



# **INDOOR PIRAMID HS HIGH SECURITY**

**Installation Manual Supplement**

**Dated July 1, 2008**

**For use in conjunction with  
PIRAMID INDOOR INSTALLATION GUIDE**

**Dated November 1, 2007**

**Instructions For:**

**Model SDI-76M-HS**

**Model SDI-76M-HS1 (Fluorescent Filter Module included)**

**529 Vista Blvd. Sparks NV 89434**

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# GENERAL

The indoor “HS” (High Security) Model of the PIRAMID was developed to satisfy those applications where Ultra High Security is required. Several “special” high security features are incorporated in the standard PIRAMID sensors to satisfy virtually all high security requirements specified by the U.S. Government and military. The “M” version sensors of the HS Series are “And Gate/Or Gate” switchable and offer unequalled performance and flexibility.

## PIRAMID HS Features

1. AND GATE/OR GATE Selection - A two-position switch controls the AND GATE/OR GATE function of the sensor. In the “AND GATE” setting, **both** technologies must activate simultaneously for a sensor alarm. In the “OR GATE” setting, **either** technology activating will initiate a sensor alarm.
2. Anti-Masking – Special circuitry detects a solid object blocking the sensor’s protection pattern and activates a **tamper alarm** condition.
3. Remote Self-Test – Enables the Stereo Doppler Microwave sensor or Passive Infrared sensor to be independently tested from a remote location in the same manner as if physically walk-tested.
4. Remote RF Power Shut-off – Enables the microwave radiation to be shut-off from a remote location.
5. Mechanical Tamper (Housing, Mounting Bracket, Mounting Bracket Cover) – A mechanical tamper switch provides precise actuation reducing vulnerability to attack.

## Technical Description:

The current anti-masking circuitry is integrated into the tamper circuit and utilizes an FPGA (Field Programmable Gate Array) for convenience. The anti-masking and MW supervision is connected in series with the tamper output using a separate relay located on the Main Printed Circuit Board (“N” Revision).

Microwave Anti-Masking - Detection of a MW anti-masking attempt varies depending on the material used to mask the sensor, but generally microwave anti-masking detection is effective within 4 inches (10 cm) of the sensor faceplate. The detection circuitry locks a relay into an alarm condition once the anti-masking is detected. The relay will reset approximately 12 seconds after any anti-masking violation is removed. When the anti-masking is activated, the tamper contact on the terminal strip will show an open circuit.

Passive Infrared Anti-Masking - The passive infrared anti-masking utilizes an “active” IR sensor for anti-masking. An active infrared transmitter is located on the IR Printed Circuit Board and transmits through the IR Fresnel lens to a receiver located in the IR Lens Snout that protrudes from the top of the IR Lens Module. If the IR Lens is covered or masked, the receiver cannot receive the transmitted signal which causes the IR sensor portion to initiate a tamper alarm. After any IR anti-masking violation is restored, the relay will reset immediately. The IR anti-masking is effective within approximately 5 cm of the IR lens.

Housing Tamper, Mounting Bracket Tamper and Mounting Bracket Cover Tamper – These three tamper switches are normally closed and initiate a tamper alarm when:

1. The electronic assembly is removed from the housing,
2. The mounting bracket is separated from the wall
3. The mounting bracket cover is removed.

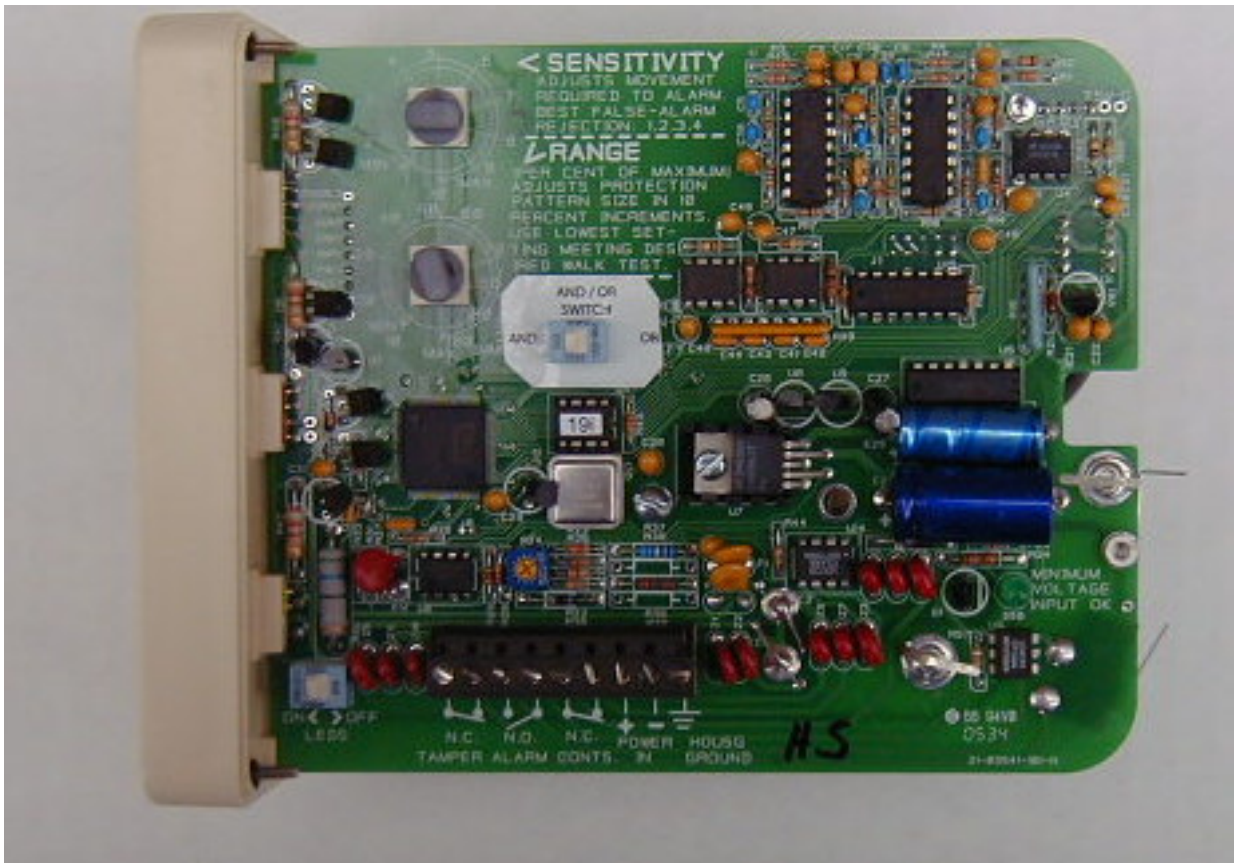
Note: There is not a reset time associated with the tamper switch.

Note: There are no settings associated with the anti-masking alarm feature. It is activated at all times.

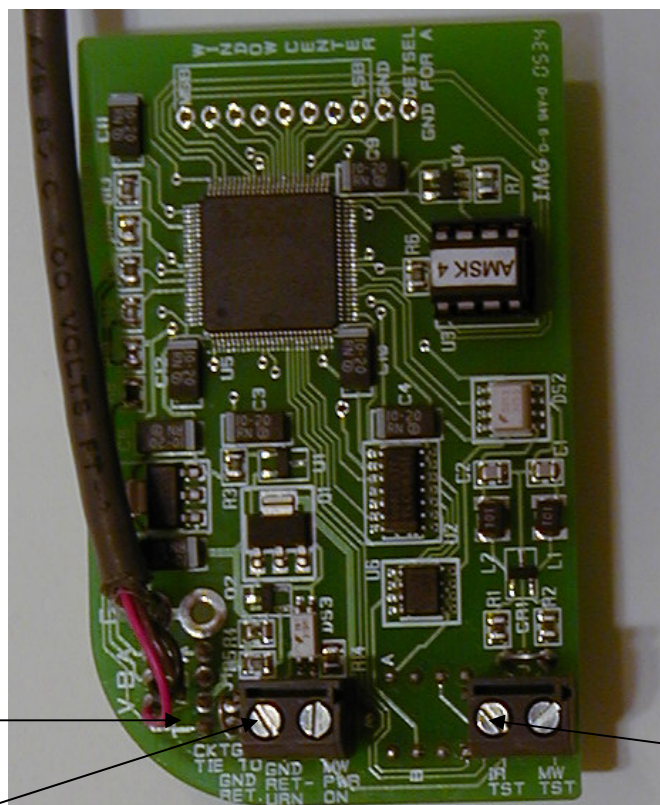
**TERMINAL CONNECTIONS  
PH-3 MOUNTING BRACKET  
PIRAMID SDI-76M-HS (HS1)**

TERMINAL	DESCRIPTION	COLOR CODE
1	HOUSING GROUND	GREY
2	NEGATIVE POWER IN	BLACK
3	POSITIVE POWER IN	RED
4	NORMALLY CLOSED RELAY CONTACT	WHITE
5	COMMON RELAY CONTACT	PURPLE
6	NORMALLY OPEN RELAY CONTACT	BROWN
7	TAMPER SWITCHES	BLUE
8	TAMPER SWITCHES	YELLOW
9	MW/IR SELF TEST	TAN
10	MW SHUT-OFF	PINK
11	NO CONNECTION	GREEN
12	NO CONNECTION	ORANGE

**MAIN PRINTED CIRCUIT BOARD**



## ANTI-MASKING /SELF-TEST PRINTED CIRCUIT BOARD



J1 JUMPER

SELF-TEST

MW SHUT-OFF

### PIRAMID "HS" VERSION – WIRING INSTRUCTIONS

#### Note:

1. Power in - 8.5 to 20 VDC @ Approximately 200 mA.
2. Tamper switches are all connected in series for a normally closed circuit.
3. The voltage input for the MW/IR "Self-Test" is 5-15 VDC @ 30 mA maximum. The "Self-Test" circuit tests both MW and IR sensors simultaneously by causing the relay to change state.
4. MW shut-off voltage input is 10-14 VDC @ 12 mA maximum.
5. Terminal No. 2 is the ground return for all of above voltages.

#### Specifications

Control Voltage Input (SELF-TEST) ----- 3 to 15 VDC (1000 ohms)

Control Voltage Input (RF SHUT-OFF)----- 9 to 18 VDC (500 ohms)

1. If RF SHUT-OFF is to be utilized with the same power supply that is powering sensor, leave jumper J1 intact and route DC voltage (pos.) to SHUT-OFF terminal.
2. If RF SHUT-OFF or remote SELF-TEST is to be utilized with a different power source than the one powering the sensor, cut Jumper J1 and route DC voltage (both pos. and neg.) to SHUT-OFF and COMMON TERMINALS. (Note: This procedure is for ground-loop prevention).

**IMPORTANT: KEEP IN MIND THAT DURING THE 1 -MINUTE STABILIZATION TIME WHEN THE SENSOR IS FIRST POWERED UP THAT YOU NEED TO ENSURE THAT THE SENSOR FACEPLATE IS NOT BLOCKED BY YOUR BODY OR ANY OTHER OBJECT. BLOCKING THE SENSOR FACEPLATE MAY CAUSE THE ANTI-MASKING OF THE MW PORTION TO ACTIVATE AND THEREFORE CREATE SOME CONFUSION BECAUSE OF THE RESTORATION TIME!**