## OVERVIEW

A common application the Integrator is tasked with is setting up a Nurse Call system in a hospital, assisted living, or other medical facility. These systems typically consist of a standard-level call alert and an emergency-level call alert. These alerts transmit to a nurse's station or other central point upon activation in the patient care area by the patient, family, or a nurse requiring assistance. While low-cost systems designed to perform this function are readily available, this application note will show two ways of performing this same basic functionality by using **FLEX**POWER components.

Method 1 - Using Relays

The first method uses **FLEX**POWER **RB series** relays. The RB2 relay should be sufficient, but the RB5 or RB8 would also work exactly the same.
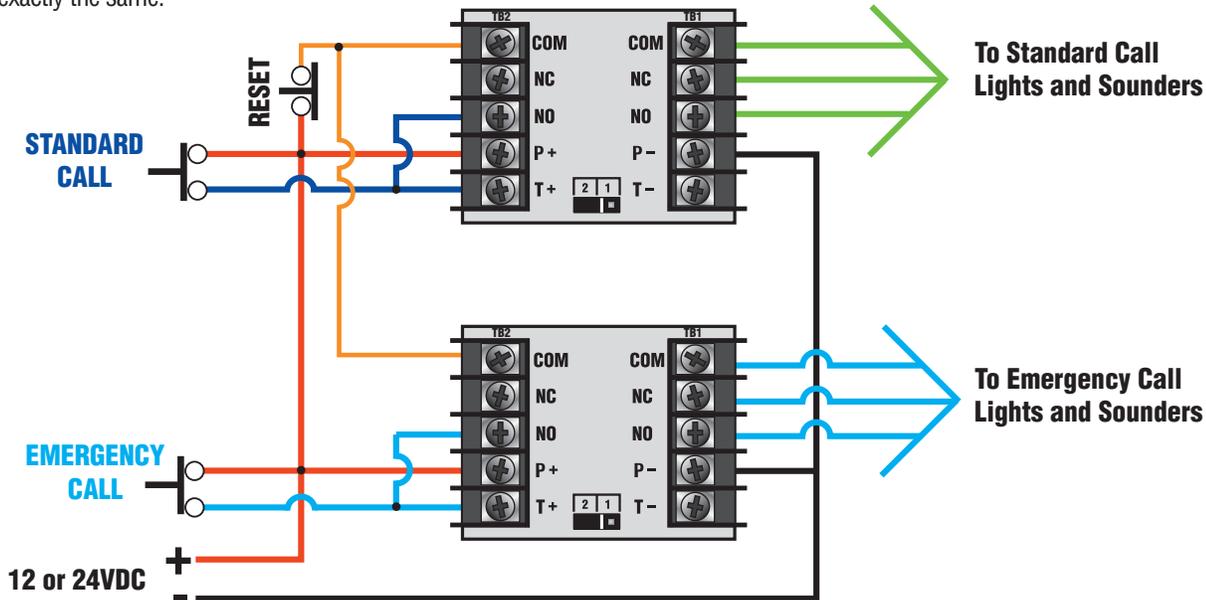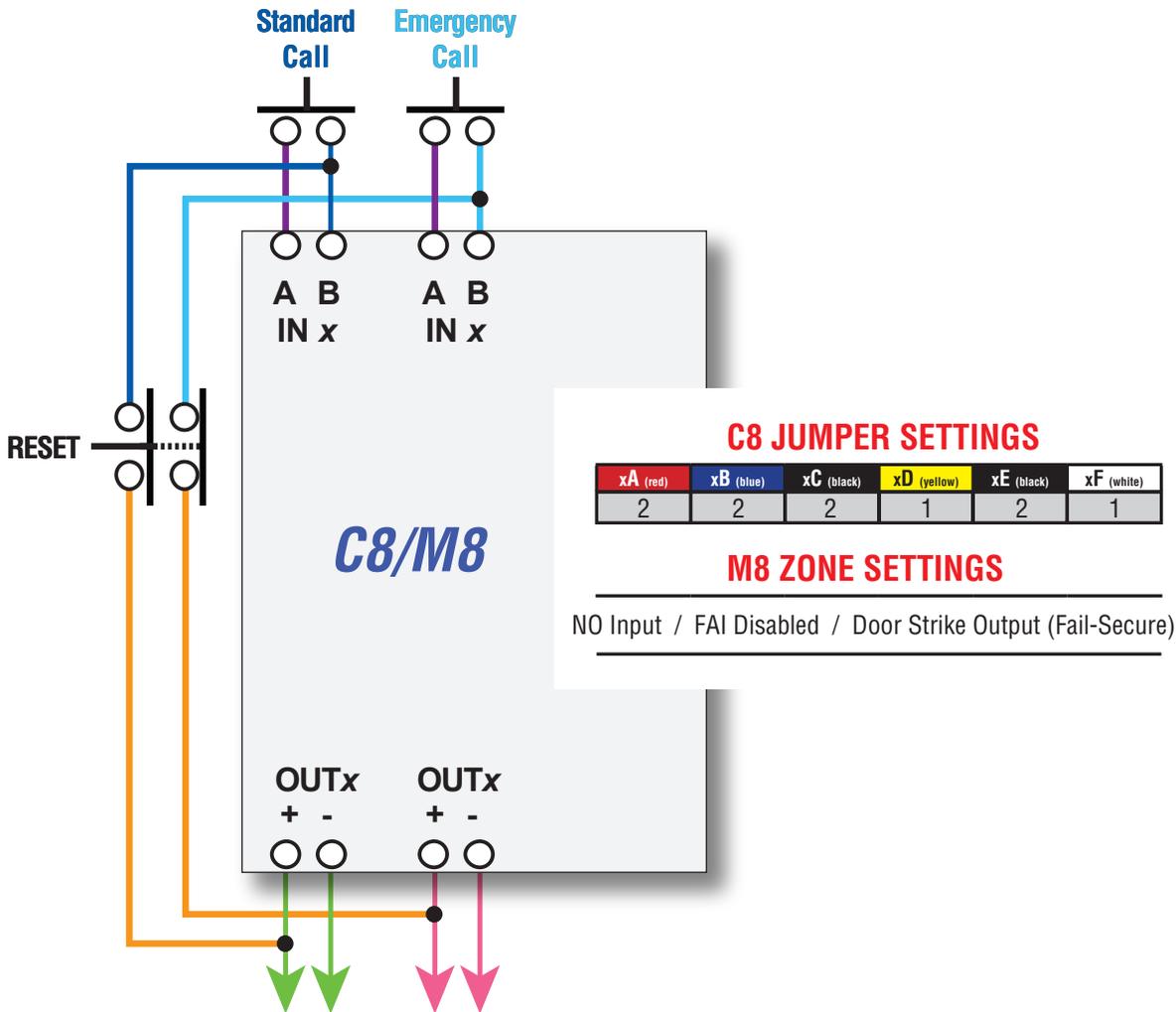

Circuit Operation

Constant 12 or 24VDC power is applied to the P+ and P- terminals of the RB relays via the red and black wires in the diagram. The standard call is actuated with a NO contact bringing a positive voltage to the T+ terminal of the top RB relay via the dark blue wire. The emergency call is activated in the same way with the light blue wire and a separate NO contact. Each of the calls is latched on by a positive voltage (orange wire) fed through one pole of each relay's C/NC connection to its T+ terminal. A single NC reset button is in line with the orange wire to reset both call types. Separate output contacts are provided for the standard call and the emergency call alerts. These contacts can be used to activate standard and emergency alert lights outside the room and at the nurse's station and also to activate standard and emergency sounders.

This diagram shows the wiring for a single room. For each additional room, two more RB relays may be added and wired in the same way. Each room would have its own NO contacts for activating the calls, and a reset button at the nurse's station for resetting the call for that room. Each room can have its output contacts diode-connected to single sounders for standard or emergency calls.

Multiple NO contacts may be paralleled together for each alert activation. For example, an emergency call may wish to be initiated from the bathroom or from the bedside. Additionally, multiple NC reset switches may be wired in series to provide reset capability at the bedside or at the nurse's station.

Method 2 - Using C8 or M8 Boards

This method uses **FLEX**POWER **C8** or **M8** boards to provide multiple alert outputs with less wiring. A single C8 or M8 will provide 4 rooms of standard and emergency call ability. Multiple C8 or M8 boards may be added for virtually unlimited room capacity.

C8 JUMPER SETTINGS

xA (red)	xB (blue)	xC (black)	xD (yellow)	xE (black)	xF (white)
2	2	2	1	2	1

M8 ZONE SETTINGS

NO Input / FAI Disabled / Door Strike Output (Fail-Secure)

Circuit Operation

Constant 12 or 24VDC power is applied to the C8 or M8 boards via an FPO power supply - for clarity, the FPO power supply is not shown in this diagram. The first input is for the standard-level call. it uses a NO contact between the A and B terminals of the input, shown with the dark blue and purple wires in the diagram. The Emergency-level call is wired the same with a separate NO contact and is shown with the light blue and purple wires. Latching of the calls is provided by feeding back the voltage from each output (orange wires). Either a double-pole or two individual NC pushbuttons are placed in series with the orange latching wires for resetting the calls. Voltage outputs are provided for activating the standard call (green wires) or emergency call (pink wires) lights and sounders. Multiple NO activation switches may be paralleled for call activation for multiple locations, such as the bathroom. Multiple NC reset switches may be connected in series for reset ability from both the room and the nurse's station.

This diagram shows the wiring necessary for one room. The other six zones of the C8 or M8 may be wired for another 3 rooms, and multiple C8/M8 boards may be added for almost unlimited room counts. Outputs may be diode connected together between rooms to allow the use of single sounders for all rooms.

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