



ShockTec™

Digital Shock Detectors

ShockTec Plus Grade 3

Installation Instructions



Introduction

ShockTec Plus Grade 3 is a digital shock detector with magnetic contact for internal use that provides reliable 24-hour perimeter protection. A break-in is detected as soon as the intruder attempts to force, smash, drill or even saw through the protected window, door, wall or roof. ShockTec employs an advanced digital microprocessor to analyze the vibration signal received from the piezo electric sensor.

A unique feature of ShockTec Plus Grade 3 is digital sampling of the signal simultaneously in two separate channels, each channel amplified at a different gain. This provides an extremely wide dynamic range of the sampled signal, enabling precise measurement and analysis of the shock signal.

The ShockTec Plus Grade 3 has a magnetic reed switch for double protection of shock plus opening of windows or doors. Any attempt to defeat the detector by using large magnets, as defined by EN-50131-2-6 Security Grade 3 requirements, will cause a tamper condition.

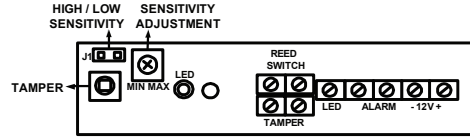
Main Features

- Digital Microprocessor with Intelligent Digital Signal Processing
- Tri-color LED enables accurate and reliable calibration, with “over-sensitive” and “under-sensitive” indications
- PD6662, EN50131-2-6 Security Grade 3
- Gross attack detection
- Internal magnetic reed switch for double protection (shock and contact)
- Detects attempts of magnet tampering (0.3T)
- Encapsulated bi-morph piezo electric sensor
- Dual stage adjustment potentiometer
- Cover anti-tamper protection
- Compatibility with most control panels

Terminal Wiring

| | |
|-------------|--|
| -12V+ | 12V power connection, reverse polarity protected |
| ALARM | NC Alarm output contact |
| LED | Connection for +12V remote latch control signal |
| TAMPER | NC Anti-Tamper and Anti-Magnet contact |
| REED SWITCH | NC Door alarm contact switch |

Figure 1: Terminal Connections Diagram



Modes of LED Indication

The LED of the ShockTec Plus G3 has three operational modes. The NC alarm contacts are non-latching in all modes of operation. On alarm activation, the alarm contacts open the circuit for 2.5 seconds.

1. Normal Operational Mode

No voltage is applied to the LED Terminal. The LED illuminates while the ALARM contact is open in response to an input signal.

- GREEN: Indicates an alarm condition.
- RED: Under -Sensitive indication.
- ORANGE: Over-Sensitive indication.

2. Any to Latch Mode

12V is applied to the LED terminal causing it to be inhibited. Upon removal of the 12V, the detector switches to a Normal Operation Mode and a continuously flashing ORANGE LED indicates if an alarm is detected (Alarm memory). Reapplication of 12V resets the latch (Alarm memory) and extinguishes the LED.

3. First to Latch Mode

12V is applied to the LED terminal via a 47k resistor (see Figure 2) causing it to be inhibited. Operation is the same as in Any to Latch Mode with the exception that only the first detector to detect an alarm is indicated by a continuous flashing Orange LED, whereas any subsequent detector is indicated by a steady Orange LED.

Installation Procedure

- 1 Select the intended position for installation, ensuring the surface is clean and clear of any irregularities. Refer to Table 1 for details about detection ranges for the different surface types. **NOTE: When installing the Magnetic Contact, refer to the Considerations for Magnet Installation section.**
- 2 Remove the cover of the detector by unscrewing the lens using the special key supplied and then unscrewing the single captive screw, until the cover is easily removed from the base.
- 3 Carefully lift the printed circuit board from the base by releasing the restraining catch.
- 4 Place the base on the mounting position and mark the desired fixing holes.
- 5 If rear cable entry is required, thread the cables through the rear of the base by removing the appropriate knockout.
- 6 Fix the base in position.
- 7 Carefully clip the printed circuit onto the base.
- 8 If side cable entry is required, draw the cable through the rubber grommet and complete the electrical connection.
- 9 Set the detector's sensitivity as follows:
 - NOTE: The LED terminal should not be connected to 12V supply during the sensitivity test.**
 - i With the unit set for normal operation, use a suitable instrument to bang or tap the protected area.
 - ii If the sensitivity needs adjustment, use a screwdriver to adjust the trimmer (turn the trimmer control clockwise to increase sensitivity or counter-clockwise to reduce sensitivity).
 - iii Repeat steps i and ii until the desired sensitivity level is achieved. If required, you can remove the High/Low Sensitivity jumper on the circuit board to reduce sensitivity range (High sensitivity – jumper shorted, Low sensitivity – jumper removed).
- 10 Replace the cover of the sensor (including the rubber grommet) and tighten the captive screw.
- 11 Recheck the detector's response to the desired impact.
- 12 Insert and screw the lens into the cover using the special key supplied for this purpose.

Considerations for Magnet Installation

- 1 Install the ShockTec Plus G3 in a place that will enable you to install the magnet in parallel to it. Generally, this position would be on the frame of the opening to be protected, for example, a door frame.
- 2 Install the magnet on the left side of the ShockTec Plus G3 as indicated in Figure 3, with the following considerations:
 - i Mount the magnet opposite the middle of the ShockTec Plus G3.
 - ii Maximum distance of the magnet from the Shocktec Plus G3 is 20mm.
 - iii Position the magnet as close as possible to the same plane level as the back surface of ShockTec Plus G3.

NOTE: Placing the magnet on the wrong side of the ShockTec Plus G3 will cause a tamper alarm signal.

Multiple Unit Connection Procedure

Figure 2: Multiple Unit Connection Procedure

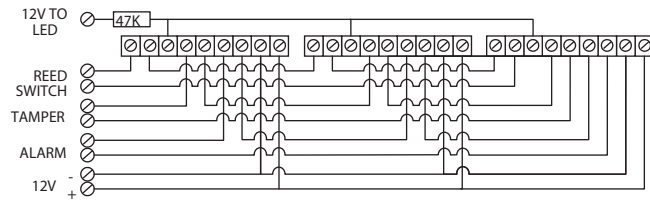


Figure 3: Magnet Mounting Positions



Table 1: Typical Detection Range

| Surface | Concrete | Brick Wall | Steel | Glass | Wood | Plywood |
|---------|----------|------------|-------|-------|------|---------|
| Radius | 1.5m | 2.5m | 3m | 3.5m | 3.5m | 4m |

The above values are typical and are subject to practical testing, which must be performed for each installation. In some environments, these values may differ from the values listed above.

Ordering Information

| Part number | Description |
|--------------|--|
| RK601SM0000A | ShockTec Plus with Magnet Grade 3, White |
| RK601SMBR00A | ShockTec Plus with Magnet Grade 3, Brown |

• PD6662, EN50131-2-6 Grade 3, Environmental Class II

Technical Data

| | ShockTec Plus with Magnet Grade 3 |
|---------------------------------------|---|
| Supply voltage | 9V –16V DC |
| Current drain | 7.5 mA Typical (14 mA Max) |
| Operational temperature | -20°C to +55°C (-4°F to 131°F) |
| Storage temperature | -20°C to +60°C (-4°F to 140°F) |
| Maximum humidity | 95% non-condensing |
| Sensitivity settings | Dual stage potentiometer |
| Tri-colour LED indicator | Orange: Over-sensitive Green: Alarm & correct calibration Red: Under-sensitive |
| Relay contact ratings: | |
| Alarm relay | 100mA at 24VDC, NC, Opto relay |
| Tamper relay | 500mA at 24VDC, NC |
| Reed relay | 500mA at 24VDC, NC |
| Time relay open in alarm | 2.5 seconds |
| Latching modes | Any or 1st to latch operation modes |
| Max no. of units on Any Latch loop | 80 |
| Max no. of units on 1st to Latch loop | 10 |
| False alarm protection | Digital microprocessor signal processing and noise reduction circuits with maximum ground plane |
| Electrostatic discharge | No false alarms up to 8kV |
| RF immunity | 40 V/m from 80MHz to 1GHz |
| Enclosure material | Flame retardant ABS |
| Enclosure dimensions | 25x28x95mm – detector, 10x12x58mm – magnet |

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WARNING: This product should be tested at least once a week



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