DISC
Ceiling Mount PIR Detector

1. INTRODUCTION

The DISC is the smallest 360° ceiling mounted passive infrared detector presently marketed.

The DISC provides a nearly conical pattern of maximum 10.5 m (36 ft) diameter, when installed on a 3.6 m (12 ft) ceiling.

False alarms caused by environmental disturbances are virtually eliminated with alternate polarity pulse counter signal processing and a low-noise pyroelectric detector.

2. SPECIFICATIONS

OPTICAL
Detection Pattern: A virtually conical pattern of maximum 10.5 m (36 ft) diameter, when installed on a 3.6 m (12 ft) ceiling.

COVERAGE PATTERNS
The DISC pattern is nearly conical (viewed from detector to the floor). See Figure 1.

The maximum mounting height is 3.6m (12 ft). The coverage pattern at floor level is as per the following table:

<table>
<thead>
<tr>
<th>Mounting Height</th>
<th>Pulse Count 1</th>
<th>Pulse Count 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4m (8ft.)</td>
<td>7.3m diam. (24ft. diam.)</td>
<td>6.4m diam. (21ft. diam.)</td>
</tr>
<tr>
<td>3m (10ft.)</td>
<td>9m diam. (30ft. diam.)</td>
<td>7.3m diam. (24ft. diam.)</td>
</tr>
<tr>
<td>3.6m (12ft.)</td>
<td>11m diam. (36ft. diam.)</td>
<td>9.1m diam. (30ft. diam.)</td>
</tr>
</tbody>
</table>

ELECTRICAL
Voltage: 9 to 15.5VDC.
Current: 15mA at 12 VDC (21 mA max.).

Relay Output: Normally closed (fail-safe) contacts. 18 ohm resistor in series with contacts. Rating - 0.1A resistive/24VDC.
Alarm Period: 2-7 seconds
Tamper Contacts: Normally closed. Rating - 0.5A resistive/24VDC.
LED: Walk Test enabled or disabled with internal link.
Detector: Dual-element low-noise pyroelectric detector.

Pulse Counter: Two position selector, 1 or 2 pulses with alternate polarity signal processing.

3. INSTALLATION

3.1 Mounting

The DISC PIR is installed on the ceiling.

The maximum installation height is 3.6m (12 ft).

A. Mount the unit so that the expected motion of an intruder is perpendicular to the detector and not into the detector.

Be sure to install the detector on a stable ceiling, to avoid vibrations.

Note: Passive infrared detectors are sensitive to changes in infrared energy caused by an object moving across the unit’s field of view.

Detection of changes in infrared energy depends on the amount of infrared energy transmitted by the moving object, and the temperature difference between the object and the background. Because of this the PIR may fail to respond under certain temperature and background conditions, in which the temperature difference is too small.

B. The DISC is extremely immune to air turbulence and RFI interference.

However, to minimize possible false alarms, it is highly recommended that you avoid aiming the detector at heaters, sources of light, or windows subjected to direct sunlight. Avoid mounting the DISC in locations where air drafts could flow from the ceiling or from close walls. Also avoid running wiring close to high power electrical cables.

C. Hold the unit base as shown in Figure 2. Rotate the cover counter clockwise until it stops. Separate the cover from the base.

Note: If the cover does not separate easily from the base, insert a 1/8” screwdriver between a tab (on the cover) and a slot (on the base). Lower the screwdriver handle until the base separates from the cover and removes easily.
D. Mount the base (equipped with the printed circuit board) in the location selected for optimum coverage. Using the two mounting holes at the back of the base fasten the unit firmly to the mounting surface to avoid possible vibrations. (Figure 3). Line up the 3 tabs on the cover with the 3 slots on the base. Fit the cover over the base. Rotate the cover clockwise until it stops.

3.2 Wiring
Route the wires into the detector via the wiring knockout. See Figure 5. Connect wires to the terminal block in the following order. Refer to Figure 4.

A. Connect Tamper N.C. terminals to a normally closed 24-hour separate alarm circuit of the control panel. Tamper contact will open when cover is removed
B. Connect Relay N.C. terminals to a normally closed burglar protection zone of the control panel. Relay contacts will open if motion is detected, or during power loss. The relay contacts are rated at 100 mA, 24 VDC maximum (resistive load only). An 18 ohm resistor is internally connected in series with the relay contacts.
C. Connect the 12VDC (+) and (-) terminals to a 9 to 15.5 Volt DC power source and check for correct polarity. The UL listed control unit or power source should have a back-up battery that is capable of supplying power for at least four hours of operation, during power failure. Current drain of each sensor is approximately 15mA at 12VDC (21mA maximum).

3.3 Setting the Pulse Counter
The DISC is equipped with a selectable alternate polarity pulse counter which can be set to count two consecutive pulses with opposite polarity, before activating the alarm relay. Pulse count signal processing requires that the moving person will cross both elements of the dual detector before the alarm relay is activated.

Figure 3 – Installing the Cover

Figure 4 - Terminal Block Wiring

This provides maximum protection against false alarms caused by environmental disturbances.

2 pulse setting
The two pulse logic may be selected only when the DISC is installed in temperature controlled locations.

1 pulse setting
This setting actually disables the pulse counter. It should be used when maximum detecting sensitivity or fast "catch" performance are of highest importance, such as in high security installations.

3.4 Walk Testing
A. Apply 12 VDC power and allow five minutes for the unit to warm up and stabilize before testing.
B. Set the pulse counter per Para. 3.4 above.
C. Walk-test the range and coverage area by crossing the pattern from different directions while observing the LED. The LED lights up whenever the unit detects motion. Allow 10 seconds between each test for the unit to stabilize. Repeat the test while entering the pattern from different directions, and at various locations and distances from the detector. This test should be performed up to the far end of the coverage range.
D. After testing, the LED can be disabled to prevent unauthorized persons from tracing the coverage pattern. To disable the LED, set the jumper marked "LED" to the OFF position.

Note: The coverage area should be checked by an alarm technician at least once a year. To assure proper continuous functioning, the user should be instructed to perform a walk test of the coverage pattern to assure an alarm signal prior to each time the alarm system is armed.

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This Warranty is absolutely conditional upon the Product having been properly installed, maintained and operated in accordance with the Manufacturers recommended installation and operation instructions. Products which have become defective for any other reason, according to the Manufacturers discretion, such as improper installation, failure to follow recommended installation and operational instructions, neglect, willful damage, misuse or vandalism, accidental damage, alteration or tampering, or repair by anyone other than the manufacturer, are not covered by this Warranty.

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