



INSTALLATION INSTRUCTIONS

AV-QT PIR

Digital PIR, Shock & Glass Break Detector
With PET Immunity up to 25 kg

Rev 1



PRODUCT FEATURES

The AV-QT performs an analysis of environmental conditions through the entire movement spread frequency spectrum. It listens for sounds of breaking glass, which produces two sequential signals of different frequencies "Shock" and "Glass". The AV-QT unique phased frequency detection circuitry allows detection of both shock signal and the strong signal of glass breakage creating a false alarm free detector.

Main features:

- ✓ Quad (Four element) sensor
- ✓ Two independent relay outputs for Glass/Shock and PIR alarm signals
- ✓ Options: Swivel bracket Wall or Ceiling
- ✓ PIR sensitivity adjustment
- ✓ Glass sensitivity adjustment
- ✓ Shock sensitivity adjustment
- ✓ Volume protection
- ✓ Automatic temperature compensation.
- ✓ Height installation calibrations free – 1.8m-2.4m
- ✓ Environmental immunity.
- ✓ The AV-QT provides *pet* immunity up to 25 Kg
- ✓ LED ON/OFF switch
- ✓ Selectable PET Size (15 Kg or 25 Kg)
- ✓ EOL – spare Terminal
- ✓ Tamper Switch

DETECTION PATTERNS

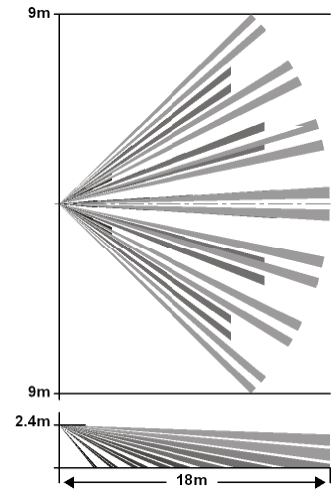


Fig. 1

SELECT MOUNTING LOCATION

Choose a location in front of the protected windows, in direct line of sight within 4.5m. In case of more than one window, place the detector in the center area facing the windows; make sure that this location will be most likely to intercept an intruder that may cross the PIR beams. See PIR detection pattern – figure 1 and Shock and Glass detection area – figure 2. If heavy blinds or curtains cover the glass, you must locate the detector behind the blinds on the window frame or above it; otherwise the blinds might block the sound.

OPTIONS

- Wall & Ceiling Mount Bracket

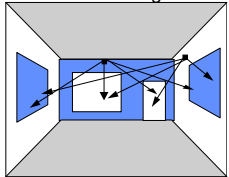


Fig. 2

AVOID THE FOLLOWING LOCATIONS

- * Facing direct sunlight.
- * Facing areas subject with temperature changes.
- * Areas with air ducts or substantial air flows.
- * Facing metal doors.
- * Close to door entrance bells measuring 2" (or larger) in diameter.

PET IMMUNITY

Pet immunity is most effective on the following sized animals:

- Rodents = 5 to 12 cm high
- Cats = 5 to 35 cm high at normal room temperature.
- Small to medium sized dogs = 10 to 45 cm high at normal room temperature.

When a dog jumps up on desks, the AV-QT may detect it. Adjust detection area to avoid such places.

Mount between 2.1 and 2.4m. (For better immunity, especially for medium sized dogs, mount as close to 2.4m, as possible).

Do not angle detector towards the ground or use the angle bracket.

Mount flat on the wall or in the corner.

For best pet immunity, limit the detectors field of view to 10~12m maximum in any direction.

Pulse Count **Low** is not required for Pet Immunity applications.

Use **Low** pulse only in harsh environment.

For rodents.

If any shelves within 4.5m of the detector have a height that comes within 0.5~1m below the mounting height of the detector and rodents can access these areas, pet immunity will be reduced. Please select mounting location of detectors carefully to avoid this situation.

For cats.

If there are cats, any shelves in the detection area will reduce pet immunity.

MOUNTING THE DETECTOR

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. Unscrew the holding screw and gently raise the front cover (Fig. 4).
2. Carefully unscrew the PCB holding screw located on the PC board (Fig. 6).
3. Break out the desired knockout holes for proper installation (Fig. 3).
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 (Fig. 3).
5. For bracket mounting option - lead wire through the bracket.
6. Mount the detector base to the wall, corner or ceiling. (For option with bracket see Fig. 7).
7. Reinstall the PC board by fully tightening the holding screw. Connect wire to terminal block.
8. Replace the cover by inserting it back in the appropriate closing pins and screw in the holding screw.

MOUNTING DESCRIPTION

Fig. 3

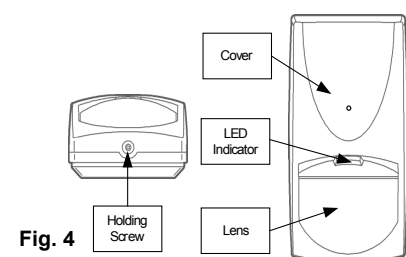
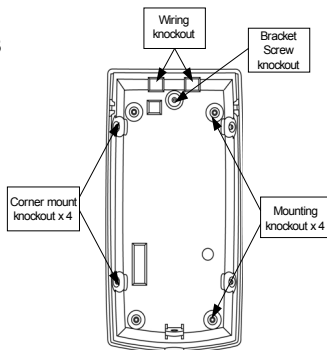


Fig. 4

TERMINAL BLOCK CONNECTIONS

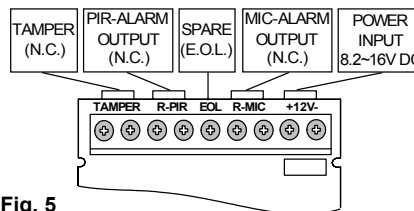


Fig. 5

Terminals 1 & 2 - Marked TAMPER

Connect these terminals to a 24 hour normally closed protective zone in the control unit. Once the front cover of the detector is opened, an immediate alarm signal will be sent to the control unit.

Terminals 3 & 4 - Marked R-PIR

These are the output PIR relay contacts of the detector. Connect to a normally closed zone in the control.

Terminal 5 - Marked EOL

End of line option.

Terminals 6 & 7 - Marked R-MIC

These are the output MIC relay contacts of the detector. Connect to a normally closed zone in the control.

Terminal 8 - Marked + (+12V)

Connect to the positive Voltage output of 8.2 ~ 16 V dc source (usually from the alarm control unit).

Terminal 9 - Marked - (GND)

Connect to ground of the control panel.

TESTING THE DETECTOR

Apply 12 V DC power to the detector, wait 2 minutes to finish the detector warm up time. Conduct testing with the protected area cleared of all people.

Walk test

1. Remove front cover.
2. Make sure that **PIR** (Switch 3) is in position high sensitivity.
3. Make sure that **LED** switch is **ON**.
4. Replace the front cover.
5. Start walking slowly across the detection zone.
6. Observe that the detector's LED lights whenever motion is detected.
7. Allow 5 sec. between each test.
8. After the walk test is completed, the **LED and PIR** switches may be changed.

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

WIRE SIZE REQUIREMENTS

Use #22 AWG (0.5 mm) or wires with a larger diameter. Use the following table to determine required wire gauge (diameter) and length of wire between the detector and the control panel.

Wire Length	m	200	300	400	800
Wire Diameter	mm	.5	.75	1.0	1.5
Wire Length	ft	800	1200	2000	3400
Wire Gauge	#	22	20	18	16

SETTING UP THE DETECTOR

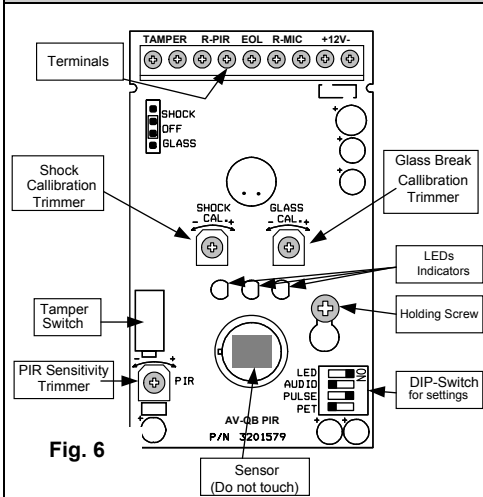


Fig. 6

LED INDICATION OF ALARM SIGNAL

Switch 1 of dipswitch DIP 4 use for setting - LED Enable / Disable.
 Position Right - ON - LED ENABLE, The LED will activate when the detector is in alarm condition.
 Position Left - OFF - LED DISABLE.

SETTING UP THE DETECTOR

SHOCK CALIBRATION

To calibrate the shock setting (increase/decrease sensitivity) place the jumper accordingly SHOCK marking - Yellow (GLASS) LED is constantly ON. Now you can adjust the sensitivity by rotating the potentiometer SHOCK.
 Hit gently on the protected glass and rotate the potentiometer clockwise to increase sensitivity, and counter-clockwise to decrease sensitivity until the Green and Red LEDs are illuminating for each hit.

FINAL TESTING

- Make sure to set jumper "GLASS/SHOCK" in position OFF. When the jumper is in this position, the detector will detect both shock and sound frequencies.
- To ensure maximum protection against false alarms, activate any device in the area, which might automatically cycle pumps, generators, heating/air conditioning units, etc. If the cycling devices trigger an alarm, mount the unit in a different location.

TECHNICAL SPECIFICATIONS

Detection Method	Quad (Four element) PIR & Electret microphone
Detection Speed	0.15 - 3.6 m/sec
Power Input	8.2 - 16 Vdc
Current Draw	Alarm PIR: 16.5 mA; Alarm Shock & Glass: 22 mA; Alarm all: 18 mA Standby: 16.5 mA
Temperature Comp.	YES
Pulse Count	1, AUTO
Alarm Period	2 sec
Alarm Output	N.C 2 8Vdc 0.1 A with 10 Ohm series protection resistors
Tamper Switch	N.C 28 Vdc 0.1 A with 10 Ohm series protection resistor - open when cover is removed
Warm Up Period	60 sec
Operating Temperature	-20°C to +50°C
RFI Protection	30V/m 10 - 1000 MHz
EMI Protection	50,000V of electrical interference from lighting
Visible Light Protection	Stable against halogen light 2.4m or reflected light
Detection range	Glass up to 10m (90°); PIR up to 15m (WA lens)
LEDs indicator	Yellow LED (GLASS) - glass break signal for testing & adjustment Green LED (SHOCK) - shock signal for testing & adjustment Red LED (ALARM) - alarm signal: Fleshing light - glass & break detection or Glass & shock & PIR detection Constant light - PIR detection
Dimensions	115 mm x 61 mm x 37.5 mm
Weight	120g

SOUND SENSITIVITY ADJUSTMENT

Switch 2 of dipswitch DIP 4 use for setting **AUDIO** - provide control of sound detection sensitivity.
 Position Right - ON - reducing the sensitivity of sound detection by 50%. (Use in small room)
 Position Left - OFF - sensitivity of sound detection 100%.

PIR SENSITIVITY ADJUSTMENT

PULSE COUNT CONTROL

Switch 3 of dipswitch DIP 4 use for setting the PULSE count function in order to provide PIR sensitivity control according to the environment.
 Position Right - ON. High sensitivity - 1 PULSE - for normal stable environment with wide-angle lens.
 Position Left - OFF. Low sensitivity - 2 or 3 PULSES - for harsh environments.

RANGE CONTROL

Use the Potentiometer marked "PIR" to adjust the detection sensitivity between 15% and 100%, according to walk test in the protected area. Factory setting is 57%. Rotate the potentiometer clockwise to increase range, counter-clockwise to decrease range.

PET IMMUNITY SETTING

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

SHOCK/GLASS ADJUSTMENT

Use only during testing and setting

SHOCK OFF GLASS ON
 SHOCK - for adjustment of the low frequency sensitivity with potentiometer "SHOCK"

SHOCK OFF GLASS ON
 GLASS - for adjustment of the high frequency sensitivity with potentiometer "GLASS"

SHOCK OFF GLASS ON
 OFF - for regular operation

GLASS BREAK CALIBRATION

To calibrate the glass break sensitivity, place the jumper accordingly GLASS marking. Green (SHOCK) LED is constantly ON.

Now you can adjust the sensitivity by rotating the GLASS potentiometer.
 Operate the Sound Break Simulator near the protected window and rotate the potentiometer GLASS clock-wise to increase sensitivity, and counter-clock-wise to decrease sensitivity until the Yellow and Red LEDs are illuminating for each glass break sound.

OPTION - BRACKET INSTALLATION

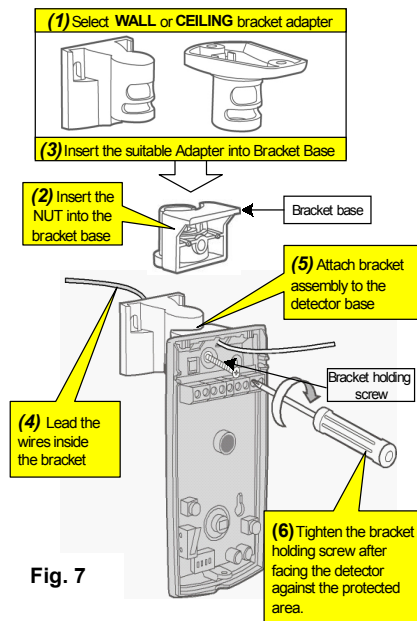


Fig. 7

OPTION - VISIBLE LIGHT FILTER

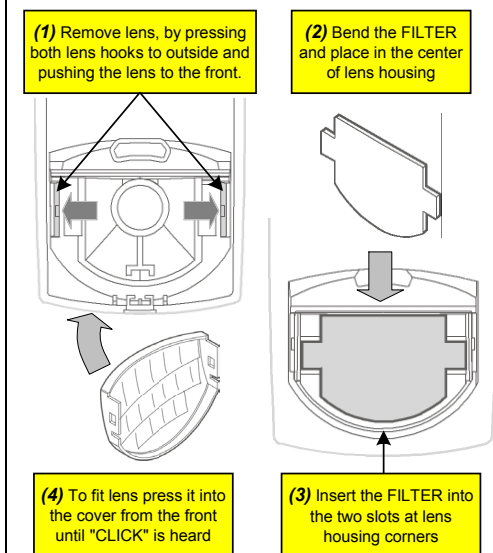


Fig. 8

WARRANTY

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Buyer understands that a properly installed and maintained alarm may only reduce the risk of burglary, robbery or fire without warning, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result. CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE OR OTHER LOSS BASED ON A CLAIM THAT THE PRODUCT FAILS TO GIVE WARNING. HOWEVER, IF SELLER IS HELD LIABLE, WHETHER DIRECTLY OR INDIRECTLY, FOR ANY LOSS OR DAMAGE ARISING UNDER THIS LIMITED WARRANTY OR OTHERWISE, REGARDLESS OF CAUSE OF ORIGIN, SELLER'S MAXIMUM LIABILITY SHALL NOT IN ANY CASE EXCEED THE PURCHASE PRICE OF THE PRODUCT, WHICH SHALL BE THE COMPLETE AND EXCLUSIVE REMEDY AGAINST SELLER.

No employee or representative of Seller is authorized to change this warranty in any way or grant any other warranty.

WARNING: Test this product at least once a week

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