GJD Opal RFX Wireless 35 metre External PIR

Installation Manual

A wireless passive infrared detector and three channel receiver that simultaneously or individually controls CCTV switchers, video recorders and if required GJD security lighting controllers.

The RFX Receiver has three independent channel inputs and outputs plus one separate photocell controlled output for infra red or security lighting applications. In essence the versatility of the timed outputs gives the unit an endless list of applications from the activation of alarm tracking domes, switching time-lapse VCR's to real time to speech enunciators and pagers.

OPAL RFX WIRELESS P.I.R SPECIFICATION:

Supply:
2 x AAA Alkaline 1.5 volt
Low power typical battery life two years.

Coverage:
8 - 35 metres with 90º multifunction lens internal adjustment 180º pan + 90º tilt.

Features:
433.92MHz frequency, SAW stabilised.
150 metres line-of-sight exterior.
Digital and optical white light filter.
Digital temperature compensation
Battery low & attendance signal
Secure wire code learning
 Non Volatile Memory
Intelligent digital signal processing
'A' detection signal 24 hour
Light level signal (S) 2 lux to daylight
Pulse Count 1 to 3

Temperature: -20 C + 55 C

Enclosure: ABS high impact IP55 rated

RFX 3 CHANNEL RECEIVER SPECIFICATION:

Supply:
12VDC @ 40mA nominal
(9 to 20VDC maximum)

Outputs (A):
3 x independent channel outputs (24hr)
Solid state volt free contacts switching
to common (common= negative)
Rated @ 250mA at 24VDC
Individual timed 0.4 to 60 seconds after last detection. Non volatile memory.

Lux Output (S):
1 x photocell controlled switching
Active 60 seconds after last detection

Indication with outputs:
Independent channel active
Attendance reporting and jamming
Battery low warning output.

Temperature: -20 C + 55C

**Enclosure:** (mount vertical indoors)

RFX THREE CHANNEL RECEIVER

The RFX receiver picks up the radio transmission activity information from the Opal RFX detectors. The receiver will only pick up information from the detectors once they have transferred the individual code via the secure wire code learning link. This transfer is only required on the initial setup, any changes to the detector programming will be relayed by radio instantly to the receiver.

For correct alignment of the aerial (13) it is important to mount the receiver vertically to a secure surface indoors, preferably on an exterior wall.

If extended range of upto 200 metres is required, extend the aerial of the receiver vertically.
Do not alter the length of the aerial lead as the optimum length is supplied.

(fig 1)
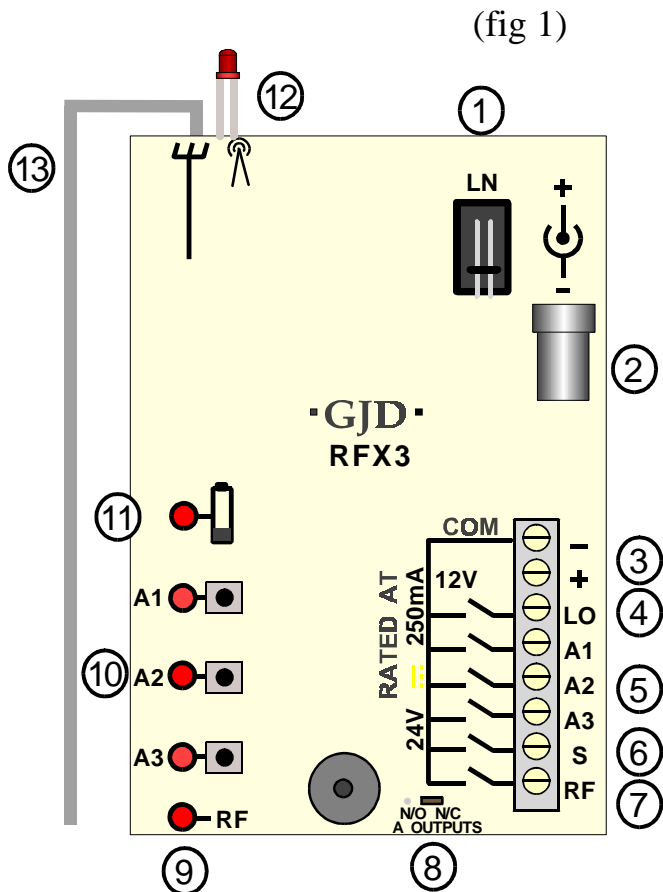
FEATURES:

1) 2 pin secure wire code connector

2) Power Supply input (din socket) or (3) <u>optional</u> screw terminals for connecting '-' and '+' to GJD controllers

4) Low Battery Output (LO)

5) 'A' outputs for each detector which activate on detection (24 hour) with individual timers

6) 'S' output - light level controlled

7) RF output - will switch to common when a detector is out of range or jamming signal is present.

8) Select normally open or normally closed 'A' outputs only

9) Loss of RF signal indicator this will indicate 5 minutes after not receiving a

signal from a registered detector the corresponding 'A' indicator will also flash.

10) Channel buttons and detector indicators

11) Battery low indicator corresponding 'A' indicator will also flash.

12) Reception - gives a visual indication of the radio signal being received.
    (a) Flicker = normal
    (b) Flashing every 5 seconds = low battery, loss of signal.

MULTIBEAM LENS DATA

The GJD multifunction lens fitted to the OPAL RFX detector produces 9 long range beams and 9 medium to short range curtain beams. Movement across the beams produces the best response and range, whilst movement towards the detector will be less responsive.
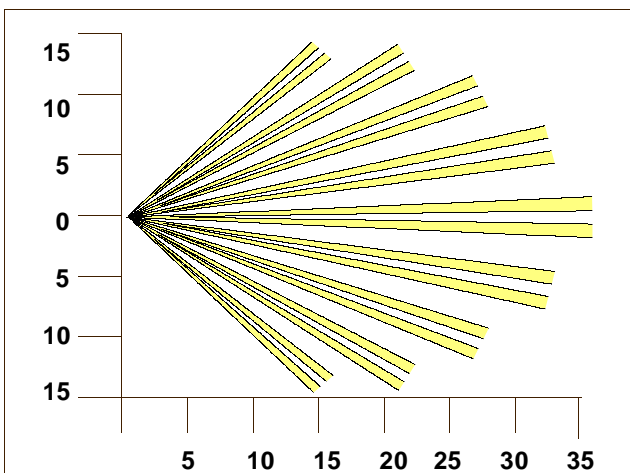
When mounting higher than boundary fences rotate the module and mask off any beams, either vertically or horizontally, that fall outside the area being covered. Use the self-adhesive clear mask supplied to the rear, smooth side, of the lens and always replace the correct way up as shown to obtain the exact beam pattern coverage.

MULTIBEAM - OPTIMUM
HEIGHT: 3 METRES
RANGE: MAXIMUM
MODULE TILT: 0 DEGREE

LONG RANGE 35 METRE SECTION
6 TO 20 METRES SECTION

0 deg
3
0   10   20   30 35

MULTIBEAM
HEIGHT: 6 METRES
RANGE: MAXIMUM
MODULE TILT: 9 DEGREE

6 TO 20 METRES SECTION

9 deg
6
0   10   20   30 35

PET IMMUNITY
HEIGHT: 1.5 METRES
RANGE: MAXIMUM
MODULE TILT: -2 DEGREE

MASK THIS SECTION OFF
FOR PET ALLEY
APPLICATIONS
UP TO 35 METRES

-2 deg
1.5
0   10   20   30 35

CURTAIN COVERAGE
HEIGHT: 6 METRES
RANGE: MAXIMUM
MODULE TILT: 45 DEGREE

MASK THIS SECTION OFF
FOR CURTAIN COVERAGE
APPLICATIONS

45deg
6
0   5

0   5   10   15

15
10
5
0
5
10
15

5   10   15   20   25   30   35

Beam Pattern set to maximum range. Masking top section of lens will reduce range to 20 metres

6
4
2
0
2
4
6

0   2   4   6   8   10   12   14
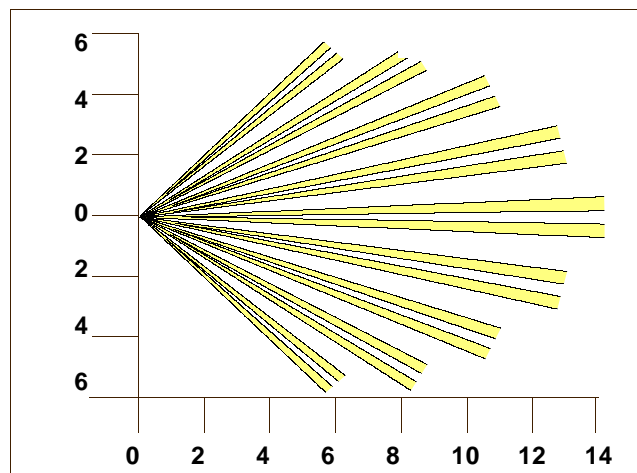
Beam Pattern set to minimum range. Masking top section of lens will reduce range to 8 metres

Battery installation

1) Remove the Opal RFX cover
2) Remove the module from the bracket
3) Remove the fresnel lens
4) Insert 2 x AAA batteries into the module as shown.(fig 2) It is easier to put the base of the battery in first then click the '+' in firmly.


(fig 2)

PROGRAM
BUTTON
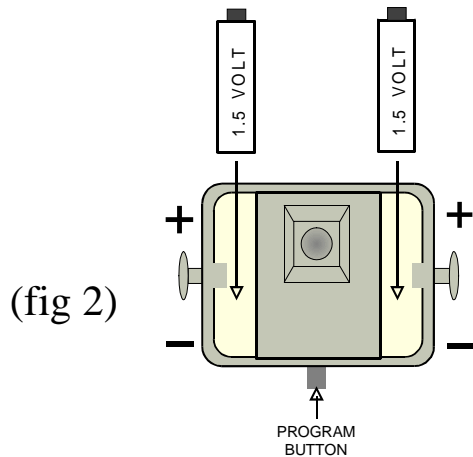
To replace the batteries – push out from the holes on the reverse of the module.

Wireless transmission

Each detector transmits radio signals to the receiver and has over 16.7 million individual codes. The wireless receiver only responds to the transmitter that has been linked to a channel to identify it.

Setup

To transfer the code from a detector
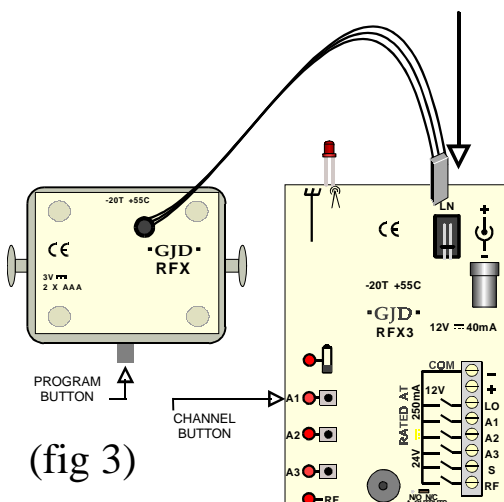
(fig 3)

1) Apply the 12VDC Power to the RFX Receiver

2) Plug in the link wire from the first detector in to the RFX receiver (see fig 3)

3) Press the respective 'CH button' on the receiver once – the LED lights

4) Within 4 seconds press and release the 'Program button' on the detector once

5) The 'CH' indicator blinks twice. The code for that detector is stored and registered to that channel.

6) Remove the connector link wire from the receiver and plug into the aerial transmitter in the back of the detector. (fig 4) Detection signals will be immediately be to the receiver.
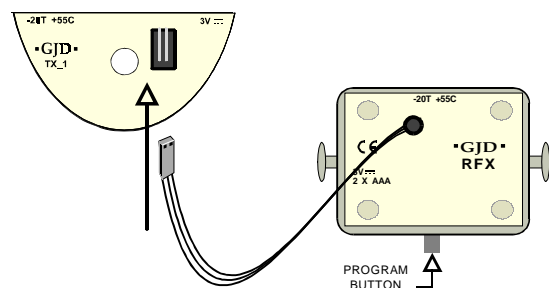
(fig 4)

Repeat Steps 2 to 6 for each detector.

To check whether a code is stored press and release the channel button once. Three beeps should sound.

To erase a code from the receiver - press and hold down the button until the continuous beeps end, then release.

PROGRAMMING CHART
Press

wait for indicator to go out

OPTIONS			[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	
	Twice -set Range	then x for	8	15	20	25	35				metres
	Three -set Lux Level	then x for	2	5	15	30	60	120	240	24hr	'S'output
	Four -set Pulse Count	then x for	1	2	3						pulse count
	Five -set Time 'A'	then x for	0.4	1	2	4	8	25	30	60	seconds

Six	= flashout of above settings
Seven	= reset GJD factory defaults

CUSTOMISING

All factory set parameters can be changed to suit individual requirements. The highlighted areas on the programming chart show the factory settings which suit most applications. Changes can be easily made either before installation or on site. Once changes have been made they are stored in a non-volatile memory.

PROGRAMMING

To amend your existing 'Option' and 'Setting'

1) Press the program button on the detector once for the number of the required 'Option' (e.g. range-press twice)
2) Wait 4 seconds until the LED goes out.
3) Within 5 seconds press the button again for the number of the required 'Setting'
   (e.g 20 metres-press three times)
4) The LED blinks twice - the new setting is saved

To amend any other options/settings repeat steps '1' to '4'

EXAMPLE

To set the Range to 20 metres
a)   Press twice to select Range
b)   Wait until LED goes off (4 seconds)
c)   Press three times for 20 metres

LUX 'S' OUTPUT ONLY:

a) 2 lux to 240 lux. = the approximate light level at which the 'S' output is activated.
b) 24 HOUR = will operate day and night.

All other outputs operate day and night irrespective of the 'S' output setting.

PULSE COUNT:

The range of the unit will decrease if there is little difference in temperature between the moving object and the background.

1 will give a fast response
2 gives better immunity with good response
3 gives higher immunity to false activations

The unit is not recommended for mounting on metal clad buildings in direct sun as excessive heat and haze ripple can give rise to false activation's In changing sunny/cloudy conditions random activation's can occur.

TIME 'A' OUTPUT

This is the time in seconds that the 'A' output will activate after detection. The respective channel indicator will also light for the time of the output. This output can be selected on the Receiver to be normally open in alarm condition or normally closed.

CHANGING THE RANDOM CODE

In the unlikely event of another radio signal affecting the correct operation of a single channel. The Opal RFX detector can generate an alternative random code.

Press the program button on the Opal RFX nine times. On the ninth press 'hold' the button down for 5 seconds until the LED goes out, then release the button

.

Erase the code from the receiver by holding down that channel button until the beeps stop, then repeat steps '2' to '6' of the 'Setup' procedure to register the new code.

TESTING THE OUTPUTS

(Alignment of the detection beams)
When the 'program' button is pressed momentarily the red indicator lights and pulse count '1' is automatically selected. The unit can then be tested, the red indicator will light on the Opal RFX and the respective Channel indicator will flash every time a detection takes place. This test mode will automatically cancel five minutes after last detection. Alternatively, to cancel 'walk test' press the program button twice to put into the standard low power mode.

MOUNTING AND INSTALLATION:

The electronics must be protected against water during installation as trapped moisture can effect or damage the unit.
1) First remove the front polythene cover by pulling forwards, then remove the lens module by pulling it out of the forked bracket.

2) Drill the wall to accept the fixing screw supplied with the wall plug.
4) Always ensure when replacing the module that it is the correct way up for correct alignment of the beam pattern.
See page 3 Multibeam lens data.

At this stage, weather permitting, the unit can be tested with the front cover fitted. Press the program button once to put the unit into 'walk test' mode. The LED will light on detection as you walk through the coverage area. Adjust by using the pan and tilt the lens module to obtain the correct alignment and adjust the range until the correct coverage is obtained.

ALIGNMENT OF THE OPAL RFX

Passive infra red movement sensors detect the temperature changes of moving objects. Movement across the beams produces the best response and range whilst movement towards the detector would be less responsive. Use the pan and tilt facility to accurately target the detection zone, and adjust the range of the detector to cover the required area.

The clear mask supplied with the detector can be applied vertically or horizontally to eliminate coverage of a single beam to an entire long range section. When mounting higher than boundary fences mask off any side beams that fall outside of the required detection area.

Ensure the detector is mounted upright on a vertical surface.

When positioning the detector try to ensure that no obstacles, such as walls or large trees for example, obstruct the beam pattern view of the detector.

As the unit detects a change in heat in its field of view, therefore sunshine, trees, shrubs, ponds, washing, central heating boiler flues and animals should be considered.

If you are also fitting floodlights to provide movement activated lighting, these should be positioned at the side or above the detector far enough away not to cause problems due to heat detection. A minimum of 60cm (2 feet) is recommended, provided the detector is not in direct radiated heat from the floodlight.
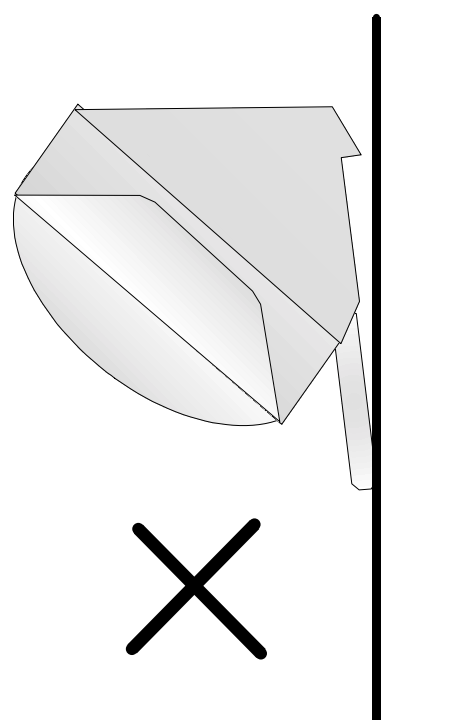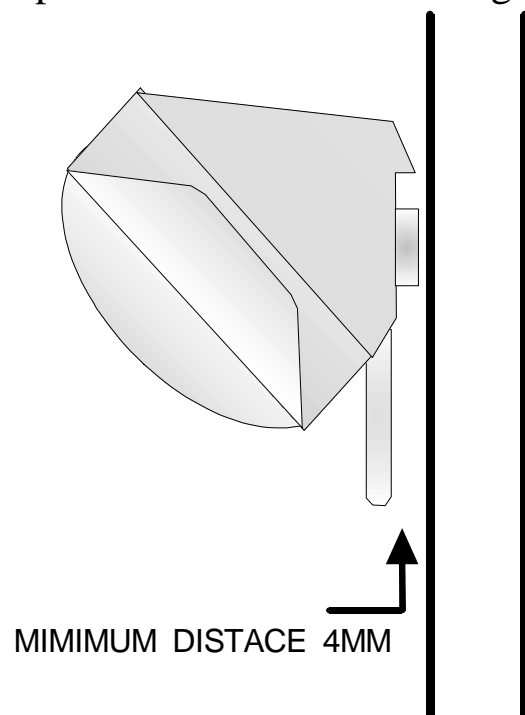
The front cover must be fitted when in the testing mode.

Once alignment is completed, replace the front cover checking that the vent hole is at the bottom. Ensure that the front cover engages both sides of the outer casing before pressing firmly to locate securely

IMPORTANT:
If mounting the detector on a conductive or uneven surface it is advisable to use the mounting spacer provided.

This will ensure that the aerial is above the 4mm clearance distance required from the surface to optimise the transmission range.

MIMIMUM DISTANCE 4MM

Installation Notes: