

# SENTRY 101™ WIRELESS ALARM SYSTEM

## INSTALLATION AND OPERATION MANUAL



### OVERVIEW

The Sentry 101 is designed to process and report wireless alarms from personal duress pendants, universal transmitters attached to any dry contact device switch such as a door, and smoke detectors. Optionally, personal duress pendants may be equipped with a man-down circuit to indicate that the person carrying the pendant has succumbed to a misfortune causing him or her to fall in an unconscious or incapacitated state.

In the event of an alarm, the Sentry 101 master receiver will sound an audible alarm horn which will continue to sound until the "Silence" button is pressed on the face of the master receiver. Optional alarm annunciating devices may be added and the master receiver provides two form "C" relay outputs giving two separate SPDT outputs capable of switching up to 5 amps.

The most commonly used optional output devices are a strobe light and a telephone dialer. The telephone dialer will call up to 4 telephone numbers with a voice message recorded by the user. Also, it will call subscription numeric pagers and display a user defined numeric code. Any combination of pagers or telephone voice messages may be used on the four available dial-up telephone numbers.

### Range

Range for the various transmitters is typically several hundred feet indoors but this will vary from location to location and is affected by construction materials, equipment and other environmental factors. Outdoor range can be up to 2000 feet depending on environmental factors. If the range required exceeds the ability of any of the transmitters to reach the master receiver directly, FA575 repeaters may be installed. Multiple repeaters can be used to provide multiple hops thus allowing very large facilities and campuses to be accommodated. Repeaters are totally wireless requiring only a 110vac outlet for a plug-in transformer. They may be mounted outdoors but in colder climates with temperatures that approach 0 degrees Fahrenheit, an auxiliary heater will be required in each outdoor repeater.

### Spread Spectrum Technology

Your Sentry 101 wireless alarm system operates in the 900MHz band (902-928) and incorporates the latest state-of-the-art spread spectrum frequency hopping technology. This protocol was originally developed by the military to prevent jamming and interference of important radio communications. The same advantages have been applied to the Sentry 101 allowing the highest degree of reliability and performance.

### Transmitter Supervision

Each transmitter, pendant or smoke detector sends a check-in signal to the master receiver approximately every 60 seconds. If the master receiver does not see the check-in signal from any wireless transmitter for a period of approximately 4 hours, it will create a fault alarm to notify you by sounding a pulsing alarm horn. Fault alarms will *not* activate the auxiliary output relay. In addition, the batteries in every transmitter are continuously checked and you will be notified when any battery should be replaced.

### Back-up Battery Power Supplies

The Sentry 101 master receiver and the FA575 repeaters all have a 1.2 amp hour gel cell rechargeable back-up battery. If the master receiver loses AC power, an LED light on the front of the panel will begin to flash. The back-up battery will operate the master receiver without AC power for approximately 8 hours. When the master receiver

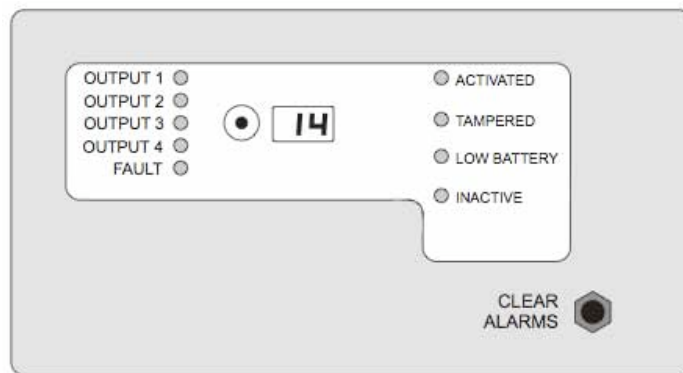
back-up battery begins to approach the limit of its ability to sustain the master receiver, a “Low Battery” LED light will begin to flash on the front of the panel. The rechargeable batteries in the master receiver and repeaters should be replaced every 3 years. After this period of time they will stop holding a charge and will not work properly in a power failure. There is no warning when these batteries have extended beyond their useful life so it must be administered by the facility maintenance calendar.

**OPERATION**

When a wireless emergency transmitter is activated, the master receiver will sound its alarm horn. The alarm horn is a steady tone and will continue to sound until the “Silence” button is pressed on the front of the master receiver. The alarm will also be indicated on the front of the master receiver by one or more LED lights. If a supervisory alarm is generated (low battery or failure of a wireless device such as a pendant) the alarm horn will sound a pulsing tone and the auxiliary output relays will not be activated.

**Horn Operation**

1. Steady alarm horn - wireless transmitter alarm (e.g. pendant activation)
2. Pulsing alarm horn - transmitter failure or transmitter low battery alarm (look for Fault light on the Sentry 101 receiver)



There are 5 LED lights in a column on the left. The master receiver has 4 relay outputs for 16 transmitters with the capability of assigning one relay output for 4 transmitters. The Sentry 101 master receiver comes wired with all 4 relay outputs working as one output which in turn activates all of the annunciating devices such as the alarm horn or an optional telephone dialer. Therefore it is not significant to know which of the 4 outputs is lit. Any one of the 4 indicates an alarm condition. The bottom LED light in this column is “Fault.” This LED is lit when the master receiver has detected either a low battery condition or supervisory check-in failure for one of the transmitters.

There are 4 LED lights in the right hand column. These indicate what kind of alarm has been received.

ACTIVATED	Is the standard alarm signal. On the left LED column, one of the “Output” LEDs will be lit.
TAMPERED	Applies to universal transmitters such as would be used on a door and indicates that the case has been tampered with. On the left LED column, one of the “Output” LEDs will be lit.
LOW BATTERY	Is lit when the signal indicates a low battery condition for one of the transmitters. On the left LED column, the “Fault” LED will be lit.
INACTIVE	When the master receiver fails to receive the periodic check-in signal for 4 hours from one of its transmitters, this LED will be lit. On the left LED column, the “Fault” LED will be lit.

### **Transmitter Number Display**

When any of the alarm or event activities occur causing the alarm horn to sound and LEDs to light as described previously, we will press the “Review Status” button to see which transmitter number is in alarm or is relaying a fault condition. If more than one transmitter is in alarm or fault, we can see them by pressing the “Transmitter Number” button multiple times causing the transmitter number display and the LEDs to step through the multiple transmitters.

### **Clear (reset) Alarms**

After we have pressed the “Transmit Number” button and written down the transmitter number(s) and what type of alarm(s), we will clear or reset the master receiver so that it will be ready to receive the next alarm. The master receiver will not notify you of any further alarms if the display is not cleared (reset). To clear and reset alarms press the button on the far right side of the face of the master receiver marked “Clear Alarms.” Do not press this button until you have recorded the alarm information. When the clear button is pressed, the information is erased.

**IMPORTANT: THE MASTER RECEIVER WILL NOT BE ABLE TO ACTIVATE ITS ALARM HORN OR ANY OTHER AUXILIARY ANNUNCIATING DEVICES SUCH AS THE VOICE DIALER UNTIL THE ACTIVE ALARM(S) HAVE BEEN CLEARED.**

### **Master Receiver Low Battery and AC Fail**

As discussed previously, the Sentry 101 master receiver has its own back-up battery power supply. Main power is drawn from a plug-in transformer. If this transformer loses power an LED on the lower face of the master receiver will begin to flash. After the master receiver has been operating for about 8 hours without its AC source, the battery will drain to the critical point and a Low Battery LED will begin to flash. There is no audible indication for either AC failure or low battery. In the event of power loss, the AC fail LED will not activate for approximately 2 minutes. This timer function is built in to disregard momentary power failures. The low battery LED will not light if the battery is missing. It will only light if the battery drops to a certain voltage level.

### **FA575 Repeater**

The FA575 repeaters also have their own self-contained back-up battery power supply. In the event of main AC power loss, the back-up battery will run the repeater for about 12 hours. There is no indication for repeaters that either the AC has failed or the low battery is low. However, in most applications, a failed repeater will create supervisory fault “Inactive” alarms for one or more transmitters allowing us the opportunity to troubleshoot and rectify the problem.

### **Wireless Pendants**

Simply press the button to activate an alarm. If the pendant is equipped with the man-down option, it will automatically go into alarm if it is tilted more than 60 degrees. However, there will be a warning beep for approximately 30 seconds before sending in an alarm. This will allow the carrier of the pendant to correct any non-alarm situations such as tying one’s shoe laces.

## **INSTALLATION**

Installation of the Sentry 101 is very simple and straight forward. Normally it is surface mounted on a wall in an area where other individuals will hear the audible horn alert. We will want to accomplish the following;

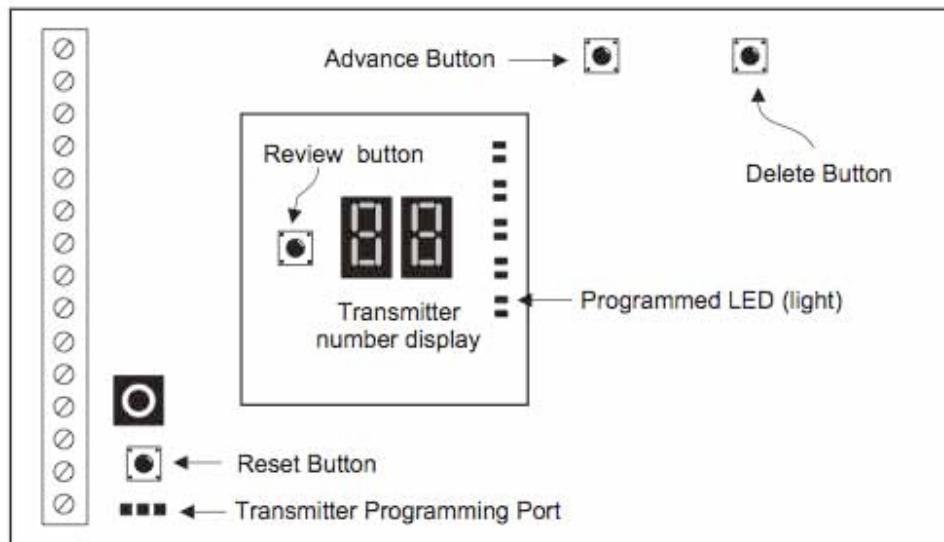
- Mount the Sentry 101 master receiver and the separate alarm horn on a wall or other suitable position.
- Run a wire to a 110vac outlet, hookup and plug-in the transformer.
- Run wire and hookup any optional annunciating devices such as a strobe light or telephone dialer.
- Install and hookup the rechargeable battery that resides in the master receiver.
- Mount the external alarm horn and connect to the master receiver with the supplied cable.
- Install any repeaters by mounting them to the wall and run a wire for their respective plug-in transformers.

1. Find an area suitable for mounting the Sentry 101 master receiver. It is convenient if it is above or near a 110vac outlet.
2. Remove the front cover of the master receiver by unscrewing 4 corner screws. Carefully remove the cover and lay it to one side. Disconnect the cable connector freeing the cover from the main body.
3. If you intend to run an exposed or visible AC wire from the master receiver to the plug-in transformer or other optional annunciating devices, you will want to drill one or more holes as necessary in the bottom, top or sides of the master receiver main body for the wiring to pass through. If the wiring is going to be hidden, skip the rest of this step and go to step 4. Drill a hole in two of the corners of the master receiver main body large enough to allow mounting screws to pass through and screw into the wall anchors (screws and anchors are provided with the Sentry 101). Hold the master receiver main body up to the place where it is to be mounted and, using a marking device such as a pencil, mark the screw holes on the mounting surface. Make corresponding holes in the mounting surface. If you are installing the master receiver with visible wiring (not hidden in walls) skip to step 6.
4. If you intend to hide the AC power cable or install any other optional annunciating devices like a strobe light or a telephone dialer with hidden wiring, you will want to make a hole for the wiring to run through the back of the main body of the master receiver. You will see an area that is free of components. There is most likely a knock-out available in this area. If there is no knock-out, drill a hole large enough to accommodate the wiring. Drill a hole in two of the corners large enough to allow screws to pass through and screw into the wall anchors (screws and anchors are provided with the Sentry 101). Hold the master receiver main body up to the place where it is to be mounted and, using a marking device such as a pencil, mark the screw holes and wire hole on the mounting surface. Make corresponding holes in the mounting surface.
5. To hide the AC power cable, run a 2 conductor 18 gauge from the master receiver location to an AC outlet by hiding it inside walls and drop ceilings as necessary. If the AC outlet is below the mounting place for the master receiver, make another hole just above or below the AC outlet through which to pass the wire. You may also be able to remove the cover plate of the AC outlet and fish the wire out from between the sheetrock or paneling and the back box. Make a small cutaway in the sheetrock or paneling to allow the wire to emerge from beneath the replaced cover plate. Attach the wire to the plug-in transformer that was provided with the Sentry 101. This is done by loosening the two screw terminals on the plug-in transformer and securely attaching the wires for AC power. **Do not plug in the transformer** at this time.
6. Run any other wiring, hidden or visible, that you desire for optional purposes such as a strobe light (2 conductor 18 gauge) or telephone dialer (2 conductor 22 gauge or larger).
7. Pull the wiring through the hole(s) that you have made in the master receiver main body and mount the main body to the mounting place using the screws and screw anchors (or discard the anchors and drive the screws directly into a wood surface).
8. Install the AC power wire (2 conductors) to the two terminals on the power supply as indicated on the drawing at the end of this manual. There is no polarity to observe so it does not matter which wire goes to which terminal.
9. Install any optional annunciating devices according to the drawing at the end of this manual.
10. Install the back-up battery in the master receiver that is now mounted. It is important to observe the polarity of the back-up battery. Be certain to plug the red wire from the master receiver power supply onto the red battery terminal and the same for the black wire. Refer to the diagram at the end of this manual.
11. Reinstall the cover of the master receiver including re-connecting the plug. Plug in the AC transformer and stand back! Only kidding. First remove the plug cover plate screw. Plug in the transformer and screw the transformer in to the vacant screw hole.
12. Connect the external alarm horn to the master receiver with the supplied cable (it has standard RJ11 telephone type connectors).
13. Thoroughly test all transmitters numerous times from various positions to be certain coverage is adequate. Hold wireless pendants next to the body when testing as this reduces the range. When pendants are required in an emergency situation, they will be worn next to the body. So we should test them in like manner. As a matter of ongoing maintenance, re-test all pendants and transmitters for coverage weekly.

## PROGRAMMING PENDANTS OR OTHER TRANSMITTERS

Any pendants that are shipped to you with the Sentry 101 master receiver, will arrive pre-programmed and ready to go. If you purchase pendants (transmitters) later to add to your system, you will need to program them to work with your master receiver. The receiver has 4 relay outputs and it arrives to you with all transmitters assigned to relay output number 1. This is all that is necessary for the operation of your system. It is possible to assign any of the 16 available transmitters to any of the 4 relay outputs but these changes can only be made by **CARECALLER** and are not field programmable.

1. Transmitters are assigned to numbers 1 through 16. First remove the cover of the receiver. The receiver is mounted on the outside of the main power supply and processing box. Insert a small flat blade screwdriver in the seam on the top edge of the receiver and pry the cover off.
2. Now we will select the number you wish to assign to the transmitter. To do this, press the *Advance Button* on the exposed circuit board of the receiver (see drawing). As you press this button repeatedly you will see the *Transmitter Number Display* scrolling through the 16 transmitter numbers. Hold the *Advance Button* to scroll rapidly through the numbers. Stop scrolling on the displayed number that you wish to use for the transmitter you are programming. The green Programmed LED will indicate unprogrammed numbers by flashing, and previously programmed numbers will be indicated by a constant "on."
3. Connect the transmitter to the receiver *Transmitter Programming Port* with the programming cable. The transmitter is opened by inserting a small blade screwdriver into the seam on the bottom. Pry the case apart (do not twist the screwdriver). The exception is the FA223S pendant (not a man-down pendant) which is opened by removing three small screws on the backside. There is a three pin header inside the transmitter and the programming cable slips onto this. There is no polarity so it doesn't matter which way the cable is placed onto the header.
4. Press the reset button on the exposed circuit board of the transmitter. This is the only available button that is visible when the transmitter cover is removed. The Programmed LED will turn on solid indicating programming is accomplished. It may be necessary to press the transmitter reset button more than once, because the receiver may be "busy" with signals from other transmitters.
5. To program additional transmitters, repeat steps 2 through 4.
6. To exit program mode, press the *Review Button* or the *Reset Button* on the receiver.



## WARRANTY & DISCLAIMER

CARECALLER warrants its products (“Product” or Products”) to conform to its own specifications and to be free of defects in materials and workmanship under normal use for a period of twelve (12) months from the date of manufacture. Within the warranty period CARECALLER will repair or replace, at its option, all or any part of the warranted product, CARECALLER will not be responsible for dismantling and/or reinstallation charges. To exercise the warranty, the User (“User”, Installer” or Consumer”) must be given a Return Material Authorization (“RMA”) Number by CARECALLER. Details of shipment will be arranged at that time.

This warranty does not apply in cases of improper installation, misuse, failure to follow installation and operating instructions, alteration, abuse, accident or tampering, and repair by anyone other than CARECALLER.

This warranty is exclusive and expressly in lieu of all other warranties, obligations or liabilities, whether written, oral, express, or implied, including any warranty of merchantability or fitness for a particular purpose. CARECALLER will not be liable to anyone for any consequential or incidental damages for breach of this warranty or any other warranties.

The warranty will not be modified, varied or extended. CARECALLER does not authorize any person to act on its behalf to modify, vary or extend this warranty. This warranty will apply to CARECALLER Products only. All other products, accessories or attachments used in conjunction with CARECALLER equipment, including batteries, will be covered solely by their own warranty, if any. CARECALLER will not be liable for any direct, incidental or consequential damage or loss whatsoever, caused by the malfunction of Product due to products, accessories, or attachments of other manufacturers, including batteries, used in conjunction with CARECALLER Products.

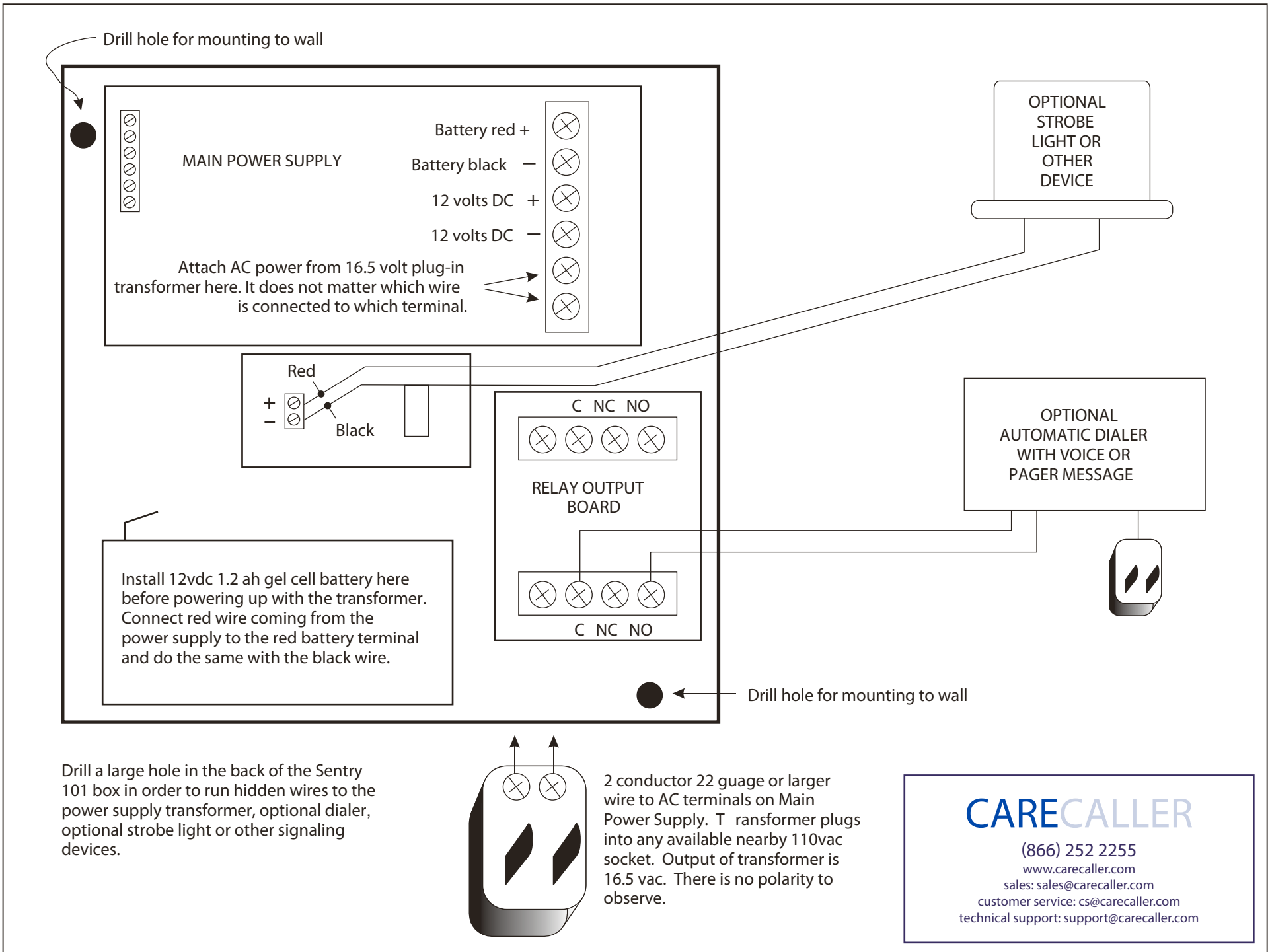
This warranty does not warrant the replacement of batteries that are used to power CARECALLER Products.

The User recognizes that a properly installed and maintained security system may only reduce the risk of events such as burglary, robbery, personal injury and fire. It does not ensure or guarantee that there will be no death, personal damage and/or damage to property as a result. **CARECALLER does not claim that the Product may not be compromised and/or circumvented, or that the Product will prevent any death, personal and/or bodily injury and/or damage to property resulting from burglary, robbery, fire or otherwise, or that the Product will in all cases provide adequate warning or protection.**

**CARECALLER shall have no liability for any death, injury or damage, however incurred, based on a claim that CARECALLER Products failed to function.** However, if CARECALLER is held liable, directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of cause or origin, CARECALLER s' maximum liability will not in any case exceed the purchase price of the Product, which will be fixed as liquidated damages and not as a penalty, and will be the complete and exclusive remedy against CARECALLER.

**Warning: The User should follow all installation, operation and maintenance instructions.** The User is strongly advised to conduct Product and systems tests at least once each week. Changes in environmental conditions, electric or electronic disruptions and tampering, may cause the Product to not perform as expected.

**Warning: CARECALLER warrants its Product to the User.** The User is responsible for exercising all due prudence and taking necessary precautions for the safety and protection of lives and property wherever CARECALLER Products are installed. CARECALLER strongly advised the User to program Products to be supervised wherever used in applications affecting life safety. Users are warned that unsupervised devices are subject to undetected failure due to malfunction, battery failure, tampering, or changes in environment.



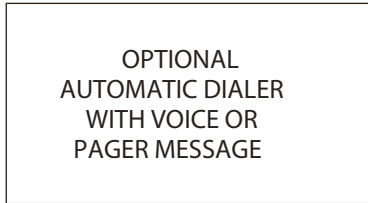
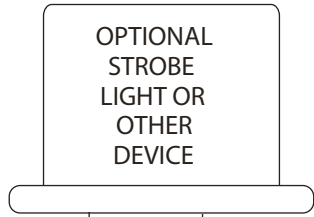
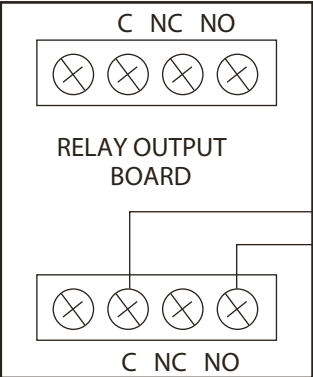
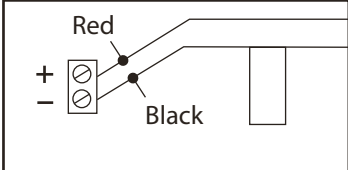
Drill hole for mounting to wall

**MAIN POWER SUPPLY**



- Battery red +
- Battery black -
- 12 volts DC +
- 12 volts DC -
- 
- 

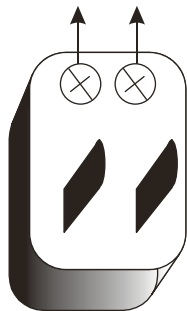
Attach AC power from 16.5 volt plug-in transformer here. It does not matter which wire is connected to which terminal.



Install 12vdc 1.2 ah gel cell battery here before powering up with the transformer. Connect red wire coming from the power supply to the red battery terminal and do the same with the black wire.

Drill hole for mounting to wall

Drill a large hole in the back of the Sentry 101 box in order to run hidden wires to the power supply transformer, optional dialer, optional strobe light or other signaling devices.



2 conductor 22 gauge or larger wire to AC terminals on Main Power Supply. Transformer plugs into any available nearby 110vac socket. Output of transformer is 16.5 vac. There is no polarity to observe.

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