FCC ID: KXU-LFTX1

CA9300
Wanderer Monitoring System
Installation Manual

Install Manual
Released: 11/30/97
0510-0053

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Information to User (Section 15.21)

The user is cautioned that any change or modification not expressly approved by the party responsible for compliance with FCC regulations could void the user's authority to operate the equipment.

Transceiver:	FCC ID: KXU - LFTX1
Transponder:	FCC ID: KXU - LUXP1
UHF Receiver:	FCC ID: KXU - SRG3RX

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CODE ALERT.
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(414) 790 -1771 • 1-800-669-9946 • FAX (414) 790-1784

<u>IMPORTANT NOTICE</u>

BEFORE BEGINNING INSTALLATION,

FIRST READ THIS MANUAL THOROUGHLY.

****** IMPORTANT ******

READ *"SYSTEM TUNING AND RECEIVER MOUNTING"*

READ *"MOUNTING THE RECEIVERS"*

READ *"EXCESSIVE INTERFERENCE"*

THEN, IF YOU STILL HAVE QUESTIONS,
OR CANNOT RESOLVE SYSTEM PROBLEMS

CALL OUR TECHNICAL DEPARTMENT

TO REVIEW PROCEDURES.

Technical Department: 1-800-669-9946

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CA9300 Introduction

Wanderer Monitoring System
CA9300 Overview

The **Code Alert® CA9300 wanderer monitoring system** is designed to meet the specific needs of the health care industry. The lightweight, coded transponder is the center of the system. When a resident or patient wearing a **transponder** enters a monitored zone, the transponder receives a signal from the loop antenna and sends a coded UHF signal to the UHF Receiver. The UHF Receiver sends the control information to the control unit for decoding, which in turn triggers an alarm condition. Only a resident or patient wearing a transponder activates the alarm; everyone else can move freely through the alarm zone. Code Alert provides you with a reliable system for protecting residents and patients who tend to wander.

The primary electronics for the CA9300 are housed within a durable metallic enclosure that is conveniently mounted near the doorway, hallway or elevator to be monitored. The control unit has a pleasing, unassuming appearance and also contains the audio alarm, the keypad, and the transmitter.

The control unit has a keypad which is used to reset the system following an alarm. Staff may also use the keypad to bypass the system long enough to escort a resident/patient through the monitored zone without setting off the alarm. When the time allotted for bypass has elapsed, the system automatically resets itself.

The control unit has three indicator lights. When the red light is on, the system is active. The yellow signal light indicates when a UHF signal is received or noise is in the area. When the green light is on, the system is disarmed, allowing bypass for a set amount of seconds. The system will automatically re-arm itself when the bypass time has expired.

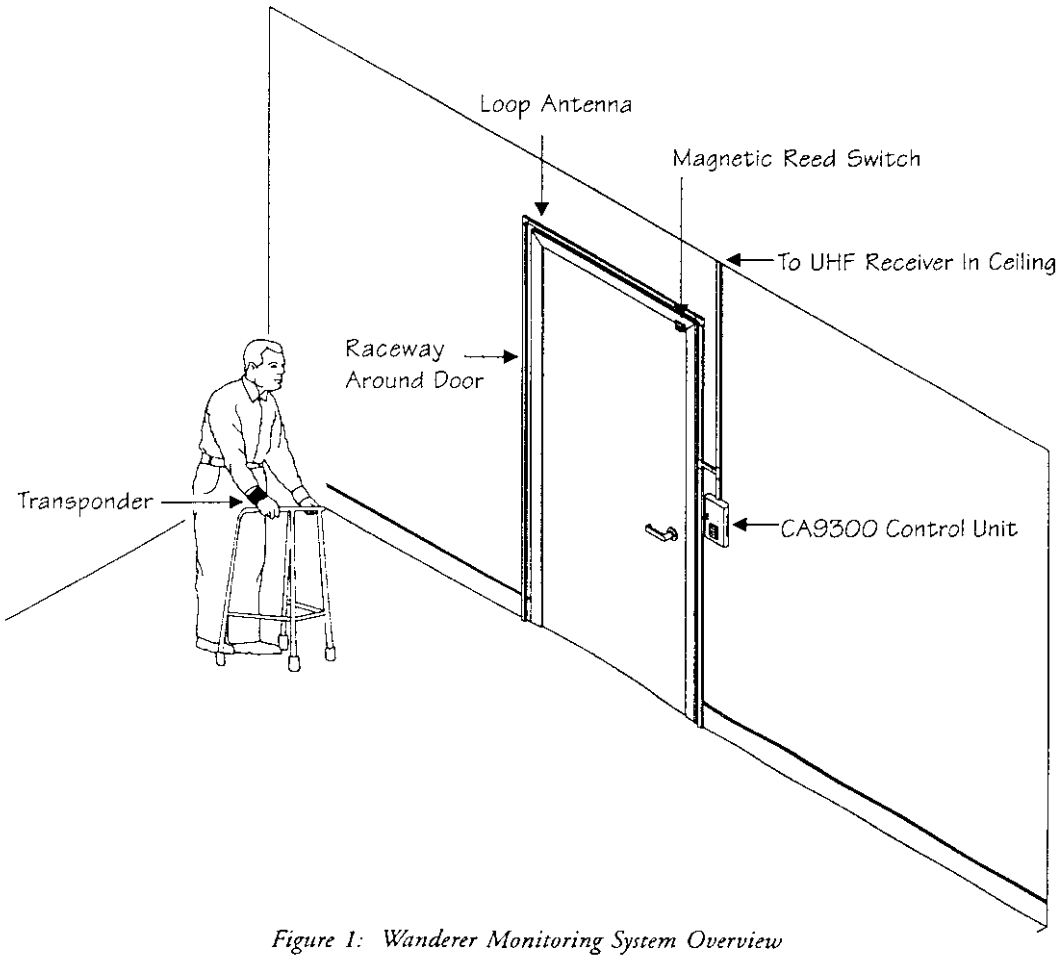

Figure 1: Wanderer Monitoring System Overview

Wanderer Monitoring System
Specifications and requirements for all facilities, contractors and installers

1. 110V AC outlet must be available at each monitored zone and nurses' station or a central power supply must be purchased and used. (See item #3).

2. When installing elevator deactivation.

   The elevator service company for your facility must be notified to quote and specify the connection needed from our relay board to their elevator controls.

3. When installing a central power supply.

   The proper gauge wire must be used to run from each monitored zone to the central supply. Use chart below.

VOLTS	AMPS	DISTANCE IN FEET FROM CENTRAL POWER TO FARTHEST CONTROL UNIT						
		25	50	75	100	150	200	250*
15V		MINIMUM WIRE GAUGE STRANDED						
DC	1.00	18	16	16	16	16	16	16

* Over 250 feet Contact Code Alert

Table 1: Central Power Supply Wire Requirements

4. When installing a voice alarm control unit to a public address system.

   A 600 OHM high level auxiliary input is needed for complete and proper connection of the unit to the public address system. Please consult your telephone dealer before connecting anything to your phone paging system. Also, be sure to consult your public address servicing company to specify correct interface connections with the public address.

5. As is the case with any radio frequency system, changes in the RF environment may affect operation of the system. The facility should check with Code Alert before installing any electronic system near the Wanderer Monitoring System.

These requirements or specifications are NOT included in any system or installation pricing unless otherwise agreed upon by Code Alert and the purchaser involved.

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Wanderer Monitoring System
CA9300 System Installation

Wanderer Monitoring System
CA9300 Installation Procedure

Before you begin installing your CA9300 system, check to see that you have all the **required parts**.

- ☐ Control unit with enclosure
- ☐ UHF receiver
- ☐ Wall mount power supply or central power supply
- ☐ Magnetic reed switches (1 for a single door, 2 for double doors)
- ☐ Wire (See wire requirements under CA9300 Wiring Connections on page 22)
- ☐ Raceway (If surface mounted)
  - 4 - 90° corners
  - 4 - Splice clips
  - 2 - Tee
  - 5 - 6' pieces

The following list contains the **necessary tools and materials** for installing your CA9300 system:

Tools:
- ☐ Phillips screwdriver (#1, #2)
- ☐ Slotted screwdriver (1/16", 1/4")
- ☐ 3/8" Drill with bits (1/8", 5/16")
- ☐ Wire strippers
- ☐ Wire cutters
- ☐ Tape measure
- ☐ Step ladder

Materials:
- ☐ Drywall screws
- ☐ Drywall anchors

The following is a **simplified procedure** for installing the CA9300 wanderer monitoring equipment:

1. Determine the proper location in the monitored zone for the control unit enclosure.
2. Mount the control unit enclosure.
3. If necessary, set the configuration switches and jumpers on the PCB board.
4. Install the reed switch above the door(s).
5. Install raceway on the walls. Place wire in raceway.
6. Install the UHF receiver.
7. Temporarily install the loop antenna.
8. Wire the above components to the CA9300 control unit terminals.
9. Test and adjust the receiver and reed switch.
10. If system functions properly, permanently mount the receiver.
11. Install additional Wanderer Monitoring options and components. i.e. staff alert panels. etc.
12. Test the system with all additional options connected.
13. Make final adjustments to the control unit.
14. Close and secure control unit cover.

Wanderer Monitoring System
CA9300 Control Unit

Overview

All of the electronics needed to monitor the detection zones are housed in a durable hinged metal enclosure. The control unit is surface mounted near the doorway, hallway, elevator or stairwell to be monitored.

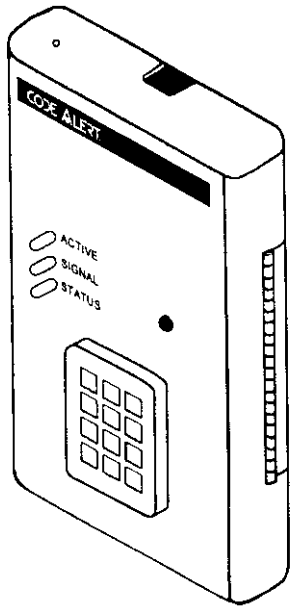


Figure 2: CA9300 Control Unit

Functions

Your CA9300 control unit performs the following functions:

- Receiving data from the receivers and issuing alarms.
- Resetting and bypassing alarms through the use of the keypad.
- Triggering staff alert panels and voice alarms.

Indicators

Your CA9300 control unit has the following indicators:

- POWER - Red LED which indicates power is available to the system and that it is active.
- SIGNAL - Yellow LED which indicates that the control unit has received a signal from the receivers. This is useful for determining if noise interference is present.
- STATUS - Green LED indicating the present status of bypass. If unit is in bypass the green LED will be lit (Green = GO).

Mounting the control unit

The CA9300 control unit is generally located near the area to be monitored. The unit should be located near a 120 volt AC outlet, preferably with emergency backup power.

In high traffic areas or where doors may remain open, it is a good idea to place the control unit 5-10 feet from the detection zone so that bypass codes can be entered while the resident is still outside the detection zone. This will help to prevent nuisance alarms from occurring.

The control unit is generally mounted 5 feet from the center of the enclosure to the floor. Check local American Disabilities Act (ADA) regulations before permanently mounting the control unit.

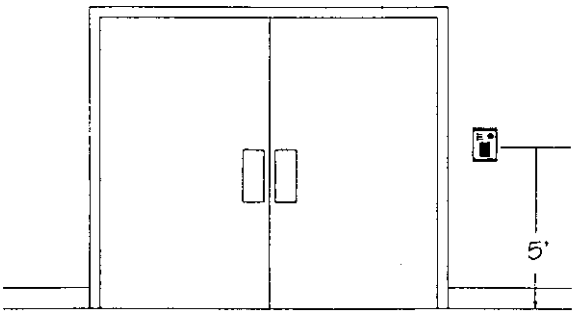


Figure 3: Height of the Control Unit

When **mounting** the control unit please complete the following steps:

1. Remove screws one from the top and another from the bottom left edge of the control unit.
2. Holding the enclosure back plate against the wall, mark-out the four mounting holes.
3. Drill holes where you have made the marks. Line up box mounting holes with the newly drilled holes in the wall.
4. Using four drywall screws mount the box to the wall. Use drywall anchors if the screws will not hit studs.

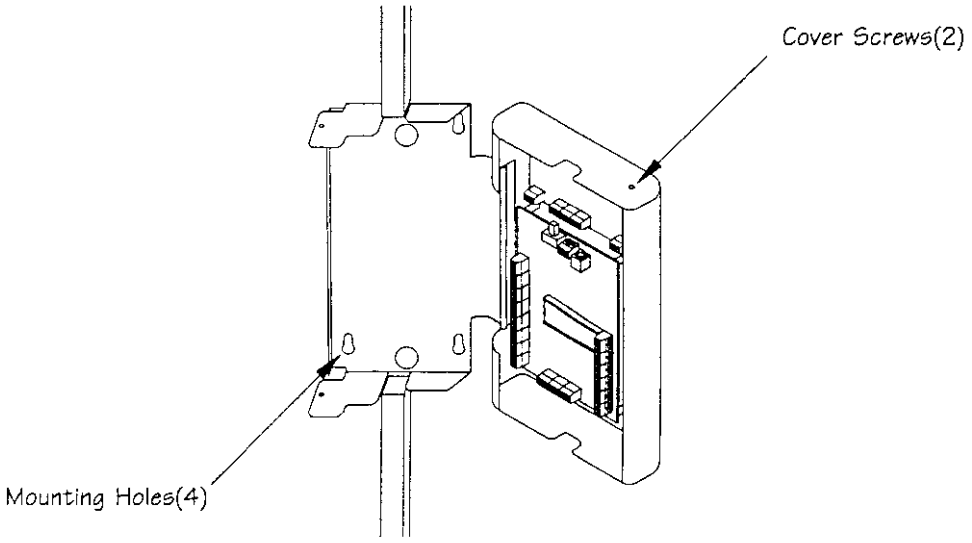


Figure 4: Control Unit Mounting

Wanderer Monitoring System
Raceway Installation

Overview

In surface mount systems 1/2" PVC beige raceway is used for containing and concealing wires. Six foot long pieces, various corners and tees are supplied with the purchase of your system. Double sided tape backing is on the six foot long pieces for easy installation.

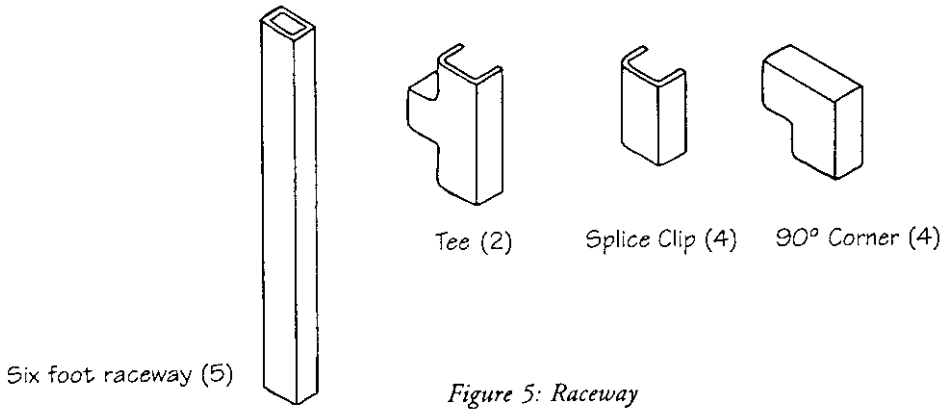


Figure 5: Raceway

Mounting

Below is an illustration showing the correct usage of the raceway provided for a single door application.

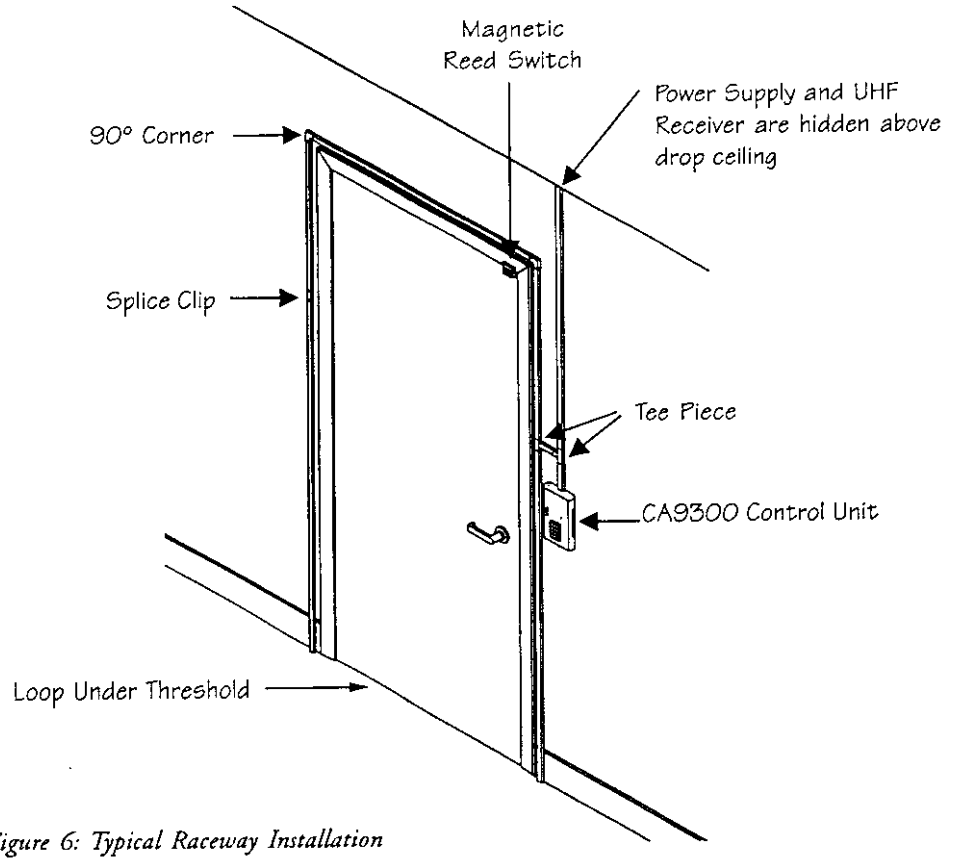


Figure 6: Typical Raceway Installation

Wanderer Monitoring System
Loop Antenna Installation

Doorway

1. Attach the raceway around the doorframe along both sides and across the top (see figures 8 and 9).
2. Cut a groove in the floor between the door posts near or under the threshold. This groove needs to be deep enough and wide enough to completely contain the loop wire.

   The groove can be made using a circular saw with a masonry blade. While this method is fast, it will also create a great amount of dust and smoke.

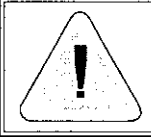
   An alternative is to drill many holes next to each other across the width of the door then using a chisel to create the required trench or groove.

   Wire may be placed underneath the door's threshold whenever this is practical. This eliminates the need to cut the floor.

   Note: **If the doorframe is a complete metal loop (top, sides , and bottom are one continuous piece), looping it with the alarm antenna will not work effectively. The solution is to cut an 1/8th inch gap in the frame at the bottom (see figures 8 and 9).**
3. Start the loop at the controller going up through the raceway via the "T" junction, around the door, then back through the raceway "T" junction to the controller. Wire as shown in figures 7, 8, and 9.
4. Once the wire loop is in place, install the corner clip pieces on the raceway and fill in the groove cut in the floor with tile cement or similar material. Replacement tile may also be placed over the wire if desired (see figures 8 and 9).

Sliding Door or Elevator

1. Attach the raceway around the doorframe along both sides and across the top (see figures 8 and 9).
2. Cut the floor straight out from both sides of the area 6-12 inches, then across. The groove must be deep and wide enough for the wire. A circular saw with a masonry blade or drilling holes then chiseling out the excess are common ways of forming the groove across the bottom of the floor. **Note: A circular saw with a masonry blade creates excessive dust and smoke** (see figures 8 and 9).
3. Start the loop at the controller going up through the raceway via the "T" junction, around the door, then back through the raceway "T" junction to the controller. Wire as shown in figures 7, 8, and 9.
4. Once the wire loop is in place, install the corner clip pieces on the raceway and fill the grove cut in the floor with tile cement or similar material. Replacement tile may also be placed over the wire if necessary (see figures 8 and 9).



WARNING

Complete metal doorframes (top, sides, and bottom are one continuous piece), require a 1/8th inch gap in the frame at the bottom.

Wanderer Monitoring System
Loop Antenna Wiring Diagram

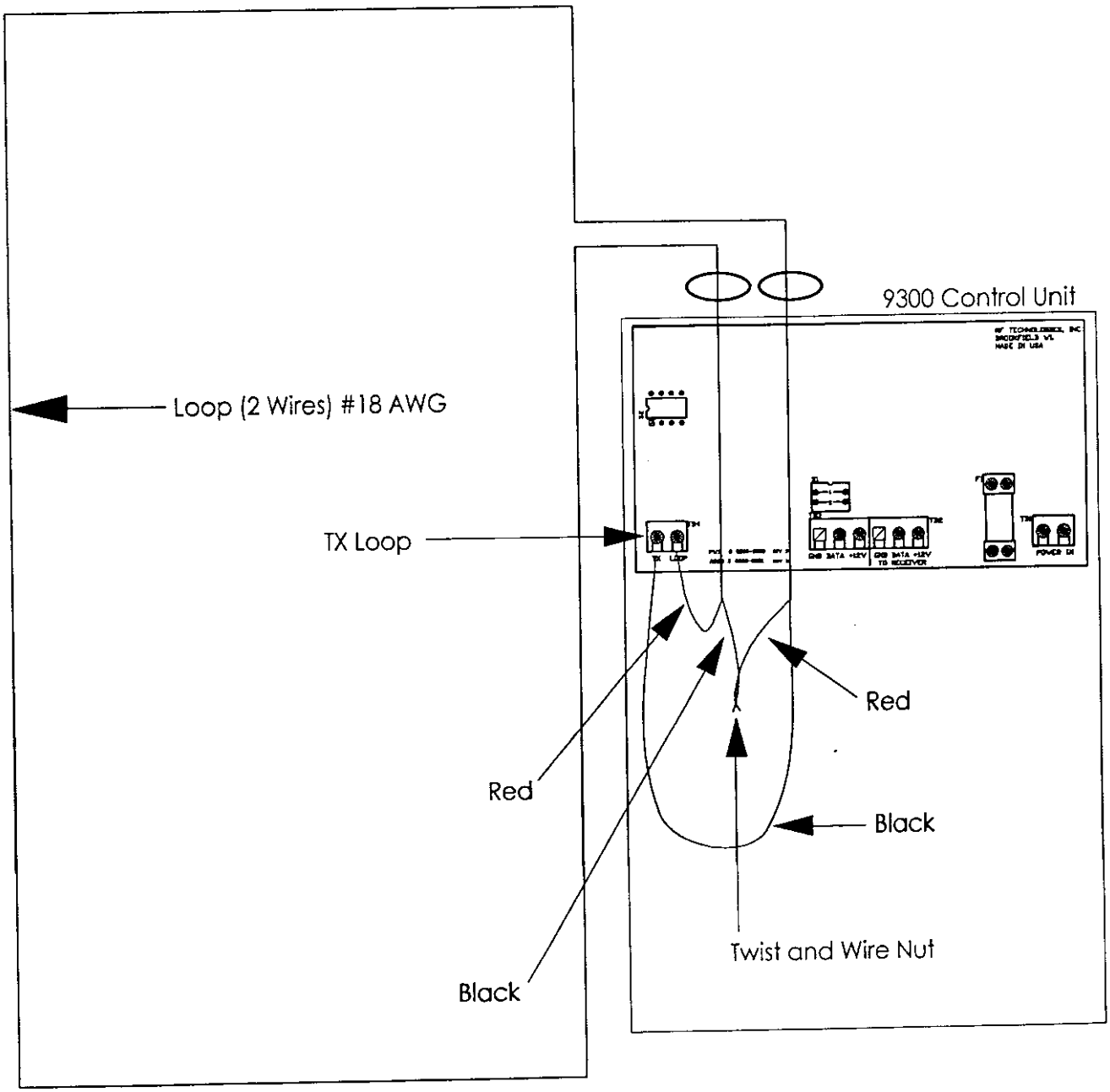
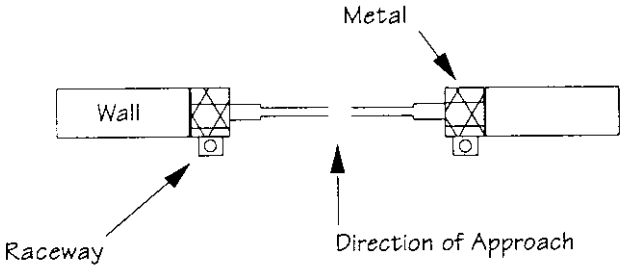


Figure 7: Wiring to Form 2 Loops Around Doors

Wanderer Monitoring System
Loop Antenna Installation Double Door

The transmit loop consists of #18 AWG stranded wire looped twice around the doorway, hallway sliding door, or elevator. The wire is hidden in a raceway molding around the door frame and is buried in a groove cut into the floor. **For a metal door frame the threshold MUST be cut or isolated from either side of the door frame by at least 1/8 inch.**



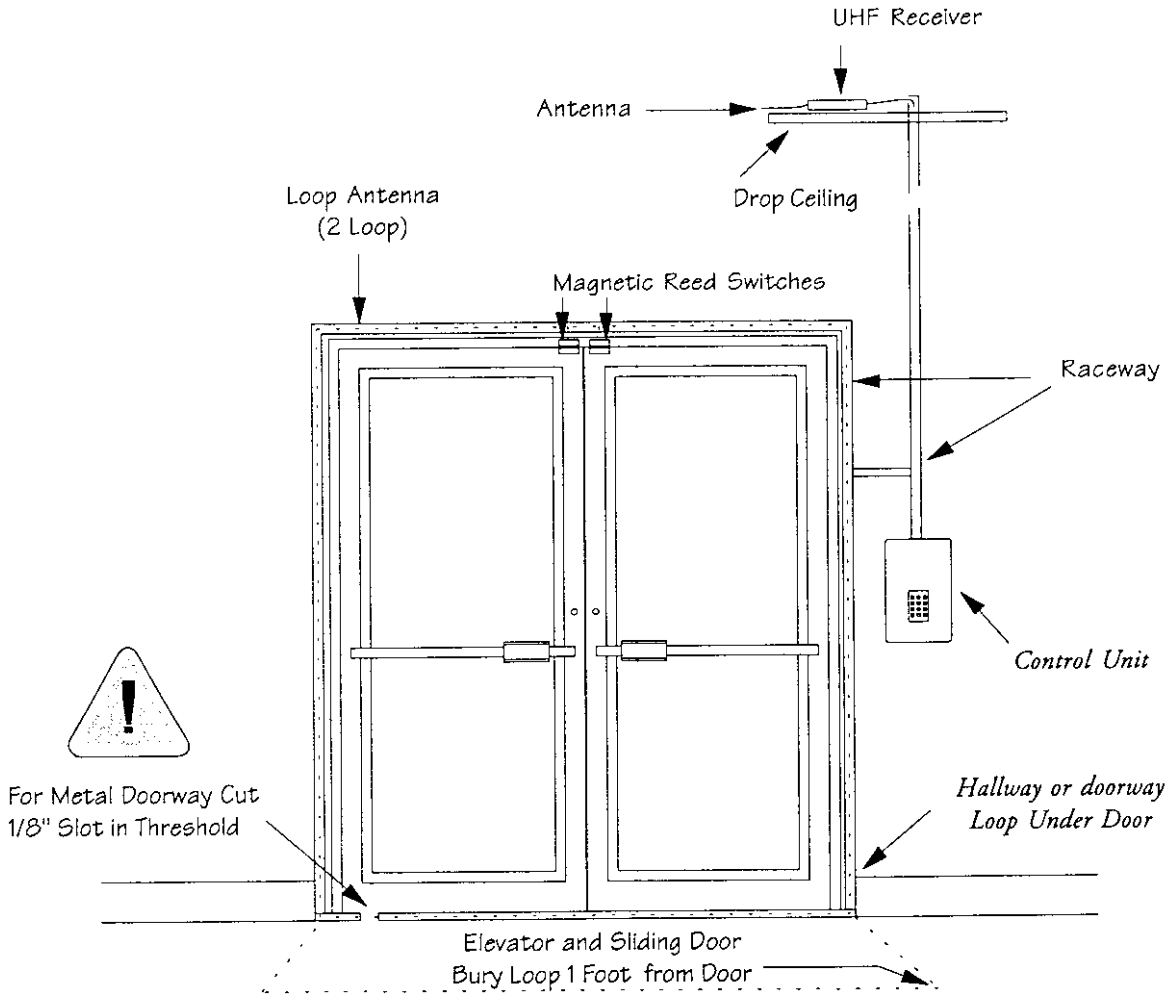


Figure 8: Loop Antenna Installation on Double Door.

Wanderer Monitoring System
Loop Antenna Installation Single Door

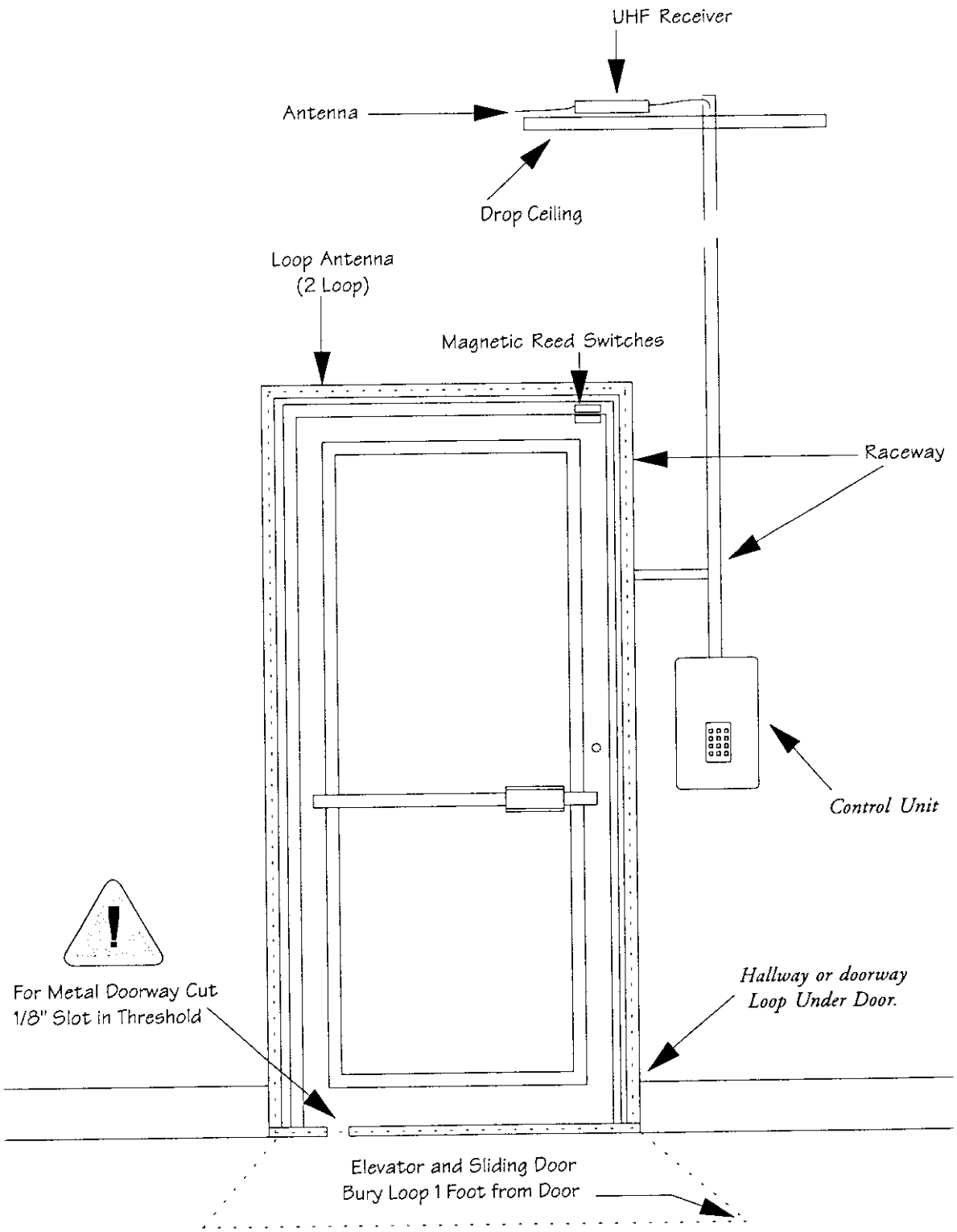


Figure 9: Loop Antenna Installation on Single Door.

Wanderer Monitoring System
UHF Receiver

Overview

The UHF receiver acquires a high frequency signal from the transponder when it is near a door, hallway, or elevator with a transmitting loop.

This receiver is placed above the ceiling tiles and connected into a CA9300 control unit which is mounted on the wall.

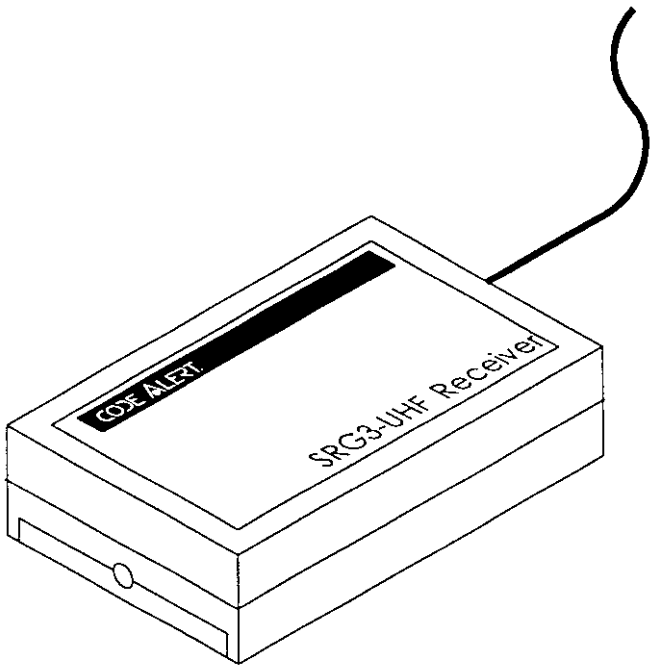


Figure 10: UHF Receiver

Functions

Your UHF receiver performs the following functions:

- Receiving signal from the transmitter.
- Converting received signal into data and sending it to the CA9300 control unit.

Indicators

Your UHF receiver has the following indicator located inside the enclosure:

- NOISE - Red LED which indicates when a signal is being received (See System Tuning and Excessive interference on page 25).

Wanderer Monitoring System
Magnetic Reed Switches

Overview

The magnetic reed switch is used to prevent an alarm from occurring unless a person wearing a transponder is near the zone and the door is open. This allows a person to be near the door without setting off an alarm as long as the door is closed. The reed switch comes in two pieces: One piece is mounted on the door frame. The other is mounted directly to the door. Both pieces are mounted at the top of the door near the edge that swings away from the frame.

NOTE: When the system is used with a double door, connect the magnetic reed switches in parallel. The provided reed switches are normally open (N.O.) when the doors are closed so that opening either door closes the switch on that door. When NOT using a reed switch place a jumper across the reed switch input terminals on the control unit.

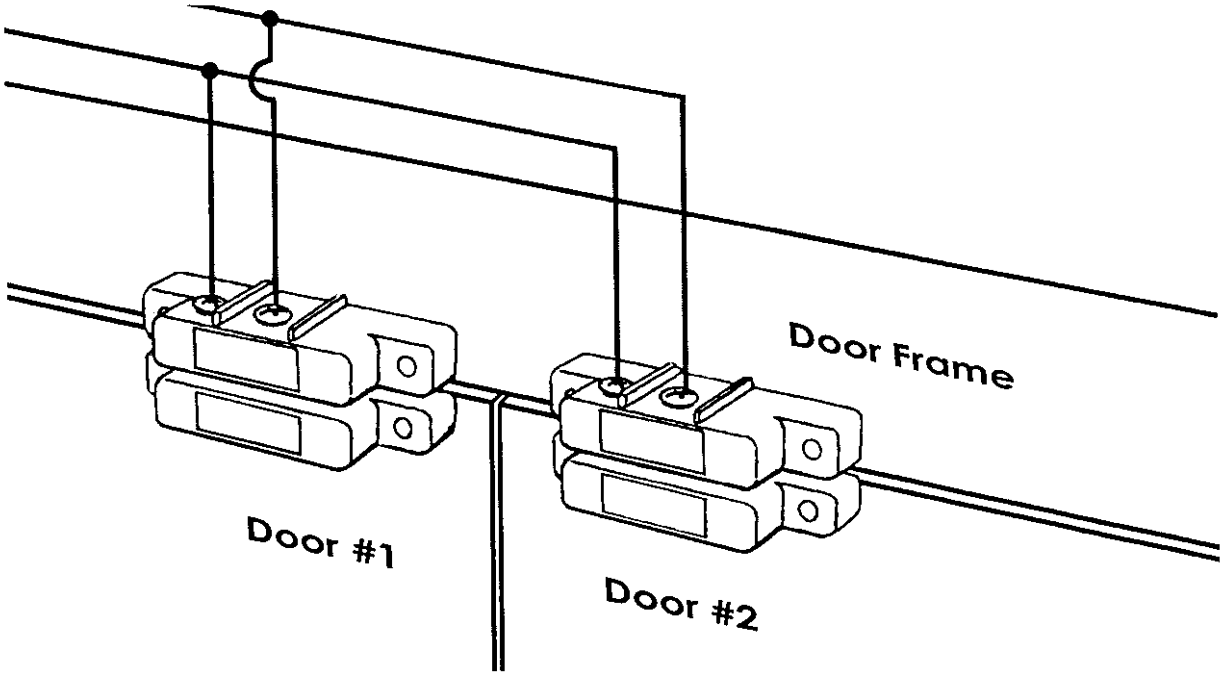


Figure 11: Magnetic Reed Switch Placement

Mounting the Magnetic Reed Switch

1. Mark-out and drill three holes in the door frame where the switch will be located. One hole should be 5/16" as access for the wires. Two holes should be 1/8" for mounting the switch. The wire access hole should be located near the switch screw terminals.
2. Connect the wires to the switch as shown in Figure 11. Be sure to run the wires through the access hole.
3. Place the supplied switch cover over the screw terminals and mount the switch to the door frame using the screws provided.
4. Mark-out and drill two holes in the door where the magnet will be located. The distance between the magnetic reed switch and the magnet must be no more than 1/8".
5. Place the magnet (and spacer if necessary) over the holes you drilled. Screw the magnet into the door, using the screws provided.

Wanderer Monitoring System
Wiring Connections

Wire Requirements

Application	Voltage	Gauge	# Conductors
Plug-In Power Supply Central Power Supply	16V AC 15V DC	#16	2
Receiver	12V DC	#22 Stranded	3
Reed Switch(es)	5V DC	#22	2
Reset Input	5V DC	#22	2
Staff Alert Output	12V DC	#22	2
Loop Antenna	-	#18	2

Table 2: CA9300 Wire Requirements

It is important that 22 gauge stranded wire be used for connecting the receivers. Wire may be placed in raceway or flush mounted inside the walls or door frames.

Refer to the 11 x 17 foldout wiring diagram when connecting wires to the control unit.

Power to the System

Power is provided by a wall transformer which plugs into a standard duplex wall outlet that is not to be more than 20 feet from the control unit. (It is recommended that the outlet be connected to the emergency backup generator.) The power supply will plug into the 2.5mm jack labeled "POWER" at the top of the control unit's circuit board.

A central power supply operating at 15VDC may also be used to power the system. The central power supply connects into the terminal blocks labeled "POWER" at the top of the control unit's main circuit board.

UHF Receiver

The UHF Receiver is connected to TB2 on the transmitter board, which is labeled "TO RECEIVER". Wire +12V to +12(red), GND to GND(black), and DATA to DATA(white). The UHF receiver is normally mounted above the control unit.

Reed Switch Input

For a double door place two reed switches, one for each door, and wire them in parallel. The reed switches are set up to be normally open (N.O.) when the doors are closed. Place a jumper across the reed switch input terminal on the control unit if a switch is not installed on the door.

Staff Alert Panel

Each control unit is "home run" to the proper staff alert panel input. Run two conductor wire between the Staff Alert Panel and the control unit. Connect the wires to the terminals labeled **"STAFF ALERT"** on the control unit and to the appropriate terminals on the staff alert panel.

The staff alert relay is a normally open (N.O.) dry contact.

External Reset/Bypass

An input has been provided to attach a remote switch for resetting or bypassing the system. The switch should be normally open (N.O.). The input can operate as an external reset or as an external reset followed by a bypass. The operation of the switch will be determined by DIP switch setting SW2-3 on the control unit's printed circuit board.

The input can be used with a local keyswitch mounted near the door or on the control unit enclosure. It can also be used with a remote keyswitch, slave keypad, card reader, or other switch closure at a nurse's station.

When used in Reset/Bypass mode, the door will remain in bypass for a DIP switch selected period of 15, 30, 45 or 60 seconds. For this reason, multi-point Reset/Bypass should only be done when the person performing the bypass can observe the door.

When used in reset mode, the unit will reset with no bypass period. This provides for a more secure reset function.

A slave keypad device may be used as the external reset for the system. Typically the slave keypad will be placed on the opposite side of the door from the control unit.

SW2-3	External Pushbutton
OFF	Reset Only
ON	Reset then Bypass

Table 3: Reset/Bypass Settings

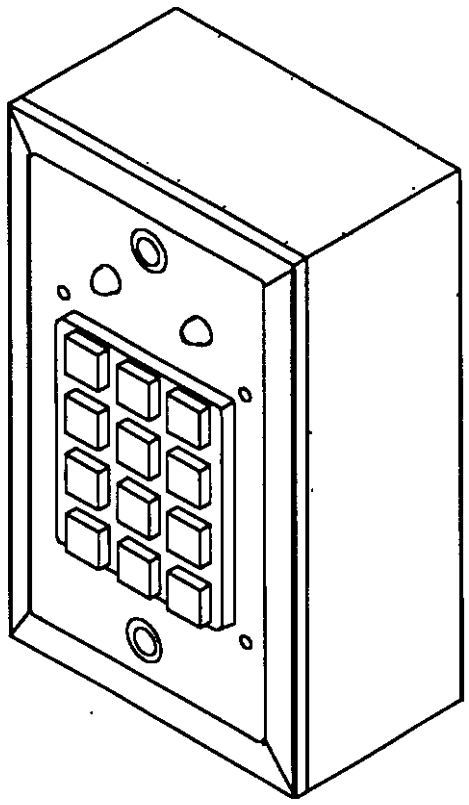


Figure 12: Slave Keypad Reset Device

Service Loop

It is very important that when connecting wires to the PCB that a service loop be maintained. This allows the cover to swing open freely when servicing the unit.

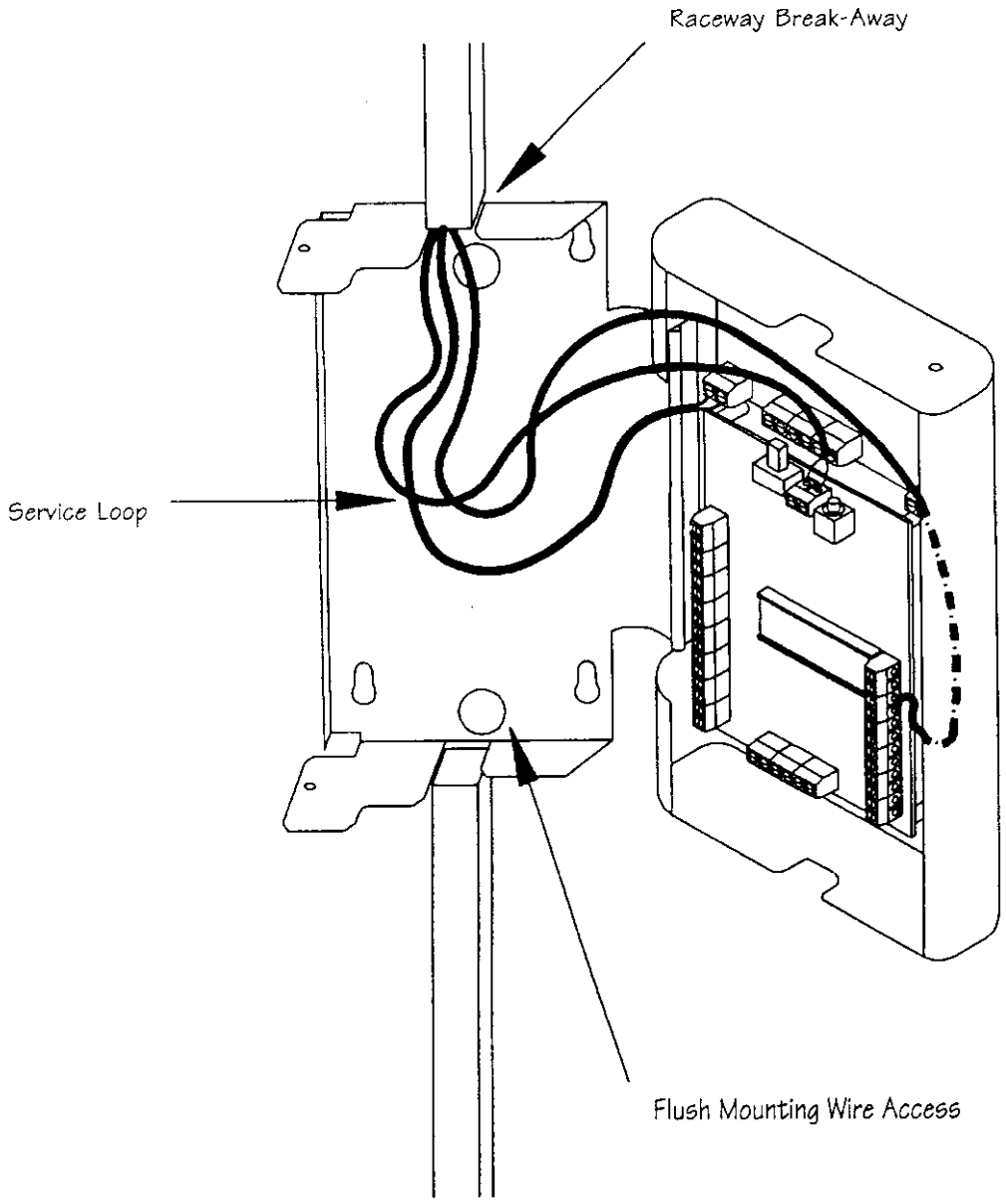


Figure 13: Wiring Illustration

Wanderer Monitoring System
System Tuning and Excessive Interference

Loop Antenna Tuning

1. Install the complete CA9300 system.
2. On the transmitter set the 4 switches on switch bank S2 to off.
3. Set a Volt Meter to the 2 volt DC range and connect the test leads to TP1 and TP2 (TP2 is ground).
4. Apply power to the control unit, be sure the power switch is ON.
5. Place each switch in switch bank S2 in the ON position one by one. Observe the voltage reading on the DVM as each switch is added. Note the number of switches set to ON that give you the lowest voltage reading on the DVM. Now turn off one switch. This is the proper transmitter tuning.
6. Test the installation by walking through the door with a transponder. If the alarm does not sound check the wiring procedure (located on page 17).

Interference from nearby doors

If 2 or more doors spaced 30 feet or less apart are monitored, the transponder UHF signal maybe picked up by the wrong receiver. Therefore in the CA9300 each door transmitter can be given one of 4 unique codes.

1. For doors closer than 30 feet a unique code should be set on the transmitter selector switch S1. Four possible codes are available (00, 10, 01, 11).
2. Set the door code in sequence at each door as seen below. If changes are made to the switches, remove and then apply power to set the code changes. For more than 4 doors, start over from "00"

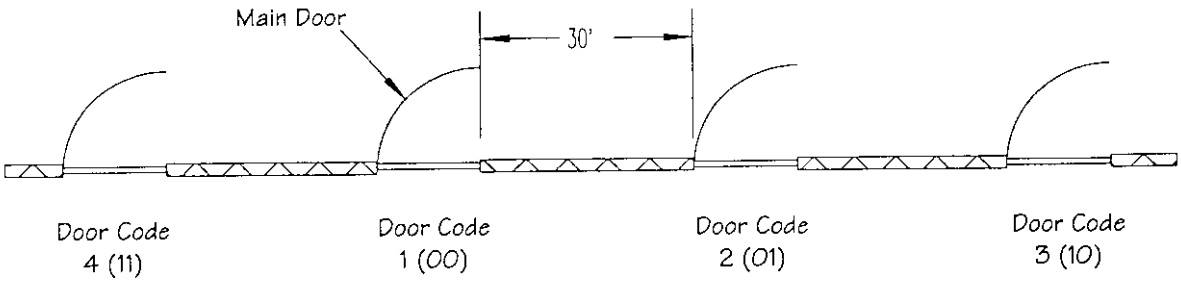


Figure 14: Door Interference

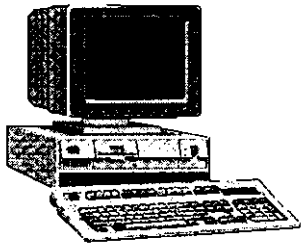
Door Code	S1-1	S1-2
1	Off	Off
2	Off	On
3	On	Off
4	On	On

Table 4: Door Codes

Wanderer Monitoring System
Common Sources of Interference

Common sources of interference include TV's, computer monitors, electric motors, electrical distribution panels, etc. These types of devices should be **AT LEAST SIX FEET** away from the receiver, even through walls and ceilings.

Keep all Computers and Televisions **at least 6 feet** away from your Wanderer Monitoring System



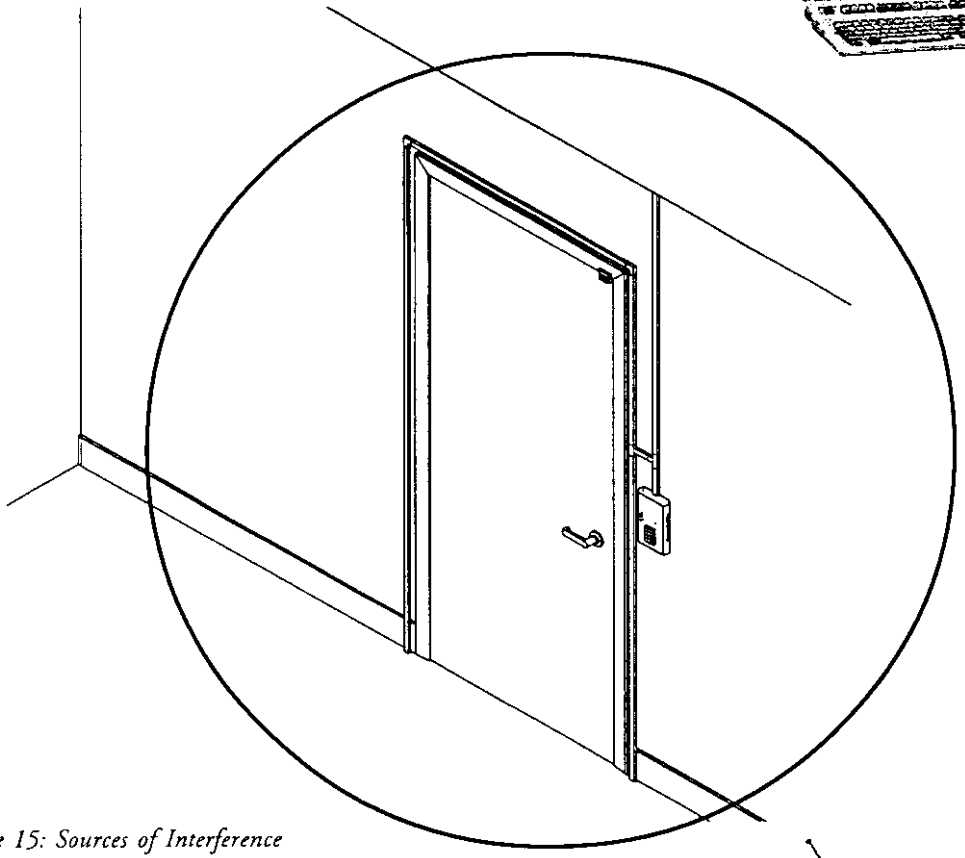
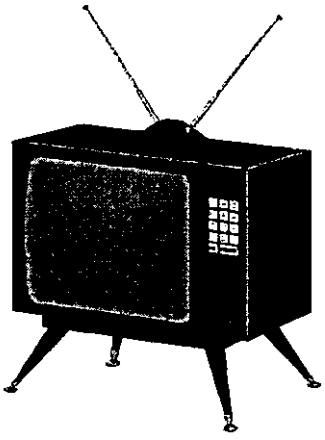


Figure 15: Sources of Interference

View the area around your detection zone as a sphere. Keep all interference sources outside the sphere.



Wanderer Monitoring System
Staff Alert Panels

Wanderer Monitoring System
Eight Zone Staff Alert Panel

Overview

If your Code Alert detection zones are not located within sight and sound of the nurse's station, it's likely that a staff alert panel has been installed at the nurse's station. The staff alert panel informs personnel of possible wandering events, much like the control unit at the detection zone does.

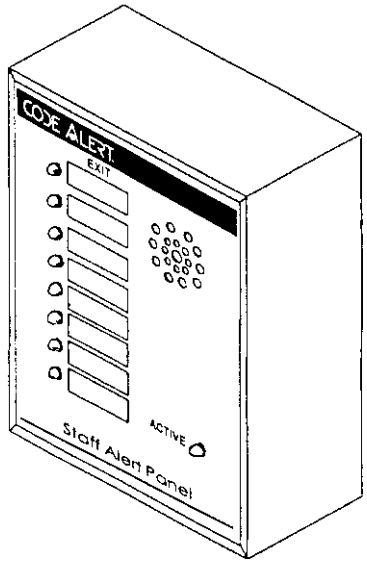


Figure 16: Eight Zone Staff Alert Panel

Functions

Your staff alert panel performs the following functions:

- Receives alarm signals from the control units and issues a tone and lights a location LED.
- Triggers a relay when any alarm is received.

Indicators

Your staff alert panel has the following indicators:

- ACTIVE - Green LED which indicates power is available to the system. This LED will flash when the staff alert panel is running on battery backup.
- EXIT - Red LED's which indicate that a control unit has gone into alarm. Spaces next to the LED's have been provided for writing in location information.
- BUZZER - Sounds when an alarm has been received.

Mounting and Wiring

There are two ways to mount the staff alert panel; surface mount and flush mount. Surface mounting of the panel requires a surface mount box and raceway for concealing the wire. Flush mounting the panel requires a flush mount box where wires are run inside the walls of the facility. Both types of boxes are available from your local dealer or Code Alert.

Follow the Steps listed below to install your staff alert panel:

1. Using an Allen wrench, remove the four screws that hold the faceplate to the surface mount box. Remove the faceplate and electronics from the surface mount box.
2. Holding the empty surface mount box against the wall, mark-out the four mounting holes at the back of the box.
3. Drill holes where you have made the marks. Lineup box mounting holes with the newly drilled holes in the wall. Using four drywall screws mount the box to the wall. Use drywall anchors if the screws will not hit studs.
4. Connect a 22/2 AWG conductor wire to the staff alert panel as shown below. Thread all wires through the break-away in the top or bottom of the surface mount box.
   A. Set JMP2 to the DRY position on the CA9300 control unit.
   B. Connect the plug-in wall transformers 2.5mm plug into the jack on the staff alert panel labeled *power*. This jack is on the component side of the circuit board.
   C. Power may also be supplied to the staff alert panel using a central power supply. Use the top two terminals on the staff alert panel labeled *12VAC* , to supply power using a central power supply.
5. A 2-conductor wire needs to be run between the staff alert panel and each control unit.
6. Write in or create labels which give the name of each location. Place these labels on the faceplate in the white boxes provided next to each LED.

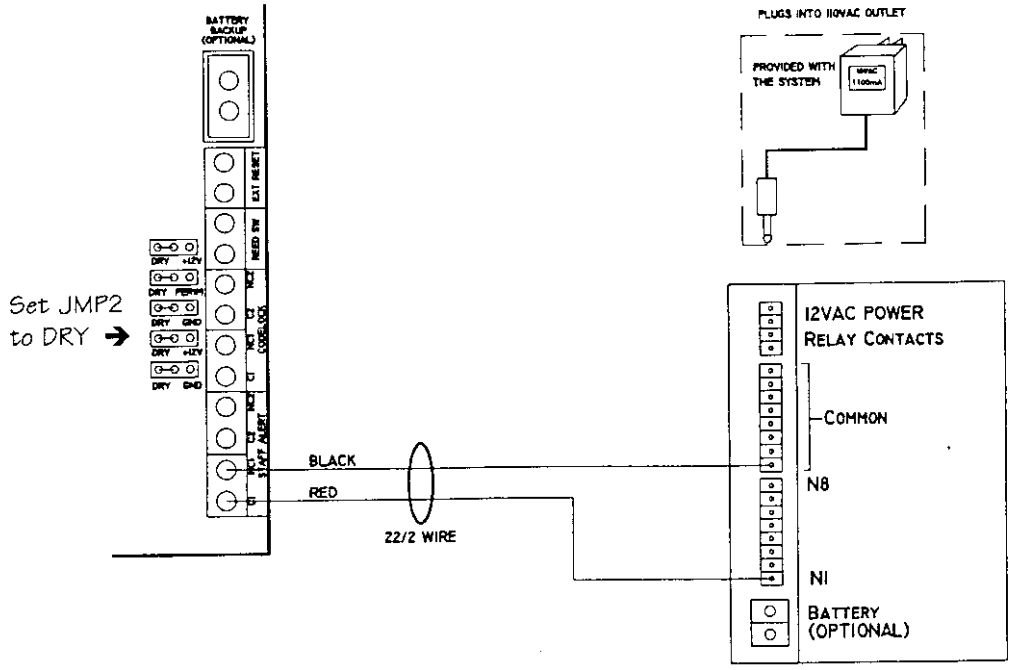


Figure 17 : Wiring an Eight Zone Staff Alert Panel to CA9300 Control Unit

Wanderer Monitoring System
Single Zone Staff Alert

Overview

This unit provides an audio tone at a remote location. It is ideal for single zone applications. The unit fits within a standard electrical box and has a stainless steel faceplate. A standard surface mount box is also available from Code Alert.

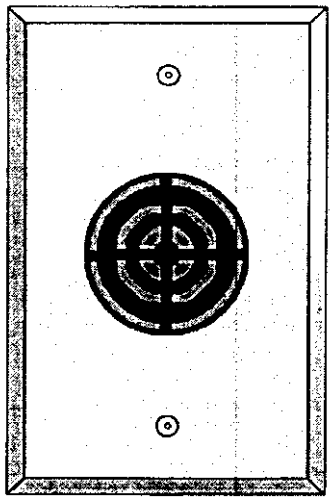


Figure 18: Single Zone Staff Alert

Functions

Your single zone staff alert performs the following functions:

- Receives alarm signal from the control unit then issues an alarm tone.

Indicators

Your single zone staff alert has the following indicators:

- BUZZER - sounds when an alarm has been received.

Mounting and Wiring

The single zone staff alert is mounted near a nurses station or other remote monitoring site. The following describes the mounting procedure.

1. Install flush mount or surface mount box.
2. Wire the unit.
   A. Set JMP2 to +12V on the CA9300 control unit.
   B. Power is supplied by the control unit. +12V comes from the staff alert relay contact C1. Ground is provided by connecting to the "-" side of the reed switch connection.
   B. Using 22/2 wire connect the control unit to the single zone staff alert panel. (See wiring diagram below)
3. Mount the faceplate to the flush or surface mount box.

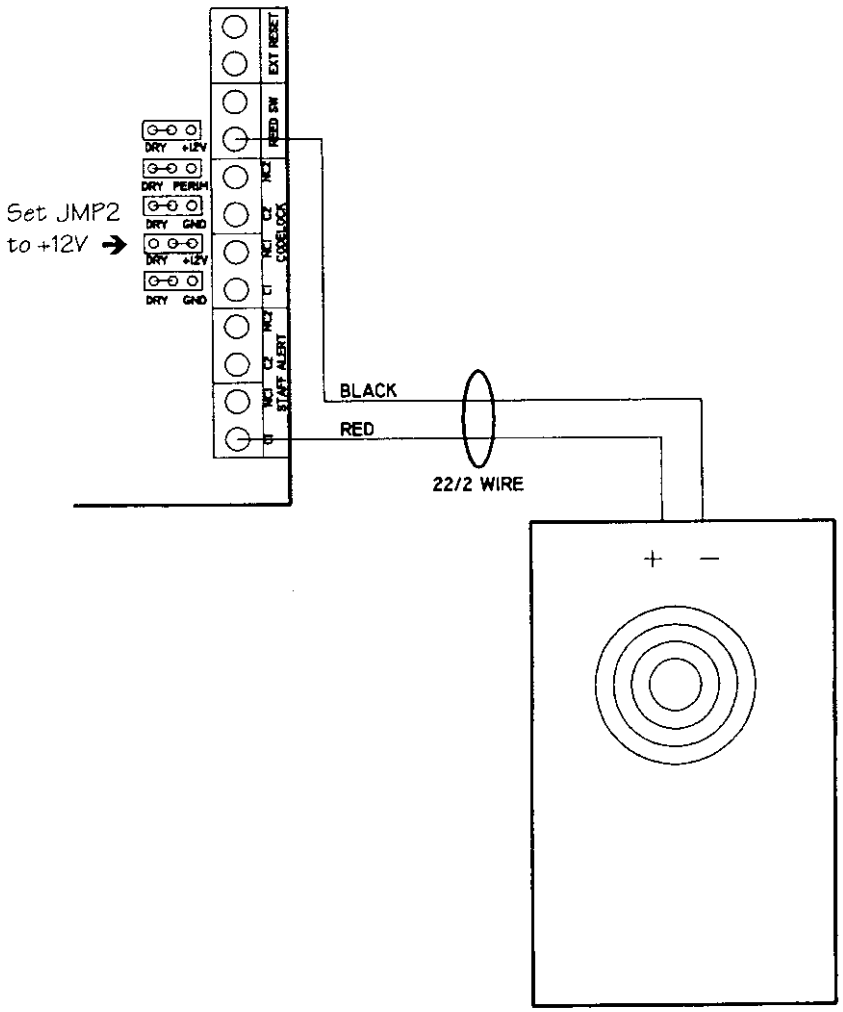


Figure 19: Single Zone Staff Alert Panel to Control Unit Wiring Diagram

Wanderer Monitoring System
Voice Alarm

Overview

The CA3000 Voice Alarm™ provides an immediate verbal announcement whenever an alarm event occurs. This notification is sent over the existing public address system or at a nurses' station. The announcement is instantaneous and identifies the specific location of the event.

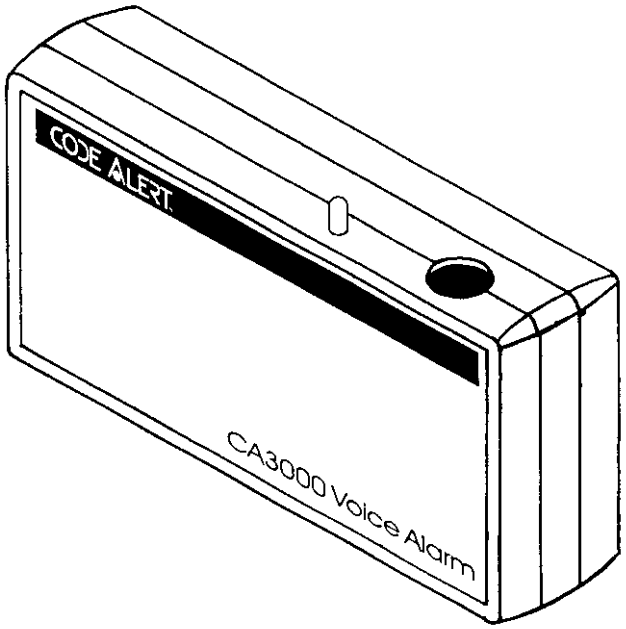


Figure 20: Voice Alarm

Functions

Your Voice Alarm performs the following functions:

- Receives alarm signals from the control units then issues a message over the public address system. A separate message can be used for each location.

Indicators

Your Voice Alarm has the following indicators:

- GREEN LED - A green LED on the top of the unit indicates power is supplied to the unit.
- RED LED's - Red LED's are contained within the 10 zone unit's. These LED's indicate which message is playing.

Wanderer Monitoring System
Transponders

Wanderer Monitoring System Transponder

Overview

The Code Alert system revolves around time-tested transponder technology which has proven reliable and accurate under the most demanding conditions. Code Alert transponders have been refined to the point that they do not require special handling or care.

The transponder is worn on the wrist or ankle, and emits a coded signal that is recognized and interpreted by the CA9300 control unit and receivers. The signal is coded to prevent stray electronic signals, such as those transmitted by electric wheelchairs, electrical and electronic equipment, etc., from activating the system and creating a false alarm.

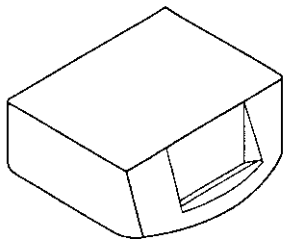


Figure 21: 2-Year Transponder

Fastening a transponders

1. Insert the band through the slot on the transponder from bottom to top and pull the band **over the top of the transponder** and down through the slot on the other side.
2. Bring the band around the wrist/ankle so that the end with the adjustment holes meets the end with the snap.
3. Adjust the band to a position where the transponder will not slip off, yet is loose enough to provide comfort for the resident. **CAUTION - Place the ankle transponder loose enough to prevent possible ankle edema.**
4. Once the adjustment is made, slip the selected hole down onto the wide collar of the snap. Bend the excess band back over so the next hole also slips down onto the collar.
5. Fold the flap with the snap peg over onto the band and into the collar and squeeze the two securely together.
6. Cut off excess band with scissors.

This procedure will provide a secure and safe fit on the resident.

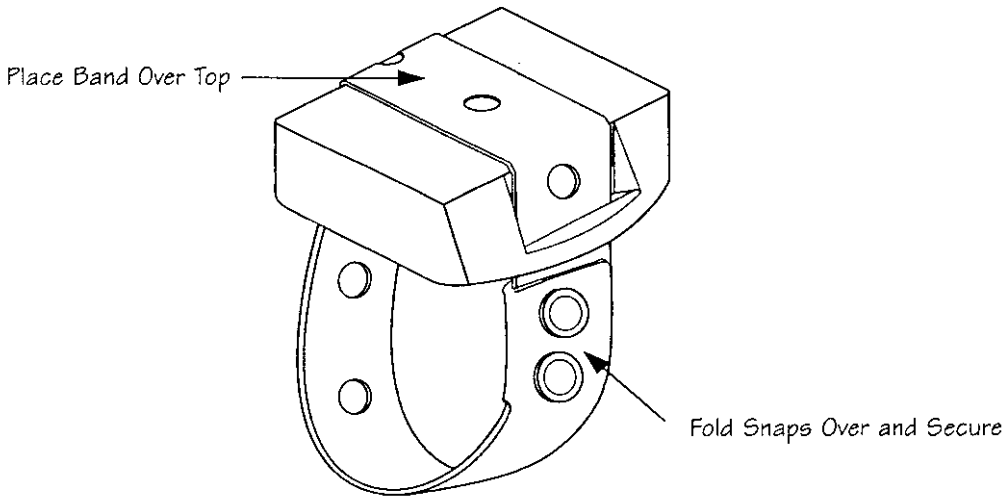


Figure 22: Fastening the Band

Wanderer Monitoring System
Final Installation Steps

Operation

To ensure proper operation of the Infant and Child Security System exit alarms after they have been installed, please proceed with the following tests:

Reset Code

Place a transponder in your hand and pass through the security zone. The alarm should sound at this time if the system is operating correctly. Now enter the reset code on the keypad: 1-3-7-9. This will reset the system to its resting state. (Make sure the transponder is not in range when resetting the system.)

Reset Code: [1] - [3] - [7] - [9] is factory preset.

Bypass Code

To test the bypass function of the system. Press the 1 and # keys simultaneously on the keypad. The green light labeled "STATUS" on the control unit should light at this time. Walk through the zone with the transponder in your hand. The system should remain in its resting, non-alarmed state.

If any of these tests fail call Code Alerts' Technical Department at 1-800-669-9946.

Bypass Code: [1] + [#] (entered simultaneously) is factory preset.

Note: **Due to the sensitivity of the Wanderer Monitoring System equipment, we urge that you do not try to repair or work on the system without first contacting Code Alerts' Technical Department.**

Final Checklist

After you feel fairly confident that you have installed all the Wanderer Monitoring System equipment properly, please proceed with the following checklist:

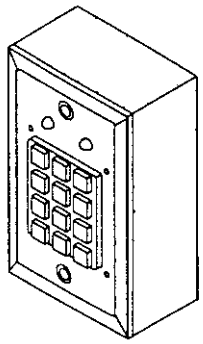
- ☐ Test each CA9300 detection zone for proper operation.
  - ☐ Staff alert panel operates properly by lighting proper zone LED and sounding alarm.
  - ☐ Voice Alarm announces correct location.
  - ☐ Reset and bypass codes operate at each detection zone.
  - ☐ Any optional equipment installed at the CA9300 zones operate properly.

Note: When using a central power supply attach each control units power individually and then test each zone.

Tips and Reminders

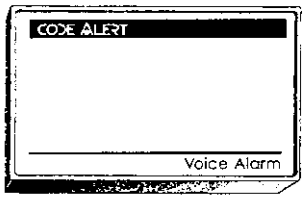
It is important that there be two or more staff members (possibly an administrator or a maintenance person) appointed to ensure proper use and operation of the Wanderer Monitoring System, and to document any necessary information your facility may need to keep.

1. Be certain that all staff members and new staff members are trained on the proper use of the Wanderer Monitoring System. Reading the in-service manual is important in familiarizing staff with the system.
2. Check the transponder band regularly for normal wear and tear. If you notice any fraying of the edges, replace it promptly.
3. Test each detection zone on a regular basis, ideally weekly.
4. Make sure that the appropriate staff are aware of which residents are wearing transponders. You may want to keep an active list of the names.
5. Respond quickly but calmly to all alarms.
6. If you believe you are experiencing some difficulty with the system, call our Technical Department immediately (1-800-669-9946). If you are unable to call immediately, document the date, time and details of the incident and call us as soon as possible.



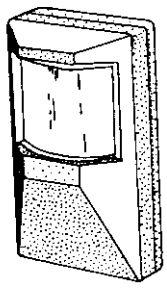
External Keypad Reset

Control units can be locally reset with the addition of an external keypad reset. When the proper reset code is entered into the keypad the alarming control units will be reset and/or bypassed.



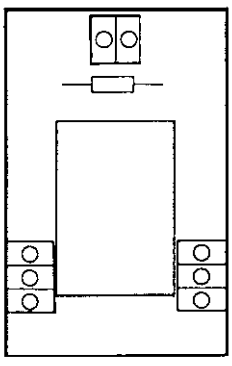
Voice Alarm™

Voice Alarm™ provides an immediate verbal announcement whenever an alarm event occurs. This notification is sent over the existing public address system or at a nurses' station. The announcement is instantaneous and identifies the specific location of the event.



Passive Infrared Detector (PIR)

PIR's may be used in place of the magnetic reed switches in hallways. It prevents the alarm from occurring unless an individual wearing a transponder is near the security zone and in the path of the beam from the PIR.



Elevator Deactivation

This option prevents the elevator door from closing during an alarm event.

Wanderer Monitoring System
Troubleshooting your System

Wanderer Monitoring System
CA9300 Troubleshooting

Power light not on

1. Check if unit is plugged in.
2. Check fuse on transmitter unit with Ohm meter if possible (power off). The Ohm meter should read 0 Ohms of resistance (750 mA Fast Blow).
3. Check fuse on control unit with Ohm meter if possible (power off). The Ohm meter should read 0 Ohms of resistance (750 mA Fast Blow).
4. Make sure there is at least 16VAC out of the plug in transformer.

No alarm sounding

1. (If unit makes a clicking sound)

   Make sure relay sense DIP switch 1-1 is set to "OFF".
2. Make sure all other DIP switches are in the correct positions (see pages 44-49).
3. If polarity on the receiver has been reversed (the black and red wires), disconnect immediately and call the technical hot-line 800-669-9946.

Intermittent Alarm

1. Is the wire run between the receiver and the control unit greater than 20 feet?

False Alarming

1. Are any transponders close to the area being monitored (even through adjacent walls in rooms near by)? Remove them from the area.
2. Check interference red or yellow lights -- observe different times that false alarming occurs. Try to determine if any particular electrical device (T.V., computers, motors, vacuums, fluorescent lights) are being used at the time of the false alarms.

If Staff Alert is buzzing or chirping

1. If using multiple staff alert panels, make sure they are all are plugged in.
2. Check the polarity on the zone wires.
3. Test continuity of the zone wires between control units and staff alerts.
4. Make sure all CA9300 control units are plugged in and functioning.

Unit can go into alarm when doors are closed

1. Check DIP switch SW2-1 for correct setting. SW2-1 should be in the "OFF" position.

If after going through these steps you are still encountering problems, please call us at 800-669-9946.

To help speed your call along, have your name, facility name (as shown on packing lists) or customer number, city and state ready for the Technical Support Specialist.

In the event that you are experiencing problems with your CA9300, if at all possible try calling from a telephone near the detection zone you are having difficulty with.

Having difficulties with your Code Alert system?

Call

1-800-669-9946

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Wanderer Monitoring System
Appendix-A: Configuration Settings

Wanderer Monitoring System
DIP Switch Operations

Overview

The printed circuit board for the CA9300 control unit has DIP switches that control many of the available options. Each switch bank has eight switches labeled 1-1 through 1-8 or 2-1 through 2-8. These switches are read by the system only on power up. If changes are made to these switches, switch off the system and then switch it back on to set the changes.

SW1 Options

Reset and Bypass Code Sequence

- DIP switches 1 through 3 allow the alarm reset code and bypass code to be changed. You have a choice of eight different four-digit codes to choose from. The bypass code will always be the first digit of the reset code and the # sign.

Bypass Time

- DIP switches 4 and 5 set the amount of time that the CA9300 control unit will ignore detected transponders in the area.

Anti-Tailgate DIP Switch

- DIP switch 6 enables and disables the anti-tailgate feature. If the anti-tailgate is enabled a door closure will end the bypass time.

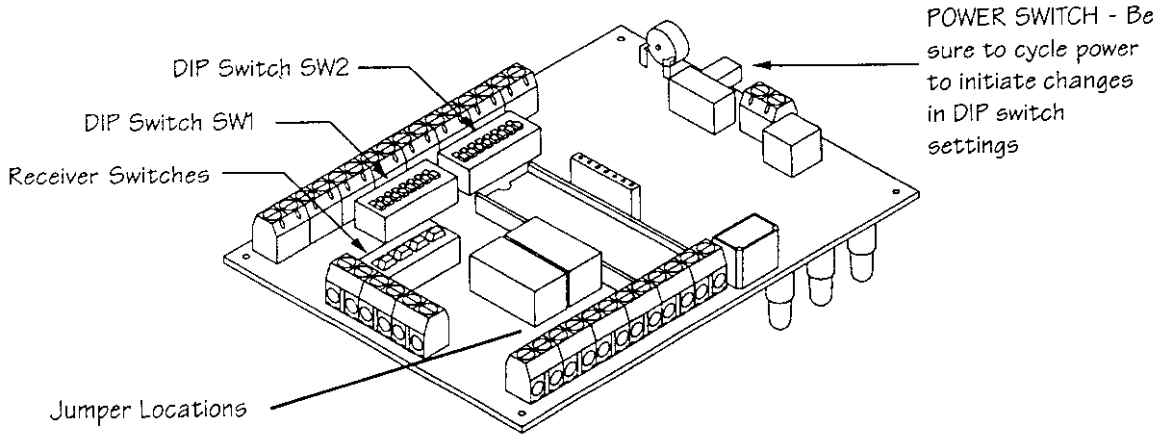
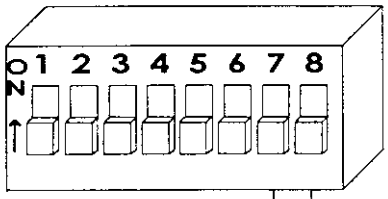


Figure 23: Switch Locations

SW1 Switch Settings

- SW1 controls such features as bypass time and reset codes. If changes are made to these switches, switch off the system and then switch it back on to set the changes.



SW1-8 - This switch is set to the "OFF" position Only.

SW1

SW1-7	Keypad Bypass Enable*
OFF	Keypad Bypass Code disabled
ON	Keypad Bypass Code enabled

SW1-6	Anti-Tailgate
OFF	Enabled
ON	Disabled

SW1-4	SW1-5	Bypass Time
OFF	OFF	15 seconds
OFF	ON	30 seconds
ON	OFF	45 seconds
ON	ON	60 seconds

SW1-1	SW1-2	SW1-3	Reset Code Sequence***	Bypass Code Sequence
OFF	OFF	OFF	1, 3, 7, 9	hold 1 and press #
OFF	OFF	ON	2, 8, 4, 6	hold 2 and press #
OFF	ON	OFF	2, 5, 8, 0	hold 2 and press #
OFF	ON	ON	4, 0, 6, 7	hold 4 and press #
ON	OFF	OFF	5, 0, 1, 3	hold 5 and press #
ON	OFF	ON	7, 4, 6, 9	hold 7 and press #
ON	ON	OFF	8, 2, 2, 5	hold 8 and press #
ON	ON	ON	0, 1, 2 ,3	hold 0 and press #

*** Reset Code may be used as a replacement for standard Bypass Code, see SW2-6 on page 83.

Figure 24: SW1 Switch Settings

SW2 Options

DIP switch 1 - This switch is set to the "OFF" position Only

Tag Capture and Deactivate

- When DIP switch 2 is enabled the control unit must be able to capture and decode a transponder twice before alarming the system. This helps to reduce the possible number of false alarms generated. *This switch must be set to the "OFF" position for all CA9300 Wanderer Monitoring Systems.*

External Push-button

- DIP switch 3 determines the function of the external push-button input on the control units. Two modes are available reset only and reset followed by a bypass. A normally open momentary switch is used to operate this function.

External Timer Input and Perimeter Alarm Mode

- Setting DIP switch 4 to the "ON" position places the control unit into perimeter alarm mode. An alarm will be generated if the door is opened. A transponder in the area is no longer required to activate the alarm. The external timer input is enabled as well. If a closure is seen across the CodeLock terminals NC1 and C1 then the perimeter alarm function will become active. This is good for Day/ Night modes using a timer with a normally open contact. DIP switch 6 is used to enable the Perimeter CodeLock Lock-down function. This function also causes the system to activate the CodeLocks and leave them locked beginning and ending at certain times of the day. The CodeLocks can be bypassed by entering the bypass code into the keypad.

8-Bit ID Range

- Switch 5 controls the number of possible transponder ID's that the system will accept. This switch is typically set to the "OFF" position to allow.

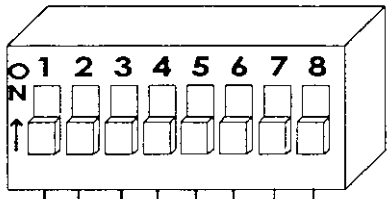
DIP switch 6 - This switch is set to the "ON" position Only.

DIP switch 7 - This switch is set to the "ON" position Only.

DIP switch 8 - This switch is set to the "OFF" position Only.

SW2 Switch Settings

- Many of the configuration options that deal directly with transponder code reading and other control options are accessible through DIP Switch Bank Two. If changes are made to the switches, **switch off** the system and then switch it back on to set the code changes.



SW2-8 - This switch is set to the "OFF" position Only.

SW2-7 - This switch is set to the "ON" position Only.

SW2-6 - This switch is set to the "ON" position Only.

SW2-5	8 Bit ID Range
OFF	1-250 Enabled
ON	1-63 Enabled

SW2-4	External Timer Input	Perimeter Alarm
OFF	Disabled	Disabled
ON	Enabled	Enabled

SW2-3	External Pushbutton
OFF	Reset Only
ON	Reset then Bypass

SW2-2	Transmitter Capture	Deactivate
OFF	1 Read	Not Allowed
ON	2 Reads	Allowed

SW2-1	Perimeter Alarm Mode - CodeLock Function
OFF	Doors Lock when in Perimeter Alarm Mode
ON	Doors do NOT lock when in Perimeter Alarm Mode

Figure 25: SW2 Switch Settings

Wanderer Monitoring System
Relay Output Jumpers

Staff Alert Panel Contacts

Jumpers JMP1 and JMP2 provide configuration for the staff alert relay output contacts C1 and NC1. These contacts are used to trigger or power devices such as staff alert panels, voice alarms, and on lights, or remote buzzers. The table below shows what settings the jumpers must be in to attained certain functions.

Function	JMP1	JMP2	Usage
Unswitched +12V at NC1	GND	+12V	Powering +12V Devices
Dry Contacts across NC1 and C1	DRY	DRY	For triggering Staff Alert Panels

Table 5: Staff Alert Relay Output C1 and C2

Jumper JMP6 (not shown) provides configuration for the Staff Alert relay output contacts C2 and NC2. C2 and NC2 are always dry contacts. JMP6 positions one and two affect whether the relay is seen as normally open or normally closed. To determine how the contacts will be viewed while the control unit is monitoring (un-alarmed) see the table below.

NC2 and C2	Pos-1	Pos-2
Contacts	N.C.	N.O.

Table 6: Staff Alert Relay Output C2 and NC2

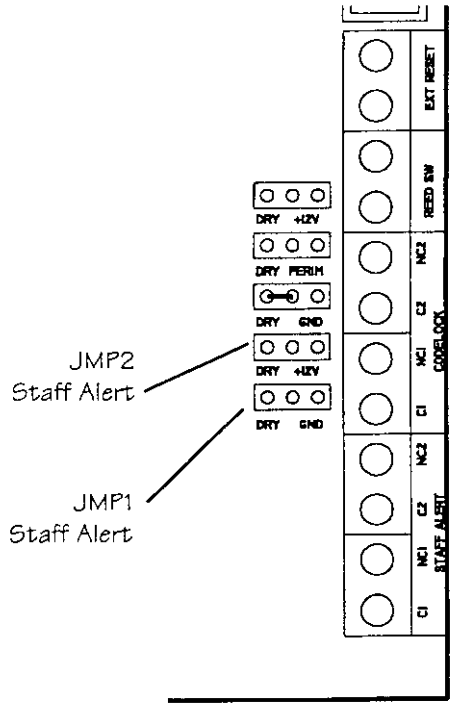


Figure 26: Control Unit Output Relay Contacts

When JMP3 and is set to GND and JMP4 is set to PERM the external perimeter alarm input is set. When NC1 sees ground the control unit will turn into a perimeter alarm. DIP switch SW2-4 must be set to the "ON" position to activate the perimeter alarm function. An external timer or N.O. switch may be placed across the contacts C1 and NC1 to activate the perimeter alarm function for day/night modes.

Function	JP3	JP4
Dry Contacts	DRY	DRY
Perimeter Alarm Input	GND	PERM

Table 7: CodeLock Contacts C1 and NC1

Wanderer Monitoring System
Standard Configurations

Overview

Below is a table of the standard DIP switch settings and Jumper configurations for many of Code Alert's standard options.

Features Desired	SW1	SW2	Jumpers	Comments
Standard	All OFF	6 ON 7 ON	JP1-5 DRY	
Switched +12V on Staff Alert contacts	All OFF	7 ON	JP2 to +12V	Staff Alert C1 is +12V contact. GND is from terminal #4 reed switch.
Unswitched +12V supply on Staff Alert contacts	All OFF	7 ON	JP1 to GND, JP2 to +12V	Staff Alert NC1 is +12V contact. C1 is the ground terminal. Use C2 and NC2 as the dry contacts for Staff Alert Panel.

Table 8: Standard Configurations

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Wanderer Monitoring System
Appendix-B: Specifications

Wanderer Monitoring System
Product Specifications*

TWO YEAR (2) YEAR TRANSPONDER SPECIFICATIONS:

Size:	1.5 x 1.7 x .562 inches
Weight:	.9 ounces
Color:	Beige
Enclosure:	Polycarbonate
Power Supply:	3.5V Battery
Battery Life:	2 years
Range:	4.5 Feet

BAND SPECIFICATIONS:

Size:	.75 inches wide
Color:	Navy Blue or Gray
Material:	Nylon

CA9300 CONTROL UNIT SPECIFICATIONS:

Size:	8.5 x 5.25 x 1.35 inches (Surface Mount)
Weight:	1.5 pounds
Color:	Beige
Enclosure:	Cold Rolled Steel (Surface Mounted)
Power Supply:	Plug-In Class 2 Transformer 16VAC 1100mA -or- Central Power Supply 15V DC, 400mA per unit required.
Operating Temperature:	0°C to 40°C (32°F to 104°F)
Outputs:	N.O. & N.C. Dry Relay Contacts - Jumper Selectable (2) N.O. & N.C. 12V DC Relay Contacts - Jumper Selectable (2) RS-232 Data, 95dB Alarm Tone at 2.8 kHz
Alarm Reset:	4-digit code; select from eight sequences - DIP Switch Selectable
Alarm Bypass:	30 seconds; select from four times (15, 30, 45, 60 seconds)
Indicators:	Power On (Red LED) Signal (Yellow LED) Status (Green LED)
Fuse:	Transmitter, Standard Fast-Blow Fuse (750mA) Controller, Standard Fast-Blow Fuse (750mA)
Transmitter Frequency:	131kHz

** Specifications Subject to Change*

EIGHT ZONE STAFF ALERT PANEL SPECIFICATIONS:

Size:	6.5 x 4.5 x 2.25 inches
Weight:	1 pound
Color:	Beige
Composition:	Stainless Steel Faceplate and Enclosure
Power:	12VAC 300mA Class 2 Transformer
Operating Temperature:	0°C to 40°C (32°F to 104°F)
Wiring:	22/2 AWG Stranded

RACEWAY

Size:	.75" x .5"
Color:	Beige
Composition:	94V-O PVC lengths, 94V-O ABS fittings
Adhesive:	Acrylic pressure sensitive foam tape 1/16" thick

SRG3-UHF RECEIVER SPECIFICATIONS:

Size:	3.75 x 2.25 x 1 inches
Weight:	.25 pounds
Color:	Beige
Enclosure:	UL 94VO ABS Plastic
Power Supply:	12V DC
Operating Temperature:	0°C to 40°C (32°F to 104°F)
Outputs:	DATA
Indicators:	Signal (Red LED)
Range:	10 feet, minimum

LOOP ANTENNA

Location:	2 turns #18 wire around door to be monitored
Frequency:	131kHz

Wanderer Monitoring System
Product Warranty

Code Alert (herein referred to as "Seller") warrants to the Buyer that the Code Alert System (herein referred to as "Product") will be free from defects in material and workmanship for a period of one (1) year from date of sale and title, and will conform to the Seller's quotation.

Transponder battery life is warranted for two (2) years. Battery is covered by a limited warranty prorated over the life of the battery. This warranty only applies to battery life and does not include back-plates, casings or bands which is one (1) year as stated elsewhere in this product warranty statement.

Seller's obligation under this warranty shall be limited to repairing or replacing any part which, within one (1) year from the date of sale, is returned to the factory, shipment prepaid, and upon examination by Seller, shall disclose to have been defective. The criteria for all testing shall be Seller's applicable product specifications utilizing factory specified calibration and test procedures and instruments. No allowance shall be made for local repair bills or expenses without the prior written approval of Seller.

Warranty coverage does not include any defect or performance deficiency (including failure to conform to product descriptions or specifications) which results, in whole or in part, from (1) improper storage or handling of the Product by Buyer, its employees, agents or contractors, (2) absence of any product, component or accessory recommended by Seller, but omitted at Buyer's direction, (3) any design, specification or instruction changed by Buyer, its employees, agents or contractors, (4) failure to comply with any applicable instructions or recommendations of Seller, including installation procedures, (5) physical damage occurring to transponders or other components after receipt and acceptance by buyer, or (6) acts of God, acts of civil or military authority, fires, floods, strikes, or other labor disturbances, war, riot, or other causes beyond the reasonable control of the Seller.

The preceding paragraphs set forth Buyer's exclusive remedies and Seller's sole liability for claims based on the failure of the products to meet any warranty, whether the claim is in contract, warranty, tort, (including negligence and strict liability) or otherwise, and however instituted, and upon the expiration of the applicable warranty period of such liability shall terminate. IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES.

THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE PRODUCT AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Notes:

CODE ALERT.
3125 N. 126th Street
Brookfield, Wisconsin 53005
1-800-669-9946 • FAX (414) 790-1784