PATROL^{Ê} - USR

COMBINED
ACOUSTIC & ULTRASONIC
GLASS BREAK DETECTOR

DETECTS BREAKAGE OF
VARIOUS TYPES
OF MULTILAYER GLASS

INSTRUCTION
MANUALS

CE PG OC03

GSN Electronic Company Ltd.

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PATROL-USR combined acoustic and ultrasonic detector recognizes the sound caused by breakage of any type of protected glass: plate, wired, tempered, laminated, patterned, multilayered[1], sealed glazed windows[1] and glass blocks[1]; all with a thickness of 2.5 mm to 16 mm.

[1] The detector registers breakage of multilayered glass that holds together when shattered, as well as sealed glazed windows and glass blocks if all glass layers are broken.

PATROL-USR with anti-mask technology detects any of the ultrasonic sensors' masking attempts.

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FEATURES

- COMPLETE PROTECTION OF ALL KNOWN GLASS TYPES INCLUDING INSULATED GLAZING AND GLASS BLOCKS
- INNOVATIVE METHOD FOR DETECTING ACOUSTIC SIGNALS
- DIGITAL SPECTRAL ANALYSIS OF SOUND AND ULTRASONIC FREQUENCIES
- HIGHLY SELECTIVE SENSITIVITY OF HIGH-FREQUENCY SOUND CHANNEL
- TWO OPERATING MODES
- SEPARATE ADJUSTMENT FOR BOTH ULTRASONIC AND HIGH-FREQUENCY SOUND CHANNEL SENSITIVITY
- BUILT- IN ANTI- MASK SYSTEM
- HIGH RFI/EMI PROTECTION
- AUTOMATIC GAIN CONTROL ADAPTATION TO ENVIRONMENTAL CHANGES

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ALGORITHM

Dual-technology detector incorporates two physical means for determining glass breakage: registering the high-frequency acoustic signal and registering the change in frequency of ultrasonic signal (Doppler Effect).

1. The high-frequency acoustic signal occurs upon glass breakage.

2. The Doppler Effect occurs when the frequency of ultrasonic waves continuously emitted by the detector and reflected from different moving objects changes.

See Figure Glass Breakage.

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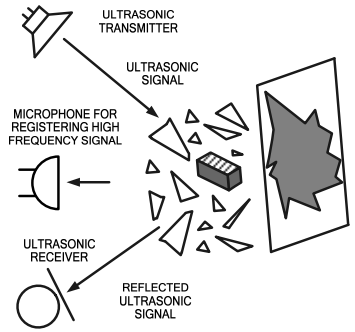
3. To activate the alarm, both high-frequency and ultrasonic signals must be successively sensed within
a pre-determined time period.

Glass Breakage Detection



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DETECTOR INSTALLATION

1. Fix the detector vertically on solid, flat wall surface.

The installation height is
2 - 2.5 meters.

For corner installation, use knockouts located on the sloping part of the detector base.

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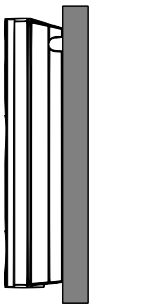

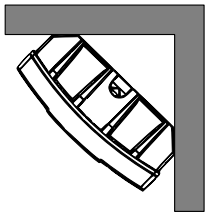

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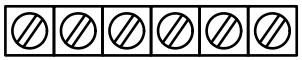
For wiring, use the designated opening above the detector terminal block.

2. Connect the wires in accordance with the scheme.



NOTE!

Several detectors of this type can be installed within the protected area, at a distance of at least 3 meters from each other.

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INSTALLATION LIMITATIONS

- Do not install the detector on unstable or vibrating surfaces.
- Do not install the detector close to curtains, blinds or other items that vibrate with air movement.
- Do not install the detector close to air conditioners, air blast sources or above heat sources.
- Do not install the detector or route power wires and alarm loops next to high voltage cables.
- Do not install the detector near bells, sirens or electronic sounders within the premises where sound-pressure level exceeds 75dB.

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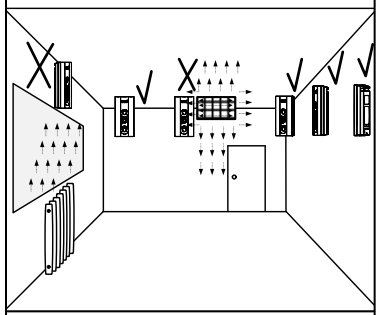
DETECTOR INSTALLATION OPTIONS



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DETECTOR TESTING AND ADJUSTMENT

1. Remove the front cover.

2. Set jumper **J8** to **MODE 2** position.

3. Connect the power ï red LED will blink. At the same time, keep the detector field-of-view clear until the red LED stops blinking - the anti-masking function will then be correctly activated. Anti-mask startup (boot) period is 30 seconds.

If upon testing and detector adjusting, the red LED keeps blinking, it means the anti-masking function is activated. Turn off the detector and then turn it back on.

4. Test the ultrasonic channel operation.

- First of all, make sure there are no humans or animals within the protected area, windows are closed; air conditioners, fans and other possible sources of air flow are switched off.

- Walk into the detector field-of-view. The green LED should actively respond to your movement. If needed, increase the detector ultrasonic channel sensitivity using **J4 (Ultrasonic Sensitivity)** jumper.

- Stay for a while to make sure the green LED stops blinking, which means the detector ultrasonic channel is configured correctly!
If the green LED keeps blinking, check the premises without interferences, as described above.
If necessary, reduce the excessive ultrasonic channel sensitivity with the **J4 (Ultrasonic Sensitivity)** jumper.

5. Test the high-frequency sound channel operation.

Use the glass break simulator to simulate the high-frequency glass breakage signal.
The yellow LED will respond to each simulator activation.

Use the potentiometer **R11 (Microphone Sensitivity)**, to adjust the high-frequency sound channel sensitivity.

6. Simulate the alarm by activating the glass breakage simulator, and at the same time taking a step towards the detector. The red alarm LED will light.

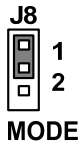
7. Set the desired operating mode using the **J8 (MODE)** jumper.

- To operate the detector without light indication, remove the **J9 (LED)** jumper.

8. Replace the cover.

DETECTOR OPERATING MODES

The detector **PATROL-USR** has two operating modes**:**

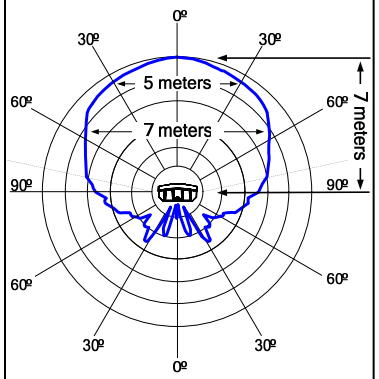


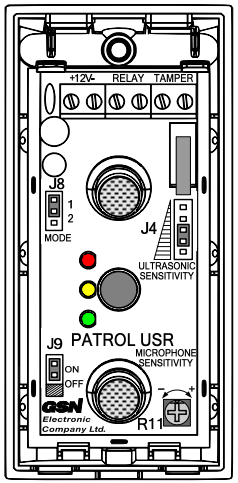
MODE 1
For premises with stable environmental conditions.

MODE 2
To provide extra security measures for banks, safes, vaults, jewelry stores, pawn shops, museums and other facilities that store valuables.

PATROL-USR DETECTION ZONE

TOP VIEW





J4 ï Ultrasonic channel sensitivity adjustment

J8 ï Operating mode selection

J9 ï LED On/Off

R11 ï High-frequency sound channel sensitivity adjustment

TECHNICAL SPECIFICATIONS

Input voltage:.....9 - 16Vdc

Current consumption

In standby mode:é é ..37.3mϕ

In alarm mode:é é é ..42.2mϕ

Warm-up period:é .é é ...2sec

Anti-mask startup (boot) period:é é é é é é ...30±5sec

Alarm period:é é é é é ..3sec

Anti-mask alarm activation delay:é é é é é é é 35sec

Ultrasonic channel operating frequency:é é é é é 40kHz

Installation height:é é 2 - 2.5m

Detection range:é é é é é 7m

Maximum protected volume:
é é é é 200m³

Detection angle:é é é é ..170°

Relay output:é é é é é é é ..
é é é é NC; 60V; 120mA; 16Ý

Tamper output:é é é .NC; 10Ý

Operating temperature range:..
é é é é é é é ï 30ºC to +70ºC

Storage temperature range:é ..
é é é é é .....ï 50ºC to +85ºC

RFI immunity:é é é é ...30V/m at a frequency range 10MHz ï 2GHz

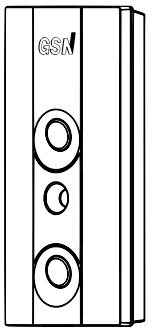
EMI immunity:é é é é 50000V

Dimensions:é é é é .é é é ....
.....105mm x 50mm x 22mm

Weight:é é é é é é é é ...80g

WARRANTY

GSN Electronic Company Ltd. warrants the product to be free from defects in materials and workmanship under condition of observance of service regulations and to be repaired or replaced under absence of mechanical damages for a limited period of five years from the date of sale.



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