Stronghold Strobe Burglar Deterrent

Installation Manual

The Stronghold Strobe Burglar Deterrent is designed to augment the disorienting effect of the Stronghold Acoustic Burglar Deterrent. When activated by the existing alarm system, the Stronghold Strobe emits a rapid and irregular series of flashes, exacerbating the sense of panic, vertigo, and seasickness inflicted by the Acoustic Deterrent. In addition, the Stronghold Strobe impairs the intruder's vision when used in a dark environment, thus impeding theft and/or use of weapons.

In contrast with competing high-intensity security strobe products, which typically consume 1500-2700 watts and thus require a dedicated 240 volt AC circuit breaker, the Stronghold Strobe, like its acoustic counterpart, is powered directly from the 12 volt siren circuit. For this reason, it is now possible for a security installer to add strobe deterrent functionality to a customer's system without the need to hire an electrician. Furthermore, the Stronghold Strobe will continue to provide protection during an AC power outage (via the existing system's backup battery).

Thanks to the latest Cree LED technology used in conjunction with a unique energy storage circuit, the Stronghold Strobe emits a sharp white flash similar to a traditional xenon strobe, but draws only 250 mA from the siren circuit. This current draw, even when added to the 180 mA of the Stronghold Acoustic Deterrent, is still less than that of a traditional siren, allowing for easy retrofit installation without additional power supplies. In addition, no bulbs or other consumables are ever required.

Stronghold Strobe also supports the Temporal-3 fire signal as generated by combined fire-burglary alarm systems. When this signal is present on the circuit to which the unit is wired, Stronghold Strobe will flash once at the end of each signal pulse (3 flashes at 1 second intervals, followed by a 2 second pause), following the cadence of sounders on the same circuit. A Temporal-4 carbon monoxide tone will result in 1 flash every 5 seconds. This allows for the Stronghold Strobe to serve the additional purpose of warning the occupants, in a non-disorienting fashion, of emergencies other than burglary, and prevents the unintended activation of debilitating deterrent functions when connected to a multi-purpose alarm system.

Specifications:

Input voltage: 12 VDC nominal
Current draw in alarm: 250 mA (typical)
Standby current draw: 0 mA
Peak light output: 3000 lumens (typical)
Flash pulse width: 35 milliseconds nominal
Flash rate (burglary mode): 3-7 Hz, randomized
Flash rate (fire/CO mode): follows input signal cadence
Light source: Cree XHP-70 LED
Dimensions: 68 x 114 x 27 mm

Note: specifications are based on design criteria and in-house measurements; this product has **NOT**, at the time of this writing, been evaluated by Underwriter's Laboratories or any other official testing authority. For this reason, Stronghold Strobe should not be used in place of a UL listed life-safety visual notification appliance in occupancies where such an appliance is required by code.

Installation Procedure:

1A: Prepare installation site (retrofit):

Disconnect power to the alarm system. Remove the existing siren and save the end-of-line resistor if applicable. Ensure that the remaining wires can supply 12VDC at 250mA (in addition to the current draw of other devices) when the system is in alarm (refer to the main panel installation manual to determine available siren voltage and current).

1B: Prepare installation site (new installation):

Run a 2-conductor wire from the alarm control cabinet to the installation site. 22AWG is recommended for wiring runs of up to 300 feet divided by the number of units, while larger diameters (such as 18AWG, or paralleled 4-conductor wire) are recommended for longer distances and/or more units. The wire must be connected to the “Alarm Output”, “NAC”, or “Bell” terminals, or to a programmable output for selective operation (please note that programmable outputs usually do not support wiring supervision or fire signal coding). The output must provide a nominal voltage of 12VDC, and must be capable of supplying a current of at least 250mA.

Leave the wire hanging out of the wall, as shown below:

2: Mount backplate:

Remove front cover and circuit board from backplate, taking care not to damage the components. Place backplate onto the wall so as to allow the wire to pass through the rectangular slot at the top. Ensure that the backplate is level. If mounting to drywall, mark the locations of the screw holes, remove the backplate from the wall, and drill out the marked locations.

Then, install the supplied drywall anchors:

Finally, screw the backplate into the anchors:

If mounting to a junction box, simply align the two mounting holes and insert the appropriate screws. The backplate can also be mounted directly to a wooden surface (drill pilot holes if necessary).

3: Mount circuit board:

CAUTION: High-voltage capacitors are present on the circuit board. If the unit has recently been tested or otherwise connected to 12-volt power, let it sit for at least one minute before handling it in order to avoid electrical shock.

Place the circuit board into the backplate, ensuring that the molded plastic standoffs enter the mounting holes in the board:

Fasten the board to the backplate by inserting the small non-pointed screws into the 4 molded standoffs located at the corners of the board.

Note: In the photo above the wiring is NOT connected. Later the red wire will be connected to the left terminal, as shown.

If the board does not fit properly, please ensure that the backplate mounting screws have been driven in fully, and that the space between the backplate and circuit board is free of foreign objects.

4: Connect wires:

Strip the input wires as necessary, then connect them to the terminal block located on the right side of the board, as indicated in the picture below:

The left-hand terminal is positive, and the right-hand terminal is negative. If multiple units are present in the system, two cables may exist (one from the panel or upstream sounders, and one to downstream sounders). Connect both positive wires to the left-hand terminal, and both negative wires to the right-hand terminal. Observe proper practices for wiring supervised sounder circuits if applicable. If the original siren (in a retrofit installation) had a resistor connected across its terminals, connect this resistor across the Stronghold sounder's terminals.

Ensure that the lens is seated over the LED at the bottom of the circuit board.

5: Install front cover:

The front cover latches onto the backplate with tabs on the top, and is fastened by a screw on the bottom. Place the front cover on the unit, ensuring that it fits properly onto the backplate (if it doesn't fit, check the fit of the circuit board, and for foreign objects inside the unit). Then, insert the small pointed screw into the hole on the bottom of the cover (it may help to start the screw into the cover before placing it on the backplate).

Ensure that the cover cannot be removed from the backplate after installing this screw. Restore power to the system.

6: Test fire/CO signals (if applicable):

Note: This section involves sounding alarms. Notify occupants and the central station if applicable before testing.

Place the main control panel into a fire alarm condition (activate a pull station or smoke

detector). The Stronghold Strobe should flash in sync with the NFPA Temporal 3 fire signal (a repeating pattern of 3 flashes followed by a pause) The unit should not, at any time during the fire signal, emit a rapid series of irregular flashes (if this occurs, the panel may be emitting a signal other than the required Temporal 3, and may not be compatible with Stronghold Strobe's fire mode).

To test CO alarm functionality, place the panel into a CO alarm condition (such as by activating a CO detector). Sounders should emit a series of 4 short tones, followed by a single flash from the Stronghold Strobe. This cycle should repeat every 5 seconds. As with the fire test, no rapid or irregular flashing should take place.

Reset panel and confirm that the sounder has silenced. If a device did not operate, check the wiring.

7: Test burglary signal:

Note: This section involves sounding alarms. Notify occupants and the central station if applicable before testing. The Stronghold Strobe will flash rapidly, so evacuate individuals who may have photosensitive epilepsy before proceeding with the test. It is strongly recommended that the room lights be on during the test so as to mitigate the disorienting effect of the strobe. Be mindful of other deterrent devices, such as Stronghold Acoustic Deterrents, which may be connected to the same system.

Place the main control panel into a burglary alarm condition (arm system and violate a burglary zone, or press an audible panic button). The Stronghold Strobe will emit a rapid and irregular series of flashes. If multiple Stronghold Strobes are installed, each unit will flash independently of one another (so as to maximize the disorienting effect). Reset panel and confirm that all sounders and strobes have shut off. If a device did not operate, check the wiring.

Installation tips:

6-volt and 24-volt systems:

Some older burglar alarms, as well as some “all-in-one” wireless alarms, may provide a 6-volt bell output, while commercial fire/burglary alarm and access control systems, as well as most auxiliary power supplies/NAC extenders, may operate at 24 volts. Please note that these voltages are not suitable for operating a Stronghold Strobe (6 volts is not sufficient to activate the strobe, while 24 volts may cause damage). If a Stronghold Strobe must be operated from such a system, use a voltage converter module (be mindful of current draw multiplication when voltage is boosted), or a separate power supply and relay, to provide the unit with the required 12 volts.

Wireless alarm systems:

As a wired device, Stronghold Strobe is not directly compatible with fully wireless alarm systems. However, some wireless alarm systems include a wired siren output. If this output provides 12VDC with at least 250mA, a Stronghold Strobe can be connected directly to the output (keep in mind that a Stronghold Acoustic Deterrent is recommended to be used in tandem with the strobe, so 430mA may be required). If the output is 6VDC, see the above section. Alternatively, if the system includes lighting/appliance control modules which can be programmed to switch on during an alarm (such as X10 or Insteon), Stronghold Strobe can be wired to an ordinary 12VDC wall adapter which is in turn plugged into the control module. Note that this type of installation does *not* typically provide battery

backup, supervision, or fire alarm capability.

Additional tips:

The intermediate space of "airlock-style" double doors (often found in jewelry stores and other high-security facilities) is an ideal location for Stronghold products. It is recommended that the devices be activated concurrently with the automatic locking of the interior door, so as to stop the intruder from attempting to flee from the device by running farther into the facility.

Strobe deterrents are unlikely to be effective when used alone, so use them to exacerbate the disorientation inflicted by an acoustic deterrent or fog machine.

Keep in mind that the Stronghold Strobe is significantly more disorienting in a dark room than in a well-lit room. For this reason, if the security system has home automation lighting control functionality, we recommend writing an automation rule which switches the lights off upon a burglary alarm (and temporarily disable any other automation rules which may turn the lights back on upon motion). If this is not possible, consider wiring a normally-closed relay in series with the room lighting circuit. Energize the coil of this relay from an output programmed to activate upon a burglary alarm condition (note that the main alarm output may not be suitable for this purpose if fire/CO detectors are present in the system). This may require the assistance of a qualified electrician.

The psychological intimidation effect of an active deterrent may be multiplied by a real or perceived threat of lethal force; Stronghold products installed in an area wherein an intruder may be fired upon from a nearby room will deprive the intruder of situational awareness (especially if the intruder attempts to defeat the devices by wearing eye or ear protection), making him an easier target.

A potentially hazardous situation may arise if a Stronghold Strobe is activated in the presence of individuals with photosensitive epilepsy. Take care to avoid false burglary alarms in buildings which are open to the public, and/or where such individuals are known to reside. If a Stronghold Strobe is to be installed in the home of an epileptic, inform him or her of the risks, and wire the device into a relay so as to only operate in "Away" mode.

Exercise extreme care when using Stronghold devices to secure areas where a severe startle response may result in significant harm to life or property (such as vehicle interiors, operating rooms, cardiac care facilities, chemistry labs, and nuclear power plant control rooms).

Stronghold Strobes may be used in residential applications to provide *supplementary* visual fire/CO alarm notification for the hearing impaired (use for this purpose in commercial applications, *or in any application where visual notification is required by code*, is *not* recommended).

Units located in bedrooms or other living areas should be provided with a relay or other means to selectively enable them when the system is armed in "Away" mode. This protects valuables while the building is unoccupied, without incapacitating legitimate occupants otherwise. It is generally not recommended to use selectively-controlled Stronghold Strobe units for fire alarm purposes, as they may not operate as fire alarms if the relay is off. However, if this is desired, be sure to program all of such relays to switch on in the event of a fire or CO alarm.

Leave at least one keypad (but preferably NOT the main control box) outside of the coverage area of all Stronghold device(s) to allow for disarming.

Do not program the alarm system to generate a continuous siren output for any condition other than burglary (e.g. fire, CO, flood, freeze, dialer trouble, etc.), as this will cause the Stronghold Strobe to unnecessarily emit a disorienting sequence of flashes.

If an steady 1 Hz flash is desired for specific non-burglary alarm conditions, provide the Stronghold Strobe with a 60BPM "march-time" signal (500mS on, 500mS off). Other pulse rates may work, but proper operation is not guaranteed.

If any newly installed sounder or strobe operates continuously (even when the system is not in alarm), please ensure that it has *not* been wired directly to an auxiliary power circuit.

If a very large number of units are required for protecting a large area, consider adding a separate battery-backed power supply and relay. Note that this approach will not provide wiring supervision, unless a supervised NAC power extender is used (12VDC only).

Remember that the unit, if connected to the bell output, will not sound until the system goes into full alarm; entry delays should be set as short as practical, and particularly valuable or vulnerable items should be protected by sensors connected to instant zones. Alarm timeouts should be as long as practical to prevent the intruder from simply waiting until the unit shuts off before re-entering (if necessary, disable the main panel's bell timeout, and install a hardware siren timer exclusively on the outdoor siren).

Consider providing a means of operating the security system from outside the premises (e.g. proximity cards, outdoor keypad, telephone/internet remote control, or a handheld transmitter). This allows the property owner to reset the system without exposure to the deterrent devices, and permits entry/exit doors to be configured for instant alarm.

Consider the effect of active deterrents in conjunction with panic buttons. Such buttons are generally programmed to generate a silent alarm in the event of an armed robbery, as a traditional alarm may provoke rather than stop such an intruder. After installing Stronghold product(s), one may wish to reprogram the panic buttons as audible so as to employ the disorienting effect of the device against robbers (it is strongly recommended to inform staff of the presence of the device, and to educate them on tactics involving its use). Keep in mind any delays associated with activating the devices, including the time required for the strobe to begin flashing (1 second from application of input voltage to emission of the first flash).

For very high-security installations, deploy multiple active security measures, such as Stronghold Acoustic Deterrents, Stronghold Strobes, security fog, deployable physical barriers, and automatic pepper spray dispensers. Note that strobe lighting particularly exacerbates the disorientating effect of security fog, making it seem thicker and more opaque than it actually is.

We do not recommend installing more than 3 Stronghold Strobes in the vicinity of each other, as the flashes may blend together into a more continuous illumination. When covering large areas, locate the strobes as far from one another as possible.

In order to streamline emergency response efforts, install at least one strobe in a room with a window visible from the street. The rapid flashing will be easily visible from the exterior at night, and will identify the specific structure more clearly than an outdoor siren alone. Do not install a Stronghold Strobe outdoors (it is not weatherproof).

If possible, avoid co-locating Stronghold Strobes (or any other visual alarm devices) with Stronghold Acoustic Deterrents or other security system components. This avoids revealing the location of these other devices to an aggressive intruder, who may attack the strobe (Stronghold Strobes, while *not* bulletproof, are constructed of thick plastic, and feature oblique angles to deflect impacts, though other devices may not have these features).

Stronghold Strobes use cool-white LED's, which have less of an effect on most CCTV cameras than other types of light sources. However, if a Stronghold Strobe interferes with a camera, the problem may be corrected by moving the camera and/or the strobe, or by providing supplementary infrared illumination (this will make the room seem constantly illuminated to the camera, but not to the intruder).

Placing a Stronghold Strobe immediately outside of a doorway to a bedroom or similar location will impair the ability of an intruder to aim a weapon into the bedroom, without significantly affecting the ability of the homeowner to return fire.

Disclaimer:

Stronghold Security, SoftBaugh, Inc., their distributors, and affiliates disclaim any liability resulting from the use of this product, including, but not limited to, code violations, noise ordinance violations, failure to stop an intruder, pain and suffering, vehicular accidents resulting from installation therein, and photosensitive epilepsy. Device specifications may be subject to change without notice. Use at your own risk.

FCC Compliance Statement:

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