911SafeTrack™

S4 Vehicle Security Tracker

Installation Guide

911SafeTrack™ S4
Vehicle Security Tracker
U.S. Pat. 7,937,066
877-427-7294
911safetrack.com

SAFETY-- SECURITY-- SIMPLICITY!™

911SafeTrack.com

S4 Vehicle Security Tracker
Installation Guide

COPYRIGHTS

NOTICES

WARRANTY

S4 Vehicle Security Tracker Installation Guide IG1710A (1.1)

Table of Contents

911SafeTrack.com

Introduction

Welcome to the S4 Tracker Installation Guide. This manual will guide you through the steps required to successfully install your S4 Tracker in your vehicle. Prior to installing your S4 in your vehicle, you must register your S4 with 911SafeTrack. Please review the User Guide included in the packaging and 911SafeTrack.com for information on how to set S4 mode and S4 Emergency Contacts.

General Safety

This installation manual covers installation of the S4 Tracker and should be used to ensure a safe and functional S4 installation. This equipment generates, uses and can radiate Radio Frequency (RF) energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. See S4 User Guide for additional information.

Vehicles Equipped with Airbags

DO NOT place objects, including communication equipment, in the area of the airbag or in the airbag deployment area.

• If the communication equipment is improperly installed and the airbag inflates, this could cause serious injury.

• Airbag wiring is generally marked by use of a yellow plug, yellow wire loom, yellow tape and/or yellow tag. The Installer must use caution to identify any airbag wiring and avoid cutting, testing or tapping into airbag wiring. Failure to comply may cause airbag to inflate; this could cause serious injury.

• Contact vehicle manufacturer's corporate headquarters for specific airbag information for the vehicle.

Tools Suggested for Installation

• Screwdriver set

• Torx socket set

• Wire cutter/stripper

• Pliers

• Flashlight

• Multimeter
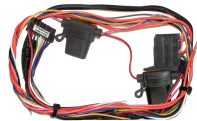
Equipment List

S4 Tracker (Front View)

S4 Tracker (Side View)

Connector Terminal 1 Red (G) Green (C)

Cable C1310

Battery B1302

Installation Kit (Velcro set, zip-ties, wire connectors)

Install your Tracker

Step 1 – Register your S4 Tracker

Prior to installing your S4 Tracker in your vehicle, you must register your Tracker by visiting www.911SafeTrack.com or calling 911SafeTrack Customer Support at 1-877-427-7294. You will need to provide the S4 Serial Number that can be found on the bottom of the S4 (18 characters). You will also need to provide the phone number for your mobile phone that will be assigned as the Owner phone.

If S4 is being installed at an installation shop, please see Step 7 and S4 Security Information.

Step 2 – Select Your Installation Location

Find a location to mount your S4. The location can either be in a completely hidden location (preferred) such as behind the glove box or behind the instrument panel or under a seat or under a rear package shelf.
S4 may also be installed in a hidden location such as in the glove box or in a console, which is accessible by the Owner. The S4 should be securely fastened using the supplied Velcro and/or zip ties. When mounting the S4:

• Make sure the positioning of the S4 does not interfere with any of the vehicle components or impede safe operation of the vehicle.

• Make sure that when the vehicle is reassembled that the Cable is secure and cannot be pulled loose.

To ensure proper operation, 911SafeTrack recommends the S4 be installed in one of the three following concealed locations.

Recommended Installation Locations

Underneath the instrument panel

Under rear package shelf

Behind the glove box
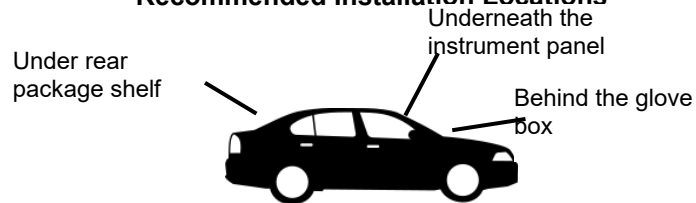
• Make sure you can route the Cable to the intended location of the vehicle power source (usually the under-dash relay/fuse box)

• DO NOT mount the S4 under the hood of the vehicle

• DO NOT mount the S4 where it will be exposed to moisture

• DO NOT mount the S4 in a spot that will impede safe vehicle operation

Step 3 – Mount S4

S4 Tracker package includes the S4 Tracker, S4 Installation Cable, backup Battery, and S4 Installation Kit. You should first mount the S4 Tracker, then install the Cable, then plug in the Cable, and then plug in the backup Battery. S4 must be mounted with the **911SafeTrack label pointed up** so the internal GPS antenna is toward the sky.

We suggest mounting the S4 underneath the instrument panel or behind the glove box using the supplied zip ties to adhere the Tracker to the bundle of vehicle wires. You may also mount the Tracker on a flat horizontal surface using the supplied Velcro set. Just be sure the 911SafeTrack label is pointed toward the sky. The GPS receiver works fine if the satellite signal passes through glass or plastic but does not work if the signal tries to come through metal.

Note that most installations underneath the instrument panel or glove box installations can be accomplished by removing several screws that secure the plastic panel under the instrument panel or attach the glove box assembly to the vehicle dash. Those screws may require a Phillips screwdriver or a Torx socket. When the glove box has been loosened, temporarily unplug one or more connectors that connect to courtesy lights or switches that are mounted on the glove box assembly.

When the S4 is mounted, do not re-install the glove box or plastic panel at this time and do not plug in the Cable, as you need to route the Cable first.

Step 4 -- Routing Cable

USE CAUTION WHEN PROBING WIRES IN THE VEHICLE. AVOID HARNESS GOING INTO AND AROUND THE AIRBAG MODULES. AVOID ANY HARNESS TAPED IN YELLOW OR BEARING YELLOW "SRS" (SUPPLEMENTAL RESTRAINT SYSTEM) TAGS.

Use wire ties to secure wiring from being pulled out of the S4 and to ensure that the Cable does not interfere with any vehicle components.

Cable has four wires to be connected:
Black – Ground
Red – 12v Power
White – Ignition
Yellow – Vehicle Alarm

Cable also has four optional wires that may be connected if the Owner wishes to have the S4 outputs control vehicle functions (See Step 5). These wires are:
Pink -- Out #1 12v Power
Orange (2 wires) – Relay contacts for starter solenoid
Blue – Out #2 Control for selected vehicle functions

Step 5 – Connecting Cable

Determine connection points in the under-dash relay box for all four wires before attaching any of the wires. When you are sure of connection points, you may cut the Cable to a shorter length, but be sure to leave some extra length. If the Cable is too short, you can add extra length by carefully splicing, soldering, and using electrical tape.

You can use the shop manual for your vehicle or access online diagrams from online websites such as Mitchell 1 (Division of Snap-On™) at www.eautorepair.net

Usually the three connection points are available in the under-dash relay block and vehicle chassis ground point is nearby.

Ground (black) – Near the relay block you will find a vehicle chassis ground bolt with numerous black wires. Attach the **black** wire to that bolt and make sure the bolt is retightened properly.

Ignition (white) – Using the shop manual diagram locate the relay connection that provides a 12-volt level **only** when the ignition key is turned On [called HOT IN RUN]. Locate the relay coil connection (such as a back-up light relay) that receives 12-volts when the key is On (will show on your multimeter). Connect the S4 **white** wire to the existing vehicle wire using one of the S4 Installation Kit wire connectors to capture the vehicle wire and use pliers to squeeze tightly.

Step 5 – Connecting Cable (continued #2)

Vehicle Alarm (yellow) -- Using the shop manual diagram locate the wire from the vehicle security module that sounds the alarm horn. Use the Installation Kit wire connector to attach to the **yellow** wire going to the S4. **Be sure to review** Step 7 -- Testing.
Note: If your vehicle does not have a vehicle alarm or if the vehicle alarm does not work or if you don't want the vehicle alarm to alert the S4, you can leave the **yellow** wire unconnected and cover the end with electrical tape. If your vehicle does not have a vehicle alarm but has a keyfob "Panic" button, you can connect the security module output to the **yellow** wire to alert S4 if you press the panic button for more than 8 seconds.

12v Power (red wire with fuse) -- Using the shop manual diagram, locate the relay contact connection that provides a constant 12-volt level (shown on your multimeter) regardless of whether the ignition key is On or Off. The manual may say, "HOT AT ALL TIMES." Note: Standard ODB diagnostic connector adjacent to the steering column has the HOT AT ALL TIMES on pin 16. Connect the S4 **red** wire to the existing vehicle wire using one of the S4 Installation Kit wire connectors to capture the vehicle wire and use pliers to squeeze tightly.

Step 5 – Connecting Cable (continued #3)

Optional Outputs

S4 provides two output connections that may be used if desired by the Owner:

   Out #1 for engine starter disable / enable relay

   Out #2 for brief pulse operation that maybe used for door unlock, door lock, flash headlights, sound horn, etc.

Out #1 12v Power (pink wire with fuse) – Connect the S4 **pink** wire to same the same vehicle wire [HOT AT ALL TIMES] that was used for the S4 **red** wire. The included relay provides two **orange** wires for the normally closed (NC) contacts. Using the shop manual diagram locate the vehicle wire from the ignition switch that feeds the starter solenoid when the key is turned to start. Cut that wire and connect the two **orange** wires so that starter power must go through the relay contacts. Under normal conditions, the starter will operate normally. If the Owner sends a secure SMS to the S4, the S4 Out #1 energizes the relay, which disables the starter. Review Step 6 and Step 7.

Out #2 Pulse (blue wire) – This S4 output is normally at 12v and goes to zero volts for 1 second if the Owner sends a secure SMS to the S4. Maximum sink current is 250 mA. Depending on the function desired by the Owner, the Installer will decide if they need to add a relay or can use this digital signal from the **blue** wire to trigger a logic function in the appropriate vehicle module. In some cases, the Installer may use a data transponder module to connect to the vehicle control buss. Review Step 6 and Step 7.

Step 6 – Testing Cable

Do <u>not</u> plug the Cable into the S4 Connector.
Using your multimeter or computer-safe logic probe, check the following at the 10-pin connector of the Cable [be careful not to enlarge or damage the small terminals] –
• Confirm that **terminal 4** with the **black** wire is connected to vehicle ground using the ohm setting on your multimeter.
• Confirm that **terminal 3** with the **red** wire reads a constant 12-volts whether the ignition key is On or Off using the voltage setting on you multimeter.
• Confirm that **terminal 6** with the **white** wire reads 12-volts only when the ignition key is On.
• If you have connected the yellow wire, confirm that **terminal 7** with the **yellow** wire reads 12-volts and changes to zero volts **only** when the horn is sounding. Try this by arming the vehicle alarm and causing it to sound or using the keyfob panic button (if provided). **If terminal 7 changes** from zero volts to 12-volts when alarm is sounding, **you will need change S4 configuration in Step 7**.

If you have connected Out #1 or Out #2, perform the following checks **[Do not plug the Cable into the S4 Connector]**:
• To verify Out #1 operation, carefully touch a test wire connected to vehicle ground to **terminal 5** with the **green** wire to see that the relay energizes and that the starter does not operate when the key is turned to start.

Step 6 – Testing Cable (continued)

• To verify Out #2 operation, carefully touch a test wire connected to vehicle ground to **terminal 8** with the **blue** wire to see that the desired operation occurs (door unlock, door lock, flash headlights, sound horn, etc.).

If all Cable tests are confirmed, then --
Plug the Cable into the S4 Connector.
After a few seconds, S4 green LED (labeled **C**) and the red LED (labeled **G**) will turn On. After a couple minutes, the red LED will start flashing, showing GPS satellite lock.

Now plug the backup Battery into the 2-pin connector with red and black wires going to **terminal 1 and 2**. Use a zip tie to secure the battery to a nearby vehicle cable.

Once you have all connections properly tested, use the small tie-wraps to secure the Cable to nearby vehicle cables. Confirm that the **911SafeTrack label is pointed up** so the internal GPS antenna is toward the sky.

Step 7 – Testing Basic S4 Operations

If S4 is being installed at an installation shop, please take note: Each S4 has it's own phone number. The Owner is provided this number when they register with the 911SafeTrack Service. **The Owner needs to tell the Installer the S4 number.**

Turn On vehicle ignition and confirm (if visable) that the green LED is On and the red LED starts to blink. Note: The red LED may take a few minutes to start blinking.

Installer uses any cell phone to send S4 a text message **12345 gps** (note space after PIN) and checks to verify that the S4 replies with a location text message.

Installer uses any phone to call S4 and listens to the message, presses '**1**', and listens to further message. Then Installer presses '**9**' and S4 makes a 3-party conference call to a special 911SafeTrack **test number** and the Installer is able to hear a response confirming success. S4 will send a confirming text message. **Do not press #, since S4 will call 911.**

Installer can then send S4 a text message: **12345 at*user=0,InstallerMobileNumber,1** (note space after PIN).

S4 will respond to the Installer with the message: OK.

Step 7 – Testing Basic S4 Operations (continued)

Now the Installer can turn Off vehicle ignition and trigger the vehicle alarm (or keyfob "Panic") for at least 8 sec. The S4 can be programmed by SMS to detect an alarm signal that is either high (12v) or low (0 v). When S4 receives the correct high or low alarm output signal, Installer will receive an Alarm Sounding text notification. This confirms that the alarm connection is proper. **If terminal 7 goes to 12v for alarm**, Installer needs to send: **12345 at*alarm=1** (note space after PIN).   **12345 at*alarm=0** changes the alarm detection from high to low (note space after PIN).

If Out #1 has been connected, the Installer should check by sending: **12345 relay on** (note space after PIN and space after relay). The S4 will turn on the relay and the starter will be disabled. Then the Installer should send: **12345 relay off** (note space after PIN and space after relay). The S4 will turn the relay off and the starter will function normally.

If Out #2 has been connected, the Installer should check by sending: **12345 pulse** (note space after PIN). The S4 will cause Out #2 to pulse for 1 second, which should activate that function (door unlock, door lock, flash headlights, sound horn, etc.) that was chosen by the Owner.

Now the Installer should send:
12345 at*user=0,OwnerMobileNumber,1 (note space after PIN). This <u>sets</u> the Owner's number in the S4.

Installation is now complete.

S4 Security Information

S4 factory default will permit S4 to answer an incoming call from any phone. This is to permit best flexibility so that the Owner may install the S4 or the Owner may arrange for an installation shop to do the installation.

In default state [factory default PIN is 12345], the Installer can use any mobile phone to control S4 using text message (SMS) or by calling S4. When basic installation and basic S4 operations have been verified, then the Installer or the Owner sends a text message that sets the Owner's mobile phone in the S4. Once this is done, S4 will only respond to incoming phone calls from the Owner's mobile phone. Then the Owner sends a text message that changes the PIN number to a secret PIN that is chosen by the Owner. Once this is done, S4 will only respond to text messages with the Owner PIN.

There are two exceptions –
• If the Owner sends S4 a text message instructing S4 to 'authorize' a particular phone number, S4 will accept certain commands from that phone number (provided the message has the Owner's PIN). This permits the Owner to authorize up to two emergency contact numbers.

• If the Owner (or authorized phone) has commanded S4 to call 911 and the 911 call should be suddenly terminated, S4 permits 911 to call back to S4 and S4 will answer for a prescribed period time. Otherwise S4 will not accept a call from 911 or any other non-authorized number.

Troubleshooting

Issue	Action Required
Both LEDs Off	Check fuse in the black fuse holder on the Cable. The fuse is a regular plug-in automotive fuse, 2 Amp. Temporarily unplug Cable from the S4 and confirm that the **red** wire on **terminal 3** is providing 12-volts.
Green LED continues blinking (not solid On)	S4 is powered On and searching for cellular connection. Check for proper T-Mobile signal.
Red LED is On constantly (not blinking)	GPS is powered On and searching for GPS satellite connection. Note: The red LED may take **several minutes** to start flashing if S4 power was just applied. Verify that the S4 is mounted with 911SafeTrack label pointing toward the sky. Move the vehicle to a new location that does not have obstacles directly overhead.
Vehicle alarm lasting over 8-sec does not cause S4 to send SMS	Re-check if terminal 7 goes from zero to 12v when alarm is sounding. If it is, send SMS **12345 at*alarm=1** (note space after PIN).

If the Action Required does not correct the Issue, call 911SafeTrack Customer Support at 1-877-427-7294.

Warranty Limitations

THIS WARRANTY SHALL BE NULL AND VOID IF THIS PRODUCT: (a) IS MODIFIED, OPENED OR TAMPERED WITH; (b) IS CONNECTED TO WRONG POLARITY POWER OR VOLTAGE OUTSIDE OF SPECIFIED RANGE OR; (c) IS DAMAGED BY NEGLIGENCE, ACCIDENT, UNRESONABLE USE OR OTHER CAUSES UNRELATED TO DEFECT IN MATERIAL OR WORKMANSHIP.

Water Resistance

The S4 Tracker is to be placed inside of the vehicle in a location that is not exposed to precipitation. S4 Tracker is not waterproof and will not function when exposed to water.

Battery Caution

The Li-ion backup battery has been custom made; it includes a protection and charging circuit. **Do not** try to use any third-party battery with the S4.
• Do not put the battery in a charger or equipment with wrong terminals connected.
• Avoid shorting the battery
• Do not immerse in water.
• Keep out of the reach of children.
• Dispose in accordance with local regulations

Contacting Customer Support

Need help with operating your S4 Tracker?
   Contact 911SafeTrack Customer Support via the Internet at www.911SafeTrack.com, or call toll free 1-877-427-7294, 8:00am to 6:00pm Pacific, Monday – Saturday, to speak to a Customer Support representative.