

# Installing Sun Sensor & In-Cabin Temperature Sensor For Automatic Climate Control

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## BEFORE YOU START:

I, Danny, cannot be held responsible for any mishaps or errors on your part during the course of this install. You assume all possible dangers while modifying your vehicle's electrical system. Therefore, if you are not electrically adept or keen on following instructions, do not attempt this install. PERFORM THIS INSTALL AT YOUR OWN RISK!

## Background:

For this project, you will be adding 2 additional sensors to your vehicle's electrical system. The first of these is known as the sun sensor. There are 2 variations of this sensor:

- a) Sun sensor only used for automatic headlights
- b) Sun sensor used for *both* automatic headlights and automatic climate control

Each variation has a different part number as well. The first variation, "a", is found standard on:

- **Sport S** without Technology Package
- **Sport Altitude** without Technology Package
- **Willys** without Technology Package
- **Freedom** without Technology Package

The sun sensor is missing on:

- **Sport**
- **Willys Sport**

If you have sun sensor variation “a”, the install is simple and you do not need to add any additional wiring. Simply purchase variation “b” and replace the current sun sensor you have with the new one. If your vehicle **did not** come with a sun sensor from the factory, then you need to create the wiring harness for it.

The second sensor used for automatic climate control is the in-cabin temperature sensor. This sensor is located below the steering column behind the vent to the right. It is only found standard on vehicles that come with the Technology Package, like Black and Tan, or higher trims such as Sahara, Sahara Altitude, North Edition, Rubicon, and Rubicon Recon.

Fortunately, if your vehicle came with sun sensor variation “a”, you will have the harness for the in-cabin temperature sensor, but the sensor itself will be missing. If your vehicle **did not** come with a sun sensor, you will also have to build the in-cabin temperature sensor wiring harness.

It is important to note that if you have to build the harness yourself, both sensors use the same connector. The sensors themselves are connected to the HVAC module. They mate to a dedicated connector known as C2, which has 8 slots. Picture of where C2 gets plugged in is shown below.



HVAC module shown.

Blue connector is C1.  
Empty slot below it circled in green is where C2 gets plugged in.

C2 is present in vehicles with a sun sensor. It is absent if your vehicle does not have a sun sensor from the factory.

## Parts Needed:

Name	Part Number	Quantity	Notes
Sun sensor variation “b”	68230114AB	1	
In-cabin temperature sensor	55111178AC	1	
Sun sensor upper dash cap	6GD97TX7AB	1	Purchase only if vehicle <b>did not</b> come with a sun sensor

If you are building the harnesses, you will also need purchase these:

Name	Part Number	Quantity
Sensor connector	<a href="#">13654871</a>	2
Pins for sensor connector	<a href="#">13580635</a>	8 minimum, buy more in case you mess up
C2 connector	<a href="#">13782037</a>	1
Pins for C2 connector	<a href="#">13767047</a>	6 minimum, buy more in case you mess up

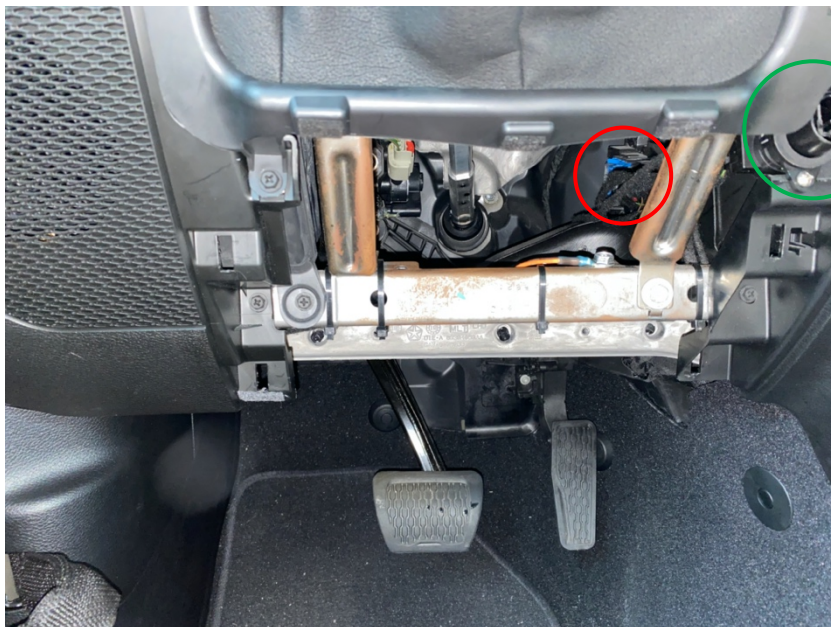
## Other tools & parts needed:

- At least 10 feet of 20 or 22 AWG stranded copper automotive wire (preferably buy different colors to ease installation)
- Wire stripper
- Terminal crimp tool
- Trim removal tools
- Tesa wire loom harness tape (same tape used on the Jeep)
- Set of screwdrivers to remove trim panels
- Quick splice connectors (you can opt to solder wires instead)
- 2 screws to secure the in-cabin sensor
- Zip ties
- Jeep JL programmer to activate auto climate control, i.e. Tazer JL

## Building the Harness:

Note: Skip to “Installation” if your vehicle came with a sun sensor.

Before you start building the harness, make sure the negative battery terminal is disconnected. Next, measure how long you will want to make the wires. Remember all of the wires will end up at the HVAC module, so start there and measure to both sensors. The HVAC module is located below the steering column to the right. You'll see it when you spot connector C1, which is a large blue connector. Right below C1 is C2; you will be measuring your wires from here as a starting point. Make sure to leave some slack in your measurements. Remember each sensor has 4 wires.



Lower steering column shown with cover removed.

Red circle is the location of the HVAC module with C1 connector showing.

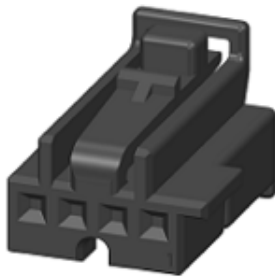
Green circle is the location of the in-cabin temperature sensor.

The sun sensor will go at the top of the dash where the empty cap by the defroster grille is. The new cap you bought will have the cutout to place the sun sensor into. Roughly measure your sun sensor wires from the HVAC module to the top of the dash where the cap is. Don't forget to

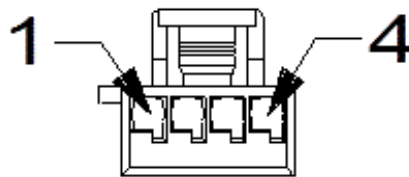
leave some slack. You don't have to remove any dash pieces yet; any excess length can be trimmed off later.

Now that you have all of the wires measured and cut, we will proceed to build the harness. Separate your sun sensor wires and your in-cab temp sensor wires to avoid confusion. Get your connectors and pins ready and sorted out neatly. Do not insert any wires into the C2 connector at this time.

For the Sun Sensor:



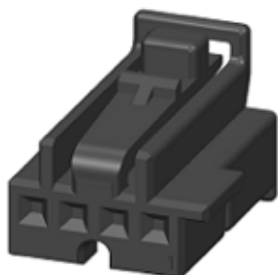
Isometric view



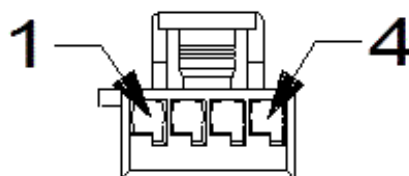
Wire-insertion side

Cavity	Description
1	Auto headlamps Signal
2	Sun sensor signal 1
3	Sun sensor signal 2
4	Sun sensor ground

### For the In-Cabin Temperature Sensor:



Isometric view



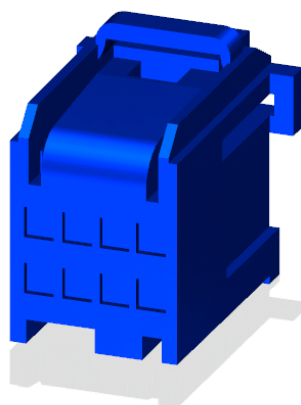
Wire-insertion side

Cavity	Description
1	In-cabin temperature sensor signal
2	In-cabin temperature sensor return
3	Fused ignition input
4	In-cabin temperature sensor ground

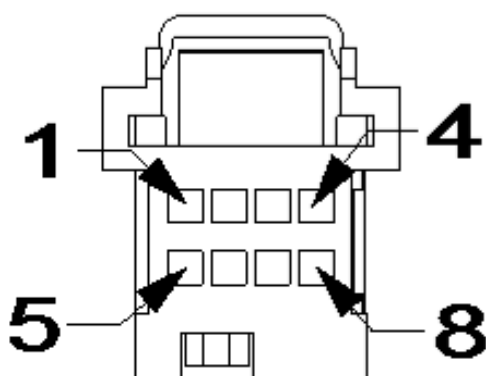
Now that you have each sensor's connector wired up, you need to do a final check on the lengths of the wires. You'll need to remove the driver-side dash panels, the cluster, and the upper dash panel cap in order to route the sun sensor connector and wiring. There is a great tutorial on the forums on how to take the dash panels apart, so I won't go into detail here. Once, you have checked the wire lengths and made sure they are acceptable, you can take out the wiring and continue with the install. Leave the dash apart and the cluster removed for now.

The next step is to complete the harness by wiring everything up to the C2 connector. Just match the wire descriptions from both sensor connectors to the C2 connector. For example, "Sun sensor ground" goes into cavity 4 of the sun sensor connector but goes into cavity 2 of the C2 connector.

For the C2 Connector:



Isometric view



Wire-insertion side

Cavity	Description
1	Auto headlamps signal
2	Sun sensor ground
3	Sun sensor signal 1
4	Sun sensor signal 2
5	In-cabin temperature sensor signal
6	In-cabin temperature sensor return
7	-No connect-
8	-No connect-

You will find that 2 of the in-cabin temperature sensor's wires are not connected to anything. For this install, we will be using an ignition wire and ground wire from C1 of the HVAC module to provide power to the in-cab sensor. This is where the quick splices come in.

But, before you continue, it's time to neatly wrap all of the wiring with the Tesa wire loom harness tape. Make sure to leave the ends of the 2 unconnected wires exposed so that the quick splices will work.



### Splicing into the C1 Connector Wiring:

These are the wires from the C1 connector you will be looking for

Cavity	Color	Description
1	Pink / Green	Fused ignition input
6	Black	Ground

Most of the wires in the C1 connector are blue, so the 2 wires you are looking for should not be too hard to find. Once you have found and isolated those wires, you can proceed to using quick splices to connect the remaining wires from the in-cab sensor connector. Just match your ignition wire from the sensor to the pink & green wire and your ground wire to the black wire. Tighten quick splices to ensure a connection.

Your harness is now complete and you can proceed to route each connector to where its respective sensor is located. Sun sensor is at the top of the dash, so route the wiring through the cluster area behind the support beams until you reach the defroster grille hole where the cap used to be. The in-cab sensor location is shown below. Connect C2 connector.



In-cabin temperature  
sensor & location shown.

Connector goes right  
behind.



## Installation:

After you have made sure the C2 connector is fully plugged in and routed the other respective connectors, it's time to install the actual sensors themselves.

### For vehicles that came with a sun sensor:

1. Remove upper dash panel cap where the current sun sensor sits.
2. Remove old sun sensor from assembly and replace with new one.
3. Connect new sun sensor and place cap back into place.
4. Remove lower steering column cover and look for an exposed connector taped up to the wiring loom. This is the connector for the in-cabin sensor.



Credits to Jgroux on JL  
Wrangler Forums for the  
picture

5. Place the in-cabin sensor into mounting location and secure with 2 screws.
6. Make sure the sensor is connected and put lower steering column cover back into place.

For vehicles that did not come with a sun sensor:

1. Remove the blank upper dash panel cap on the driver's side if not done so already.
2. Place sun sensor on new upper dash panel cap and secure.
3. Connect sun sensor and place cap back into place.
4. Place the in-cabin sensor into mounting location and secure with 2 screws. Make sure sensor is connected.
5. Use zip ties as needed to fasten new wiring to vehicle's original wiring harnesses or to other fixtures.
6. Once you are all done, proceed to put dash back together, but leave the lower steering column cover off.
7. Connect the negative battery terminal and turn on the ignition.
8. Check to see if the fan around the in-cabin sensor is spinning. If not, disconnect the negative battery terminal and check if quick splices are making contact.
9. Repeat steps 7 and 8 until the fan begins to move.
10. Put lower steering column cover back into place.

**Congratulations! You are now done with the install**