English

NEXT MCW

Wireless PowerCode Digital PIR Detector

Visonic

Operational description

1. INTRODUCTION

The NEXT MCW is a microprocessor-controlled wireless digital PIR detector, designed for easy installation, free of vertical adjustment. It features a cylindrical lens with uniform detection sensitivity throughout its operating range, up to 12 meters (40 ft), with wall creep zone protection.

The advanced **True Motion Recognition™** algorithm (patented) allows the NEXT MCW to distinguish between the true motion of an intruder and any other disturbances which may cause false alarms.

An on-board motion event jumper determines whether 1 or 2 consecutive motion events triggers an alarm.

The NEXT MCW includes the following features:

- Incorporates a fully supervised PowerCode transmitter
- Patented sophisticated motion analysis algorithm - True Motion Recognition (TMR™)
- Sophisticated frequency domain digital signal processing
- No vertical adjustment is needed
- Programmable motion event counter
- After detection, the detector disarms itself to save battery power. It rearms (reverts to the ready state) if there is no subsequent detection throughout the following 2-minute period
- Very low current consumption
- Microprocessor-controlled temperature compensation
- Sealed chamber protects the optical system
- Front cover tamper switch.
- Back tamper switch (option)
- White light protection
- Elegantly styled, sturdy case

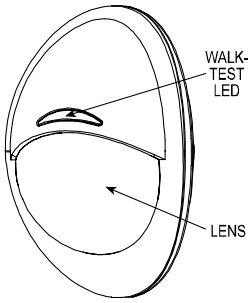

Figure 1. *General View*

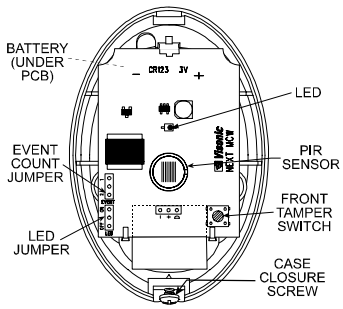

Figure 2. *Inside View*

2. SPECIFICATIONS

OPTICAL

Detector Type: Dual element low-noise pyroelectric sensor.

Lens Data

No. of Curtain Beams: 9 + 5

Max. Coverage: 12 x 12 m (40 x 40 ft) / 90°

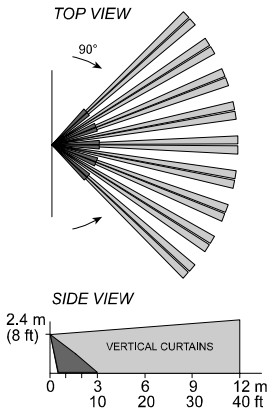

Figure 3. *Maximum Coverage Pattern*

ELECTRICAL

Internal Battery: 3 V Lithium battery, Panasonic CR-123 or equivalent.

Nominal Battery Capacity: 1450 mA/h.

Standby Current Drain: approx. 0.025 mA.

Transmit Current Drain: 20 mA (including LED).

Battery Life (with LED on): Typically over 3 years.

Battery Power Test: Performed immediately upon battery insertion and periodically after every several hours.

FUNCTIONAL

True Motion Event Verification: 2 position selector - 1 (OFF) or 2 (ON) motion events.

Alarm Period: 3 seconds.

Visual Indications:

LED Lights for about 3 seconds upon transmission of alarm & tamper messages and upon motion detection in the walk test mode.

LED Flashes during the power-up stabilization period, or after restoring (pressing) the tamper switch.

LED Does not light upon transmission of supervision messages.

Rearm Timer: Rearms the detector 2 minutes after the last alarm. Timer disabled in the walk test mode.

WIRELESS

Frequency (MHz): 315, 433.92, 868.95, 869.2625 or other frequencies according to local requirements.

Transmission Sequence: 3 data bursts at variable intervals within 3 seconds.

Encoding: 24-bit ID, over 16 million possible combinations.

Total Message Length: 36 bits.

Tamper Alert: Reported when a tamper event occurs and in any subsequent message, until the tamper switch is restored.

Supervision Message: Signaling at 60-minute intervals (U.S. version) or 15 minute interval (UK version), or according to the local standards.

MOUNTING

Height: 1.8 - 2.4 m (6 - 8 ft).

Installation Options: Surface or corner.

ACCESSORIES:

BR-1: Surface mounted swivel bracket, adjustable 30° down and 45° left/45° right.

BR-2: BR-1 with a corner adapter

BR-3: BR-1 with a ceiling adapter

ENVIRONMENTAL

RFI Protection: >20 V/m up to 1000 MHz.

Operating Temperatures: -10°C to 50°C (14°F to 122°F).

Storage Temperatures: -20°C to 60°C (-4°F to 140°F).

Compliance with Standards: Designed to meet FCC Part 15 and Directive 1999/5/EC of the European Parliament.

PHYSICAL

Size (H x W x D): 94.5 x 63.5 x 53.0 mm (3-11/16 x 2-1/2 x 2-1/16").

Weight (with battery): 70 g (2.5 oz).

Color: White.

PATENTS: U.S. Patents 5,693,943 ● 6,211,522 ● D445,709 (another patent pending).

INTERNAL ANTENNA

A piece of wire AWG 24, 15 cm long inside the casing is used as an antenna.

APPENDIX A. THE VISONIC LTD. POWERCODE SYSTEM

A-1. The PowerCode Message Format

The PowerCode message transmitted by the NEXT MCW includes the 24-bit ID and a status report (see Fig. A1).

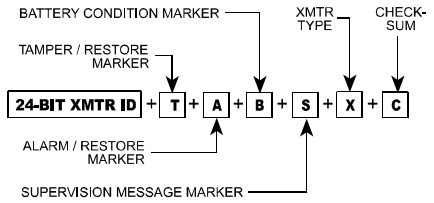

Figure A1. *Transmitted Data*

A message includes the following data:

- **Detector's ID:** Any message transmitted starts with the 24-bit ID assigned to the particular detector unit.
- **Tamper / Restore:** Upon removal of the unit's front cover, a message will be transmitted with a "tamper marker" ON. If the unit's cover is put back, a message will be transmitted with the tamper marker OFF ("Tamper Restore").
- **Alarm:** Once the detector is in alarm, a message will be transmitted with an "alarm marker" ON.
- **Low Battery:** A special battery condition marker is used to report the battery status in any message. The battery is tested once an hour and if found low, the "low battery marker" is set to ON in all following messages.
- **Supervision Message:** A special "supervision message marker", when set to ON, identifies the periodic supervision messages transmitted automatically at 1 hour or 15 minute intervals. This marker will be OFF in all other messages.
- **Transmitter Type:** A special marker indicates the type of the transmitter:
  - Supervised or non-supervised
  - Reports or does not report restorals after alarm

The NEXT MCW does not report restorals after alarms.

- **Checksum:** Checksum bits at the end of the message allow the receiver to determine whether an incoming message is valid (error-free). This feature considerably enhances the reliability of the wireless communication link.

A-2. Anti-Collision

To overcome message collisions at the receiving end, PowerCode transmitters transmit 3 data bursts at random intervals, with 6 repetitions of the same message in each burst (Fig. A2). This redundancy improves the probability of reception.

Note: *Periodic supervision messages are an exception to this rule - they consist of a single 6-message burst.*

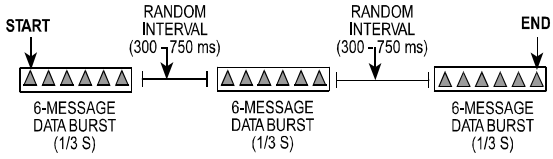

Figure A2. *Anti-Collision Transmission Sequence*