Product Specification Sheet
WNC-RB Wall-Mount Relay Unit

Front

Back

WNC-RB Wall-Mount Relay Unit

The WNC-RB Wall-Mount Relay Unit serves as a critical infrastructure bridge within the wireless nurse call ecosystem. It is engineered to capture low-voltage contact closures from secondary auxiliary devices (such as specialized bed mats, ventilator alarms, infusion pumps, or physical security systems) and translate them instantly into supervised wireless RF transmissions sent to the central nurse call master station.

Housed in a durable, surface-mounted enclosure, the WNC-RB features isolated dry-contact relay outputs and inputs, allowing for seamless bi-directional integration. It can either transmit an alert from a hardwired device to the wireless network or, conversely, trip an external local device (like a secondary corridor dome light, mechanical chime, or remote security door lock) when a wireless event occurs in its designated zone.

Architects and Engineers Specifications

A. General Auxiliary Wireless Relay Requirements

1. The contractor shall furnish and install supervised, wall-mounted wireless relay interface units (SKU: WNC-RB) at locations indicated on the contract drawings to interface third-party auxiliary equipment with the wireless nurse call infrastructure.
2. The relay unit must be capable of mapping physical dry-contact closures to unique, distinct software-defined text zones at the central staff console.

B. Electrical and Mechanical Provisions

1. The relay unit shall feature physical terminal block connections accepting wire gauges ranging from 14 AWG down to 22 AWG.
2. The unit housing shall be composed of flame-retardant, impact-stabilized polycarbonate or ABS plastic, designed to fit cleanly over standard commercial electrical single-gang electrical boxes.
3. The device shall provide a hardware-based internal case tamper switch that reports a high-priority system maintenance fault if the unit is unseated or open.

C. System Integration and Functionality

1. Output contacts must be field-configurable as Form C (Common, Normally Open, Normally Closed) rated for at least 1 Amp at 24VDC/120VAC.
2. The interface unit must utilize a supervised wireless radio transceiver, executing automated self-diagnostic check-in transmissions to the primary controller array at least once every 60 minutes. Failure to check in must register as a system fault at the master station within 65 minutes.

Product Specifications

- Dimensions (H x W x D): 4.5" x 2.8" x 1.2" (114mm x 71mm x 30mm) — Fits standard single-gang box
- Weight: 4.6 oz (130 grams) without external wire runs
- Enclosure Material: High-Impact Polycarbonate, UL 94V-0 Flame-Retardant rating
- Primary Power Input: 12VDC to 24VDC regulated, or 12VAC to 24VAC
- Current Consumption: 25mA idle; 85mA maximum active (during simultaneous RF transmit and relay trip)
- Backup Battery: Optional 3.7V Lithium-Polymer rechargeable pack or CR123A lithium backup cell
- Input Circuits: Isolated Dry-Contact Inputs (Logic level, supervised for open/short if configured)
- Relay Contact Rating: Form C (NO/NC/COM) rated at 1.0A @ 30VDC / 0.5A @ 125VAC
- Operating Frequency: 433.92 MHz or 900 MHz Spread Spectrum (system matching)
- Terminal Connections: Screw-down terminal strip, 14–22 AWG capacity
- Operating Temperature: 14°F to 122°F (-10°C to 50°C)
- Humidity Range: 0% to 90% Relative Humidity, non-condensing

Equipment Options

- WNC-RB-S: Standard configuration featuring dual dry-contact inputs and a single Form C relay output.
- WNC-RB-D: High-density configuration equipped with four dry-contact inputs and dual independent Form C relay outputs.
- WNC-RB-24: Dedicated 24VDC/VAC external power input variant (typically utilized when integration with building automation or fire alarm backup power arrays is required).
- WNC-P-12: Optional plug-in 12VDC regulated power supply for localized standard wall-outlet installations..

Toll-Free: 888.556.3998
Phone: 716.689.0871
Fax: 716.312.6021
Address: 5225 Sheridan Drive, Georgetown Square
Williamsville New York 14221.
E-mail: support@becsolutionsllc.com

Standard Features

- Bi-Directional Interface Capability: Functions as both an input transmitter (converting contact closures to wireless alarms) and an output controller (tripping external equipment via RF command).
- Supervised RF Link: Executes automatic, programmable "heartbeat" transmissions to the wireless head-end to ensure structural connection integrity and link quality.
- Form C Relay Outputs: Heavy-duty, isolated relay configuration provides Normally Open (NO), Normally Closed (NC), and Common (COM) physical termination points.
- Local Visual Status Array: Multi-LED diagnostics panel provides real-time visibility into power status, RF transmission activity, and input/output relay state confirmation.
- Secure Surface-Mount Design: Low-profile impact enclosure mounts directly to standard single-gang, dual-gang, or 4S electrical backboxes.
- Integrated Tamper Switch: On-board optical or physical case tamper switch triggers an immediate high-priority system alert at the master station if the faceplate is removed.

More Features

- Selectable Input Debounce Filtering: On-board dip switches or programmable firmware options allow operators to introduce a 100ms to 2-second debounce delay to eliminate false trips from noisy or chattering auxiliary machinery.
- Fail-Safe / Fail-Secure Programming: Output relays can be field-configured to either maintain state or release dynamically upon a complete loss of primary system operating power.
- Dual-Source Power Redundancy: Supports seamless power hand-offs; if external 12–24VDC network power drops, the system instantly switches to its internal backup battery array without dropping a single supervision packet.

Compliance and Certification

- FCC Status: Certified under FCC Part 15 Class B as an intentional radiator, guaranteeing that RF emissions remain safely within limits that prevent interference with adjacent sensitive diagnostic imaging or monitoring systems.
- UL Status: Engineered to meet UL 1069 (Hospital Signaling and Nurse Call Equipment) and UL 2560 (Emergency Call Systems for Assisted Living) frameworks as an auxiliary control interface accessory.
- RoHS Status: 100% compliant with RoHS directives; completely free of lead, polybrominated biphenyls (PBB), and other environmentally hazardous materials.

BEC Integrated Solutions

Toll-Free: 888.556.3998
Phone: 716.689.0871
Fax: 716.312.6021

Address: 5225 Sheridan Drive, Georgetown Square
Williamsville New York 14221.
E-mail: support@becsolutionsllc.com