Product Specification Sheet
WNC-SD Wireless Smoke Detector

## WNC-SD Wireless Smoke Detector

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 Specifications

### A. General Wireless Smoke Detector Requirements

1. The contractor shall furnish and install fully supervised, wireless photoelectric smoke detectors (SKU: WNC-SD) at the locations indicated on the architectural floor plans.
2. 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

1. The device shall utilize a photoelectric optical chamber for smoke detection. Ionization chambers shall not be accepted.
2. 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.
3. 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

1. The detector must incorporate a fully supervised RF link, sending status updates to the master receiver at intervals not exceeding 60 minutes.
2. 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.

## Product Specifications

- **Dimensions (Diameter x H):** 5.3" x 2.1" (135mm x 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, non-condensing

## 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.

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## Standard Features

- **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.

## 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. *(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).*
- **RoHS Status:** 100% compliant with current RoHS (Restriction of Hazardous Substances) standards; built completely lead-free and free of toxic flame-retardant chemical additives.

## More Features

- **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.

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