# D-TECT 3

GJD314 Triple Tech External Detector

GJD DETECT & SECURE

**PACKAGE CONTENTS**

- 1 x D-Tect 3
- 1 x Drilling template for fixing holes
- 3 x 31.75mm wall plugs
- 3 x 31.75mm screws
- 2 x Spare Sliding Curtains
- 2 x Tamper Feet
- 1 x Tamper Cup
- 1 x Installation manual

**INTRODUCTION**

The D-Tect 3 is an outdoor motion detector and alarm trigger that uses two independent passive infra-red detectors plus a microwave sensor module. All three sensors must trigger to cause the detector to signal an alarm. Utilising triple detection technology, the D-Tect 3 delivers precise, reliable presence detection.

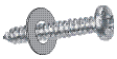
**QUICK INSTALLATION**

1. Mount and connect the detector following the instructions given later in this sheet.
2. Apply supply voltage to the unit. The detection LED (blue) flashes three times.
3. Wait approximately 2 to 3 minutes to allow the detector to settle.
4. Press the programming button once to activate walk test mode. The detection LED is now enabled for five minutes.

**Note: The front cover must be fitted when walk testing.**

The default settings are:

- Range: 20 meters
- Pulse count: 1 (always set to 1 during walk test)
- Detection LED: off (always enabled during Walk Test)
- 'S' Lux Level: 5
- Contacts:
  - Alarm 1: Normally Closed
  - Alarm 2: Normally Open
- Contacts Timer: 5 (seconds)



**MOUNTING THE UNIT**

**WARNING**

- **NYLON WASHERS PROVIDED MUST BE USED WITH SCREWS**
- **ENSURE CABLE ENTRY AND SCREW HOLES ARE SEALED WITH WATER BASED SEALANT**
- **DO NOT USE SILICONE BASED SEALANT**

To reduce the possibility of the microwave circuit being affected it is recommended to leave a minimum space of 3 metres between D-TECT 3 sensors when mounted alongside each other. When facing each other a minimum space of 15 metres is recommended. It is possible to mount the units back to back however when detectors are mounted in close proximity to one another it is advisable to carry out a walk test to ensure that external objects are not influencing the microwave circuit.

During installation, protect the electronics against water, as trapped moisture can affect or damage the unit.

1. Drill the wall to accept the two fixing screws, the cable entry, and the tamper cup (if used). See Figures 1 and 2. A hole-drilling template is provided.

**Note: We recommend using the tamper cup on uneven wall surfaces.**

2. Remove the cover assembly by loosening the locking screw. The cover hinges from the top and lifts out of the location slot. See Figure 3.

3. Feed standard eight-core alarm cable into the cable entry. Bare the wires and connect to the top PCB terminal block. See Figures 2, 4, & 5.
4. Screw the unit to the wall ensuring that the rear tamper pin is correctly located and that the tamper microswitch is closed. See Figure 6. To aid installation, two spare tamper feet are provided. One is 1mm longer and the other is 2mm longer than the tamper foot originally fitted. The tamper foot is a push fit and can be removed by carefully pulling it from the pin. See Figure 2.
5. When the detector is aligned, connected, and programmed to suit the installation, replace the front cover and lock as shown. See Figure 7.

**CONNECTING THE UNIT**

The D-Tect 3 includes jumpers that allow you to configure the internal end-of-line resistor values, when EOL resistors are required. Values are 1K, 2K2, 3K3, 4K7, 5K6 and 6K8 Ω.

Figure 8 shows:

1. EOL resistor jumpers
2. Wiring points

Alternatively, you can remove the jumpers and connect a discrete resistor directly to the alarm or tamper outputs, as specified by the third-party equipment.

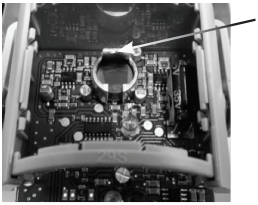
**CONNECTIONS**

| Terminal | Label | Description |
|---|---|---|
| 1 | A | 24 hour -VE Output |
| 2 | S | Dark -VE Output |
| 3,4 | ALARM 1 | Alarm relay 1 |
| 4,5 | EOL | End-of-line resistors |
| 5,6 | TAMPER N/C | Tamper relay, normally closed |
| 7,8 | ALARM 2 | Alarm relay 2 |
| 9,10 | 9-42V | AC / DC Supply |

**MULTI BEAM ALIGNMENT & MASKING**

The multifunction lens fitted to D-Tect 3 produces seven long range beams and seven medium to short range curtain PIR beams. The PIR circuitry detects changes in heat and movement in the beam pattern; therefore items such as trees, shrubs, ponds, boiler flues, and animals should be considered when positioning the detector.

The detector is fitted with a mirror on the pyro sensor to provide a detection zone directly underneath the detector.



Note: The maximum mounting height is 3 metres when utilising the creep detection zone.

When using the pet immune configuration the mirror should be removed.

**Note: The PIR sensor is more sensitive to movement across the beams, and less sensitive to movement directly towards or away from the beams.**

The detector module is fitted with two sliding shutters to reduce the detection angle.

The curtains are fitted to the pan and tilt module as shown in Figure 9 (shown with primary and additional curtain sliders fitted). Each section of the detector lens gives a coverage pattern of approximately 10 degrees.

An additional set of curtain sliders is provided should the beam pattern need to be narrowed even further, e.g. if the minimum detection angle of 10 degrees is required.

When coverage exceeds the desired detection area, adjust the module as required and mask off any beams, either vertically or horizontally, to avoid unwanted detection.

Use portions of the self-adhesive silver mask applied to the rear, smooth side of the lens as shown in Figures 10 & 11. Always replace the lens the correct way up to ensure exact beam pattern coverage (top of the lens is marked TOP).

When mounted at heights above 3 metres there could be a significant reduction in the range of detection and the target will have to move a greater distance within the field of view before an alarm is generated.

**Masking Configurations for Maximum Range**

| Configuration | Mounting Height (Metres) | Tilt (º) | Max. Range (Metres) | Reference |
|---|---|---|---|---|
| Multibeam | 3 | 0 | 30 | Figure 10 |
| Pet Immunity | 1.5 | -2 | 30 | Figure 11 |

Figure 12 shows the pattern for the maximum range in the optimum position (see Figure 10). Masking the top section of the lens reduces the range to 20m.

Figure 13 shows the pattern for the minimum range. In this case masking the top section of the lens reduces the range to 6 meters.

Figures 14 and 15 illustrates alignment recommendations for when the detector is mounted close to a wall.

The alignment shown in Figure 14 is not recommended. If the detector module is orientated at an angle of 90° to the perimeter, the mounting wall may cut off short and medium range beams. The long range beam will still detect an intruder, however the wall can cause false alarms when heated by sunlight.

Figure 15 shows the recommended alignment. The detector module is orientated at a 55° angle to the perimeter. As a result, short and medium range beams are parallel to the perimeter, but the detection range along the perimeter is reduced to 25 metres.

**PROGRAMMING**

The user can individually program a number of configurable settings, as illustrated in the programming chart.

| | | | | SETTING | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| OPTIONS | 1 | Range (m) | | 8 | 15 | 20 | 25 | 30 | | | |
| | 2 | Pulse Count | | 1 | 2 | 3 | | | | | |
| | 3 | LED | | Off | On | | | | | | |
| | 4 | 'S' Output Lux Level | | 2 | 5 | 10 | 20 | 30 | 40 | 50 | 24 HR |
| | 5 | Contacts | Alarm 1 | N/O | N/C | N/C | | | | | |
| | | | Alarm 2 | N/O | N/C | N/C | | | | | |
| | 6 | Timer Seconds | | 2 | 5 | 10 | 20 | 30 | 40 | 50 | 60 |
| AUX | 7 | Press 7 times to flash out your selected settings | | | | | | | | | |
| | 8 | Press 8 times to reset to GJD factory settings | | | | | | | | | |

*Shaded default

To change any of the D-Tect 3 settings:

1. Press the program button, as shown in figure 16, for the number of the Option to be changed, i.e. once for range, twice for pulse count, three times for LED, four times for lux, five times for contacts and six times for timer.
2. Wait until the blue LED indicator goes off (typically four seconds).
3. The indicator will then flash out the existing settings.
4. To change the settings for that option, press the program button the number of times for the required new setting.
5. The indicator blinks twice and the changes are stored in the D-Tect 3's non volatile memory.

Example: To change the LED setting from OFF to ON:

1. Press the program button three times.
2. Wait until the blue LED indicator goes off (typically four seconds).
3. The indicator will then flash once, indicating the current LED setting is OFF.
4. Press the program button twice to change the setting to ON.
5. The indicator blinks twice and the changes are stored in the D-Tect 3's non volatile memory.

**PROGRAMMING OPTIONS DEFINITIONS**

**Pulse Count**

This is the number of times the unit has to detect on both of its sensors before signalling an output.

**LED**

LED Off – LED disabled.
LED On – LED signals a detection.

**Lux Level**

This is the approximate level that the ambient light must reach before the 'S' output will become active when there is an activation. The 'S' output switches negative for 60 seconds when there is a detection and the light level is below the programmed
setting.

The 'S' output is an open collector type rated at maximum 25mA.

**Alarm 1 & Alarm 2 Outputs**

These are magnetically immune volt free relay contacts used to trigger alarm inputs on connected equipment. They can be set to be both normally open, one normally closed and one normally open or both normally closed. The contacts are rated at a maximum of 24V AC/DC @ 50mA.

**Timer**

The timer setting adjusts the time that the relays change state after activation (to reduce repetitive alarms).

**WALK TEST**

In walk test mode, the detection LED option is set to ON, and the pulse count option is set to 1. The detection LED lights each time the D-Tect 3 detects your presence.

To enter the walk test mode, press the programming button once. The detection LED lights and pulse count 1 is automatically selected. The unit can then be aligned.

The test mode ends automatically five minutes after last detection. Alternatively, press the program button three times, or remove and then reapply power to cancel the walk test mode.

**Note: When you conduct a walk test, make sure that the front cover is in place. Do not conduct walk tests with the cover removed.**

The range of the detector increases without the protective front cover. Therefore the front cover must be fitted to establish the correct beam pattern. Use programming chart to adjust the range as necessary. Pan and tilt the lens module over the field of view to obtain the correct coverage area.

**ACCESSORIES**

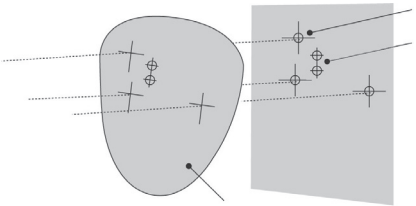
GJD is able to supply the following accessories to aid installation:

GJD304 Conduit cable entry adaptor ring
GJD305 Pole mount clamp
GJD380 D-Tect Walk Tester

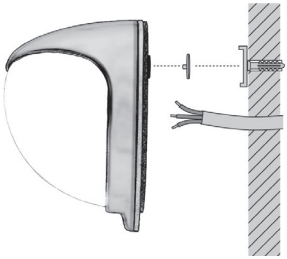
## SPECIFICATIONS

| | |
|---|---|
| **Microwave Frequency** | 9.9GHz |
| **Detection Area** | Programmable between 8 & 30 metres. |
| **Coverage** | 10-70 degrees detection angle, 30m x 30m coverage max. |
| **Adjustment** | 180 degree pan + 90 degree tilt. |
| **Fresnel Lens** | 28 zones for each Pyro pair, which can be masked with curtain sliders and special masking tape (supplied). |
| **Customised Optics** | Double silicon shielded quad element eliminates 50,000 Lux of white light. |
| **Outputs** | Silent solid state magnetically immune. |
| **Alarm 1 & Alarm 2** | Volt free relay signal contact 24V AC/DC @ 50mA with an integral 25Ω series resistor, selectable N/O & N/C. Adjustable timer options: 2 to 60 seconds |
| **Output 'A'** | Open collector negative switching – 25mA max.<br>Alarm period 400ms. |
| **Output 'S'** | Open collector negative switching – 25mA max.<br>Alarm period: detection + 60 seconds.<br>Adjustable: Dusk (2 Lux) to 24 hour. |
| **Output 'T'** | Tamper<br>Volt free, normally closed switch output |
| **Tamper Switches** | Front and rear tamper switches; case open and removal from wall. |
| **Power Input** | 9 to 24 V AC/DC. |
| **Current** | 17mA (12V nominal). |
| **Pulse Count** | 1 - 3. |
| **Temp. Compensation** | Digital sensitivity adjustment. |
| **Control** | Digital microprocessor – non volatile memory. |
| **Walk Test** | Output test mode with LED indication |
| **Operating Temp.** | -20 to +55 Centigrade<br>Conformal coated electronics for increased stability. |
| **Housing** | High impact zinc alloy. |
| **Protection Rating** | IP 65 |
| **Dimensions** | 145 x 120 x 115 mm. |
| **Weight** | 750 grams NET, 880 grams GROSS |
| **Mounting Height** | Variable - optimum height 3 metres. |
| **Cable < 200m** | Using all five outputs (including tamper) – 12 core 7/0.2mm |
| **Cable < 500m** | Using all five outputs (including tamper) – 12 core 16/0.2mm |
| **CE Mark** | CE |

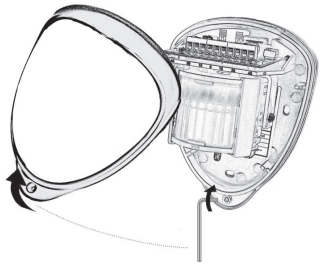
1



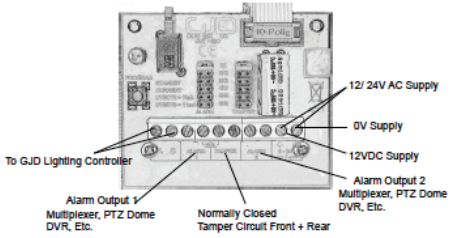
2



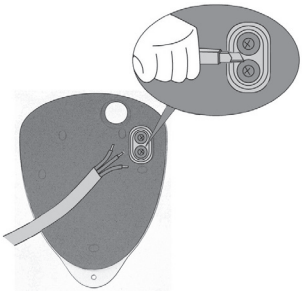
3



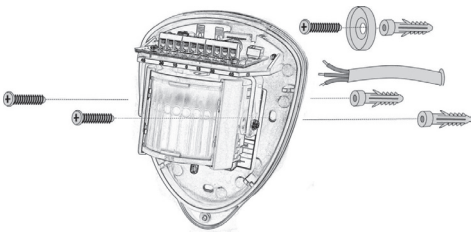
4


12/ 24V AC Supply
0V Supply
12VDC Supply
Alarm Output 2
Multiplexer, PTZ Dome
DVR, Etc.
To GJD Lighting Controller
Alarm Output 1
Multiplexer, PTZ Dome
DVR, Etc.
Normally Closed
Tamper Circuit Front + Rear

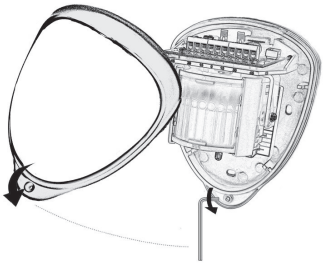
5



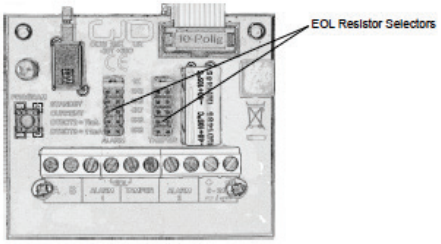
6



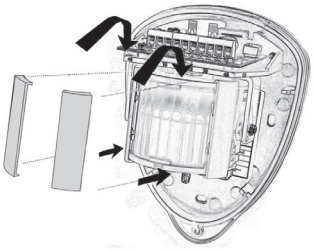
7



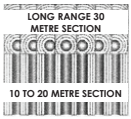
8

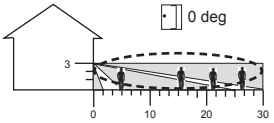

EOL Resistor Selectors

9

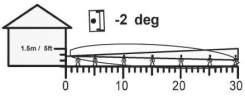


10

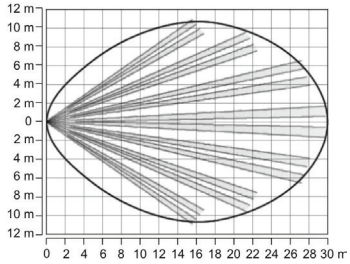


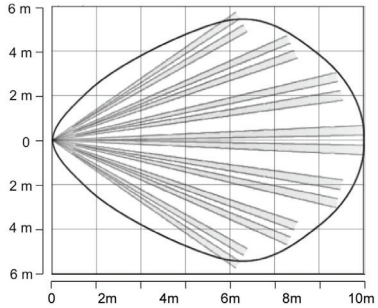

11



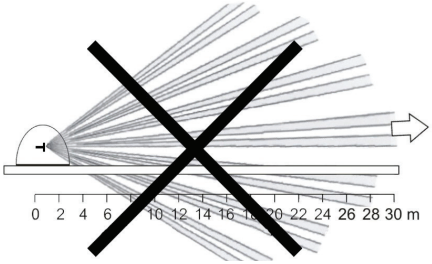

12



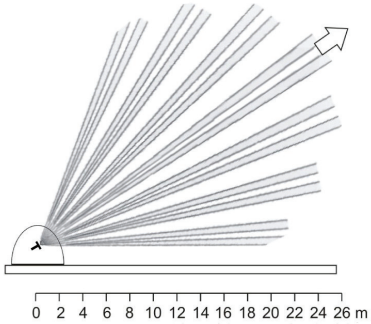

13



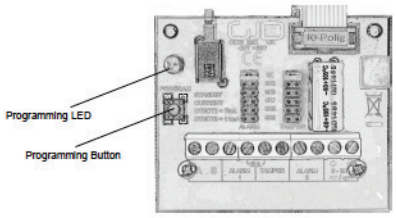

14




15




16



# ENGINEER NOTES

www.gjd.co.uk | info@gjd.co.uk | +44 (0) 1706 363 998
Unit 2 Birch Business Park, Whittle Lane, Heywood, Greater Manchester, OL10 2SX, UK