

DS304



Security Systems

EN | Installation Instructions
Passive Infrared (PIR)
Detector

BOSCH

1.0 Installation Considerations

- Not suitable for outdoor use.
- Point away from direct and indirect sunlight.
- Point away from glass or other objects that rapidly change temperature.
- Do not install this detector where pets are present.
- Select a mounting location where an intruder is most likely to cross the coverage pattern perpendicular to the detection zones.
- Mount the detector 6.6 ft to 8.5 ft (2 m to 2.6 m) above the floor.

2.0 Installation

Refer to *Figures 1* and *2* when preparing the detector.



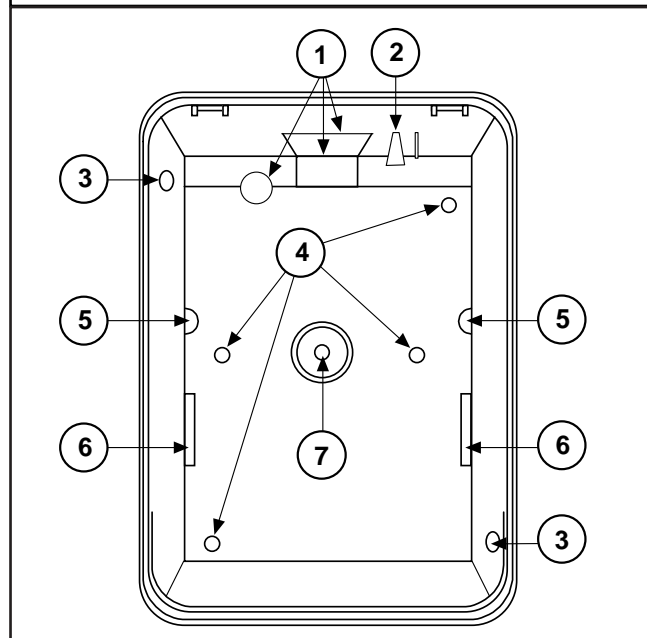
Ensure the mounting surface is solid and free of vibration.

1. Remove the cover by inserting a thin, flat-blade screwdriver into the notch at the bottom of the cover and prying up.
2. Remove the circuit board by pressing one of the circuit board retainer tabs toward the side of the enclosure and lifting the circuit board up and out of the enclosure base.
3. Remove the mirror by sliding it out of its tracks.
4. Remove an appropriate wiring knockout.
5. To surface or corner mount, go to *Section 2.1 Surface or Corner Mounting*. To bracket mount, go to *Section 2.2 Bracket Mounting* on page 3.

2.1 Surface or Corner Mounting

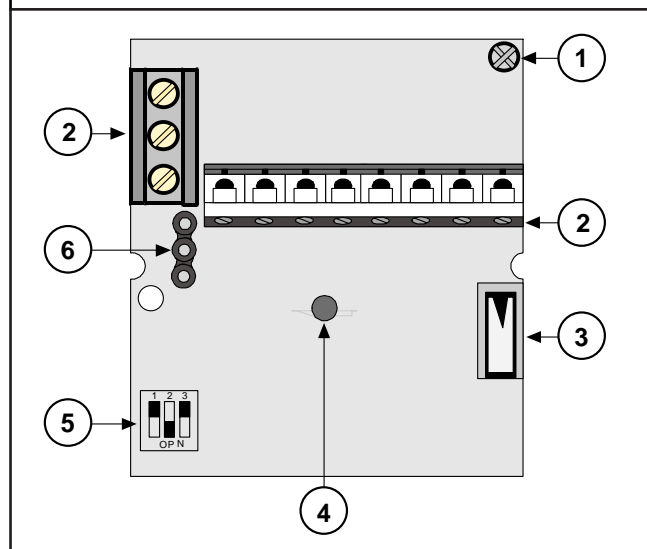
1. Remove the knockout holes for either surface or corner mounting.
2. Using the enclosure as a template, mark the location for the mounting screws. Use wall anchors as needed.
3. Mount the detector.
4. Insert the wiring.
5. For strain relief, attach the cable to the cable tie with the plastic tie-down (supplied).
6. Replace the mirror and circuit board.

Figure 1: Rear Enclosure



- 1 - Wiring knockouts (3)
- 2 - Cable tie/strain relief
- 3 - Corner mounting holes (2)
- 4 - Surface mounting holes (4)
- 5 - Circuit board retainer tabs (2)
- 6 - Mirror tracks (2)
- 7 - Bracket mounting hole

Figure 2: Circuit Board



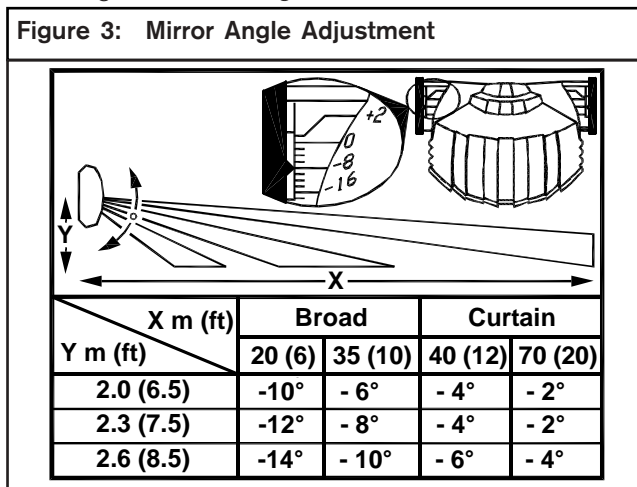
- 1 - Securing screw
- 2 - Terminal strip (2)
- 3 - Tamper switch
- 4 - LED
- 5 - Configuration switches
- 6 - Program jumper

2.2 Bracket Mounting

1. Attach the bracket to the mounting surface using the instructions supplied with the bracket.
2. Knock out the bracket mounting hole in the enclosure base and attach the enclosure to the bracket using the instructions supplied with the bracket.
3. Insert the wiring.
4. For strain relief, attach the cable to the cable tie with the plastic tie-down (supplied).
5. Replace the mirror and circuit board.

3.0 Mirror Adjustment

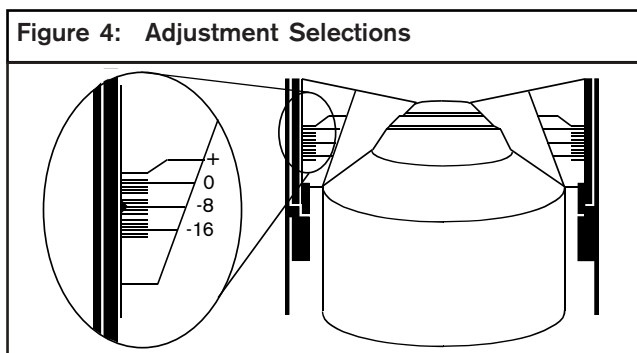
1. Determine the appropriate angle for the installation using the chart in *Figure 3*.



X = maximum range Y = mounting height

Touching the mirror surface can reduce performance.

2. Use the angle adjustment markings shown in *Figure 4* to set the maximum detection range needed.

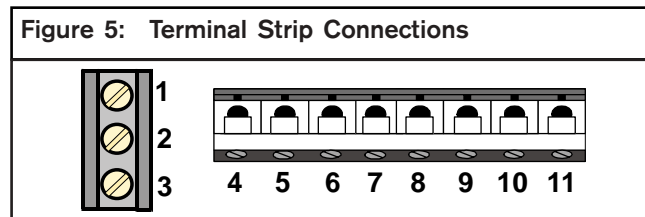


Mirror with expanded view showing the angle adjustment markings.

3. Slide the mirror forward or back until the angle adjustment markings align with the markers on each side of the frame. Use the chart in *Figure 3* located inside the front cover to set the correct angle.
4. Adjust the horizontal protection coverage during the Walk Test. Refer to *Section 7.0 Setup and Walk Testing* on page 5.

4.0 Wiring

Apply power only after all connections are made and inspected.



- 1 (SH) *Shield (optional):* Connection for ground wire from shielded cable.
 - 2 (S/U*) *Set/Unset (optional):* Use as an alarm memory control input for remote panel arming or disarming. Also used as an electronic alarm output. Only one detector should be connected for each detector group.
 - 3 (WT*) *Walk Test (optional):* Use for Walk Test remote control through the control panel. Allows a command at the control panel to enable or disable the Alarm LED.
 - 4 & 5 (T) *Tamper:* Tamper contact is normally closed (open when cover opens). Rated 125 mA at 28 V.
 - 6 & 9 (SP) *Spare*
 - 7 & 8 (AL) *Alarm:* Solid-state Form "A" relay contacts normally closed (open on alarm). Rated 100 mA at 30 V. Do not use with capacitive or inductive loads.
 - 10 (-) & 11 (+) *Input power:* Use no smaller than 22 AWG (0.8 mm) wire.
- * Use a control panel or switch to 0 VDC with the S/U and WT option control inputs. Open control inputs are HIGH level (internal pull-up). Switch the input to achieve the LOW level (from <1.5 V up to a 2 kΩ resistance maximum). The active level is user-configurable.

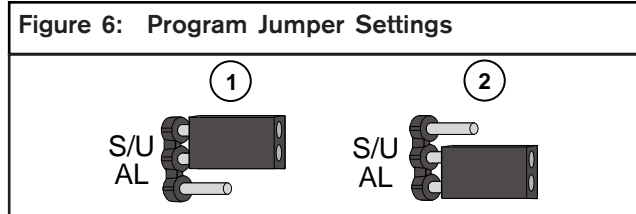
Do not coil excess wire inside the enclosure. Seal the wire entrance with the plug provided.

5.0 Configuration

5.1 Program Jumper for the S/U Control Terminal

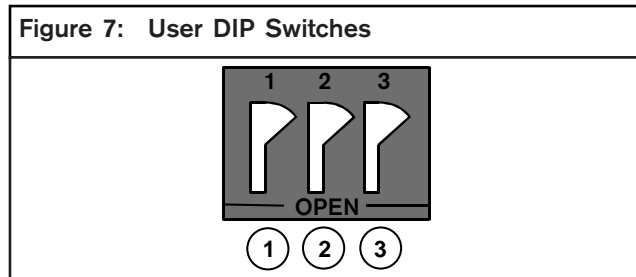
Use the S/U control terminal as an alarm memory control input by setting the jumper in the upper position as shown in *Item 1* of *Figure 6*.

Use the S/U control terminal as an electronic alarm output (open collector) by setting the jumper in the lower position as shown in *Item 2* of *Figure 6*.



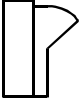
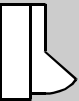
- 1 - Alarm memory control input
- 2 - Electronic alarm output

5.2 User DIP Switches

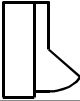




- 1 - Walk Test polarity (Refer to Section 5.4 LED Setup Without S/U and WT Remote Control Panel Inputs.)
- 2 - Sensitivity (Refer to Section 5.5 Setup for Remote Control Alarm Memory and LED Operation Using S/U and WT Inputs.)
- 3 - Set/Unset polarity (Refer to Section 5.4.)

5.3 Adjusting Sensitivity



Table 1: Sensitivity Settings	
DIP Switch 2 OFF 	Standard Sensitivity (Default): Recommended for maximum false alarm prevention. Tolerates environmental extremes. Not recommended for curtain patterns.
DIP Switch 2 ON 	Intermediate Sensitivity: Recommended for any location where an intruder is expected to cover only a small portion of the protected area, or when you want improved catch performance. Does not tolerate normal environments.

5.4 LED Setup Without S/U and WT Remote Control Panel Inputs

Table 2: LED Setup Without Control Panel Inputs		
	DIP Switch Settings	
LED Operation	User DIP Switch 1 Walk Test	User DIP Switch 3 Set/Unset
Disable LED	Any	ON 
Enable LED	OFF (default) 	OFF (default) 

5.5 Setup for Remote Control Panel Alarm Memory and LED Operation Using S/U and WT Inputs

Table 3: User DIP Switch Selection

DIP Switch	Function	ON 	OFF 
1	Select Walk Test polarity	Low (0 V) = Walk Test active	High (12 V) = Walk Test active (default)
3	Select Set/Unset polarity	Low (0 V) = Unset High (12 V) = Set	High (12 V) = Unset (default) Low (0 V) = Set (default)

Ensure the control terminal program jumper is configured as shown in *Item 1 of Figure 5* on page 3 (refer to *Section 5.1 Program Jumper for the S/U Control Terminal* on page 4).

6.0 Remote Control Operation

Table 4: Remote Control Operation

Control Line Status			
Arming Terminal Status	Walk Test Terminal Status	Detector Status	LED Status
Set	OFF or ON	Memory ready	OFF
Unset	OFF	Stored alarm	Rapid flashing (2 Hz)
		No stored alarm	OFF
	ON	Power up	Slow flashing (0.5 Hz)
		Alarm activity	ON for 4 sec
Transition from Unset to Set	OFF or ON	Memory cleared	OFF

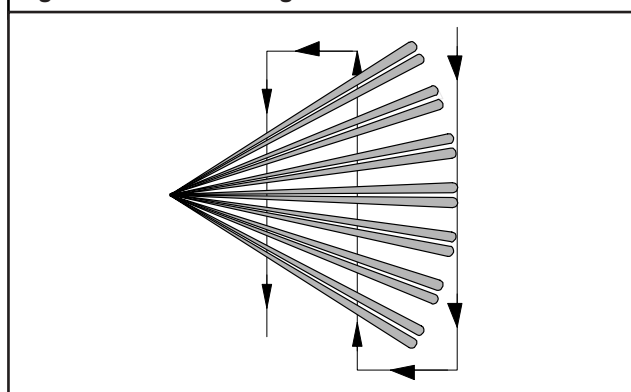
7.0 Setup and Walk Testing



Enable the LEDs before performing a Walk Test.

1. Replace the cover and insert the cover tamper screw (if desired).
2. Apply power to the unit.
3. Wait at least 2 min for the detector to stabilize and no motion is detected (*Figure 8*).

Figure 8: Walk Testing



Walk test across the pattern.

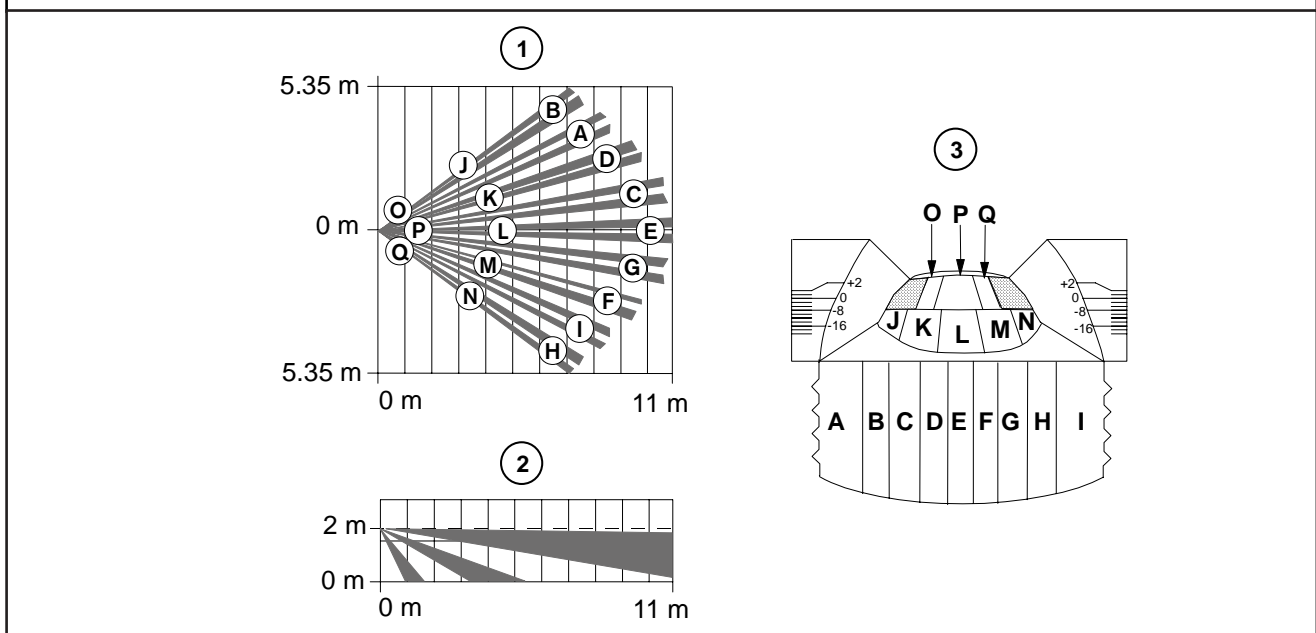
4. Watch the LED as you walk to the farthest edge of the coverage pattern. Walk closer to the detector by crossing the pattern.
The LED lights when it detects you crossing the coverage pattern.
5. Repeat from the other side.
If the desired range is not achieved, try angling the mirror up or down to assure the coverage pattern is not aimed too high or too low.

8.0 Maintenance

At least once a year, check the range and coverage according to *Section 7.0 Setup and Walk Testing*. To ensure continuous operation, instruct the end user to walk through the outer edge of the coverage area daily and observe the LED operation (if used). This also assures an alarm output prior to arming.

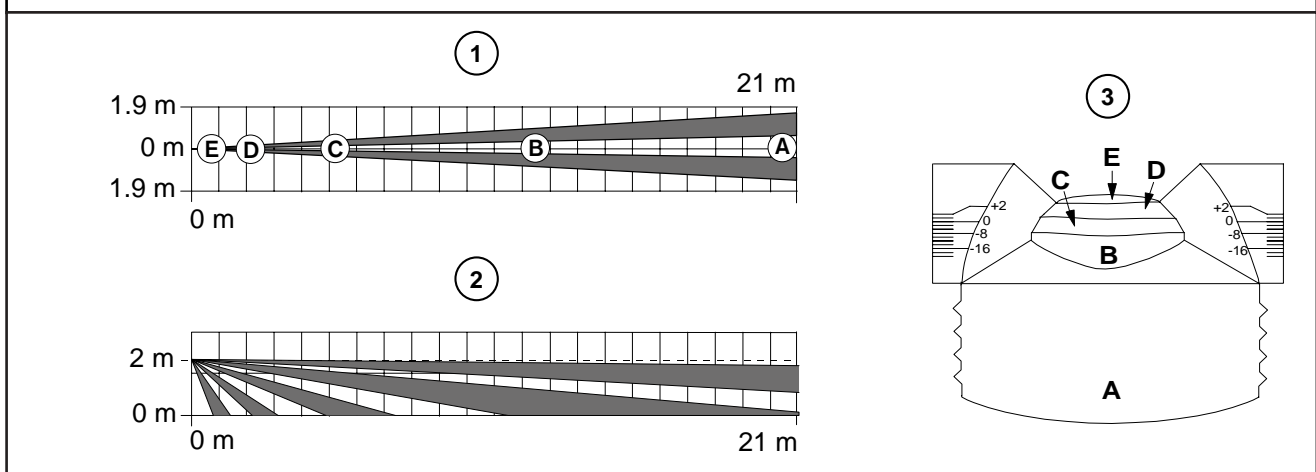
9.0 Coverage Patterns

Figure 9: Wide Angle Coverage



- 1 - Top view
- 2 - Side view, mirror adjusted to -6°
- 3 - Front polished surface view, mirror segment for pattern reference

Figure 10: Curtain Mirror Coverage (optional OMLR93)



- 1 - Top view
- 2 - Side view, mirror adjusted to -2°
- 3 - Front polished surface view, mirror segment for pattern reference

10.0 Specifications

Table 5: Specifications	
Input Power	Use only an approved limited power source.
Standby Power	No internal standby battery. Standby power must be provided by an approved limited power source. For each hour of standby time needed, 22 mAh is required.
Supply Voltage	
Range:	8 VDC to 16 VDC
Nominal:	12 VDC nominal
Maximum Ripple (0 to 120 Hz):	2 V _{pp}
Voltage Monitoring:	Alarm at less than 4 V
Current Consumption (at 12 V)	
Quiescent:	5.5 mA
Maximum at standby (LED on):	8.5 mA
Alarm Output	
Relay Contact (Solid-State Relay):	Opens in alarm; 30 V, 100 mA; R, <20 Ω
Alarm Holding Time:	4 sec
Alarm Relay	Connect to a safety extra-low voltage (SELV) circuit only.
Optional Electronic Alarm Output (alternate use of S/U Terminals)	
Inactive:	Open collector output
Active:	Switch low through 1 kΩ
Tamper Contact	28 V, 125 mA Connect to a SELV circuit only. Connect the tamper circuit to a 24-hour protection circuit.
Control Inputs (Walk Test, S/U)	
LOW:	1.5 V or less
HIGH:	3.5 V or more
Coverage	
Wide Angle Mirror:	11 m x 11 m
Curtain Mirror:	21 m x 3 m
Walking Speeds	
Wide Angle Mirror:	0.2 m/s to 3.0 m/s
Curtain Mirror:	0.2 m/s to 4.0 m/s
Sensitivity	Standard or intermediate
Ambient Conditions	
Storage Temperature:	-20°C to +60°C
Operating Temperature:	-10°C to +55°C
Air Humidity (EN60721):	<95% rH, non-condensing
Housing Protection (EN60529, EN50102):	IP41/IK02
Options	B338 Ceiling Mount Bracket* OMLR93-3 Curtain Mirror
* Misaligning these brackets can reduce the detector's range and increase the dead zone area.	

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