

## **Introduction**

The Bosch Security Systems, Inc. (Bosch) Professional Series Anti-Mask detectors provide new technologies that improve detection of masking attempts. These detectors incorporate Multi-point Anti-mask with Integrated Spray (MANTIS) detection technology. MANTIS, combined with Bosch Security Systems, Inc.'s Sensor Data Fusion technology, improves catch performance and reduces false alarm and trouble conditions.

For more information on Sensor Data Fusion technology, refer to the *Professional Series Detectors Sensor Data Fusion White Paper* (P/N: F01U075616), which you can download from the Professional Series Detector section of the Bosch web site (<http://www.boschsecurity.us>).

This white paper explains these new anti-mask technologies.

### **What is Anti-Mask?**

Anti-mask is a motion detector's ability to detect if an intruder has attempted to defeat the detector by blocking (masking) it with a material that blocks infrared energy, such as paper, tape, film, or spray.

Typically, an intruder employs these strategies during normal business hours when the security system is disarmed, then returns later with the knowledge that the motion detectors are compromised.

### **Regulatory Requirements**

Many detectors on the market claim to detect masking attempts. The Bosch Professional Series Anti-Mask detectors are designed to meet both EN50131 Grade 3 and VdS Class C regulatory requirements for anti-mask performance.

To meet these stringent regulatory requirements, the detectors must recognize masking attempts from materials such as, but not limited to:

- Black paper
- Aluminum sheets
- Acrylic sheets
- White polystyrene foam
- Clear self-adhesive vinyl
- Spray-on plastic skin
- Clear lacquer (brush applied)
- Spray paint

## New Multi-point Anti-mask with Integrated Spray (MANTIS) Detection

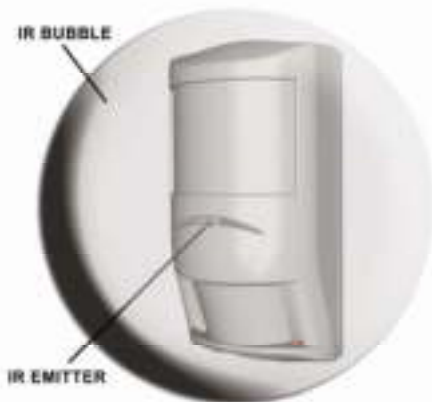
The new Bosch Professional Series Anti-Mask detectors provide three active masking detection technologies. Through the use of four active infrared (IR) emitters and three IR photodiode sensors, these detectors provide superior masking detection while simultaneously reducing false anti-mask trouble conditions.

Detection of a masking attempt causes the detector to send a trouble signal to the intrusion control panel, notifying the end user that someone attempted to compromise the detector.

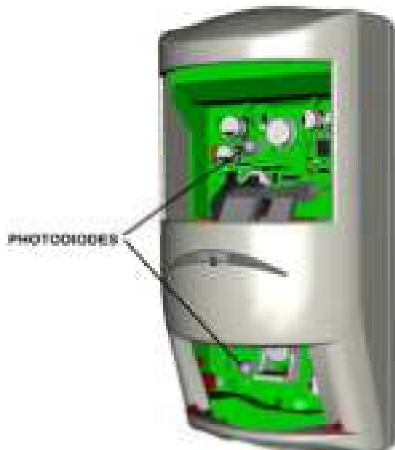
### Bounce-Back

The Professional Series Anti-Mask detector's Bounce-Back technology determines if the detector is covered or blocked by an object, such as a shoe box or a piece of paper.

With bounce-back technology, the detector creates a "bubble" of infrared energy extending approximately 30 cm (1 foot) in front of the detector. This bubble radiates from the IR emitter, as shown below.



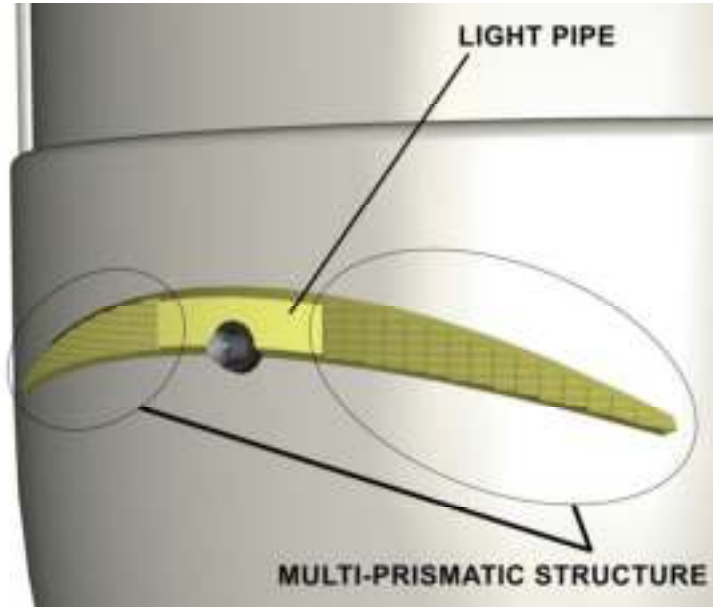
If the detector is blocked, an above-normal level of IR energy reflects back through the detector's lenses. The detector uses multiple IR photodiodes to detect the extra IR energy levels, then sends a trouble signal to the security system indicating that someone masked the detector.



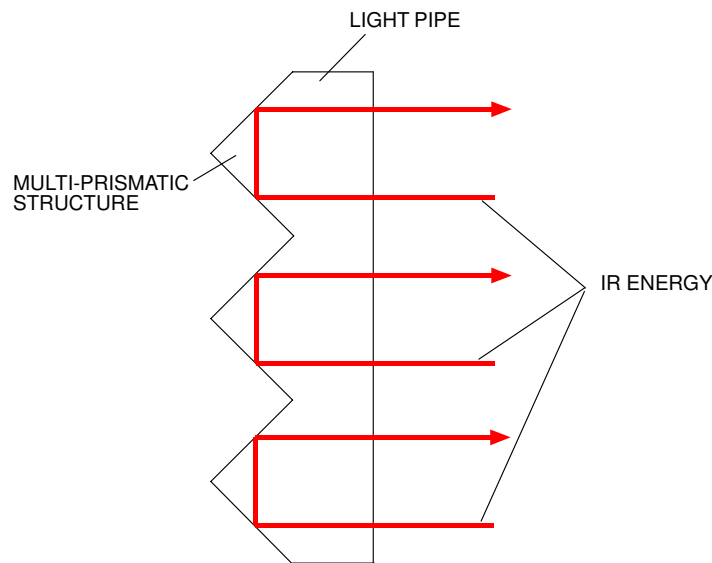
## Retro Reflector

The Professional Series Anti-Mask detectors use a new, patented Retro Reflector technology to determine if someone attempts to compromise the detector with a sprayed-on material, such as paint.

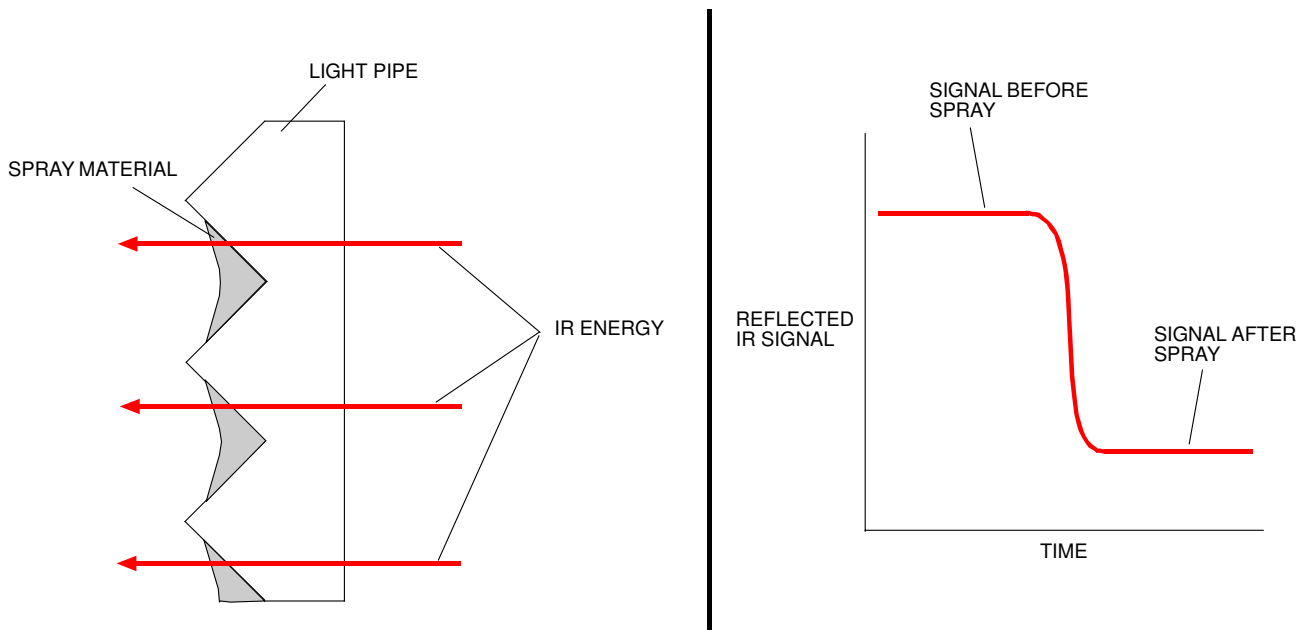
As this magnified view of the detector shows, the detector's LED light pipe contains the Retro Reflector's advanced multi-prismatic structure.



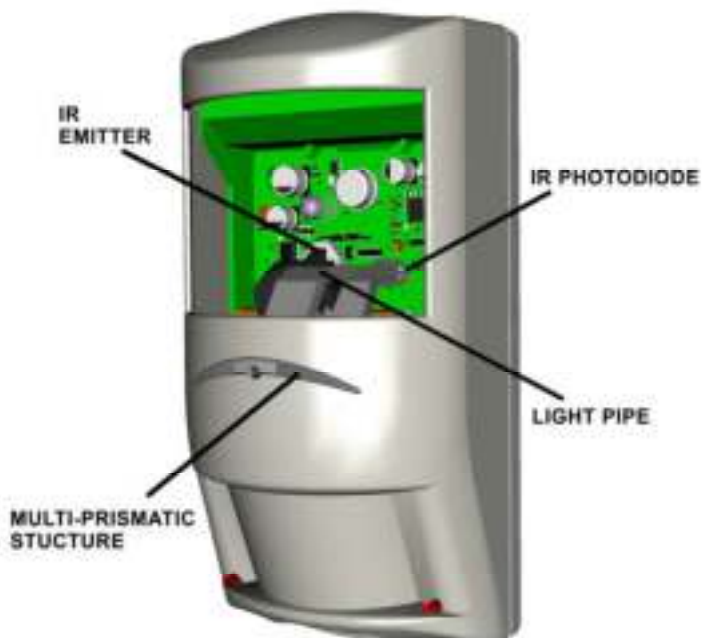
In normal conditions, the Retro Reflector structure reflects IR energy back into the detector. The IR energy does not pass through the prisms and out of the detector, and is reflected back into the detector where it is detected by a dedicated IR sensor.



When the prismatic structure is coated with a spray material, the reflective properties of the prisms are negated, allowing the IR energy to pass through the prisms and out of the detector.



A dedicated IR photodiode senses the reduced reflected IR energy level, then sends a trouble signal to the security system indicating that someone masked the detector.



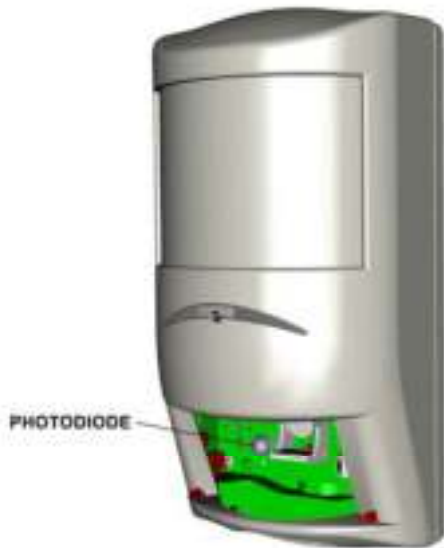
## Through-the-Lens

The Through-the-Lens technology in the Professional Series Anti-Mask detectors determines if a material is placed directly on the detector lens, such as tape or any other IR-opaque material.

The detector emits IR energy back upon itself from two specialized prisms located at the bottom of the detector.



If the lens is masked, a photodiode receives reduced IR energy levels. The detector then sends a trouble signal to the security system indicating that someone masked the detector.



## Conclusion

The new *Bounce-Back*, *Retro-Reflector*, and *Through-the-Lens* technologies give the Professional Series with Anti-mask detectors unsurpassed masking detection. False anti-mask trouble conditions are eliminated by combining these technologies with the detectors' advanced Sensor Data Fusion signal processing algorithms.

For demanding installations that must meet EN50131 Grade 3 and VdS Class C regulatory requirements for anti-mask, choose the Bosch Security Systems, Inc. Professional Series Detectors with Anti-Mask.

