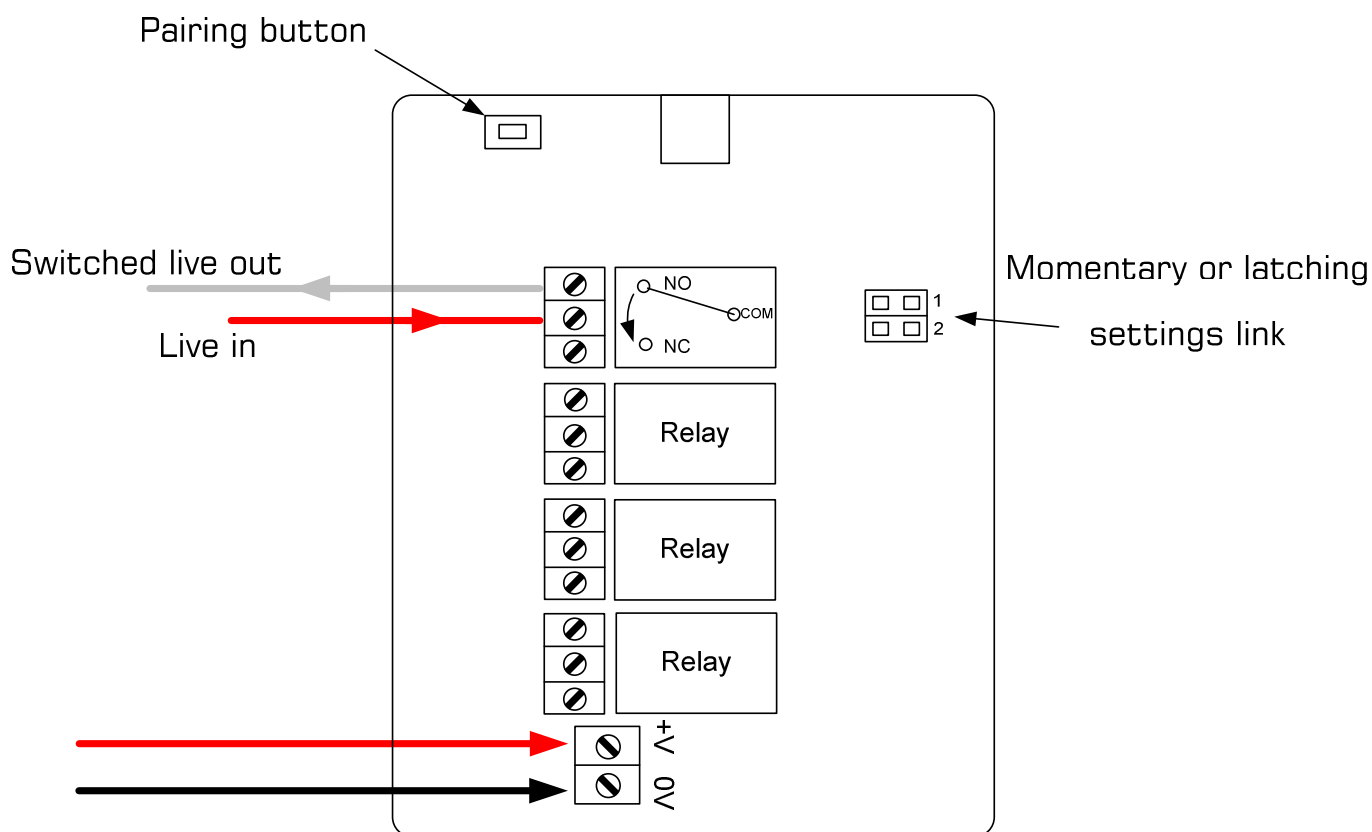


Fig 1.1

**HORNET 12 - 32V Systems**  
 12V Switched Output Example –  
 Only to be used by a competent  
 person

## Advanced Operation

### To pair a new transmitter switch follow this procedure

Any transmitter button can be configured to operate any of the receiver relays.

Pair any Transmitter switch with a receiver relay by following this procedure:

1. Select the receiver output relay to learn to:
2. Briefly press the receiver Pairing switch (S2) once
3. The Learn LED will flash once to indicate relay 1 is selected
4. After the LED stops flashing, press the Learn switch again to select the next relay channel
5. Repeat step 4 until the required relay is selected.
6. Press the button on the transmitter you want to learn to the relay.
7. The Learn LED will flash to indicate Pairing is complete.

### Pairing a Transmitter to a Receiver

The only limitation is that each receiver has a maximum memory for up to 40 pairings, these can be from the same or any number of transmitters.

### Erasing Receivers Memory

1. Press and hold the receiver Learn Switch for approx 10 seconds.
2. When the Learn LED turns ON all memory is erased

**NOTE:** You cannot erase individual Tx encoders

### Configuring Relays

The jumper links set the outputs to be Momentary (operates as long as transmitter is operated)

or Latching (Relay changes state each time transmitter is pressed).

The jumper links are made / removed by the small link 'cap' placed over the pin header.

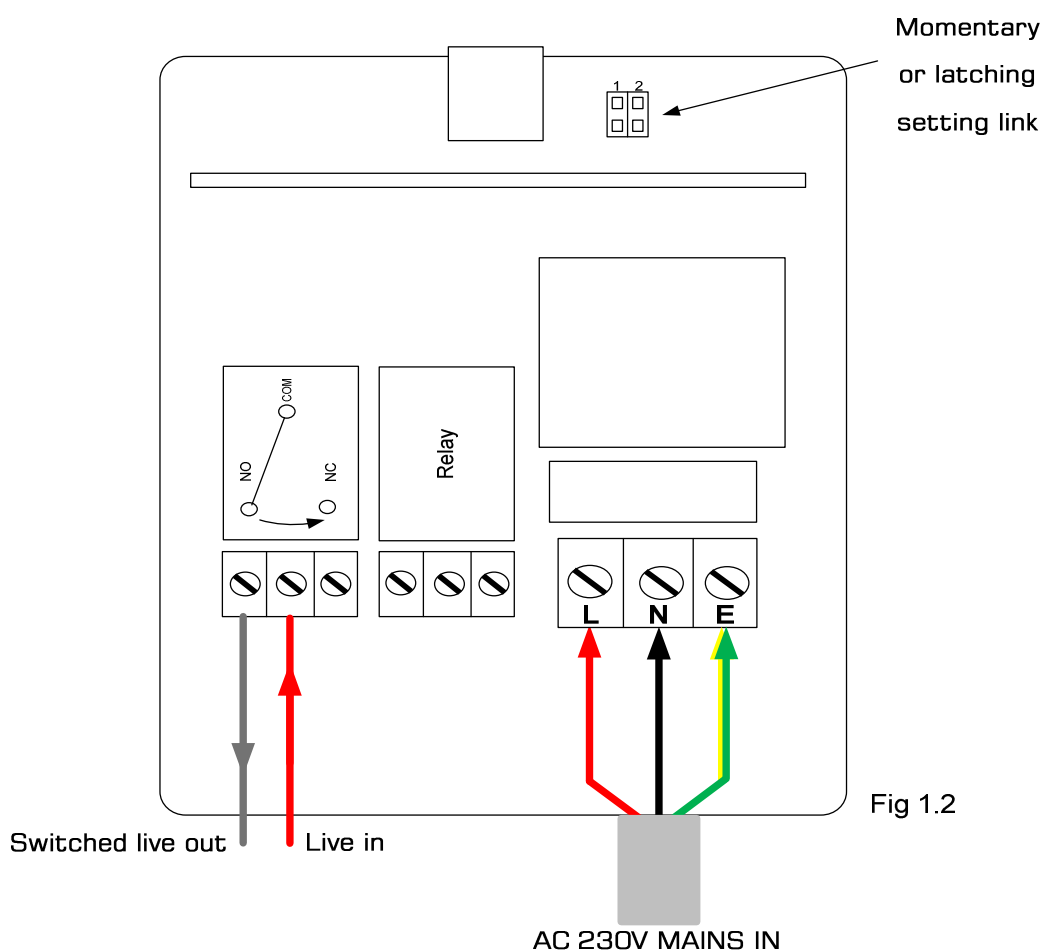
Link Positions		Relays			
LK1	LK2	RLY 1	RLY 2	RLY 3	RLY 4
Closed	Closed	Mom	Mom	Mom	Mom
Closed	Open	Mom	Mom	Latch	Latch
Open	Closed	Mom	Latch	Latch	Latch
Open	Open	Latch	Latch	Latch	Latch

See Fig 1.1 for location of jumper pins.

## HORNET-S1M / HORNET S2M (230Vac Powered Receivers)

The HORNET system provides up to 4 isolated switches each capable of switching up to 6A @230V

1. Open the enclosure by removing the two fixing screws from the base of the enclosure and the antenna, the board should then slide out.
2. Wire the power as shown on Fig 1.2
3. Wire your chosen switch as required
4. Once the receiver is set-up transmitter button 1 will switch relay 1 (button two relay two and so on). Each button will change the state of the relay (i.e. one press for on, one press for off).



## Advanced Operation

**Please Note:** During Learn and Erase the relays operate at high speed. They should be isolated from sensitive equipment during this process.

### To Pair additional Transmitter buttons to receiver Relay #1

1. Apply power the receiver and wait 10secs for the unit to enter 'normal operation' mode.
2. Switch the receiver unit OFF and then ON again in ~1sec intervals **FOUR** times finally leaving the unit powered.
3. The receiver emits a continuous 'Click' to confirm it is now in 'learn' Mode
4. Press the chosen transmitter button.
5. The receiver will acknowledge by sounding the a single 'buzz'
6. Learn Process complete.

### To Pair additional Transmitter buttons to receiver Relay #2

1. Apply power the receiver and wait 10secs for the unit to enter 'normal operation' mode.
2. Switch the receiver unit OFF and then ON again in ~1sec intervals **SIX** times finally leaving the unit powered.
3. The receiver emits a continuous 'Click' to confirm it is now in 'learn' Mode
4. Press the chosen transmitter button.
5. The receiver will acknowledge by sounding the two 'buzzes'
6. Learn Process complete.

### Erasing Receivers Memory

1. Power the receiver unit up and wait 10 seconds for the unit to enter 'normal operation' mode.
2. Switch the unit off and then on again at ~1 second intervals **TEN** times, leaving the unit powered.
3. The receiver confirms Erase cycle complete by giving three short 'Buzzes'
4. The unit has now erased all encoder data.

**NOTE:** You cannot erase individual Tx encoders

### Configuring Receiver Relays

The jumper links set the outputs to be Momentary (operates as long as transmitter is operated) or Latching (Relay changes state each time transmitter is pressed).

The jumper links are made/removed by the small link 'cap' placed over the pin header.

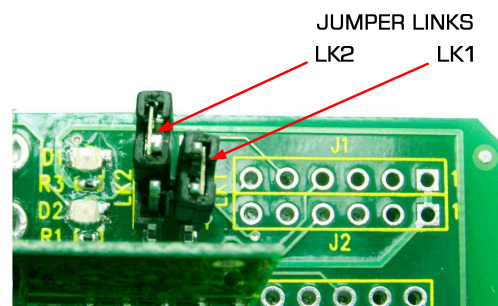
Link1 controls relay Output #1

Link2 controls relay Output #2

Link FITTED = LATCHING

Link OPEN = MOMENTARY

Image shows, RLY2 Momentary, RLY1 Latched.



## System Part Numbers

### Operating from 12-30Vdc



Part Number	Description	Frequency (MHz)	Range** (Metres)
HORNET-S1	System 1 channel	433.92	100
HORNET-S2	System 2 channel	433.92	100
HORNET-S3	System 3 channel	433.92	100

### Systems Operating at 230Vac

Part Number	Description	Frequency (MHz)	Range** (Metres)
HORNET-S1M	System 1 channel	433.92	100
HORNET-S2M	System 2 channel	433.92	100

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

## Additional Transmitters



Part Number	Description
HORNET-TX1	Transmitter 1 switch
HORNET-TX2	Transmitter 2 switch
HORNET-TX3	Transmitter 3 switch
HORNET -TX-IPKIT	'O' Ring, Seals Transmitter to IP65

## Bespoke Versions

Custom versions available with your own logo and or protocol.

Please contact Sales for further info.



## Low Battery Indication

When the battery on the HORNET-TX becomes low (<2.1V) the LED will indicate this by pulsing on and off and one second intervals. The battery should be changed at this point. When the battery reaches this level the HORNET-TX may continue to operate but the range will be reduced and the LED will dim.

## Technical Specifications

### Transmitters: HORNET

Enclosure Rating: Standard (TBA) With IP Kit IP65  
 Battery Type: CR2032 Revision 2 - Post May 2010 GP23AE (Revision 1 - Pre May 2010)  
 Battery Life Est. 3 Years (Calculated as 50 operations per day)  
 Dimensions: 66 x 36 x 17mm  
 Changing Batteries: Remove Two fixing screws, remove battery and replace, note polarity!

Electrical Characteristics	Min	Typical	Max	Units
Supply Voltage (Rev1)		3 (12)		V
Supply Current (transmitting)		0.47 (16)		uA (mA)
Frequency:	432.90	433.920	434.10	MHz
RF Output Power (ERP) @ 433 MHz	-	3		mW
Packet length		68		ms

### Transmitter FCC Notice

This device complies with part 15 of the FCC rules.

Operation is subject to the following two conditions.

- This device may not cause harmful interference AND
- This device must accept any interference received including interference that may cause undesirable operation.

### Warning to user

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### FCC NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## Receiver Decoder HORNET-RX

Enclosure Rating IP68  
 Dimensions 130 x 112 x 42 mm (not including antenna)  
 Storage Temperature: -10 to +70° Celsius. Operating Temperature: -10 to +50° Celsius.

ELECTRICAL CHARACTERISTICS	Min	Typical	Max	Units
Supply Voltage for 12-30V versions	10.5	12	30	Vdc
Supply Voltage for Mains versions		230		Vac
Relay Rating* (230Vac) RLY1-4		5(rms)	12(peak)	A
Supply Current : @12V Quiescent All relays operating*		10 140		mA
Supply Current @ 230V		~13		mA
Time delay from Tx on Switch to Rx Relay operation			100	mS
Time delay from Tx sw relax to Rx Relay release			300	mS

\*The relay contacts in this unit are for functional use only and must not be used for isolation purposes

### 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., fulfils its WEEE obligations by membership of an approved compliance scheme.

### Waste Batteries and Accumulators

#### Directive 2006/66/EC

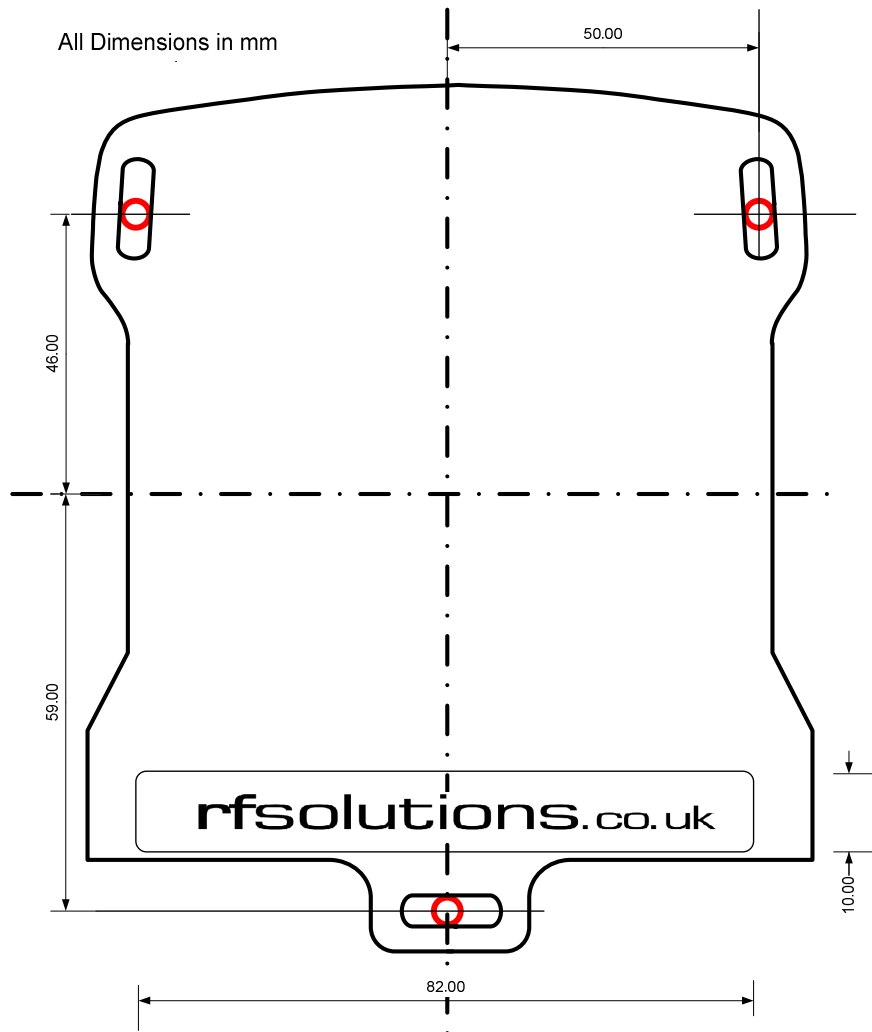
Where batteries are fitted, before recycling the product, the batteries must be removed and disposed of at a licensed collection point.

Environment Agency producer registration number: WEE/JB0104WV.





## Installation diagram



NOT TO SCALE

### Disclaimer

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