SWAN 2000
PASSIVE INFRARED & MICROWAVE DETECTOR With ANTI-MASK & PET IMMUNITY

PRODUCT FEATURES

The detector analyses the environmental conditions through the entire movement speed frequency spectrum, allowing focus on intruders and eliminating environmental factors of false alarms. The spectrum analysis is embedded in the VLSI based electronics of the detector assuring high reliability and trouble free operation.

Unique function - anti-mask - guarantees detector protection from non desirable approach and any kind of masking beginning from the distance 0.8m and closer.

As the Swan 2000 is a combined technology (PIR & microwave) an alarm signal relay activation occurs only when signals from both sensors (PIR & MW) are present at the same time.

The effective detection range is the range of which the patterns (PIR & MW) are intersected.

The MW potentiometer adjustment changes the MW signal intensity so that the effective pattern will be scaled.

- Quad (Four element) PYRO sensor and hard lens for outstanding detection performance and elimination of false alarms.
- Unique detector protection from intruder approach for close distance.
- *Swan 2000 breaks off Anti-Mask alarm signal only after receiving signal from PIR, but not less than 30 sec.*
- VLSI based electronics with movement speed spectrum analysis.
- Bi directional temperature compensation.
- Microwave sensitivity adjustment.
- Stripline antenna.
- Height installation calibration free from 1.8m to 2.4m.
- User friendly installation with or w/o swivel bracket.
- Environmental immunity.
- The Swan 2000 provides *pet immunity* up to 25Kg. Pet active bellow 1m.

SELECT MOUNTING LOCATION

Choose a location most likely to intercept an intruder. (Our recommendation is a corner installation). See detection pattern – fig.4. The quad-element high quality sensor detects motion crossing the beam; it is slightly less sensitive detecting motion toward the detector.

The Swan 2000 performs best when provided with a constant and stable environment.

AVOID THE FOLLOWING LOCATIONS
- Facing direct sunlight.
- Facing areas that may change temperature rapidly.
- Areas where there are air ducts or substantial airflows.

DETECTOR INSTALLATION

The detector can either be wall or corner mounted. If ceiling or special wall mounting is required, use the optional bracket base. Refer to bracket description. (See fig. 7).

1. To remove the front cover, unscrew the holding screw and gently raise the front cover.
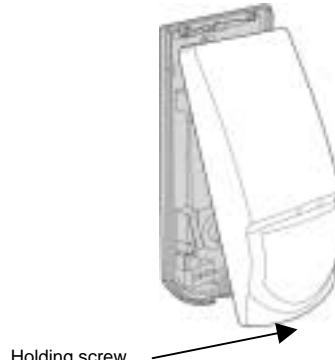

Holding screw

Fig.1

2. To remove the PC board, carefully unscrew the holding screw located on the PC board.
3. Break out the desired holes for proper installation.

A. Wire access holes
B. Use for flat wall mounting
C. Corner mounting - use all 4 holes. Sharp left or right angle mounting - use 2 holes (top and bottom)
D. For bracket mounting

Fig. 2

4. The circular and rectangular indentations at the bottom base are the knockout holes for wire entry. You may also use mounting holes that are not in use for running the wiring into the detector.(For option with bracket - lead wire through the bracket – fig.7)
5. Mount the detector base to the wall, corner or ceiling. (For option with bracket see fig.7).
6. Reinstall the PC board by fully tightening the holding screw. Connect wire to terminal block.
7. Replace the cover by inserting it back in the appropriate closing pins and screw in the holding screw.

DETECTOR CONNECTION

−12V+		TAMP		R−PIR		EOL	R−AM	
1	2	3	4	5	6	7	8	9

Terminal 1 - Marked " - " (GND)
Connect to the negative Voltage or ground of the control panel.
Terminal 2 - Marked " + " (+12V)
Connect to a positive Voltage of 8.2 -16Vdc source (usually from the alarm control unit).
Terminals 3 & 4 - Marked " TAMP "
If a Tamper function is required connect these terminals to a 24-hour normally closed protective zone in the control unit. If the front cover of the detector is opened, an immediate alarm signal will be sent to the control unit.
Terminals 5 & 6 - Marked " R-PIR "
These are the output relay PIR contacts of the detector. Connect to a normally closed zone in the control panel.
Terminal 7 - Marked "EOL"
End of line option.
Terminals 8 & 9 - Marked " R-AM "
These are the output relay Anti Mask contacts of the detector. Connect to a normally closed zone in the control panel.

TESTING THE DETECTOR

Wait for one minute warm up time after applying 12 Vdc power. Conduct testing with the protected area cleared of all people.

Walk test
1. Remove front cover. Set LED to ON position.
2. Reassemble the front cover.
3. Start walking slowly across the detection zone.
4. Observe that the red LED lights whenever motion is detected.
5. Allow 5 sec. between each test for the detector to stabilize.
6. After the walk test is completed, you can set the LED to OFF position.

NOTE:
Walk tests should be conducted, at least once a year, to confirm proper operation and coverage of the detector.
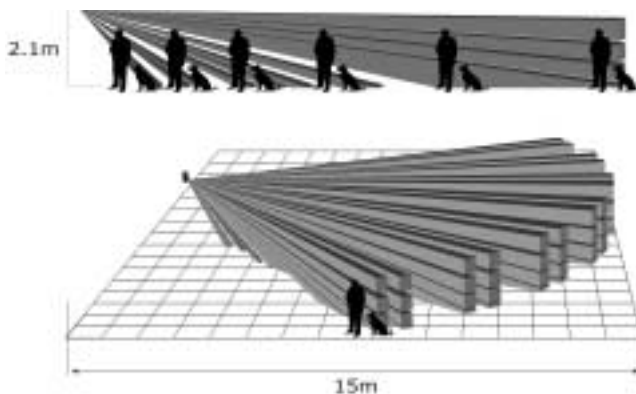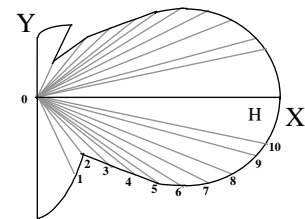

Fig.3

2.1m

15m

Fig.4

Y

0

H X

10

1 2 3 4 5 6 7 8 9

Table 1:

##	0	1	2	3	4	5	6	7	8	9	10
a	180	130	100	84	79	70	60	52	40	30	20
X	0	3	6	9	12	15	18	21	24	27	285
Y	105	6,09	7,15	6,98	8,01	105	1039	1024	8,73	7,23	5,03

X,Y are corresponds (m) of pattern points when H=30m

Fig.5

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SETTING UP THE DETECTOR

LED INDICATION OF ALARM SIGNAL

Switch 1 of dipswitch DIP-4 use for setting - LED Enable / Disable
Position Up - ON - LED ENABLE
The RED LED will activate when the detector is in alarm condition.
Position Down - OFF - LED DISABLE
The LEDS are disabled (except "Anti Mask" mode).

Note: when an object is too close to the detector (depending on Switch 2 position), all three LEDs will blink together until the Swan 2000 exits the Anti Mask mode regardless of Switch 1 position.

Note: the state of the switch "LED" does not affect the operation of the relay.
When an intrusion is detected, the LED will activate and the alarm relay will switch into alarm condition for 2 sec.

LED INDICATORS:
YELLOW LED - MW detection's
GREEN LED - PIR detection's
RED LED – Alarm

ANTI MASK FUNCTION RANGE

Switch 2 of dipswitch DIP4 use for setting the Anti Mask function
Position Up – ON - protection against masking the detector from 0.4m and closer.
Position Down – OFF - protection against masking the detector from 0.8m and closer.

PIR SENSITIVITY ADJUSTMENT

Switch 3 of dipswitch DIP4 use for setting the PULSE count function in order to provide PIR sensitivity control according to the environment.
Position Down – OFF – High sensitivity
For stable environments.
Position Up – ON – Low sensitivity
For harsh environments.

PET IMMUNITY SETTING

Switch 4 of dipswitch DIP4 use for setting the PET Immune function - Up to 15Kg or 25Kg, depending on the pet weight.
Position Up - ON
Immunity to an animal up to 15 kg
Position Down - OFF
Immunity to an animal up to 25 kg

YOU MUST RESET THE DETECTOR BY DISCONNECTING THE POWER SUPPLY AND RECONNECTING IT AFTER A FEW SECONDS.

RANGE ADJUSTMENT

Use the Potentiometer marked "PIR" to adjust the detection sensitivity between 15% and 100%, according to walk test in the protected area. (See fig.4).
Factory setting is 57%.

The "MW" potentiometer adjusts the detection sensitivity of Doppler between 40% and 100% (factory set to 65%). Rotate the potentiometer clockwise to increase sensitivity. Rotate the potentiometer counter-clockwise to decrease sensitivity. (See fig.5).
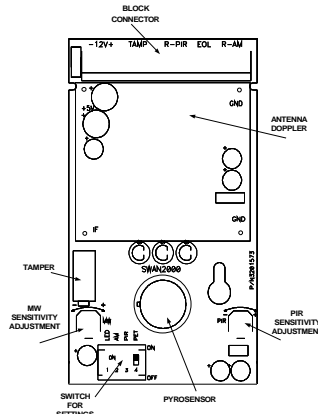
Fig. 6

Ceiling bracket base   **Wall bracket base**
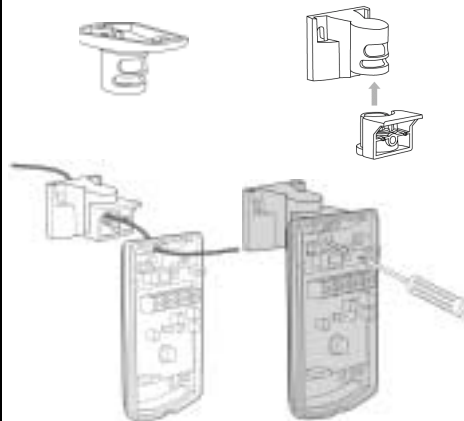
Fig.7

TECHNICAL SPECIFICATION

Detection Method	Quad element PIR & microwave pulse Doppler
Power Input	8.2 to 16 Vdc
Current Draw	Active : 25.5 mA Standby: 16.5 mA
Temperature Compensation	YES
Alarm Period	2 +/- 1 sec
Alarm Output	N.C 28Vdc 0.1 A with 10 Ohm series protection resistors
Tamper Switch	N.C 28Vdc 0.1A with 10 Ohm series protection resistor - open when cover is removed
Warm Up Period	1 min
LED Indicator	Yellow LED is blinking during warm up period and self testing Red LED: ON during alarm Green LED: PIR CHANNEL Yellow LED: MW CHANNEL
Dimensions	123mm x 62mm x 38mm
Weight	120gr

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