Product Specification Sheet
WNC-SD
Wireless Smoke Detector



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The WNC-SD Wireless Smoke Detector is a high-reliability, photo-electronic smoke sensor designed to integrate seamlessly with the wireless nurse call network infrastructure. Engineered for specialized healthcare settings, assisted living facilities, and independent senior housing, the WNC-SD provides early-warning fire protection by operating as both a localized audible alarm and a fully supervised network transceiver.

Upon detecting smoke particles, the unit sounds a loud local horn while instantly broadcasting a high-priority, digitally encoded RF life-safety alarm to the central nurse call master station, corridor dome lights, and staff mobile devices. This dual-action response ensures that attending staff are notified of the exact location of a fire hazard immediately, even if the resident is asleep or unable to manually activate a call station.

Architects' and Engineers' Specification

A. General Wireless Smoke Detector Requirements

- The contractor shall furnish and install fully supervised, wireless photoelectric smoke detectors (SKU: WNC-SD) at the locations indicated on the architectural floor plans.
- The wireless smoke detector must interface directly with the wireless nurse call system infrastructure, translating local life-safety events into high-priority emergency alarms at the staff duty stations.

B. Mechanical and Sensing Performance

- The device shall utilize a photoelectric optical chamber for smoke detection. Ionization chambers shall not be accepted.
- Each detector shall feature a built-in piezoceramic sounder capable of producing an output of not less than 85 dBA at 10 feet (3 meters), modulated in an NFPA-compliant Temporal 3 cadence.
- The device housing shall consist of a low-profile, flame-retardant ABS plastic base and head, designed to mount securely over standard 3.5-inch or 4-inch octagonal or single-gang ceiling electrical boxes.
- C. Wireless and Maintenance Supervision
- The detector must incorporate a fully supervised RF link, sending status updates to the master receiver at intervals not exceeding 60 minutes.
- The unit must monitor its own internal battery and sensing chamber cleanliness. If battery degradation or chamber contamination occurs, a distinct maintenance fault signal must be transmitted to the central console indicating the specific room location and device address.

Specifications

- **Dimensions (Diameter × H):** 5.3" × 2.1" (135mm × 53mm), including mounting base
- **Weight:** 8.8 oz (250 grams) with battery array installed
- Enclosure Material: Medical-grade, impact-resistant ABS (UL 94V-0 Flame-Retardant)
- **Power Source:** Two (2) 3V CR123A Lithium Batteries (included and field-replaceable)
- **Battery Life:** 3–5 years under normal operating conditions (dependent on check-in frequency)
- **Local Audible Output:** 85 dBA at 10 feet (3 meters) minimum, Temporal 3 pattern
- **Sensitivity Range:** 1.00% to 3.50% obscuration/foot (factory calibrated)
- **Operating Frequency:** 433.92 MHz / 900 MHz Spread Spectrum (configured per system architecture)
- **Wireless Range:** 200–400 feet (60–120 meters) line-of-sight; clear propagation through standard wall assemblies
- **Operating Temperature:** 40°F to 100°F (4.4°C to 37.8°C)
- **Humidity Range:** 0% to 95% Relative Humidity, no-condensing

BEC Integrated Solutions
Toll-Free: 888.556.3998
Phone: 716.689.0871
Address: 5225 SHERIDAN DR STE 110,
GEORGETOWN SQUARE, WILLIAMSVILLE NY 14221-4952
E-mail: support@becsolutionsllc.com

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Features & Benefits

- **Photoelectric Sensing Chamber:** State-of-the-art optical sensing chamber designed to detect slow-smoldering fires while filtering out common nuisance alarms (such as cooking vapors or steam).
- **Supervised Wireless Transceiver:** Periodically transmits automatic “heartbeat” check-in signals to the nurse call head-end to monitor RF connection path integrity, chamber cleanliness, and battery status.
- **Local Temporal 3 Audible Horn:** Equipped with a built-in, high-decibel piezoceramic horn that emits the standard ANSI/NFPA Temporal 3 evacuation pattern upon activation.
- **Chamber Drift Compensation:** Automatically adjusts its internal software sensitivity threshold over time to compensate for dust accumulation, reducing the frequency of maintenance cycles.
- **Test/Silence Button:** A single, easily accessible front faceplate button allows staff to perform functional electronic diagnostics or temporarily mute a localized nuisance alarm.
- **Anti-Tamper Lock:** Built-in mechanical housing lock alerts the central nurse call system immediately if the detector head is unseated or twisted off its mounting base.
- **Smart Insect Screen:** Built with an ultra-fine, anti-static perimeter mesh screen that prevents bugs and dust fibers from entering the sensing chamber without obstructing airflow.
- **Freeze Warning Sensor:** Configured with an auxiliary internal thermal sensor that transmits a distinct low-temperature alert to the facility dashboard if the room temperature drops below 41°F (5°C), preventing burst pipes.
- **Maintenance Alert Protocol:** Sends a specialized “Clean Me” notification packet to the technician console up to 30 days before chamber contamination levels reach a threshold that could cause a false trigger.

Equipment Options

- **WNC-SD-P:** Standard photoelectric wireless smoke detector with integrated 85dB localized sounder (Default).
- **WNC-SD-T:** Combination photoelectric smoke and fixed-temperature 135°F (57°C) heat sensor for environments prone to rapid thermal spikes.
- **WNC-SD-CO:** Multi-criteria wireless detector combining photoelectric smoke and Carbon Monoxide (CO) electrochemical sensing cells.
- **WNC-SD-BASE:** Secure, twist-lock mounting base featuring an integrated physical locking pin to prevent unauthorized device removal.

Compliance and Certification

- **FCC Status:** Fully compliant and certified under FCC Part 15 Class B for intentional radiators, ensuring zero RF interference with adjacent clinical physiological monitoring gear or telemetry bands.
- **UL Status:** Listed to UL 217 (Smoke Alarms for Safety) and evaluated as an auxiliary device for integration with infrastructure meeting UL 1069 or UL 2560 systems.
- **RoHS Status:** 100% compliant with current RoHS (Restriction of Hazardous Substances) standards; built completely lead-free and free of toxic flame-retardant chemical additives.

Note: This device serves as a localized, nurse-call-monitored resident smoke alarm and is not a substitute for a primary, commercial building fire alarm system required under NFPA 72.

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