

# **PRO-TEC**

# **SYSTEM ONE**

## **Trailer Security Systems**

## **Model # PTS-2**



Photo includes PTS-2 with optional pager unit

**“Professional Technology to  
Pro-Tec Your Investment”**

More helpful install information on our website [www.ProTecSystemOne.com](http://www.ProTecSystemOne.com) under the tab **Helpful Info**

*Congratulations on your purchase of a state-of-the-art trailer security system.  
This system has been designed to provide years of trouble-free operation.*

### **What it does**

The Pro-Tec System Two is designed to monitor and protect your trailer and its contents while at a race, job site, rest stop, hotel, restaurant, etc. This is accomplished by door switches and an accelerometer. Any acceleration of the trailer or opening of a door will trigger the alarm. This will cause the electrical brakes of the trailer to be applied, running lights will then flash, and the siren will sound. If you have the optional pager system, or cellular dialer, you will be notified of a potential problem.

This device complies with part 15 of FCC rules. Operation is subject to the following 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.

This Owner's Guide should help you get the most out of your system. Please take the time to read it thoroughly, prior to using the system.

### **What is included:**

|                              |                              |
|------------------------------|------------------------------|
| 1 Control module             | 2 Transmitters               |
| 1 Siren                      | 1 Brake safety toggle switch |
| 3 Pin type door switches     | 3 Door switch brackets       |
| Mounting screws              | 5 Crimp connectors           |
| 1 Double membrane entry seal | Insurance rebate card        |
| Warranty card                | 2 Vinyl Decals               |

|  |  |
|--|--|
| PTS-2P Package includes:<br>All the above plus:<br>Pager and base unit | PTS-2C Package includes:<br>All the above plus:<br>Cellular Dialer |
|--|--|

### **Optional Equipment:**

Check out our website for the various options available.

Note: Pager requires AM/FM antenna (not included).

### **What you will need:**

You will need basic electrical and hand tools to complete this job.

A cordless drill to make any penetrations thru the trailer.

20 gauge wire is recommended for the door sensors

14 gauge wire is recommended connect to the lights and brakes

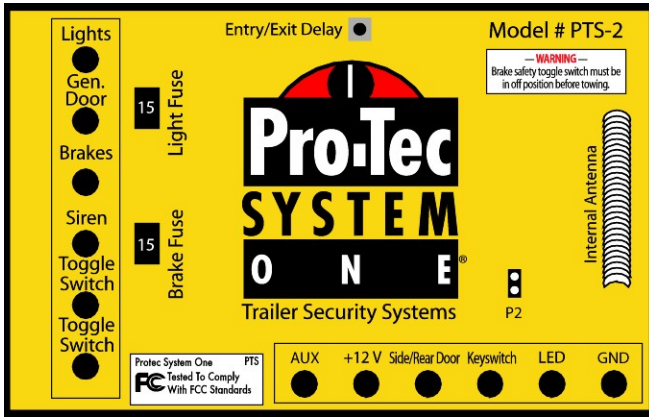
12 gauge wire is recommended to connect to your power supply

### **Control box**

■ Recommended Mounting - Position High on the front wall. The higher the control box is mounted the better the reception would be.

■ Wire Routing - Use one of the punch outs on the side of the box. Snap in the double membrane entry seal to the hole you punched out to protect the wires

**Note: Wires must be kept away from the internal antenna.**



Control Box Outside Dimension:

- 5.12" Length
- 3.70" Width
- 2.24" Depth

### Circuit Board Terminals

|                |   |
|----------------|---|
| Lights:        | Positive side activated when alarm goes off                                 |
| Gen Door:      | Used if your trailer has a generator door                                   |
| Brakes:        | Generally best if connected in brake away box. Video online                 |
| Siren:         | Positive side of siren, negative side will ground                           |
| Toggle Switch: | There are 2 of these and one goes on each side of the switch                |
| AUX:           | Used for motion sensor or paging units. Powers up only when alarm is armed. |
| Pos 12V        | Positive side supplied from battery   |
| S&R Door       | All doors or sensors run one wire here. Circuit completed to ground         |
| Keyswitch      | Key switch, key pad or one of GPS wires go here                             |
| LED            | One side of LED here, other side to ground                                  |
| GND            | Ground. Self explanatory, but must also ground to chassis of trailer        |

### Installing alarm

STEP ONE - Deciding on component locations

#### SIREN

1. Keep it away from heat sources.
2. Mount the siren outside and point siren down so water does not collect in it.

#### CONTROL UNIT

1. Mount securely inside trailer.
2. The higher the control unit is mounted in the trailer, the better the transmitter range will be.
3. Mounting screws provided are designed to mount control unit using lid holes.

#### SWITCHES

1. Mount pin switch.
2. Make sure switch bracket is mounted to trailer and properly grounded.
3. To install our optional magnetic switches wires must be run inside the walls.

## WIRING

1. Route wiring through trailer so chaffing and/or pinching will not occur.
2. Solder or crimp connectors are trouble free if done properly.
3. Insulate all connections with shrink tube or quality electrical tape.
4. When wiring control box keep wires away from internal antenna.

## POWER

This alarm system must be powered by a 12 volt automotive type battery. Do NOT use multiple batteries to power this system as that may damage the circuit board and void any warranty. Solar panels designed for 12 volt systems may be used with extreme caution.

## INSTALLATION

1. Installation of the 12 volt full size automotive battery, grounded to trailer and kept charged is needed for proper operation.
2. Use 20 gauge wire from door switches to control unit. Use separate wire for each door and connect to terminal block marked for that door.

3. Connect 14 gauge wire from trailer running lights circuit to terminal block.

NOTE: The control unit is able to handle up to 15 amp loads.

4. Connect 14 gauge wire from positive side of trailer brake to brake output terminal

Note: The 12 Volt automotive battery must be grounded to trailer chassis.

5. Mount brake safety toggle switch. Both terminals on the brake safety toggle switch connect to two terminals marked T/SW on the terminal block in the control box.

5a. If the brake safety toggle switch is left in the on position before towing siren will sound upon brake compression.

IMPORTANT: The brake safety toggle switch must be turned off before trailer is to be towed. This switch is used to prevent accidental trailer brake activation while towing.

NOTE: If this switch is not installed, the alarm brake feature will not work.

6. Connect siren (red wire) to control module terminal block, connect (black wire) to trailer ground.

7. Connect 12 gauge wire from negative battery terminal to control module terminal block marked GND.

8. Connect 12 gauge wire from positive battery terminal to control terminal block marked +12V.

**8a. Improper wiring of 12V positive or negative wire will damage unit.**

9. "AUX" terminal: To be used for optional devices. This terminal is switched on/off upon arming and disarming process. It supplies 12V+. It will only handle up to 100 mA.

## Testing

Close ALL doors and press the button or turn the key switch if you have the optional keypad refer to keypad instructions.

1. Trailer lights should flash once.
2. Alarm in now armed.
3. Open side door
  - a. Running lights are flashing.
  - b. Siren is sounding.
  - c. Brakes are engaged.
  - d. Optional Pager will sound.
  - e. Optional cellular dialer will send message.
  - f. Press button once or turn the key switch to disarm alarm.
  - g. Trailer lights will flash twice.

Repeat above sequence to test all doors.

The alarm will go off for 2 minutes (siren will sound, lights will flash, brakes will lock.) If at the end of that time a sensor is still triggered, it will continue for another 2 minutes and activate nuisance prevention.

## **Accelerometer**

The alarm circuit uses a 2G accelerometer integrated circuit that allows the alarm to sense motion no matter how it is mounted. When the alarm is armed, the trailer's position is saved in memory so that if the trailer is moved the alarm will be triggered. If the accelerometer is unable to get a consistent reading, the siren will emit 2 sets of 3 beeps to indicate a calibration error, and the accelerometer will be deactivated until the system is disarmed.

## **Accelerometer Sensitivity**

The sensitivity of the accelerometer may be reduced by removing jumper from P2 position. The accelerometer comes pre-programmed in the most sensitive position.

## **Nuisance Prevention Circuitry**

Your system has Nuisance Prevention Circuitry (NPC). It prevents annoying repetitive trigger sequences due to faulty door pin switches or environmental conditions such as thunder, jackhammers, airport noise, etc. It is designed to ignore an alarm trigger for one hour if the alarm is activated twice in a row by the same sensor. After a one-hour lockout, the sensor is re-enabled.

Here's how it works:

Let's say the alarm triggers two times. NPC will interpret this pattern of triggers as false alarms. NPC ignores or bypasses that sensor or switch (along with any other sensors or switches sharing the same zone). This ensures that a sensor that continuously triggers will remain bypassed.

## **Using Your System**

### **ARMING**

You can arm the system by pressing the transmitter button or using the optional key switch or keypad. When the system is armed, you will see the running lights flash once. If utilizing an exterior optional LED light, it will begin to blink. If a delay is set, the system will blink once when activated, and once more when the system is fully armed. If using the system with no delay, all exterior doors must be closed to arm the system. If a door is open while arming, the siren will beep 3 times to notify the user.

### **DISARMING**

1. Press button or optional key switch or keypad. Running lights will flash twice. Trailer is now disarmed and safe to enter. Optional LED light will shut off.
2. If siren is sounding, press the button or key switch once; this will silence the siren and stop the running lights flashing.

### **ALARM CODES**

Once the system is disarmed after the alarm has been triggered, it will display what set the alarm off. After the two flashes for the dis-arm and a one second pause, it will display:

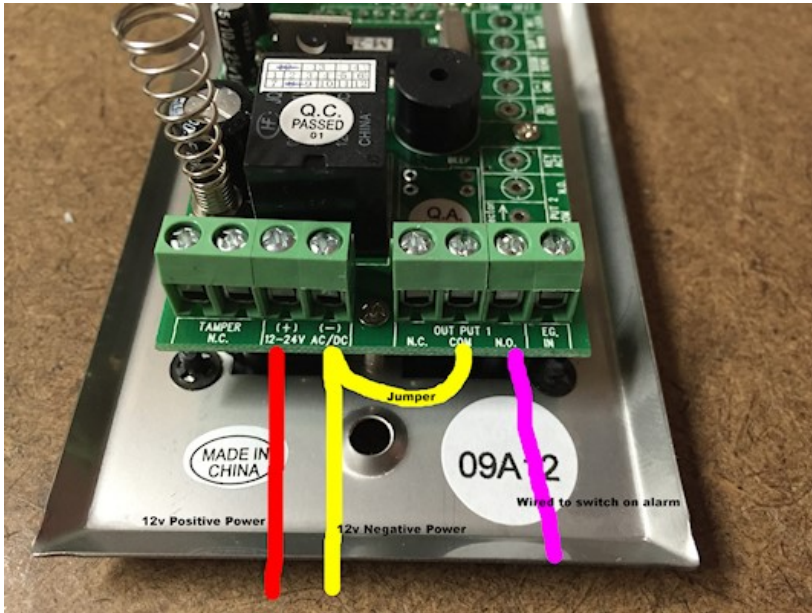
1. One flash for the side door
2. Two flashes for the generator door
3. Three flashes for the accelerometer sensor.

After these codes are displayed, they are erased from memory so the user should look for these codes when disarming the system.

## Other features

### KEYPAD WIRING INSTRUCTIONS

1. Connect 12volt power to 12v+ on terminal block
2. Connect jumper wire to 12volt neg. wire & secure to 12v- on terminal block.
3. Connect loose end of jumper wire to the "com" on the Output area of the terminal block.
4. Connect wire to the "N.O." terminal located in the Output Section of the terminal block. This wire needs to be run to the Pro-Tec System control box and connected to the "Key Switch" terminal.
5. A plastic header jumper must be installed across two pins on the nine position pin rail above the 12v+ terminal block on the Pro-Tec System circuit board. (See enclosed diagram)
6. All wires should be 18ga. or 16ga. Stranded wire.



### KEYPAD OPERATIONS

#### Entry/Exit Delay

This is a programmable delay time that must be used to operate the interior keypad. In arming the alarm, the alarm will not be triggered until after the preset delay has expired. The delay is programmed when the alarm is in the STANDBY MODE.

To check the delay time, press and release the pushbutton S1.

The status led D7 will flash to indicate the current delay time (see chart). If the button is not pressed again quickly, another beep will indicate the return to STANDBY MODE, keeping the selected delay value.

To change the delay time, press S1 to enter the programming mode. Once the led flashes indicate the current setting, press S1 again to go to the next delay setting. The led will flash to indicate the delay time (see chart). Discontinue pressing S1 once the desired delay time has been reached. The alarm will return to the STANDBY MODE. If your system loses power, you will need to program this again as this part of the board memory is erased.

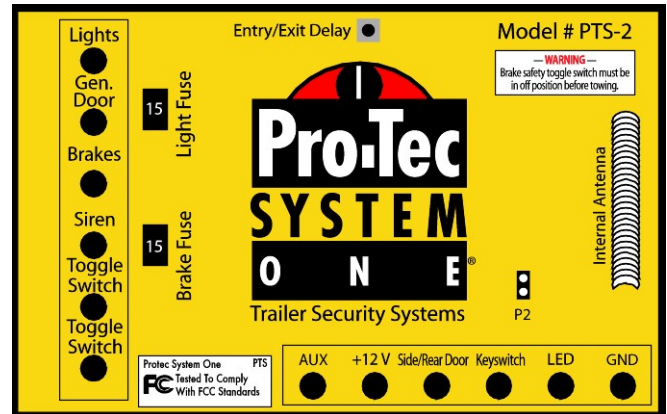
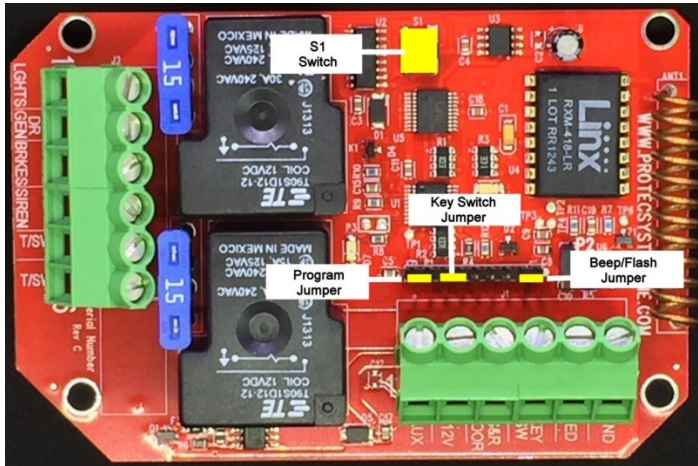
| DELAY TIME (sec) | LED FLASHES    |
|------------------|----------------|
| 0                | 8 fast flashes |
| 15               | 1 flash        |
| 30               | 2 flashes      |



Scan QR code to watch video for programming keypad

## STEP-BY-STEP:

1. Momentarily press the pushbutton switch S1
2. Red led D7 flashes to indicate the current delay setting (see chart)
3. To change the delay setting, momentarily press switch S1 again
4. If the led flashes indicate an undesired delay setting, continue step 3
5. Once the desired setting is reached, do nothing – the system returns to STANDBY MODE after two seconds of inactivity.



### Specifications:

|                 |   |
|-----------------|---|
| Voltage Max:    | 15VDC                                     |
| Operating Temp: | 185 degrees                               |
| Current:        | 7 mA (armed)<br>19 mA (with optional LED) |

Plus any optional equipment connected

## PROGRAMING KEY FOBs

**(YOUR FOBs COME PRE-PROGRAMMED ALREADY TO THE CIRCUIT BOARD WHEN PURCHASING A COMPLETE SYSTEM)**

## PROGRAMMING THE KEYFOB AND RECEIVER

Programming can either be done when the unit is first powered up or in the disarm status only.

1. To program the receiver to key-fob, momentarily short out the two program jumper pins on the circuit board. If done correctly, GREEN LED (D3) on the circuit board will flash at a rate of 300ms. After this happens, press the button on the key-fob, then release. Momentarily short out between the two program pins again. This will stop the LED blinking and shut it off. Unit is now programmed.

2. Key Switch - Simply install a jumper on the key switch jumper pins. Connect one (1) side of the key switch to a chassis ground and the other side to the terminal block marked Key-switch.

**CAUTION - THE KEYSWITCH COMES WITH SOLDER TERMINALS. USE OF EXCESSIVE HEAT WILL MELT THE KEYSWITCH**

## BEEP/FLASH JUMPER

The arm/disarm annunciator may be changed from blink lights to a blinking lights and beep combination. In the STANDBY MODE, momentarily short the pins labeled BEEP/FLASH JUMPER. The lights will flash or the siren will beep to indicate the current mode. To change the mode, short the pins until the beep or flash indicator changes to the desired state. Remove the short to keep the selection. The lights will flash or the siren will beep to indicate the selection is complete.

## **AUTOMATIC BATTERY TESTER**

A circuit has been added to the board that measures the battery voltage and gives an alarm signal if the charge is low (battery voltage  $\leq$  approximately 11 volts). The battery is tested when the alarm is armed and disarmed. If the battery is discharged, the siren will beep with 3 sets of 2 quick beeps to distinguish the beeping from any other beep alert. The beeps will sound after the arming or disarming beeps or flashes. The alarm may continue to function for a while with a discharged battery, but the siren and lights may not function properly and the battery may be permanently damaged and its lifetime shortened. To prolong battery life, it is a good idea to keep the battery charged.

## **ADDITIONAL TESTING INFORMATION**

If adding optional motion detector, pager, or cellular unit, power up the alarm for at least 30 seconds to make sure these pieces get powered up before testing them. Also, when testing the pager and cellular units, make sure the alarm siren sounds for approx. 1 minute to send a good signal.

## **WARRANTY**

Trailer Alarms, LLC promises to the ORIGINAL PURCHASER to repair or replace (with a comparable model or repair at Trailer Alarms, LLC sole discretion) the electronic control module which proves to be defective in workmanship or material under normal use for 5 years from the original date of purchase. If warranty service is necessary you must have a clean copy of your sales receipt and contact us for and RMA before sending the unit back.

NOTE: Trailer Alarms, LLC specifically limits this warranty to no more than two repairs or replacements, as specified above, during the original five year warranty period.

This warranty is void if the product has been damaged by accident, unreasonable use, neglect, improper service or other causes not arising out of defects in materials or construction. This warranty is nontransferable and does not apply to any unit that has been modified or used in a manner contrary to its intended purpose and does not cover batteries.

The unit in question must be returned to the manufacturer, postage prepaid. This warranty does not cover labor costs for the removal, diagnosis, troubleshooting, removal or installation of the unit.

These systems are a deterrent against possible theft. Trailer Alarms, LLC is not offering a guarantee or insuring against the theft of the trailer or its contents, and disclaims any liability for the theft of the trailer and/or its contents. Trailer Alarms, LLC does not authorize any person to create for it any other obligation or liability in connection with the security system.

“TO THE MAXIMUM EXTENT ALLOWED BY LAW, ANY AND ALL WARRANTIES ARE EXCLUDED BY THE MANUFACTURER AND EACH ENTITY PARTICIPATING IN THE STREAM OF COMMERCE THEREWITH. THIS EXCLUSION INCLUDES BUT IS NOT LIMITED TO, THE EXCLUSION OF ANY AND ALL WARRANTY OF MERCHANTABILITY AND/OR ANY AND ALL WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND/OR ANY AND ALL WARRANTY OF NON-INFRINGEMENT OF PATENTS IN THE UNITED STATE OF AMERICA AND/OR ABROAD. NEITHER THE MANUFACTURER NOR ANY ENTITIES CONNECTED THEREWITH SHALL BE RESPONSIBLE OR LIABLE FOR ANY DAMAGES WHATSOEVER, INCLUDING BUT NOT LIMITED TO, AND CONSEQUENTIAL DAMAGES, INCIDENTAL DAMAGES, DAMAGES FOR LOSS OF TIME, LOSS OF EARNINGS, COMMERCIAL LOSS, LOSS OF ECONOMIC OPPORTUNITY AND THE LIKE. NOTWITHSTANDING, THE ABOVE MANUFACTURER DOES OFFER A LIMITED WARRANTY TO REPLACE OR REPAIR THE CONTROL MODULE AS DESCRIBED ABOVE”

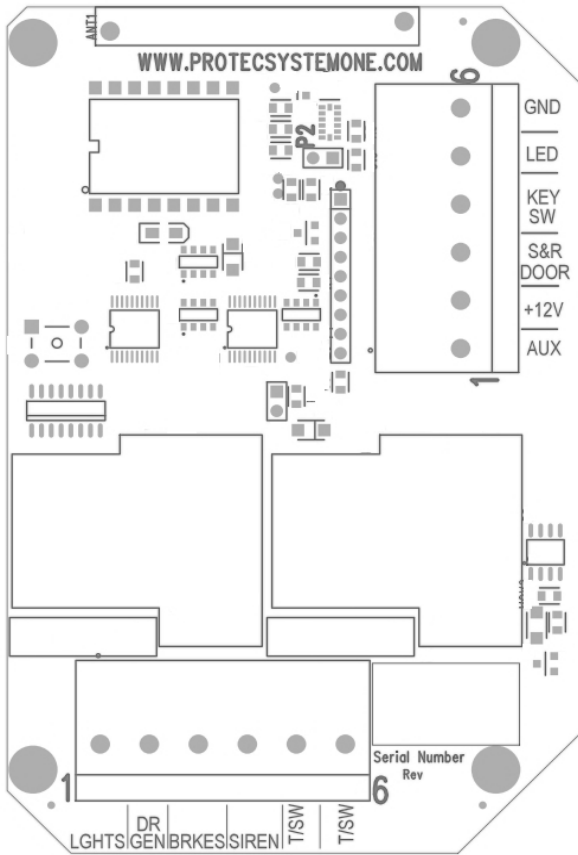
Important Note - A product's warranty is automatically void if its serial number is defaced, missing, or altered.

Serial #

Date Installed \_\_\_/\_\_\_/\_\_\_\_\_

Purchased From: \_\_\_\_\_





**GND** – Connects to the ground on the battery power supply as well as to the chassis of the trailer. Door sensors and other devices use the ground to complete the circuit.

**LED** – One side on the LED indicator light connects here. Other side to the chassis ground or ground terminal.

**KEY SW** – This is used if using a key switch, key pad or our GPS to arm/disarm the alarm.

**S&R DOOR** – All door sensors connect here. If using other sensors such as motion or pressure, they connect here also.

**+12V** – Straight forward. Connect the 12 volt positive here. If using a key pad or GPS, a designated wire will connect here.

**AUX** – This is only powered up and supplies 12 volts once the alarm is armed. Options like the motion sensor, cell unit, pager, and GPS will use this connection.

**T/SW** – There are 2 spots, one for each side of the toggle switch to enable/disable the brakes when disarmed.

**SIREN** – One side of the siren connects here, the other side to the chassis ground or ground terminal. If using any of our notifying devices, they would have a connection here as well.

**BRKES** – This connects to the brake system of the trailer (if equipped) and will lock up the electric brakes if the alarm goes off. See our online video with help wiring if needed.

**GEN DR** – If you have a generator door, you can wire a door sensor here. You can arm the alarm with this door open. BUT, be aware that this connection will not be active until you close the door later and re-arm the alarm.

**LGHTS** – This connection ties to the running lights of the trailer.

**If you need help installing your alarm, scan this QR code to watch a video.**



**If you need some troubleshooting help, check out the videos at this QR code link.**

