



Mk III Radio-CallBox User Manual

2020

Overview

This device is used as an emergency communications call box for remote areas such as parking lots, walkways, or other locations not having easy access to telephone lines. Communications from the call box to security personnel is done via two-way radio. To use, the user presses a call button on the front panel, which causes the unit to activate a strobe light and send one pre-recorded voice message to the caller and another voice message to security. The message to security would typically state the nature of the call and the location of the call box, while the message to the caller might state that the call is underway. Security responds by sending a coded signal back to the call box to enable it for two-way communications with the caller. Once enabled, the call box button becomes a push-to-talk switch, allowing the caller to talk directly to security. When communications have ended, security can send another coded signal to the box to re-arm it for another emergency call and deactivate the strobe.

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Technical Summary

Hardware Components

The components which make up the call box system are: (1) The call box controller, (2) two-way radio , (3) rechargeable battery, (4) power supply delivering 15 volts DC @ 4 amps, (5) speaker & microphone, (6) RED and GREEN front panel lights (LEDs), (7) up to four front panel push-button CALL switches, (8) a strobe light and a nightlight, and (9) a vibration-sensing tamper switch and other normally closed switches wired in series to sense theft or vandalism. Not part of the call box unit itself, but required for use, is a security guard or equivalent with two-way radio who will be responsible for responding to calls made from the call box. The controller is computer-based, and governs the overall operation of the call box. The controller has the capability of receiving and decoding DTMF signals (commands) sent from the security station. It also is responsible for activating the radio's push-to-talk switch or routing audio signals from the microphone or from the voice storage & playback system to the radio (for transmission), routing audio signals from the radio or the voice system to the front panel speaker, controlling the RED and GREEN lights, the strobe and the nightlight.

The Software

In the software for the callbox there are several modes of operation, and a few sub-modes. The main modes are Idle and Talk modes, where in Idle mode the callbox software is waiting for some event to take place and in Talk mode it is controlling two-way communications between the security office and the caller by 2-way radio.

Listen mode is a sub-mode of Idle or Talk mode, and this defines the condition where the caller (the person near the callbox) cannot hear any communications from security but security can hear what is being said near the callbox. The callbox can be in Idle mode or Talk mode and temporarily be switched to Listen for a predetermined length of time, at which time it will automatically revert¹ back into whatever mode was in effect before the switch. Listen mode is primarily used for security to listen to any activity in the vicinity of the callbox without anyone near the callbox being aware of it.

Quiet mode is a sub-mode of Talk mode, and this defines the condition where a call is taking place without any indication at the callbox that it is doing so. Quiet mode is useful for Tamper alarms and Low Battery calls, where the call is normally intended to provide a prerecorded message to security only, and not intended for 2-way communications between the callbox and security.

Idle Mode

When idle the red and green LEDs are off, the strobe is off, and the radio is not transmitting or the phone is on hook. The microphone and speaker are both muted. The unit is monitoring (1) the call button(s) and the TEST button, (2) the tamper switch and other switches in the security current loop (3) battery level, and (4) received DTMF tones from the radio or an incoming call via the phone, and (5) the "Menu" key of the keypad. When any of these events occur the unit will leave idle mode and perform the functions required by the event. These are described in the following sections. If the controller receives either of the two activation codes via radio it will immediately enter Talk mode. If it receives the Listen code it will enter Listen mode, and if it receives one of the digital output activation codes it will activate the specified output. These are the only DTMF codes the unit will respond to while in Idle mode and a 2-way radio is being used.

Call Initiation

A call to security is initiated when any of the four possible front panel CALL buttons are pressed, or the TEST switch is pushed, or the tamper circuit is triggered, or when a low battery is detected, or automatically when programmed to make a TEST call at periodic intervals. **All call types are handled in the same manner by the controller. There is nothing that distinguishes one call type from another other than the messages, features and timeouts that are programmed by the factory or dealer. One minor exception is a TEST call. See Test Button.**

There are 7 "call types" (CT). They are:

1. Call switch #1
2. Call switch #2
3. Call switch #3
4. Call switch #4
5. TEST switch
6. Tamper alarm
7. Low battery

Call Progress,

When activated, all calls are processed in the manner described below. The features that are programmable are shown in blue.

1	The front panel green LED will be ON or OFF (<u>Quiet Mode</u>) while any CALL button is pressed to initiate a call.
2	The strobe light will be ON or OFF (<u>Quiet Mode</u>).
3	A voice message for the caller corresponding to the call type will or will not (<u>Caller Messages On</u>) be played repeatedly at the local speaker for the benefit of the caller.
4	The callbox will or will not (<u>COR</u>) wait for a clear channel via the COR signal provided by the radio or by the controller's audio detection circuits. The maximum wait time for the COR has a default value of 30 seconds.
5	The radio transmitter is keyed and ANI codes will or will not (<u>ANI ON</u>) be transmitted.
6	A voice message for security corresponding to the call type, and a common location message (Security Message #8) will or will not (<u>Security Messages On</u>) be transmitted to security simultaneously with the user message in step #3.
7	Step #6 will be repeated a programmed number of times (<u>Message Repeat Count</u>). The caller message will be repeated continuously (if enabled) until the callbox is activated (or deactivated).

8	<p>The radio will be un-keyed and the unit will or will not (determined by Auto-Activate) wait for a programmable period of time (Activation Timeout) for an activation code to be sent from security which will place the unit in Talk mode. If programmed for Auto-Activation the unit will enter Talk mode immediately after playing the security message(s). If the activation timeout expires with no activation code received the unit will repeat from step #5 if the Call Timeout timer has not expired. If the programmed Call Timeout has expired the unit will play the Call Failure Message to the caller (caller message #8), then terminate the call and revert to Idle mode. A separate call timeout is provided for each call type. (Exception: If the activation timeout is set for 0 seconds there will be no activation timeout, therefore the activation time should normally not be programmed for 0 seconds, as this would cause steps #5-8 to be repeated indefinitely.)</p>
9	<p>After an activation code is received (or if auto-activate is enabled) the unit will enter Talk mode. The red front panel LED will or will not (Quiet Mode) be lit. Any of the CALL buttons now become push-to-talk buttons. When pressed, the green front panel LED will be lit and the caller's voice will be transmitted via radio to security; when released the audio from the radio will be heard at the callbox speaker. The caller is allowed to transmit for a limited time (Talk Timeout) for every push of one of the call buttons. If this time expires the green LED will go out and the radio will stop transmitting.</p>
10	<p>The Call Timeout timer is reset to zero upon every push of any CALL switch while in Talk mode and whenever any DTMF signal is heard from the radio. Upon timeout the call will be terminated and the unit will revert to Idle mode.</p>
11	<p>Upon receiving the deactivation code the call will terminate and the unit will revert to Idle mode.</p>

TEST Pushbutton (Call Type 5)

When the TEST pushbutton is pressed the callbox will make a call as described above, with two exceptions. (1) Prior to the call the callbox will sound a short beep to the speaker and attempt to detect this beep at the microphone. This is done to test the integrity of the speaker/mic combination, and the result of this test is included as part of the ANI codes sent when the call is connected. (2) The controller will turn off AC power while a TEST call is underway in order to test the battery condition. If the battery is found to be low during the test call, or if the controller loses power completely due to a dead battery, it will make a Low Battery call as soon as the test call has ended or it has recovered from the power failure. A Low Battery call after a power failure may take up to 1 minute to be initiated after power is restored.

The TEST pushbutton performs a different function once a call is underway. If pushed while the callbox is waiting for an activate/deactivate code, the callbox will behave as though the event it is waiting on has occurred. This is intended to aid in testing or troubleshooting a misbehaving callbox.

Also see Auto-Test.

Tamper Detection (Call Type 6)

When the tamper switch is activated by severe vibration, or if the security current loop circuit is opened via any of several series-connected normally closed switches, the controller will initiate a call as described above. This call type would typically be programmed for [Quiet Mode](#), which sets the front panel LEDs and front panel speaker to be disabled during call activation. It would also be programmed for Auto-Activate, so that after the ANI and voice messages have been sent the unit would enter Talk mode immediately. Quiet mode would still be in effect once the unit entered Talk mode, so that Listen could be activated without alerting anyone in the vicinity. If an Activation code is received it will turn off Quiet Mode and allow security to have 2-way communications with the call box.

There are two tamper inputs to the controller. One is a vibration sensor, the second is a current loop circuit that must be a closed circuit for a no-alarm condition. A mercury tilt switch, door ajar, or any other normally closed switch may be connected into this loop, where any opened switch anywhere in the loop will activate the tamper alarm. To disable the tamper alarms during servicing an electrical key switch accessible from the outside of the unit should be wired so as to short the tamper current loop input to circuit ground to deactivate the loop switches. Also, a second pole of this same switch should be used to open the circuit to the tamper vibration sensor so that it too is disabled prior to gaining access to the callbox.

Low Battery (Call Type 7)

When the controller senses a low battery condition, it will initiate a call as described above. This call type would typically be programmed for Quiet Mode, which sets the front panel LEDs and front panel speaker to disabled during call activation. It would also be programmed for Auto-Activate, so that after the ANI and voice messages have been sent the specified number of times the unit would enter Talk mode immediately. Furthermore, it would be programmed for a Talk Mode Timeout of a time period of 1 second. This would cause the low battery message to play the desired number of times and the call would be terminated 1 second after completion of the messages.

Once a low battery message has been sent, the unit will not repeat a low battery call until the battery has been charged for 1 hour. This is to help prevent the possibility of the controller sending multiple low battery warnings as the battery teeters on the brink of the threshold of good-to-weak.

Detecting a weak battery is difficult while AC is present and the charger is charging the battery. The only reliable way is to sense the battery voltage under load. When AC or solar power is not present this requirement is met, so low battery detection while operating under battery power is accurate and reliable. So in order to test the battery during charging a TEST call must be placed where the callbox controller will disconnect the AC power during the call (TEST call only). During the TEST call if the battery is found to be weak, it will immediately place a Low Battery call after the TEST call is complete. Also, during the TEST call if power drops so low that the callbox cannot maintain operation, it will make a Low Battery call within about 1 minute after it recovers from the power failure.

Listen Mode

Listen mode is a temporary mode that can be entered by the controller receiving the Listen DTMF code sequence (when using a 2-way radio). In Listen mode, the controller activates the microphone and keys the radio for a preset time interval ([Listen Timeout](#)). The speaker remains muted, and no lights are lit. At the end of the time interval the radio is un-keyed and the unit reverts to whatever mode was previously active (Idle or Talk mode).

Talk Mode

When in this mode, if Quiet Mode is NOT in effect, the speaker is activated and any audio being received via radio will be heard by the caller. The red LED is lit and will stay lit as long as Talk mode is active. The CALL button becomes the push-to-talk switch for the transmitter when using a radio. When pushed, the green LED will light, the speaker is disengaged, the microphone is activated and the radio is keyed. The controller will only allow the radio to be keyed for a fixed time period (referred to as [Talk Timeout](#), and programmable per each CALL button) in order to guard against tampering or mechanical failure. Normally, the green LED will be lit as long as the CALL button is pressed. If the Talk Timeout period is reached, the green LED will be extinguished even though the CALL button is still being pressed. (The caller can release the CALL button and push again to reset the timeout and talk.)

Talk Mode (continued)

Note that if Quiet Mode is in effect, no LEDs are lit and the local speaker is disabled. The caller can still push the CALL button to transmit (which also would turn off Quiet Mode), although he/she would not normally know to do so since there would be no visible signs that the callbox is doing anything.

If the DTMF deactivate code is received, the controller will enter Idle mode. If the DTMF activate code is received the unit will stay in Talk mode and will turn off Quiet Mode if it was in effect. (See [DTMF commands](#).) The unit will automatically enter Idle mode if the [Call Timeout](#) time expires with no activity of the CALL button or if no DTMF tones are heard. The Call Timeout is reset to zero on every push of the CALL button during Talk mode and upon hearing any DTMF tones. The Call Timeout time may be set individually for each call button, test button, the tamper alarm and the low battery alarm.

There are 2 activate codes (DTMF command "1" and "8"). Using the "1" command will activate as described above, and using the "8" command will not only activate the callbox but will also activate OUT4 until the callbox is either deactivated, or re-activated using the "1" command. Re-activating using "1" will keep the callbox activated but will turn off OUT4. OUT4 is intended to be used with an optional relay module to connect a P.A. speaker to the callbox.

Quiet Mode

Quiet mode is actually Talk mode but without any front panel LEDs lit and the callbox speaker muted. [Quiet Mode](#) can be set for any call, but is intended for Tamper, Low Battery, and possibly Test calls.

AllCall and Zone Calls and PA Option

DTMF commands may be sent to specific groups of callboxes or All callboxes by using "wildcards" in the callbox number. A wildcard is the digit "0", and will match the corresponding digit in any callbox number. As an example, if one set of callboxes is numbered 21 through 29, and another set in the same system is numbered 31 through 39, then all of the first group can be addressed with a DTMF callbox address of "20" and all in the 2nd group can be addressed using "30". By using all "0"s, all CallBoxes will be addressed. Fairly elaborate zoning schemes can be designed with the appropriate callbox numbering methods. All commands except Listen and Self Test can use wildcards.

Using a wildcard to address a group of CallBoxes is especially useful with the DTMF "8" command, which activates a callbox with OUT4 energized. The OUT4 signal is normally used to engage a PA Speaker Option at each callbox for making announcements. An AllCall (all zeros) followed by the "8" command will initiate a campus wide PA Alert Mode which can (Optional) include activation of all Strobes and disabling of all Call Buttons until the CallBoxes are reset.

DTMF Summary

For CallBoxes Programmed with Six Digit Commands

Activate:	* N N N 1 #
Reset:	* N N N 0 #
Listen:	* N N N 2 #
Self-Test:	* N N N 3 #
	Or * N N N 4 #
PA:	* N N N 8 #
AllCall PA:	* 0 0 0 8 #
Zone 1 PA:	* 1 0 0 8 #
Zone 2 PA:	* 2 0 0 8 #
Zone 3 PA:	* 3 0 0 8 #
Zone 4 PA:	* 4 0 0 8 #
AllCall Reset:	* 0 0 0 0 #

For CallBoxes Programmed with Three Digit Commands

Activate:	N N N
Reset:	N N N #
Listen:	* N N N
AllCall:	0 0 0
AllCall Reset	0 0 0 #
AllCall PA:	* 0 0 0 8 #
AllCall PA Reset:	* 0 0 0 0 #

Note: N equals a CallBox Number

DTMF Command List

Deactivate (Radio): * N .. n 0

If the callbox is in Talk mode this command terminates the call and will put the callbox back into Idle mode. If already in Idle mode this command has no effect. If a callbox is waiting for an activation code (when a call is being placed) this command will have no effect. Wildcards accepted if enabled.

Activate (Radio): * N .. n 1

If the callbox is in Idle mode this command puts the callbox into Talk mode with a Call Timeout set to 3 minutes. If already in Talk mode this command will turn off Quiet Mode if it was in effect. In addition, this command will deactivate OUT4 if it was previously activated via the "8" command. Wildcards accepted if enabled.

Listen (Radio): * N .. n 2

Causes the callbox to key the transmitter and broadcast any audio within range of the callbox for a preset time period. After the transmission the callbox will revert to Idle or Talk mode, whichever was in effect prior to receiving this command. Wildcards, if enabled, are not accepted for this command.

Self Test, Auto-OFF (Radio): * N .. n 3

This command will cause the callbox to place a TEST call, and will turn OFF the automatic TEST call feature (if purchased). If the command is given during Idle mode the test call will be placed immediately; if given during Talk mode the test call will be placed as soon as the callbox reverts back to Idle mode. Be aware that if the callbox has been programmed via setup to automatically place a test call, then this command will override that schedule until the callbox is reset or powered down. It will return to its pre-programmed test schedule (if programmed for one) at the next power up or reset. Wildcards, if enabled, are not accepted for this command.

Self Test, Auto-ON (Radio): * N .. n 4 #

This command will cause the callbox to place a TEST call, and will turn ON the automatic TEST call feature (if purchased). If the command is given during Idle mode the test call will be placed immediately; if given during Talk mode the test call will be placed as soon as the callbox reverts back to Idle mode. Using this command will activate the automatic daily test call feature, where a test call will be placed automatically 24 hours after this test call is placed (or 24 hours after the last manually initiated test call via the TEST pushbutton). If power is totally lost to the callbox then this auto-test feature will either be turned off upon power up, or auto-testing will be enabled for the time period specified by the fixed [auto-test programming](#) if it has been set. Wildcards, if enabled, are not accepted for this command.

Activate Digital Output #1 (Radio): * N .. n 5 #

This command will cause the callbox to energize digital output #1 for the time period programmed for it. If this digital output has not been programmed for a specified ON-time then this command will do nothing to the digital output. This command may be issued in Idle mode or Talk mode. Wildcards accepted if enabled.

Activate Digital Output #2 (Radio): * N .. n 6 # Same as above only digital out #2 will be energized. Wildcards accepted if enabled.

Activate Digital Output #3 (Radio): * N .. n 7 # Same as above only digital out #3 will be energized. Wildcards accepted if enabled.

Activate With OUT4 Energized (Radio): * N .. n 8 # Same as "1" command except OUT4 will be driven active until the callbox is either deactivated or a subsequent "1" command is given (which will leave the callbox activated but will turn off OUT4). OUT4 is primarily intended to drive a relay to connect a P.A. speaker to the callbox for announcement messages to a zone of callboxes, but can be used for any other purpose. Wildcards accepted if enabled.

Reserved for expansion: * N .. n 9 # Until this command is assigned a more essential function, it may be used to interrogate a callbox as to the revision level of its firmware. When used, the callbox will transmit an encoded series of beeps that describe the 3-digit firmware revision. For example, for firmware revision "3.31" it will send 3 beeps, pause, 3 beeps, pause, and 1 beep. Wildcards, if enabled, are not allowed.

Digital Outputs (Optional)

There are 4 digital outputs provided on the callbox circuit board, each with its own individual connector. The connector supplies 3 signals; ground, +13.8v, and a 5-volt CMOS logic output (active high). OUT1 through OUT3 have a dual function as specified by the ON-Time which is programmed by the user for each output. If the ON-Time is set to zero, then the output will automatically go active when its corresponding call type is initiated. For example, Output #1 will go active as soon as Call Switch #1 is pressed, and will remain active until the unit goes back into Idle mode at the end of the call. If any output is programmed for anything other than zero seconds then this feature is disabled, and the output will not go active until its corresponding "Activate Digital Output" DTMF command is given, at which time it will go active and remain active until the programmed time expires (even if the callbox reverts to Idle mode prior to the timeout). OUT4 is special and is described above in the DTMF "8" command.

Auto-Test (Optional)

The callbox has the ability to make a Test call at periodic intervals, and may be set to do this in one of two ways. The first, described in [DTMF Commands - Self Test](#), sets Auto-Testing to occur at 24 hour intervals starting at the time the command is issued (this 24-hr timer is also re-started whenever a Test call is made manually via the TEST pushbutton). This test scheduling will remain in effect until canceled (via another DTMF Command, * N..n 3 #) or upon total loss of power (AC/Solar and battery). On the next power-on this scheduling will be lost and Auto-Testing will either be disabled or will resume using the fixed Auto-Test schedule set by the user.

A fixed Auto-Test schedule is set in the following way: While in Idle mode, hold down one of the digit keys 0 through 9 (on the programmer keypad) and press and release the TEST button. This will program Auto-Testing for a schedule of zero to 9 days. If zero, fixed Auto-Testing will be turned off. A Test call will be placed when the TEST pushbutton is pressed, and Auto-Testing will begin starting from this test call. Upon total loss of power, Auto-Testing will resume starting from the time of power-on (unless fixed Auto-Testing was set for zero).

Prior to a test call being placed the callbox will test the speaker and microphone by sending a short beep tone to the speaker and listening for any sound at the microphone which has a no-sound to sound power ratio of 1-to-2 that conforms to the timing of the beep sent to the speaker. The result of this test is included in every ANI code sequence sent by the callbox. (But the test is ONLY done just prior to a TEST type call.)

BlueStar NightLight (Optional)

The "BlueStar" NightLight, is turned on or off by the callbox controller as determined from the level sensed from a photocell connected to the "Photocell" input. (Low resistance when in light and high resistance when dark.) The day/night switching level of the photocell is changed depending on whether the nightlight is currently on (nighttime) or off (daytime). When in daylight the switching threshold to dark is set to a low light level and at night the switching threshold to daytime is set to a high light level. This wide hysteresis will help prevent the nightlight from switching from on to off to on as passing cars illuminate the callbox. In addition, it requires 10 seconds of continuous darkness to switch on the nightlight, and 60 seconds of continuous light to switch it off. When on the nightlight is modulated on/off at 50Hz when in Idle Mode and is modulated at 25Hz in all other modes, which produces a twinkling effect of the light when the callbox is in use (at night only).

The light is turned off whenever a low-battery call is made (when the battery level drops below the "BATTERY LOW LEVEL" setting) and remains off until the low-battery lockout timer expires, typically after 1 hour of battery charging time.

ANI Codes (Optional)

ANI Codes identify the CallBox ,the event or CallType and Battery Status.

When ANI is enabled the codes sent (in DTMF) are as follows, where "N..n" is the callbox number, and can range from 1 to 5 digits. Note that a pound is sent first and a star is last, which is opposite the format of commands sent TO a callbox.

s represents a single digit of either "0" or "1", and is the result code from the last test of the microphone & speaker (test only performed prior to test calls). A "0" result code represents a test failure and a "1" represents passed.

bbb represents a 3-digit battery condition code. If the callbox Power Management is set for AHR mode then this number is the AHr, in tenths, remaining in the battery at the time the call was placed. If Power Management is in voltage mode then this number is the battery voltage, in tenths also.

Call type 1: # N..n 1 s bbb * (From call switch #1)

Call type 2: # N..n 2 s bbb * (From call switch #2)

Call type 3: # N..n 3 s bbb * (From call switch #3)

Call type 4: # N..n 4 s bbb * (From call switch #4)

Call type 5: # N..n 5 s bbb * (From TEST call)

Call type 6: # N..n 6 s bbb * (From Tamper call)

Call type 7: # N..n 7 s bbb * (From Low Battery call)

Heartbeat

Located at the top of the circuit board is a small red LED. This indicator provides some basic information as to the status of the callbox and the rough condition of the battery. It is provided to be of use for callboxes shipped without the LCD display option. The LED pulsates about once per second when the callbox is in Idle mode and about 2 pulses per second in all other modes. The duration of the flash will change from long for a fully charged battery to short for a weak battery, with varying durations between long and short for battery levels of high to low.

Power Management

Battery Charging

The callbox may be used in installations where the battery will be charged by the callbox's battery charger or by a charger external to the callbox. When charged by the callbox it can control the charging voltage to the battery and monitor its state of charge. When externally charged, all the callbox can do is monitor the battery voltage and when necessary turn power on or off to any external devices connected to the callbox. Internal charging is done by applying the primary source of power (either from the 15v power supply connected to the AC line or by a 15v solar panel) to the "15v" input terminals of the POWER connector and connecting the battery to the "BATT" terminals. When Externally charged, no connection is made to the "15v" terminals and the externally charged battery is connected to the "BATT" terminals.

Low Battery Calls

The requirement for initiating a low-battery call is based strictly on battery voltage, regardless if the Power Management mode is AHr or Voltage. A low battery call is initiated when the battery voltage drops to or below a programmed level.

There is a method used to prevent a low-battery call from being made repeatedly as the battery capacity teeters on the brink of the low battery threshold. Basically, after a low-battery call is made (or attempted), another will not be done until the battery has been charged enough to reasonably assume that the call can be completed without critical battery voltage loss. Once a low battery call has been made, another low battery call will be prevented from being made until (A) in AHr mode, when the battery has been charged for 1 hour continuously, (B) In Voltage mode, when the battery voltage has been at or above BATTERY FLOAT V for 1 hour continuously.

Hibernation Mode (near-zero power operation)

If the battery voltage ever drops to BATTERY DEPLETED V the callbox will enter a Hibernation Mode. In this mode it will not respond to any call switches, test switches, or tamper alarms, nor will it respond to any incoming DTMF commands or incoming phone calls. It shuts down all external devices and internal subsystems in an effort to consume as little power as possible. If in AHr mode the battery fuel gauge will be reset to 0% charge. The front panel red LED and the circuit board BATT HEALTH MONITOR LED will be made to flash very briefly once every 2 seconds and the LCD will display "HIBERNATION MODE". The LCD and keypad will continue to function, and entering Set-Up Mode will be allowed. Only when the battery voltage has risen above BATTERY LOW V (typically 11.8v) for 1 minute will the unit come out of Hibernation Mode and resume normal operation.

External Device Power Control

The callbox can switch power on or off to two external devices at user-programmable battery levels. Typically, if power is low, the CallBox will turn off the BlueStar locator light first and then the Radio to conserve Battery Power. It will then turn on the Radio automatically when the Call Button is pressed.

Installation Warning

Do Not Use Power Tools to turn CallBox Door Security Screws

Use Hand Tools Only !!!

Do Not Over Torque the Security Screws, tighten just enough to pull the door seal firmly against the CallBox Door Seal Rim.

Failure to follow these instructions will result in the damage to the CallBox, making it impossible to open the door.

TOOLS LIST, CALL24 S-SERIES INSTALLATION

CHECK OFF

The following can be reference for wall mount installs, existing light pole installs or free-standing AC or Solar stanchion installs. Note; stars reference to specific installs
This is not a comprehensive list, but one prepared based on CALL24's experience.

- 1. Electric Drill: rechargeable, a portable generator with electric drill if steel poles
- 2. Ladder, required to reach light, solar panel, or PA height (min. 8ft step ladder)
- 3. Rigid or flexible conduit, Connectors
- 4. 12ft of each color wire as indicated for the light, *#14 strand red/blue/yellow/green*.
**** 11-12ft of speaker wire for public address option if applicable.
- * 5. Plum Bob or similar drop, an aid to align light hole with drilled call box wiring hole
- 6. Plumbers Line attached to top-mount wirings to aid in fishing wires into box.
- 7. Wire hook for pulling light/solar/or PA wires out the drilled call box hole, flashlight
- ** 8. 5/16" box end socket for drill or 5/16 hand nut driver for tightening banding screws
- 9. 1/4" hand driver for holding Security Screw Bits, gain access to Internal Electronics
- 10. Phillips & Flat Tip Screwdrivers
- 11. Nut driver (for electric drill) to match Self-Tapping Screw size, if chosen
- ** 12. 3/4" Metal Hole Saw for Solar Wiring Access, hole for grommet
- 13. 7/8" Metal Hole Saw for Lighting/Solar/PA and Call Box Wiring Access
1/2" chase nipples (or approved) approx. 2" in., attached to call box knock-out
- 14. 1/4" x 20 tap for Stainless Screws, or Self-Tapping with neoprene bonded washers
- 15. Drill bit for pilot hole or tap, when choosing to secure parts to square steel pole
- 16. Drill Bit to match Anchors used for wall mount application, *installers discretion*
- * 17. Stainless Steel Self-Tapping Screws to fit Side Mount Light Assembly tabs & bit
- 18. Silicone sealant
- 19. Carpenters Level; call box level on square or flat surfaces, and during pole installs
- 20. Radio Frequency Test Kit (for Base Encoder Controller install), radio service shop
- 21. All Purpose Cleaner for Wiping Down Call Boxes after install and Clean Rags
- 22. AC/DC Meter
- 23. Red Electric Wire Nuts for High Voltage, Yellow for Low Voltage
- *** 24. Small Black Tie Wraps for securing top mount wiring harnesses to pole Caps
- 25. Compass for setting Solar Panel due south
- 26. Measuring device for setting panel mounting bracket angle. One sent as template.
- 27. Tool Belt for storing tools while working, especially while on ladder
- 28. Tools for installing mounting poles if necessary
- 29. Small pop-up, portable work bench. Or a clear tailgate will do.
- 30. Thoroughly review all applicable installation instructions before proceeding
- 31. If you currently have call boxes from CALL24, reference previous Call Box / Site Information Order Forms-located in owners manuals, as well as design changes and plan accordingly. This is especially necessary if adding any additional options that were not in a previous or original order.

* SideMount style light only

** Solar only

*** Free-standing stanchions only

**** Public Address Speaker Installation to S-Series Call Box

1/29/2013

Installation of Direct Burial Poles for CALL24™ Stanchions

Pole Install Warning: This document is an overview description of how to install these structures, it is not comprehensive. Competent installation contractors must be relied upon for practices and equipment that meet the demands of the conditions for each job location. This overview does not address any type of pole grounding specification.

Materials needed:

- (a) Auger or Post hole digger, 10" in to 12" in dia. x 3' ft deep (or 4' ft deep if necessary)
- (b) Approximately 160 lbs. of Ready Mix Concrete, for each pole. (approx. 2 sacks)
- (c) Tamping Rod, for packing concrete and dirt around pole.
- (d) Container for mixing concrete (masons bucket or wheelbarrow), Water, Mixing Tool
- (e) Brush, Rags-cleaning, Carpenters level/plum/or transit for putting pole in straight

Direct Burial Poles:

1. **WARNING:** Clear below finished grade for all Electrical, Telecommunications, Gas, Plumbing, Sewer, Irrigation, and all other utilities. Failure to do so can cause major damage to existing utility infrastructure and could cause severe personal injury or even death.
2. Upon confirming an "alls-clear". Bore a 10" in-12" in diameter x 3' ft deep (4ft if applicable) hole in the earth. Direct burial poles ordered as 12ft, come actually 15ft long. 12ft to be kept above finished grade, and 3ft to be buried below finished grade. So keep this in mind when auguring the hole. Longer poles may require deeper depths below finished grade. If the bottom three or four feet of your pole has a coating or primer, auger the hole to the depth of that portion which is coated up to the estimated finished grade. Making sure to keep any pole hand-hole well above finished grade. Keep bottom of hole flat. *Below grade coatings or primers are n/s.*
3. Mix Concrete per bag instructions, per portions specific to your estimated need and rate of backfill.
4. Place pole in center of hole and firmly seat it into the bottom of the holes earth. If the pole has a hand-hole, orient the hand-hole to a position that is the least likely to be viewed by the general public. (hand-hole orientation during installation is primarily an aesthetic or access consideration)
5. While one person is holding the pole, another will place 2 or 3 gallons of earth into the hole and around the outside of pole. Tamp earth firmly around the pole. This will create a basic earth ground. (If applicable, see local codes for any applicable pole grounding requirements, and incorporate these into your installation process.)

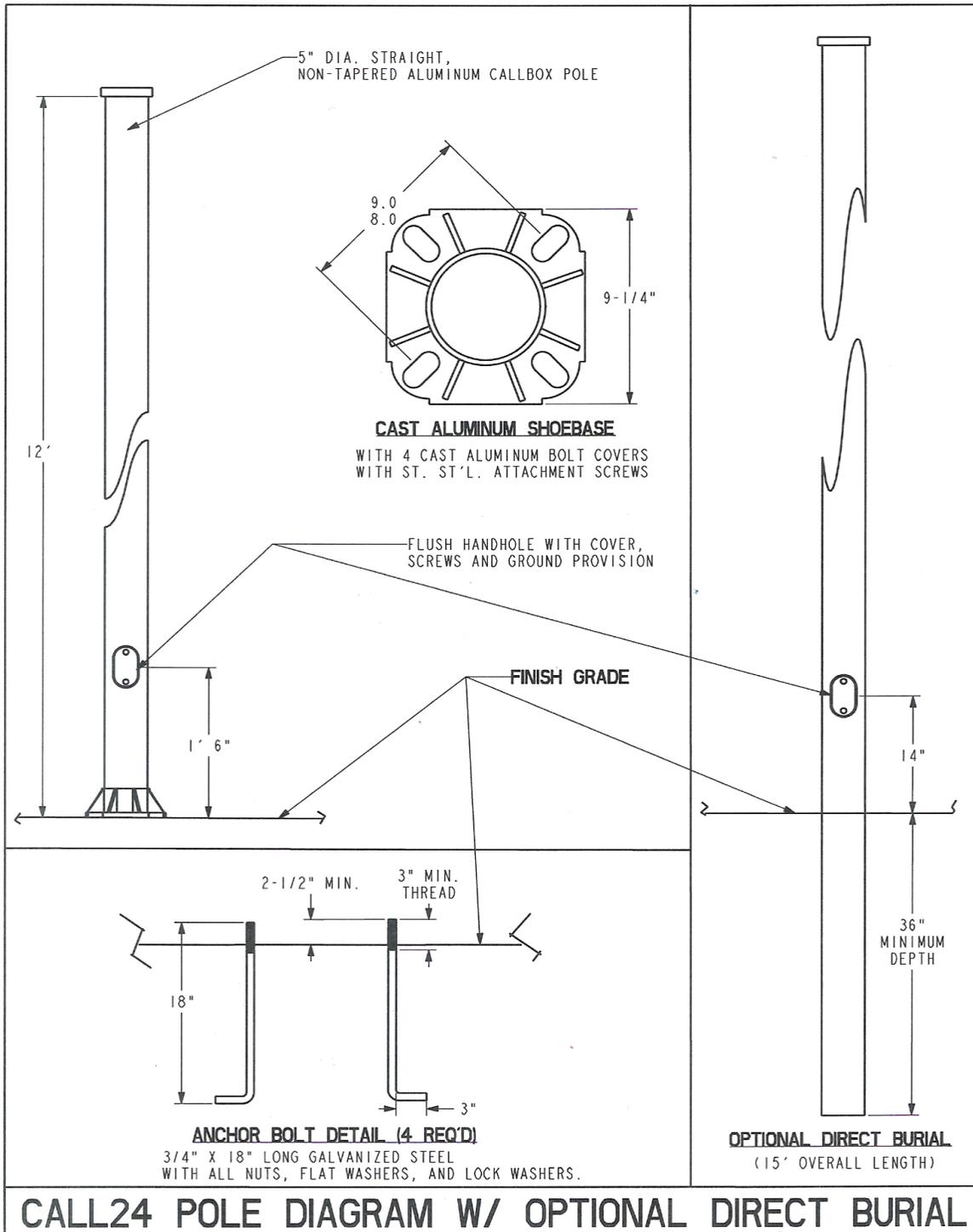
6. As you place and pour the mixed concrete around the outside of pole in the hole, use your level measuring device to keep the pole straight up & down while pouring and packing the concrete around the pole. As the concrete reaches the top it will become more difficult to make pole level adjustments when backfilling, so it is important that your team make small level adjustments keeping the pole straight as you go.

As you continue with placing and packing the concrete around the pole, keep checking that the vertical position of the pole is straight and not pushed to lean. Over a 12ft distance, it only takes a few degrees to make the pole look crooked. At about the mid-way mark step back 20 to 40 feet from the pole, walk and view the poles vertical orientation from different points around the pole. Be aware that the environment may make the pole appear to be leaning, but trust your leveling tool. By conducting this exercise around each pole, often times one can actually see if the pole is being leaning or that something does not look right.

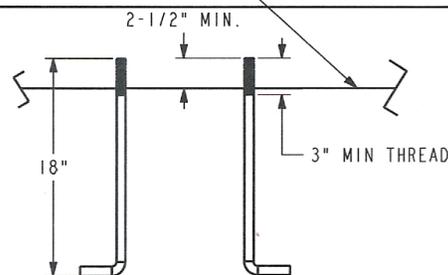
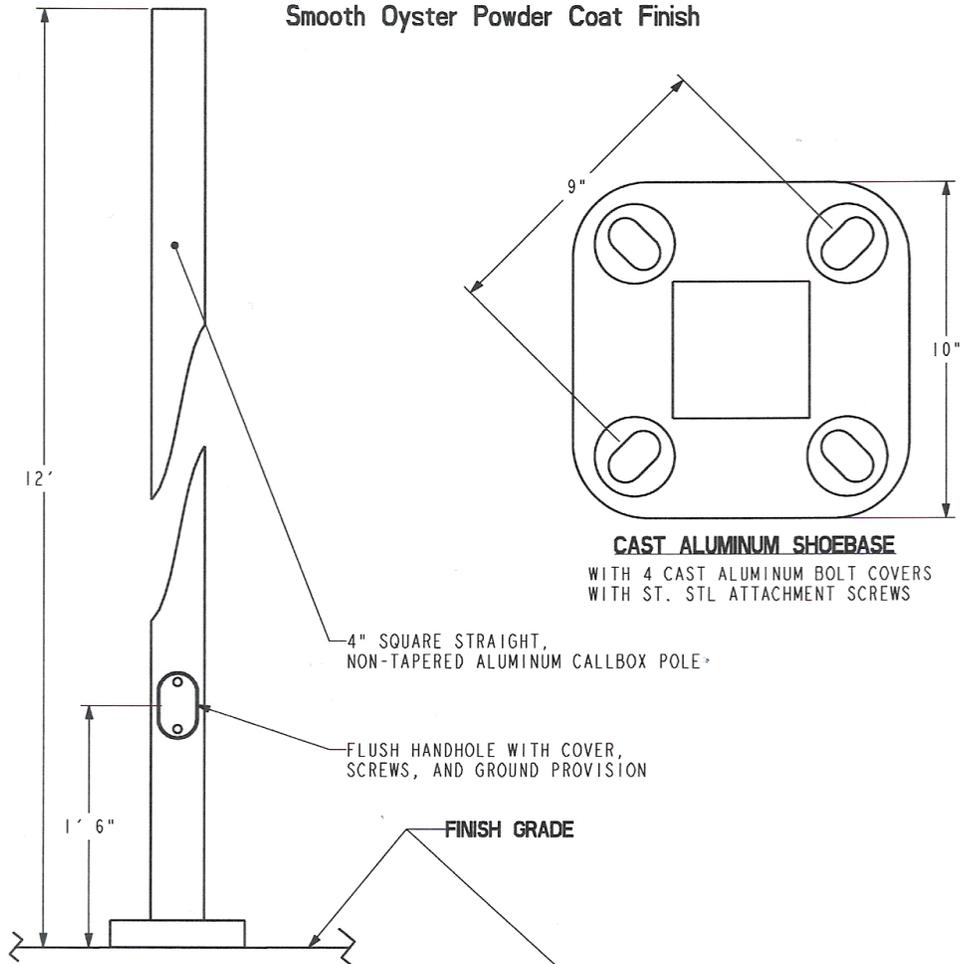
7. You may want grass to grow back round the base of the pole. If so, keep from backfilling the last 4 inches with concrete and finish backfilling to “finished grade” with soil. Once backfilling is complete, the pole should remain stable enough that any hand-made brace can be removed or the person holding the pole can let go. The pole should remain in its installed position unless you are under extreme wind conditions or if the concrete mix is runny. A poles support-until-setup decision is to be made based on the installer’s installation conditions & environment.
8. Clean any concrete “splatter” that may accumulate on the pole near the base with water and a clean rag or brush. This is easily removed if done before splatter is hardened. (Tip; wrap the pole at the finished grade level of pole with paper or towel prior to backfilling the hole with concrete, then remove paper after pouring concrete. This will expose the clean pole surface with no pole cleaning necessary.)
9. Identify the area around each station with safety identification or construction hazard type markings. Concrete should set to very rigid in approximately 4 hours. If in an area were post installation tampering is foreseeable during this time period, and then security may want to keep an eye on that area.
10. As a rule of thumb, the pole concrete base should be allowed to set-up overnight before installing balance of equipment. The installer should refrain from leaning any ladders against the pole due to a finish scratching hazard. This may compromise final inspection approval.

Note: after the 4 hour period following the pole installation and if the concrete was not mixed too runny, the pole should be rigid enough to allow the mounting of equipment to the pole. Meaning the pole should withstand normal drilling pressures for panel or call box wiring access holes and attaching parts to the pole without it leaning or changing its position. Again, no leaning of ladders, or other tools against the pole.

NAME:REG OBJECT:CALLBOX_POLE_MOUNTING DATE:17/Mar/06 11:27:07



C24-SS412AM-O, ANCHOR MOUNT SQUARE POLE
 Smooth Oyster Powder Coat Finish



ANCHOR BOLT DETAIL (4 REQ'D)
 3/4" X 18" LONG GALVANIZED STEEL
 WITH ALL NUTS, FLAT WASHERS,
 AND LOCK WASHERS

CALL24 SQUARE POLE DIAGRAM & MOUNT

QMF 8-1-2006

AC, S-Series Call Box Mounting to a Metal Pole

WARNING: Physically test voltage at each pole, assure that voltage is turned off.

WARNING: Assure that call box is set-up for proper locations voltage. (warranty condition)

Install Note: The electrician(s) must be properly licensed where work is being done. The electrician or buyer is responsible for all conduit materials and proper installation of such material to the point of entering the call box, all AC Supply Wiring, and making all necessary terminations. Repairs to CALL24's equipment due to improper volt identification, improper connection, lack of weather sealing, negligent handling or storage practices will be the responsibility of the electrician or buyer. If the buyer supplied complete **call box set-up forms** to CALL24, then copies are in the manuals. Review all AC call box, lighting, pole, and mounting diagrams before proceeding with installation.

CAUTION: In the event that a call box is not completely installed or put into service, the contractor shall completely cover or bag the call box as a non-operational (*unit not available for use*) indicator.

Step

- 1 Drill 7/8" hole in pole 32" to 38" above ground level/finished grade for call box. (see next page)
- 2 If needed for lighting, drill a 7/8" hole in pole approx. 12 ft from ground level or from top of bollard base.
Caution: If mounting light in same direction as call box, use a plum bob to align holes before drilling.
Note: The Extended Range Antenna Option is built onto the Lighting Assembly or is provided separately. Standard extended range antenna coax length is 12 feet.
- 3 Mark, pilot, or pre-tap, the pole to receive the **light assembly** fasteners. Use fixture as template to mark holes. **Caution Round Poles:** *pre-position the light in the direction you want it to face, check the light position from the ground to verify alignment with call box, adjust, then drill mounting holes.*
Attach a chase nipple to light. Prepare and then run the light wiring down the pole, made easier by using a guide line, and out the bottom call box hole. Secure wires from slipping back down into pole.
- 4 Feed **installer supplied** blue/red/green/yellow light wires into bracket and attach using yellow wire nuts. If desired, you can silicone between the light and the pole surface, then attach light bracket using your fastening method. **Always use stainless steel fasteners.** Self-tapping for aluminum poles, and usually a pilot-hole method for steel poles. Wiring is to be supplied by the installer that meets NEC codes which apply to the specific installation S300-3c subpart 1
- 5 Prep call box for round or flat surface mounting, (see *Call Box Mounting & Hardware Box next page*)
Before mounting enclosure to square poles, determine if you will need to pre-tap holes for threaded stainless screws. In this case, you will need to mark holes on mounting surface by using the call box enclosure or by using a matching round pole mounting bracket as a marking template.
- 6 **Round Poles;** attach the round pole mounting bracket. (see the round pole mounting diagram in manual)
Remove high voltage electrical access plate inside the call box. **Attach a 2" to 3" conduit chase nipple** (depends on pole dia.) **to the call box knock-out.** When attached, that nipple is to reach from the call box knock-out and penetrate into the interior of the pole. **Square poles** may not need the nipple, but instead a plastic pop-in bushing can be placed in the pole wiring hole to protect the supply and lighting wires as they enter the call box. If a pop-in bushing is not used for flat pole mounting wire protection then attach a short nipple similar to the round pole method.
- 7 Fish AC supply wire, (again not supplied with call box) through the hole cut for the call box to the supply source, usually to a hand hole area. Pull ample wire amounts for ease of adjustment & trim.
- 8 Position call box for mounting, (**safest if having 2 people**), while holding the call box feed coax wire from external antenna through nipple first (*if applicable*), if not then proceed to feeding the light wires and then the AC supply wires through the nipple and into the lower electrical portion of the call box. Take care not to damage the cables or wiring. Four rubber gaskets are placed around the mounting holes to help seal away moisture, do not remove them. Apply silicone to hole areas if desired.
Affix to flat surface our to round pole mounting bracket, tighten.
- 9 Inside call box, attach the AC supply wiring to supply points and lighting wiring to wiring terminal strip color for color. Provide an earth ground and connect it to the call box ground buss.

Solar, S-Series Call Box Mounting to a Metal Pole

- Solar** Prior to even quoting solar, and certainly before processing any order determine the due south orientation for each respective call box location and verify that the location is suitable for adequate solar exposure. Determine the Due South position, a variance of + or - 15 degrees East or West of Due south is allowed. Consider all four-seasons - the solar panel can not be blocked in whole or part by building or tree shade. Prior to purchasing your solar units, make a detailed assessment regarding each solar location. These instructions address mounting solar above a call box. Solar panels can be installed anywhere in proximity of the call box in order to gain clear sun access. Current testing shows that it is acceptable for a solar panel to be placed up to 100 linear feet from the call box. In this scenario, the installer is to provide the additional continuous supply volt wiring from panel to the call box, no splicing.
- Install Notes:** Refer to the Universal Solar Panel Mounting kit for flat or round pole and roof mount adjustments. These instructions assume that you will be using the pole raceway as the conduit for wiring. If not, use best practices when running wiring inside approved conduit & fittings that seal out water. Installer supplies light wires. #14 strand Red/Blue/Green/Yellow, conduit nipple, grommet, bushing.
- Warnings:** In the event that a call box is not completely installed or put into service, the contractor/installer shall completely cover or bag the call box as an indication that the call box is non-operation
- Caution:** Use only a hand driver and a CALL24 security bit when accessing or closing the call box door. High speed power tools will break the pim-nuts from the main enclosure bod
A photovoltaic sensor is located on the bottom of a solar call box for switching locator/beacon light on and off from dusk to dawn. Be careful not to drop/slam call box bottom to any hard surface. Prior to mounting solar panel, place electrician tape around the solar panel cable terminal ends. Review all Solar Panel Mounting, Light, & Call Box Wiring Diagrams in the manu before proceeding with installation. If you have any questions call your supplier or the manufacturer Ask the customer which way they want each call box and light to face prior to drilling holes. Record it.

Step #

- 1** Drill a 7/8" hole in pole 32" to 38" above ground level/finished grade for call box wiring access.
- 2** Mount the Solar Panel referencing the Solar Panel Mounting Instructions Diagram. Facing panel due south (a variance of + or - 15 deg. East or West of due south is acceptable) attach panel to mounting bracket. Panel tilt angle is highlighted per your installation coordinates and is found in your manual. CALL24 includes with each order a pre-set solar mounting bracket for use as a template. It is easier if you pre-assemble all the bracket kits according to the template before installation. If this suggestion is not followed, then starting with the adjustable portion of the bracket as being perpendicular to the pole, tilt the panel down to the required angle and strongly tighten. Note: if you supplied the pole diameter as part of the CALL24 order form, then banding for each respective pole is supplied. Please sort these according to the respective pole diameters. If no pole diameter information was supplied, then standard banding to fit 5" to 6" dia is supplied.

If choosing to mount the panel above the light, provide adequate clearance so light maintenance can be accessed. Same for placing the panel below the light. Regardless of how you choose to place the panel, above or below the light, reference minimum recommended light assembly height and adjust accordingly. If mounting panel below light, provide enough clearance so light does not shadow panel. We suggest that if possible, that the **bottoms** of all solar panels and lighting be mounted at or above 11 feet above finished grade, and the same above the top of any pole bases formed by sona-tube.
- 3** Once solar bracket and panel is mounted, drill a 1/2" access hole for the panel cable under the solar mounting bracket, or a size that will match the size grommet of your choice, for protecting the solar supply cable as it enters the pole then insert grommet. Fish the solar panel wire down the pole and out the call box hole. Carefully silicone where panel wires enter pole and neatly remove access.

Concerning CALL24 Stanchion: The solar panel should be mounted just under the TopMount light. This is also addressed in the solar panel mounting diagram. Actual solar stanchion installation pictures originating and distributed by CALL24 depict this positioning.

CONDUIT CONNECTIONS

1. The CALL24 call box comes predrilled for connections to new or existing hollow light poles.
2. A 7/8" hole is located in the lower center section of the secured electrical compartment.
3. **CAUTION:** If your installation requires conduit to be run to another location on the call box, be sure to cover all internal electronics to protect against shorts that can be caused by metal particles when knocking out new holes.
4. If you do not use the predrilled knock-out hole, be sure to plug and waterproof it.
5. Any holes for supply volts must be sealed & waterproofed. **Do not make holes in the top of the enclosure.** If you are preparing to make a knock-out in the side of the enclosure for electrical access make sure it is the high voltage "lower portion of the enclosure and that the customer approves of such placement with respect to the call boxes side decal markings.
6. National Electric Codes suggest that all supply voltages be confined to the secured bottom electrical compartment of the call box.

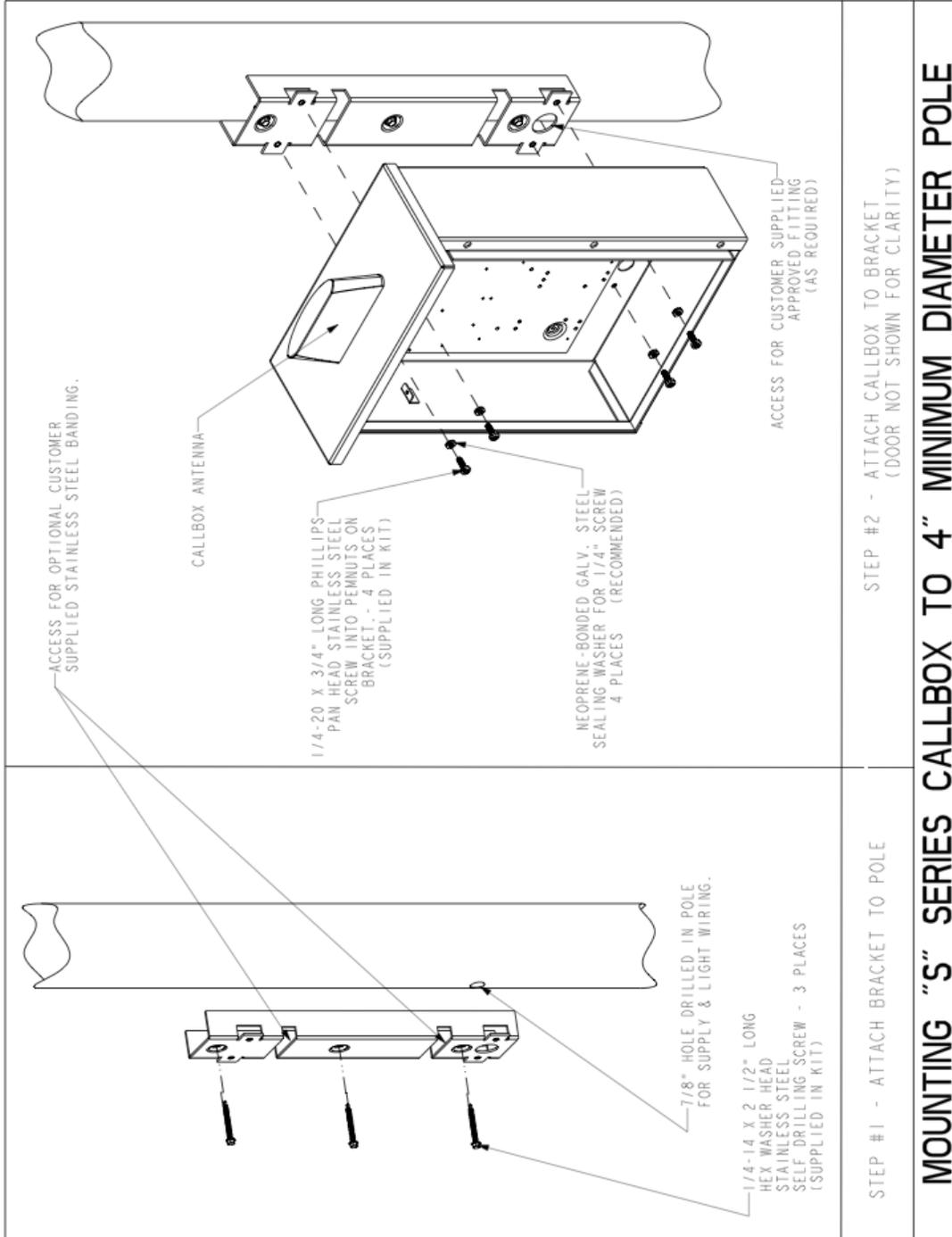
CALL BOX WALL MOUNT INSTRUCTIONS

Step

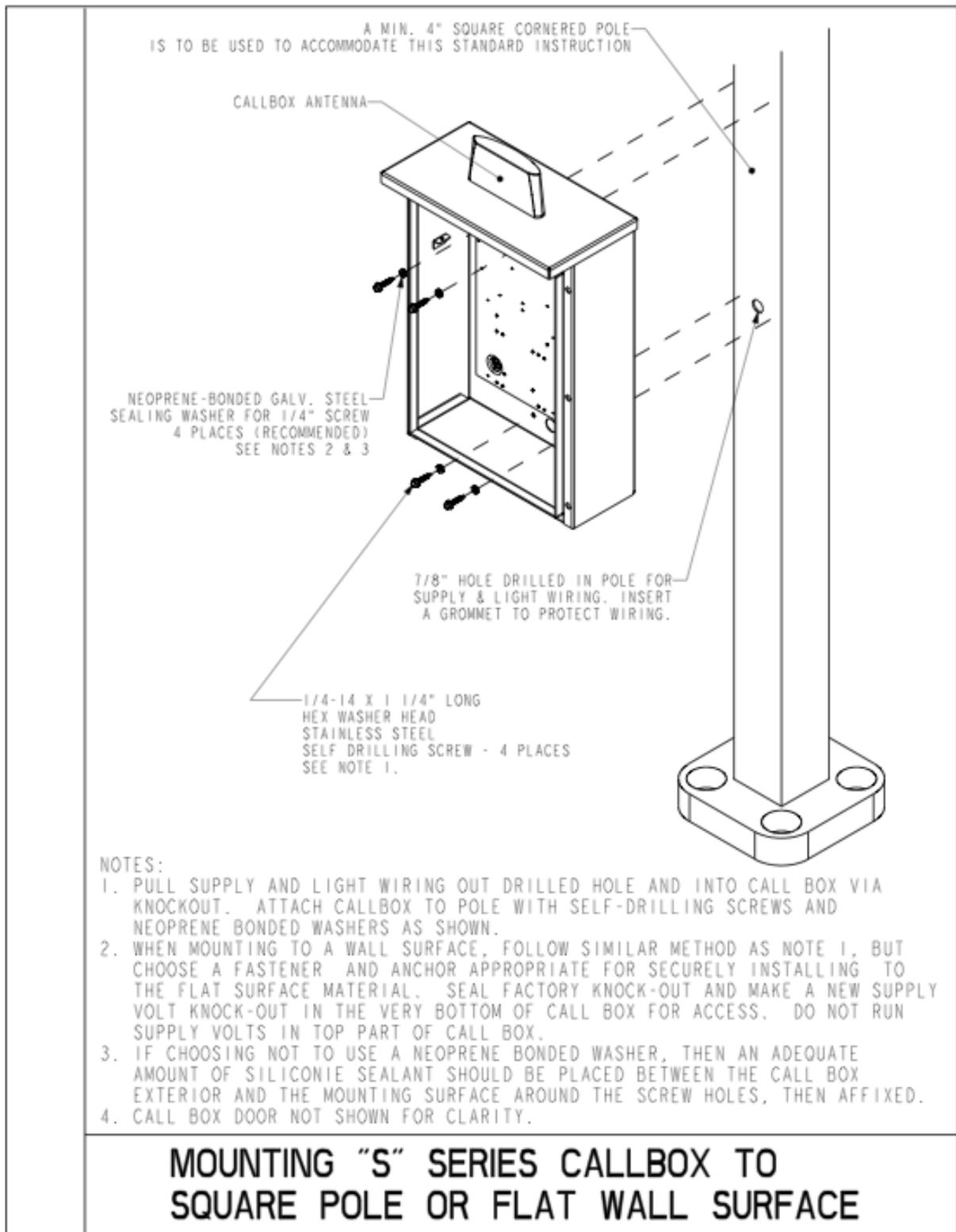
- 1 Determine position of call box, and mark for mounting holes by using the 4 holes that are in the back of call box unit *(or use the round pole mounting bracket hole spacing as a template)*
- 2 Choose an acceptable anchors and/or screw method that is appropriate for the type of material that the call box will be mounted upon and that provides strength and security.
- 3 Mark the hole for the electrical access and run conduit as guided by local code.
See Conduit Connections Instruction, above.
- 4 Mounting fasteners should have a neoprene bonded washer attached to the screw/bolt to help keep out moisture. If you desire, a silicone sealant can be placed between the mounting mounting surface and call box enclosure. The call boxes come with rubber washers attached to the outside back mounting holes...Do Not Remove Them. These are placed there to help keep moisture out of the enclosure. Seal and waterproof all conduit knock-outs and any other holes that were placed in the enclosure as part of your installation.

WARNING: Water damage due to improper install sealing is not covered under warrantee so be careful to seal box properly.
- 5 Make sure any drill shavings are kept from falling onto master control board. Attach call box.
- 6 If possible, it is recommended that the minimum distance between strobe and call box antenna be no less than 48" (4ft).
- 7 Connect electrical as per instructions.

If help is needed, please contact your Call24 Supplier or manufacturer for assistance.

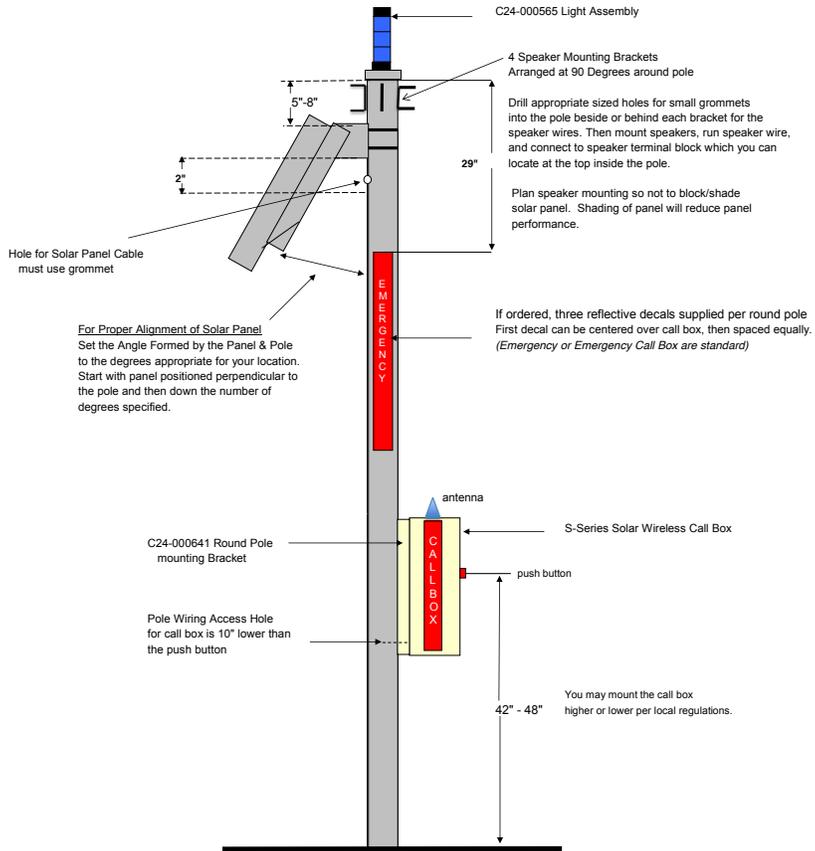


OMF 1-25-2006



QMF 8-25-2006

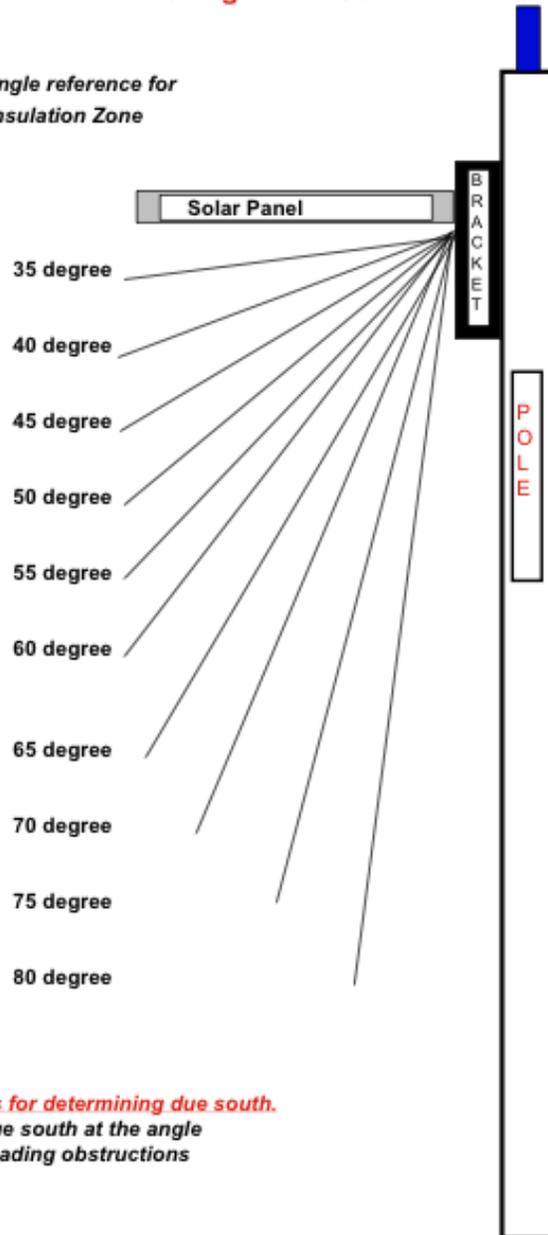
S-Series, CALL24 Pole Mounting Guide, Solar



May 2012

CALL24™ Solar Panel Tilt Angles for Solar Installations

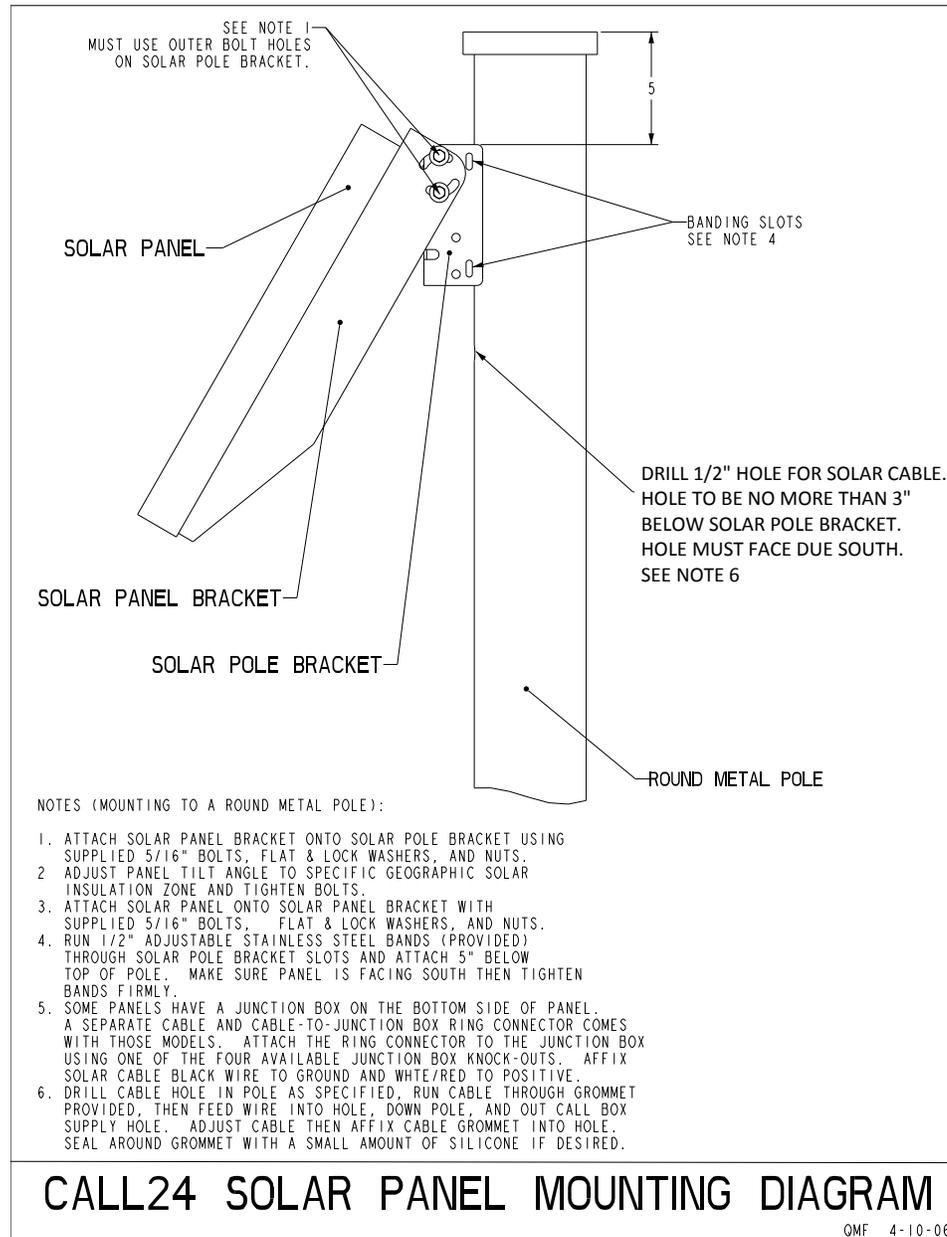
Highlighted: Panel Angle reference for your specific Solar Insulation Zone



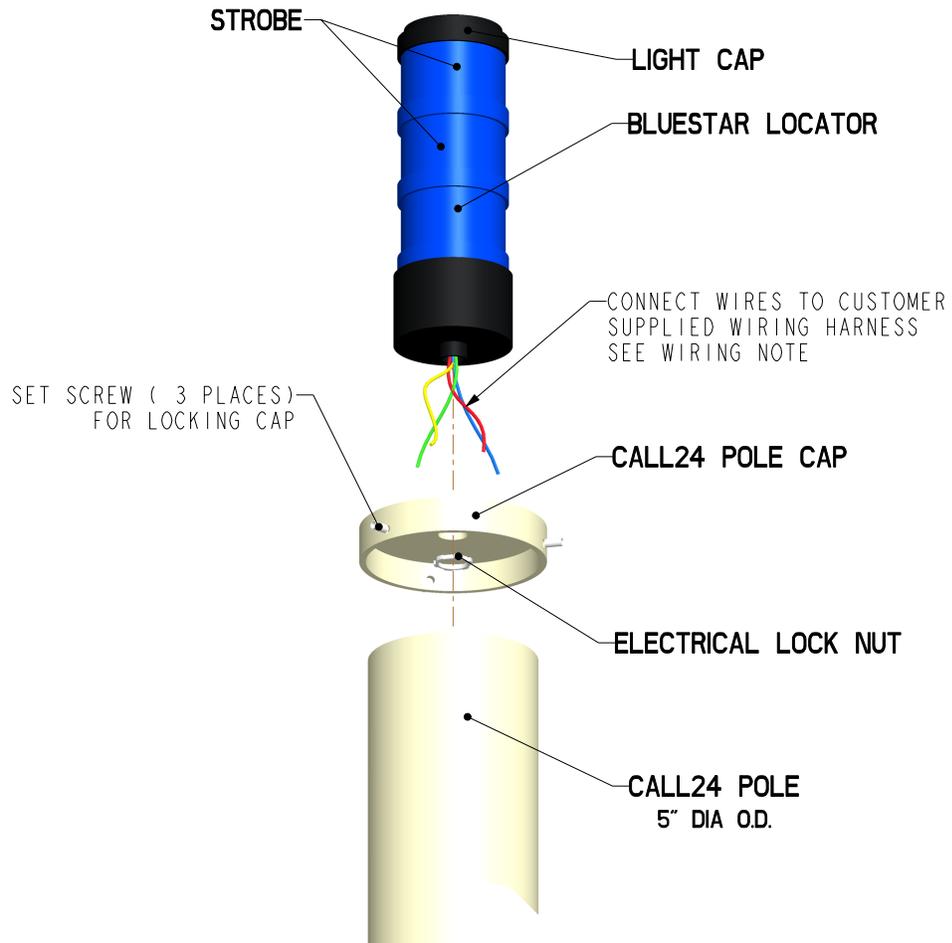
*Use a good compass for determining due south.
Panels are to face due south at the angle specified, with no shading obstructions from the sun's rays.*

Solar Panel Mounting Diagram

updated: 2/4/13 csm



C24-SLDE-B360S, LIGHT ASSEMBLY, 360° VERSION

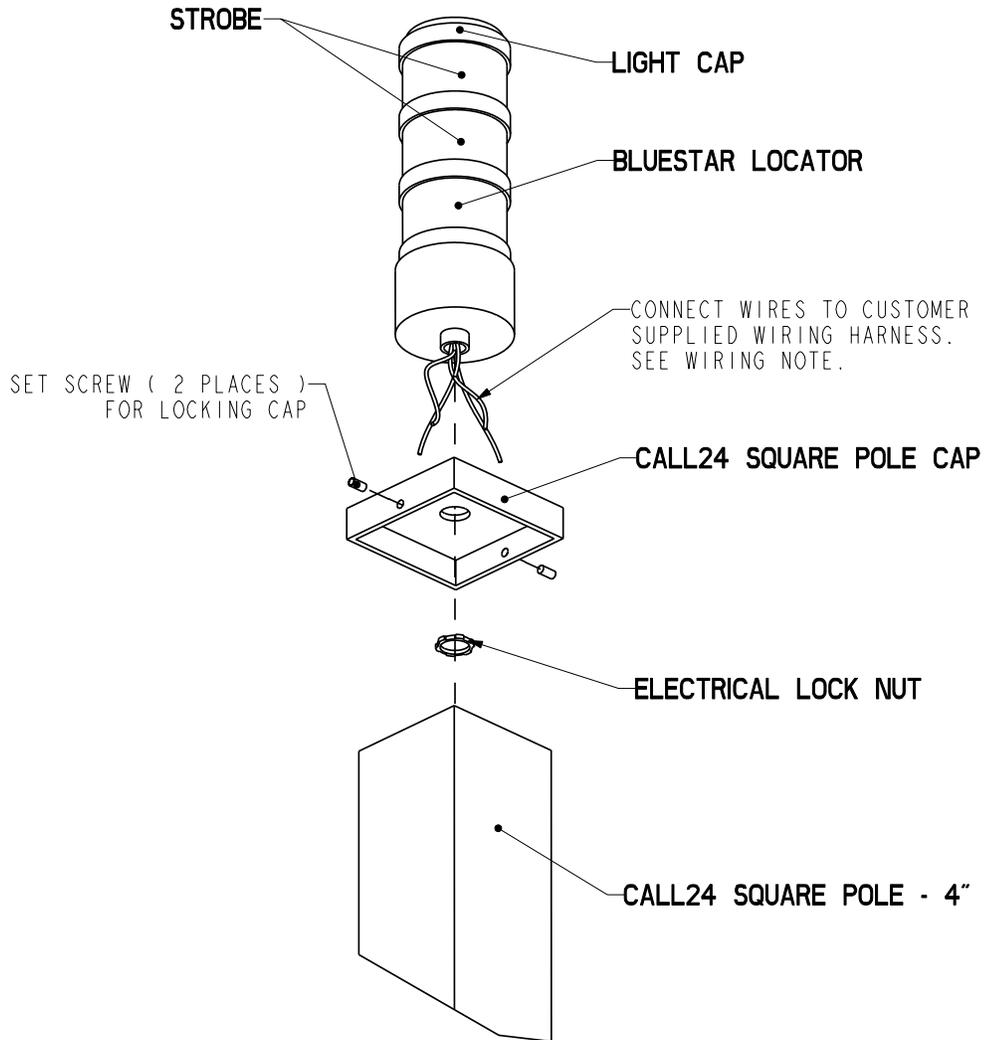


WIRING NOTE:
RED WIRE (STROBE) 12V DC (+)
BLUE WIRE (STROBE) 12V DC (-)
YELLOW WIRE (LOCATOR) 12V DC
GREEN WIRE (LOCATOR) 12V DC

MOUNTING BLUE STROBE & BLUESTAR LOCATOR LIGHT TO CALL24 POLE

QMF 3-14-2006

C24-SLDE-B360S, LIGHT ASSEMBLY - SQUARE POLE



WIRING NOTE:
RED WIRE (STROBE) 12V DC (+)
BLUE WIRE (STROBE) 12V DC (-)
YELLOW WIRE (LOCATOR) 12V DC
GREEN WIRE (LOCATOR) 12V DC

MOUNTING BLUE STROBE & BLUESTAR LOCATOR LIGHT TO CALL24 SQUARE 4" POLE

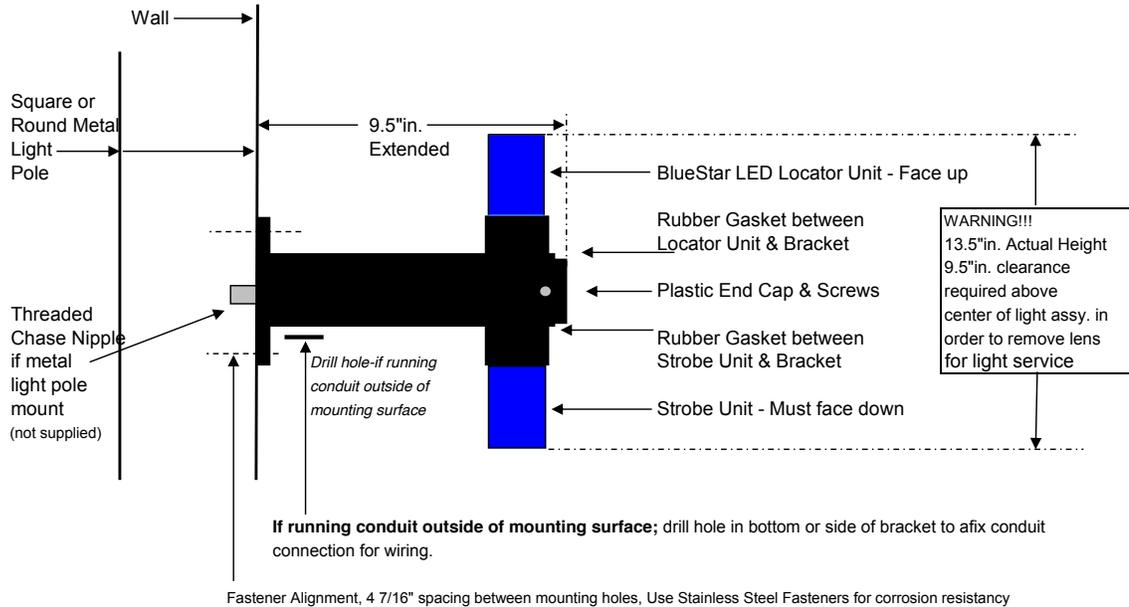
QMF 8-2-2006

CALL24, S-Series

DC LED Locator - Strobe Light Assemblies

(Reference Models C24-000568, 693, 567, 736, 566, 735)

Lens Color Options: -A Amber, -B Blue (standard), -C Clear, -G Green, -R Red



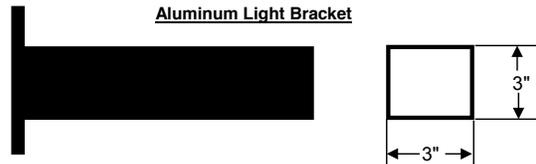
Installer Note: use #14 stranded wire...600volt...105°C Rated, not supplied with call box light assemblies

BlueStar™ LED Locator Unit

Green 12vdc
Yellow 12vdc

Strobe Unit

Red + 12 vdc
Blue - 12 vdc



Wiring

Run Green, Yellow, Red, and Blue wires from the respective light assembly or combination to the bottom secured compartment of the call box. Then run wires to the lights terminal strip above the call box shelf.

(1) Attach Locator Light Yellow & Green wires to 12vdc points on light terminal strip, labeled "Locator Light", color for color.

(2) Attach Strobe Light Red and Blue wires to the 12vdc points on light terminal strip, labeled "Strobe Light" color for color.

RCS/CALL24 10-2012

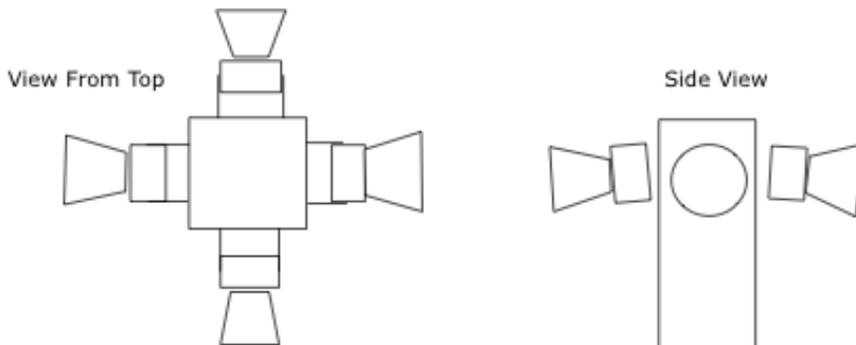
Call24

Campus Alert System

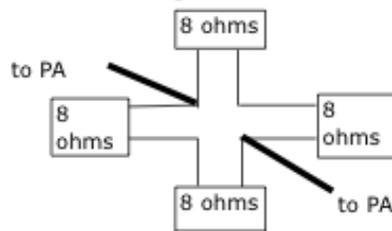
Speaker Configuration on Poles

1. Placement of the speakers should be at each 90 degree mark around the pole.
2. Attention should be given as to areas needing audio coverage.
3. Attention should be given as to type of pole and other things mounted on it.
4. Use Wires suitable for area of installation, that is if installing the speakers on a pole that has 277VAC, the insulation and temperature rating of the wire used for the speakers should match the wire used for the power application.
5. If possible 18g stranded, 300V, 105degree wire should be used. This will assure compliance with most situations.
6. Connect the speakers in series/parallel as diagrammed below.
7. Connect the speakers to the Speaker Terminal Block in the upper section of the CallBox.

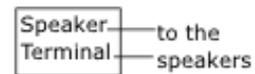
Speaker Mounting



Series Parallel Wiring



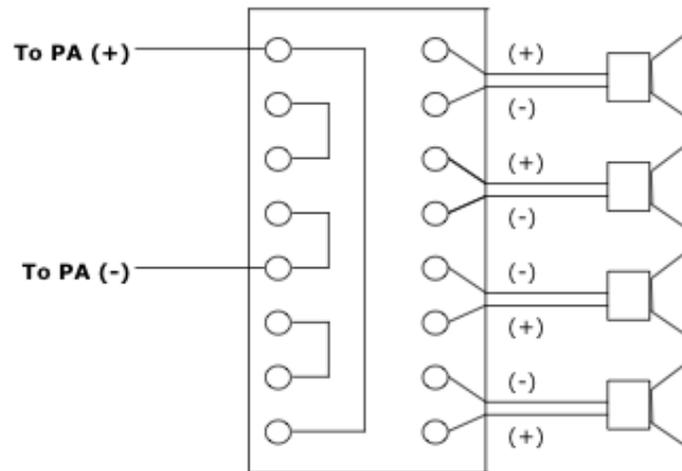
(inside CallBox)



CSM
iMac
11/07



Public Address Speaker Connections



- Step 1.** Drill Holes in Pole for Speaker Wires
- Step 2.** Insert Grommets in Holes
- Step 3.** Mount Speakers
- Step 4.** Insert Speaker Wires in Grommets
- Step 5.** Connect Speaker Wires per drawing
- Step 6.** Connect PA Wires as per drawing
- Step 7.** Replace cover on Junction Box and let it hang inside Pole
- Step 8.** Connect PA Wires to CallBox



C24-000179 Base Encoder

The Call24 Base Encoder is usually Interfaced to the Base Radio that is used to Control the DTMF Functions of the Call24 CallBoxes. It generates DTMF signals that are injected into the radio's mic circuit. The encoder automatically engages the radio's PTT circuit when the Page (Send) Button is pressed.

The Encoder is used when the Call24 CallBoxes have been programmed for "SecureCall" DTMF Functions.

Typical "SecureCall" Functions are:

- 1. Activate**
- 2. Reset**
- 3. Wide Area Listen**
- 4. Campus Alerts**

Please see your Mk-III Manual Page 13 for DTMF Code information

Note: The "Clear" button is used to clear the Encoder's Display



1-800-441-9191
www.rcscom.com

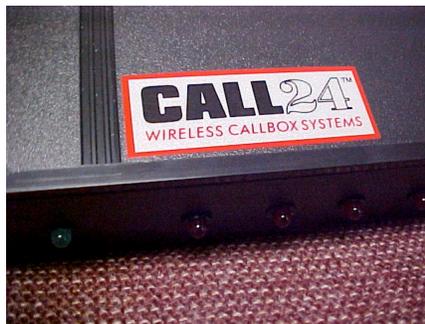
Camera Alarming Panel

Automatically triggers your cameras when a CallBox is activated



- * Rack mount or desk top
- * Easy Installation
- * 2 year warranty
- * Compatible with Mk-I and Mk-III
- * 12VDC operation
- * Interface to any radio system that will pass DTMF

Call24 Camera Alarming Panels allow for Camera Control associated with CallBox Activations. When a CallBox is activated, it sends out a DTMF Code via the radio channel. This Code is decoded by the Decoder Panel and a momentary dry contact closure is provided to your CCTV system. The panel also provides a "Last Called" visual feature. When a panel decodes a call from a CallBox, a red LED associated with that CallBox will flash until another Call is received.



Installation of the Decoder Panels is easy and straightforward. The Panels are designed to be mounted in 19" equipment racks but may be stacked on a desk top or cabinet. Using the provided cables, the first panel is connected to the Base Radio. Any additional panels are paralleled to the first panel (plug and play) using the provided cables. Each panel has a fuse and an on/off switch located on the back of the Panel.

A green LED indicates power is on. There are 16 sets of contact connections located on the back of each panel. Each set of contacts is associated with a different CallBox. The Normally Open contacts provide a momentary (2 sec.) closure rated for: 7 Amps @ 30VDC or 10 Amps @ 125VAC.

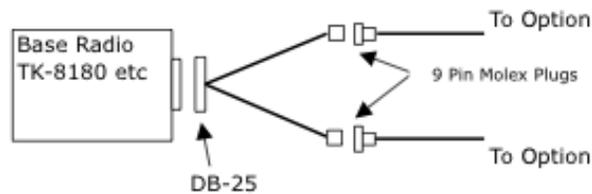
Made in the USA



Call24 Standardized Wiring for Encoding and Decoding

Options Effected:

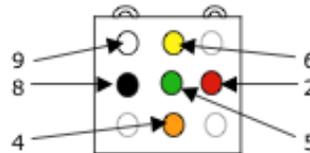
- CAD System Modem**
- DTMF Encoder**
- Campus Alert Console**
- Camera Alarming Decoders**



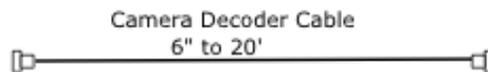
DB-25 Pin-Out		
6	White	Mic
7	Black	Ground
12	Green	PTT
14	Red	+12VDC
17	Yellow	Rec Audio
20	Orange	COR

9 Pin Molex Pin-Out		
9	White	Mic
8	Black	Ground
5	Green	PTT
2	Red	+12VDC
6	Yellow	Rec Audio
4	Orange	COR

Modem		
1	Black	Ground
2	Red	+12VDC
3	Green	PTT
6	White	Mic
9	Orange	COR
12	Yellow	Rec Audio
Install Ferrite Bead on Mic wire		
program LTR (high)		
program COR (-)		



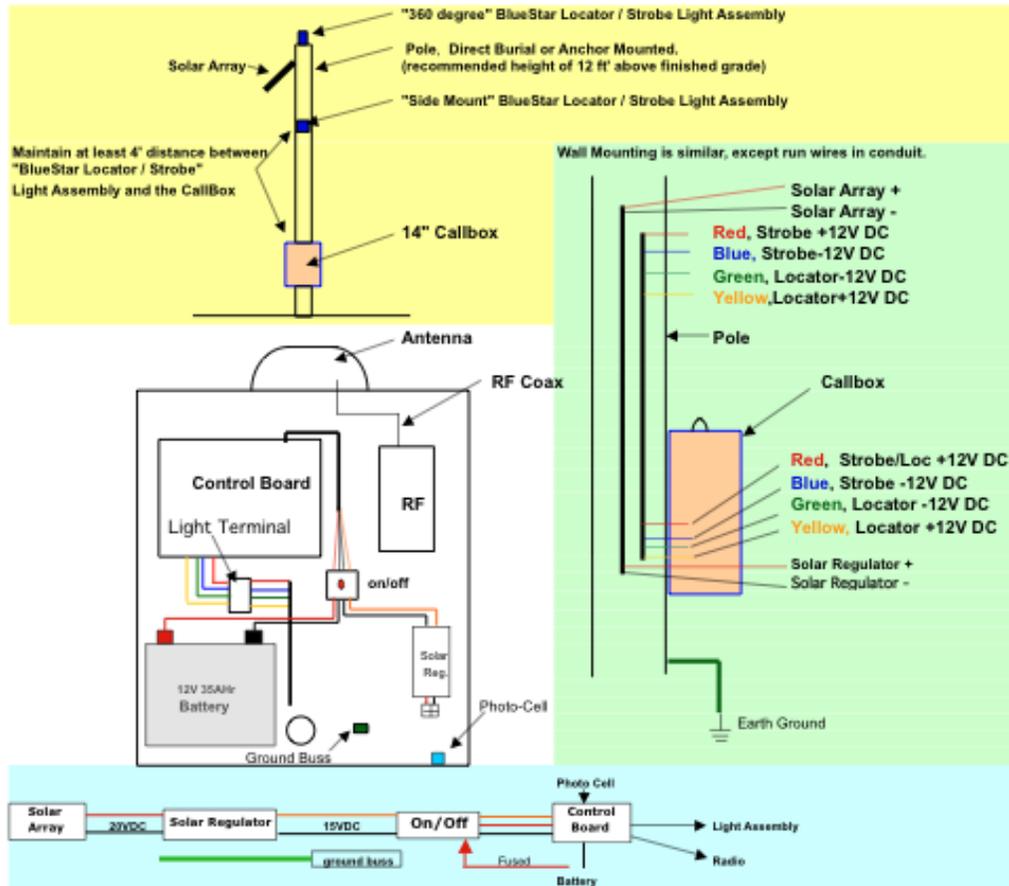
view from back of male plug
Please observe Pin Numbers
Located on the Molex Plugs



Note: Decoder Panels made for Diebold used (2) male molex plugs coming out of the back of the panels. Short female to female cables connected all panels (effectively in parallel).

2/08
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Call24 "S" Series Solar *Mk-III* CallBox



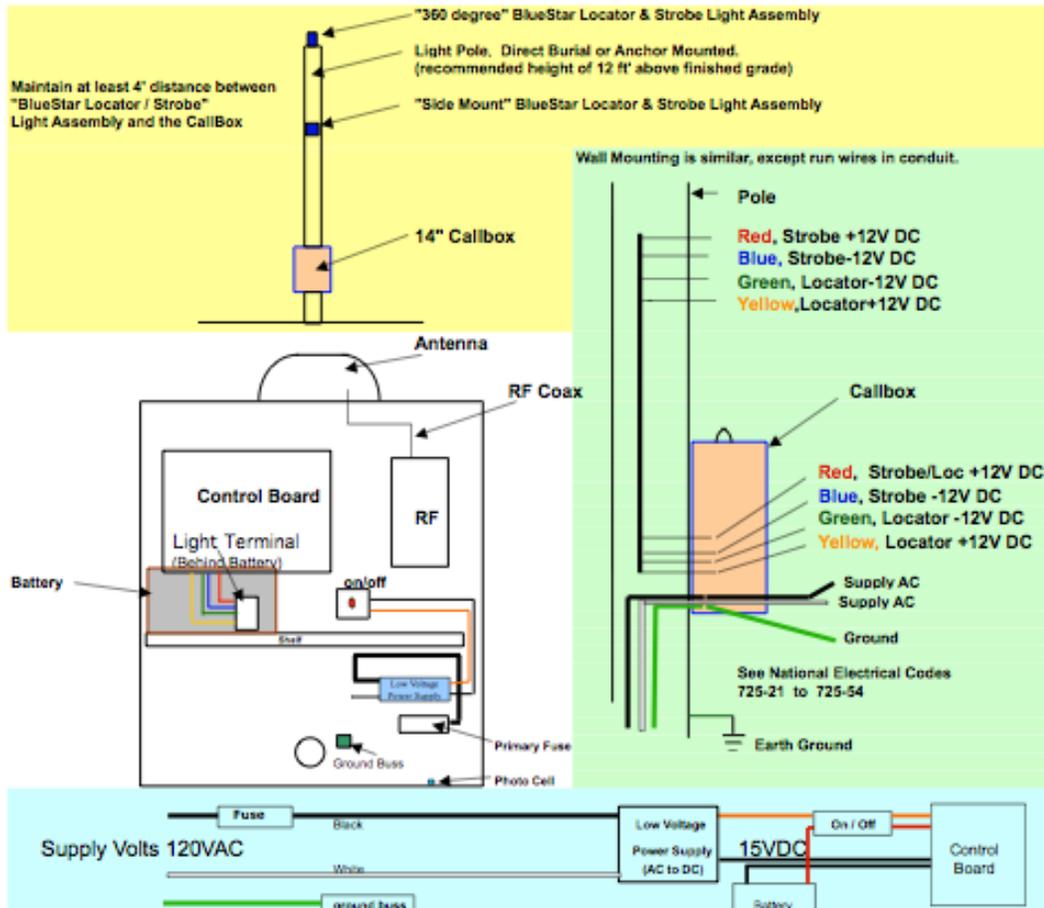
Electrical Trouble-shooting:

1. Check Callbox Power Switch on Shelf to be sure it is turned on. Yellow LED on Board should be ON.
2. Check for 12 vdc at Battery terminals on Control Board.
3. Check for 15 vdc at DC terminals on Control Board.
4. Check for 20vdc at input of Solar Regulator (during full sun).
5. Check Control Board Fuses.

Note: Replace Fuses with exact size and rating as those that were supplied with the Callbox.
 Call RCS Wireless-CALL24 if you have any problems, or if any of the above voltages do not check ok. A Technician will be able to help you trouble shoot your problem, if you follow the steps above using a simple AC/DC Meter. **1-800-441-9191**

CSM
8/07

Call24 "S" Series 120V Mk-III CallBox



Electrical Trouble-shooting:

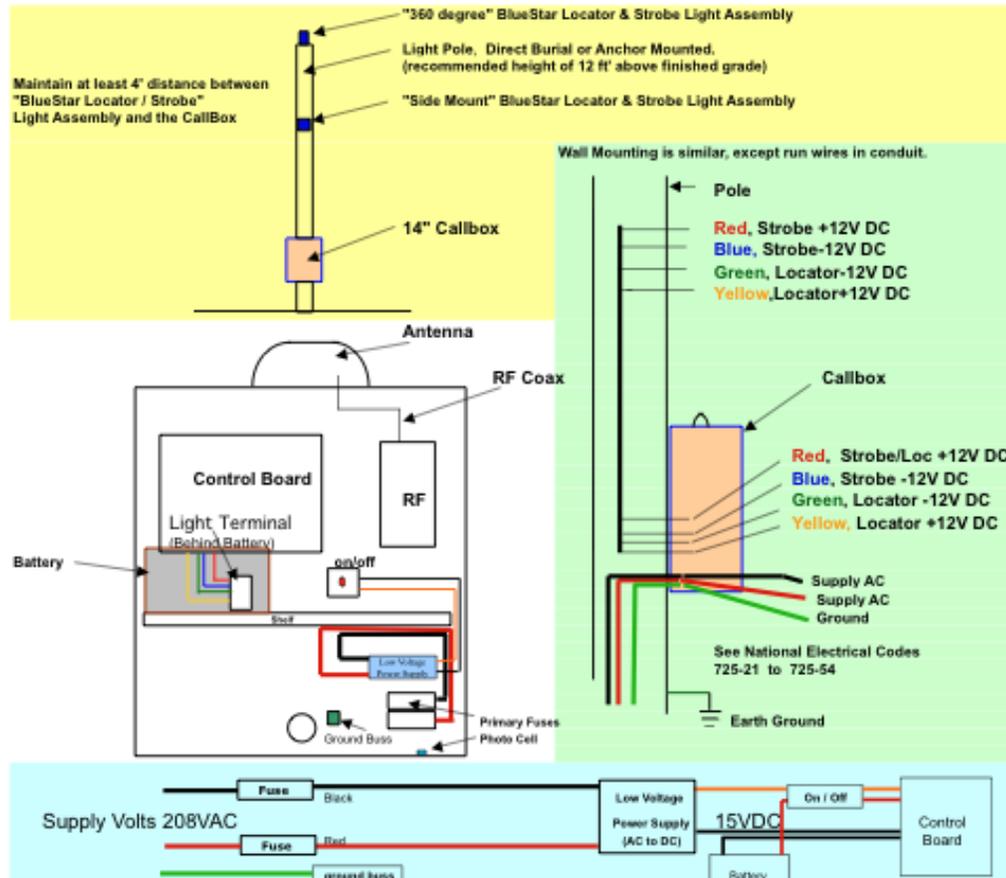
1. Check Callbox Power Switch on Shelf to be sure it is turned on. Yellow LED on Board should be ON.
2. Check Fuses on Control Board.
3. Check for 12 vdc at Battery terminals on Control Board.
4. Check for 15 vdc at DC terminals on Control Board.
5. Check for 120vac at input of Low Voltage Power Supply.
6. Check Supply Volt (Primary) Fuse.
7. Check Supply Volts (120vac) from Source.
8. Check Supply Volts Source Circuit Breakers Etc.

Note: Replace Fuses with exact size and rating as those that were supplied with the Callbox.

Call RCS Wireless-CALL24 if you have any problems, or if any of the above voltages do not check ok. A Technician will be able to help you trouble shoot your problem, if you follow the steps above using a simple AC/DC Meter. 1-800-441-9191

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8/07

Call24 "S" Series 208V Mk-III CallBox



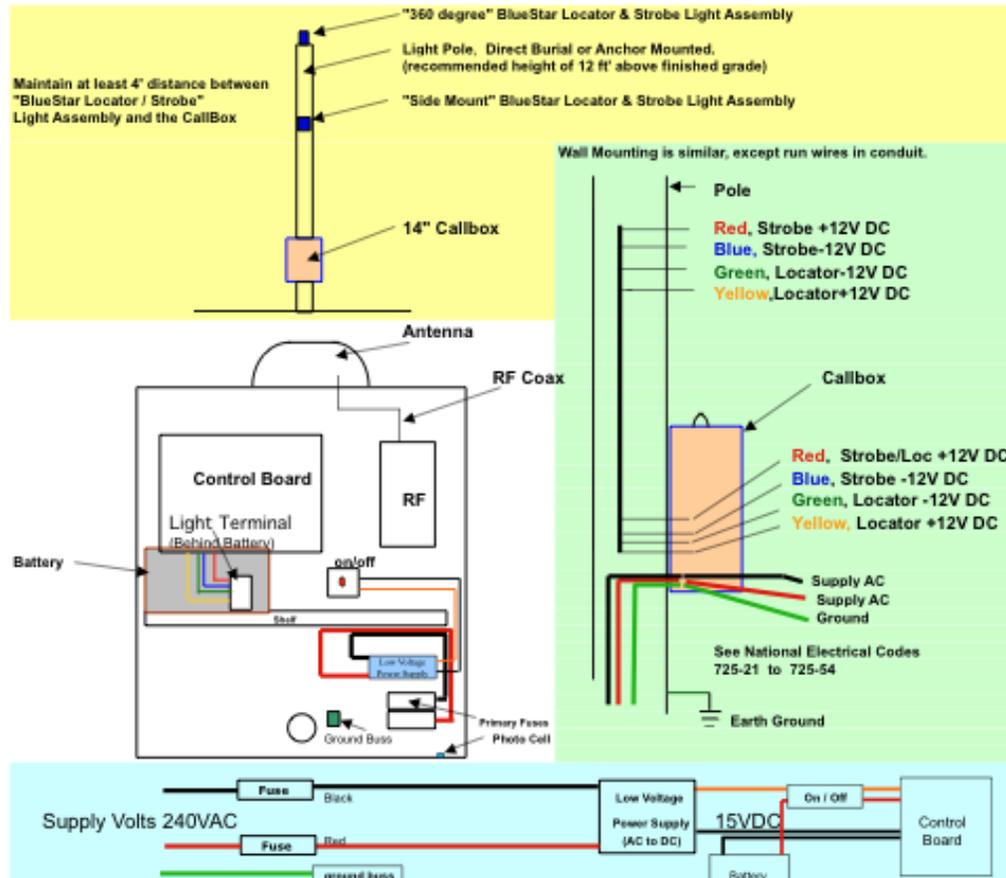
Electrical Trouble-shooting:

1. Check Callbox Power Switch on Shelf to be sure it is turned on. Yellow LED on Board should be ON.
2. Check Fuses on Control Board.
3. Check for 12 vdc at Battery terminals on Control Board.
4. Check for 15 vdc at DC terminals on Control Board.
5. Check Supply Volt (Primary) Fuses.
6. Check Supply Volts (208vac) from Source.
7. Check Supply Volts Source Circuit Breakers Etc.

Note: Replace Fuses with exact size and rating as those that were supplied with the Callbox.
 Call RCS Wireless-CALL24 if you have any problems, or if any of the above voltages do not check ok. A Technician will be able to help you trouble shoot your problem, if you follow the steps above using a simple AC/DC Meter.
 1-800-441-9191

CSM
 8/07

Call24 "S" Series 240V Mk-III CallBox



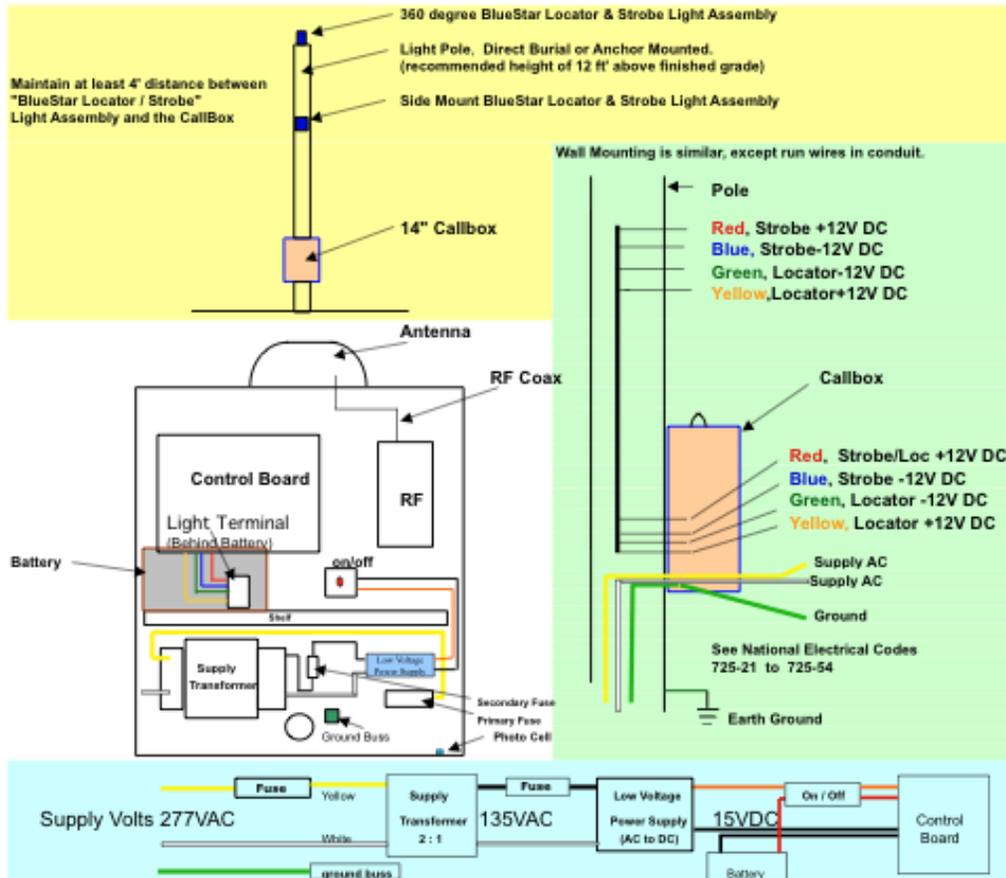
Electrical Trouble-shooting:

1. Check Callbox Power Switch on Shelf to be sure it is turned on. Yellow LED on Board should be ON.
2. Check Fuses on Control Board.
3. Check for 12 vdc at Battery terminals on Control Board.
4. Check for 15 vdc at DC terminals on Control Board.
5. Check Supply Volt (Primary) Fuses.
6. Check Supply Volts (240vac) from Source.
7. Check Supply Volts Source Circuit Breakers Etc.

Note: Replace Fuses with exact size and rating as those that were supplied with the Callbox.
 Call RCS Wireless-CALL24 if you have any problems, or if any of the above voltages do not check ok. A Technician will be able to help you trouble shoot your problem, if you follow the steps above using a simple AC/DC Meter. **1-800-441-9191**

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8/07

Call24 "S" Series 277V Mk-III CallBox



Electrical Trouble-shooting:

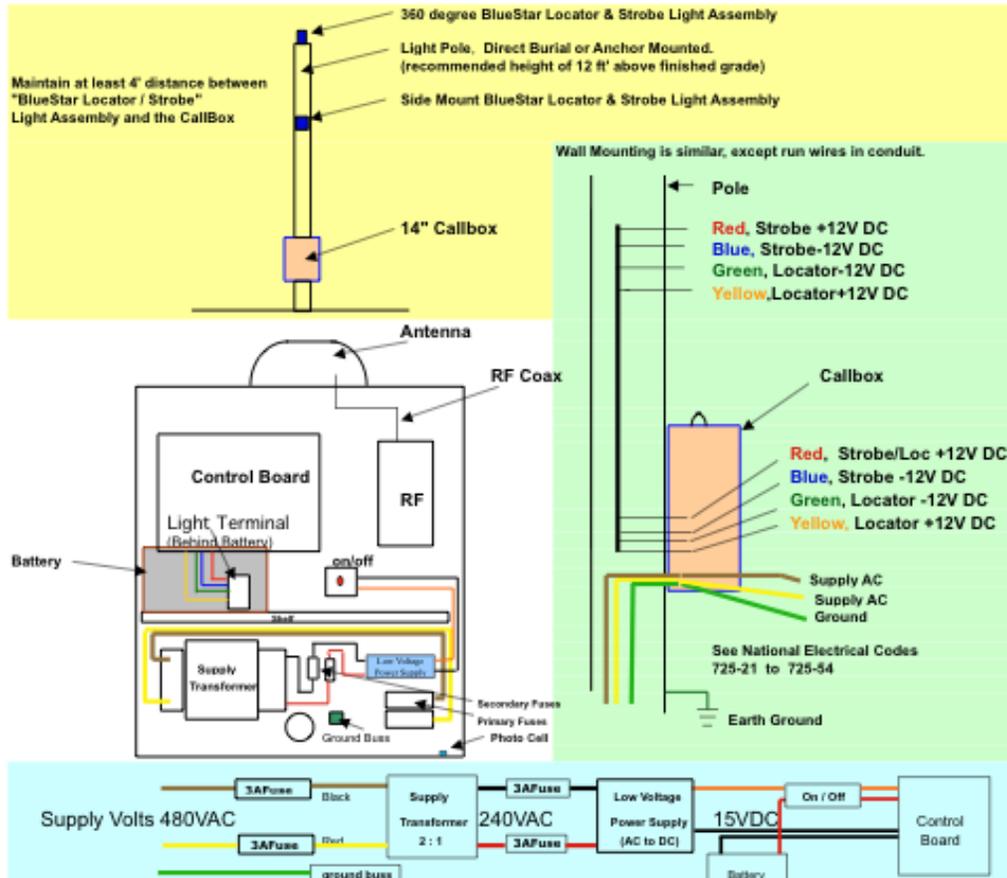
1. Check Callbox Power Switch on Shelf to be sure it is turned on. Yellow LED on Board should be ON.
2. Check Fuses on Control Board.
3. Check for 12 vdc at Battery terminals on Control Board.
4. Check for 15 vdc at DC terminals on Control Board.
5. Check In-Line Fuses from Transformer to Power Supply.
6. Check for 135 vac at Output of Supply Transformer.
7. Check for 277 vac at Primary of Transformer in Lower Compartment.
8. Check Supply Volt Fuses in Lower Compartment.
9. Check Supply Volts (277vac) from Source.
10. Check Supply Volts Source Circuit Breakers Etc.

Note: Replace Fuses with exact size and rating as those that were supplied with the Callbox.

Call RCS Wireless-CALL24 if you have any problems, or if any of the above voltages do not check ok. A Technician will be able to help you trouble shoot your problem, if you follow the steps above using a simple AC/DC Meter. **1-800-441-9191**

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8/07

Call24 "S" Series 480V Mk-III CallBox



Electrical Trouble-shooting:

1. Check Callbox Power Switch on Shelf to be sure it is turned on. Yellow LED on Board should be ON.
2. Check Fuses on Control Board.
3. Check for 12 vdc at Battery terminals on Control Board.
4. Check for 15 vdc at DC terminals on Control Board.
5. Check In-Line Fuses from Transformer to Power Supply. (BAF3 Fuses)
6. Check for 240 vdc at Output of Supply Transformer.
7. Check for 480 vdc at Primary of Transformer in Lower Compartment.
8. Check Supply Volt Fuses in Lower Compartment. (KTK3 Fuses)
9. Check Supply Volts (480vac) from Source.
10. Check Supply Volts Source Circuit Breakers Etc.

Note: Replace Fuses with exact size and rating as those that were supplied with the Callbox.

Call RCS Wireless-CALL24 if you have any problems, or if any of the above voltages do not check ok. A Technician will be able to help you trouble shoot your problem, if you follow the steps above using a simple AC/DC Meter. 1-800-441-9191

CSM
9/09

User Training

1) When you need to get in touch with security...

- Press the **PUSH FOR HELP** button located on the front panel of the CALL24 call box.

- A green indicator light will light up momentarily, signaling to you that your call has been sent to security.

- Along with the green light, a recorded greeting message will be played by the CALL24 call box notifying you of your call status.

- Your call will continue to alert security until a response is made to your call with SecureCall™ programming.



2) When security receives the call...

- A red light on the CALL24 call box will light up, telling the user that CALL24 is ready to relay your message. This may also indicate that security is physically responding to your location.

- You may hear a security officer introducing himself. Simply press and hold the **PUSH FOR HELP** button and speak in a normal voice.

- When you are finished speaking, release the button and listen for security's response. You will be instructed by security as to what to do.

Additional Features and Callbox Awareness Ideas:

In addition to immediately dispatching someone to your location, security can do 3 things in the event that you are unable to continue verbal communications.

- 1) Security can initiate a hands-free listen around the Callbox station. This feature can detect conversation and/or a cry for help easily. Security then can maintain contact with you.
- 2) After you have pushed the button, security will know your exact location, and can speak directly to you ensuring that they are responding immediately.
- 3) Security, in conjunction with Closed Circuit TV (CCTV) can pan and zoom in on your location to monitor the incident visually.

- Everyone can help stop crime before it occurs by using the CALL24 Wireless Callbox System to report criminal and other suspicious activity to your local Security department, enabling security to better serve you.
- Notification of callbox access can be made through corporate and campus handbooks, e-mail, mailboxes, bulletin boards, newsletters and newspapers.

CALL24 PRODUCT WARRANTY for S-Series, C, & M-Series Product Lines

This warranty applies to the original purchaser of the equipment only. From the date of shipment, CALL24 warrants the S-Series systems product line to be free from defects in material and workmanship for 24 months. The C-Series and M-Series product lines, and the ClassRoom / OfficeAlerts are covered for 12 months. This warranty does not apply to any parts damaged due to improper use; including accident, neglect, unreasonable use, vandalism, improper installation, unauthorized alterations, modifications, or improper maintenance of the equipment. It does not extend to damage incurred by natural causes such as lightning, fire, hail, floods, or other catastrophes, or to damage caused by environmental extremes such as power surges or transients.

CALL24 reserves the right to make changes in design and/or improvements to its products without any obligation to include these changes in any products previously manufactured. During the warranty period, all replacement parts must originate from CALL24. Correction of defects by repair or replacement shall constitute fulfillment of all warranty obligations on the part of CALL24. Corrective actions may include replacement of defective parts with new or manufactured parts that are warranted for the remainder of the warranty period if the repairs are incorporated into existing units under warranty. If a defect in materials or workmanship is reported to CALL24 within the warranty period set forth hereinabove, CALL24 will, at its discretion, either repair or replace the defective item or component without charge for materials or factory labor when returned to CALL24, in Winston Salem, North Carolina. If found defective, returned equipment will be shipped back to the customer F.O.B. Winston- Salem, freight prepaid and absorbed. Equipment found to be not defective shall be returned at buyer's expense, and testing and handling expense shall be borne by the buyer. Out-of-warranty repairs will be billable at the current CALL24 hourly rate plus the cost of any needed components. **To expedite service while in warranty; requests or orders for parts under warranty require a purchase order. A credit to the account will be considered against the replacement warranty parts invoice if items returned are indeed found to be defective and if the replaced parts are returned to CALL24 within 15 business days from the confirmed date of replacement part(s) receipt.** No credit shall be allowed for work performed by the buyer. CALL24 is not responsible for costs related to trouble-shooting, removal, shipping, or replacement of parts from their installed location.

Warranty repairs will be performed at the place of manufacture or through a CALL24 Authorized Dealer. If applicable, the buyer will be responsible for the cost of shipping to warrantee center. **The Sole Exception to the above warranty shall be call box batteries.** Batteries are covered for 90 days from date of shipment. Service replacement parts that are purchased for call box stations whose original equipment warranty has expired are covered for 90 days from date of shipment. Custom-engineered/designed call boxes are covered for 12 months after date of shipment. Warranty does not cover problems created by co-channel, adjacent channel, or intermodulation interference. CALL24 is not liable under this warranty, or any implied warranty, for loss of use or for other consequential loss or damage experienced by the buyer, or any third party arising out of or connected with buyer's purchase and use of CALL24's products or services. Some states do not permit the exclusion or limitation of implied warranties or consequential damages. The foregoing is the sole and exclusive remedy of the buyer and is in lieu of any and all other warranties expressed or implied as to merchantability, fitness for purpose sold, description or quality.

FREIGHT CLAIMS AND PRODUCT RETURNS

Title to the equipment passes to the buyer upon delivery from CALL24 to a carrier, at which time risk of loss or damage passes to the buyer. Claims for box shortages and external damages, concealed or otherwise, must be reported directly with the carrier upon receipt and noted on delivery bill by driver. Concealed damages and concealed shortages must be reported to CALL24 within 7 days of delivery. In the event that damage is found, delivering carrier should be immediately contacted to inspect the shipment. If buyer fails to notify CALL24 within 7 days after receipt of equipment of any shortage, or other failure to conform to the official purchase order and the CALL24 Set-Up & Programming Order Forms, the equipment shall be considered accepted by the buyer as delivered. Damaged parts should be reordered. **Returns for any reason other than repair must be previously authorized by CALL24 and are subject to a 15% restocking charge.** No returns, refunds or exchanges are authorized once 30 days have elapsed from the day of CALL24's shipment date. **Returns are not authorized for poles, custom decaled or custom engineered call boxes.** Returns for repair need a CALL24 RMA # and should be accompanied by a letter stating the nature of the problem, the respective call box serial number, and the customer's name & phone number. Service assistance or replacement parts can be requested from your local service supplier or at 1-336-788-9191 EST Mon.-Fri, 8-5:00PM.