VAIS TECHNOLOGY

Installation Manual

SEER

SMART ENTRY EXIT RECOGNITION

www.vaistech.com

⚠ WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov

 Published July 21, 2023

⚠ WARNING

DO NOT DISASSEMBLE OR ALTER THE MODULE
Doing so may result in an accident, fire, or electric shock.
DO NOT BLOCK THE AIRBAG
Do not mount product or any added equipment where it can obstruct the operation of any safety devices such as the airbag.
DISTRACTION WARNING
Do not let product or any added equipment distract you while you are driving.

BEFORE WIRING, DISCONNECT THE CABLE FROM THE NEGATIVE BATTERY TERMINAL
Before starting any installation work, you must wait 90 seconds after turning the ignition switch to the LOCK position and disconnecting the negative (-) terminal from the battery. The supplemental restraint system (airbag) is equipped with a backup power source. If installation work is started less than 90 seconds after disconnection of the negative (-) battery terminal, the SRS may deploy. When the negative (-) terminal cable is disconnected from the battery, the clock and audio system's memory will be erased. Before starting installation work make a record of the clock and audio system's memory settings. When installation is complete, reset the clock and audio systems to their previous settings. Check that power tilt, power telescopic steering column, front power seats, power mirrors, and power shoulder belt anchorage are equipped with a memory function. When installation is complete, it is necessary to readjust the features to their previous settings. Never use a backup power supply (such as another battery) during installation work to avoid losing these memory settings.

⚠ CAUTION

DO NOT SPLICE INTO ELECTRICAL CABLES
Never cut away cable insulation to supply power to other equipment. Doing so will exceed the current carrying capacity of the wire and result in fire or electric shock.

DO NOT ALLOW CABLES TO BECOME ENTANGLED IN SURROUNDING OBJECTS
Cables or wiring that obstruct or get caught on places such as the steering wheel, shift lever, brake pedals, etc. can be extremely hazardous.

DO NOT INSTALL IN LOCATIONS WITH HIGH MOISTURE OR DUST
Moisture or dust may result in product failure.

HAVE THE WIRING AND INSTALLATION DONE BY EXPERTS
The wiring and installation of this product requires special technical skills and experience.

USE ONLY SPECIFIED ACCESSORY PARTS
Use of other than specified parts may damage product internally.

FOLLOW THE OPERATIONAL AND INSTALLATION MANUALS
YOU SHOULD READ AND FAMILIARIZE YOURSELF THOROUGHLY WITH THE FOLLOWING INFORMATION PRIOR TO INSTALLING AND USING THIS UNIT. IN ADDITION, YOU MUST CAREFULLY READ AND FOLLOW THE INSTALLATION SCHEMATICS/INSTRUCTIONS FOR THE PRODUCT AND THE VEHICLE IN WHICH IT IS BEING INSTALLED. FAILURE TO FOLLOW INSTALLATION INSTRUCTIONS MAY DAMAGE THE PRODUCT AND THE VEHICLE, WILL VOID THE PRODUCT WARRANTY, AND MAY VOID THE VEHICLE WARRANTY.

FCC WARNING
Contains FCC ID:2APD9-RSL10SIP
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.
Any changes or modifications not expressly approved by On Semiconductor could void the user's authority to operate the equipment.

LIABILITY DISCLAIMER
This application guide is based on the testing results at the time of publishing. VAIS Technology can not be held liable for damages or injuries caused by, or resulting from use of this guide. Strictly adhere to all car manufacturer warnings that pertain to the disassembly, maintenance, or servicing of the vehicle and any of its associated part systems. VAIS Technology can not be responsible for discrepancies, or inconsistencies that may occur due to automobile manufacturing changes.

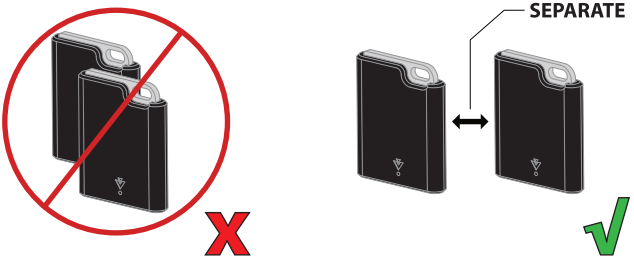
TROUBLESHOOTING
Should this product fail to operate properly, please contact your Dealer or our Customer Service Department at sales@vaistech.com

Some visual assets were provided by Vecteezy.com and Grabcad.com

BEFORE YOU GET STARTED...

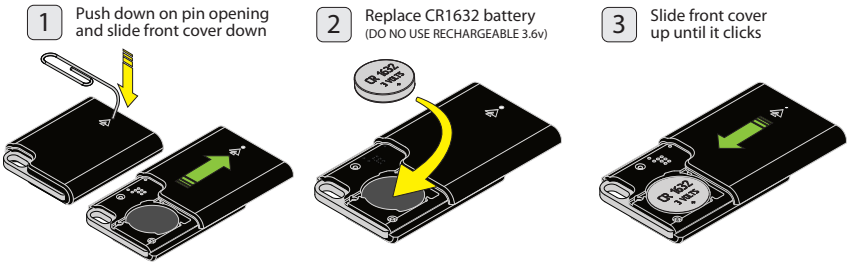
USING THE KEYTAGS

Approach or Depart from vehicle with only one Keytag at a time.
MULTIPLE KEYTAGS IN THE ZONE CAN CAUSE ERRATIC BEHAVIOR



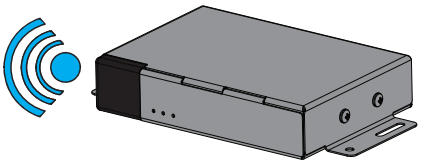
REPLACING THE BATTERY

Use a paperclip or small tool to open Keytags as shown below.
ATTENTION INSTALLERS! THIS IS NOT A CLAM-SHELL STYLE CASE.

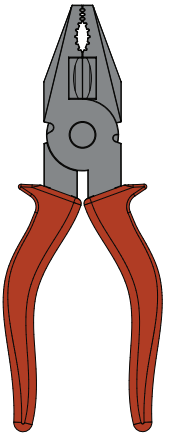


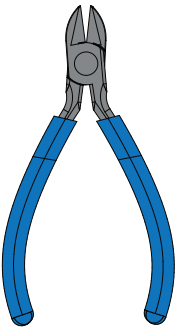
DEFAULT CONFIGURATION

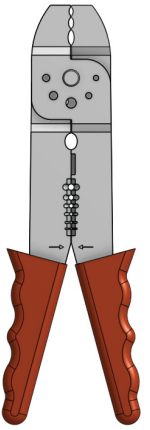
SEER ships with default settings. See Pg. 10 for details.
ATTENTION INSTALLERS! NO PROGRAMMING REQUIRED FOR OPERATION

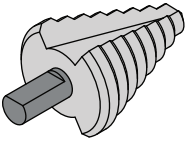


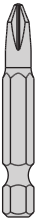
2 Tools Required

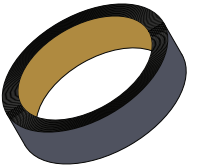


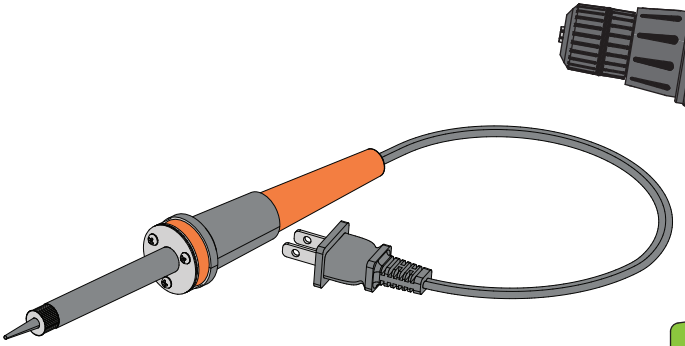


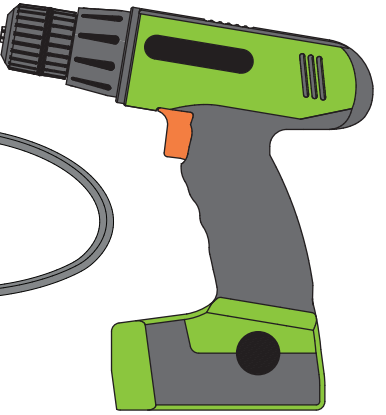


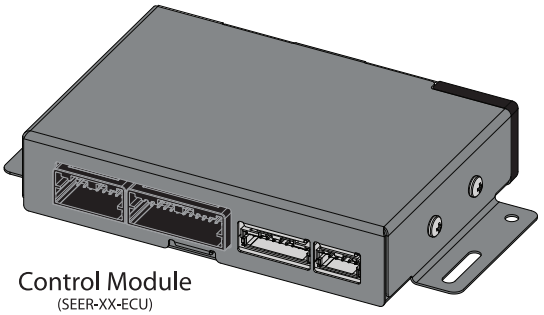












Control Module
(SEER-XX-ECU)

Battery x2
(CR1632)

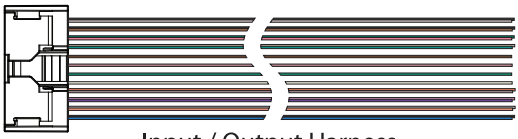
Keytag x2
(SEER-XX-TAG)

Fuse Link
(SEER-ZZ-IFS-001)

4a Fuse

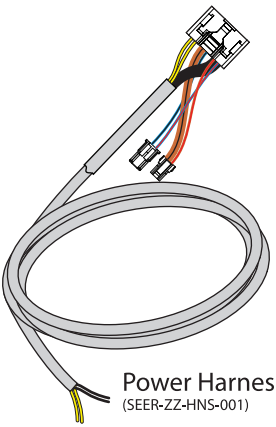
* Washer x2
* Bolt x2

Programming
Mode Button
(SEER-ZZ-PBN-001)

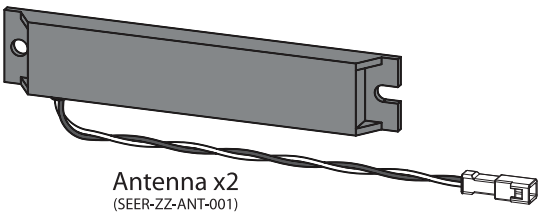


Input / Output Harness
(SEER-ZZ-HNS-002)

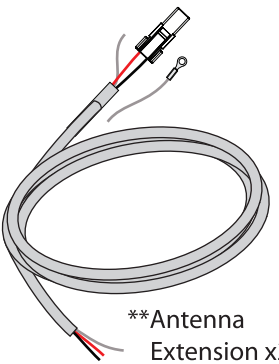
Antenna Harness
(SEER-ZZ-HNS-003)



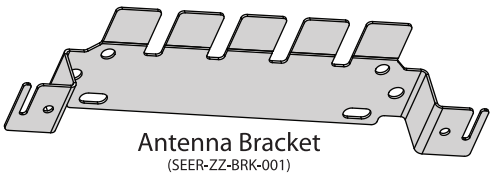
Power Harness
(SEER-ZZ-HNS-001)



Antenna x2
(SEER-ZZ-ANT-001)



**Antenna
Extension x2



Antenna Bracket
(SEER-ZZ-BRK-001)

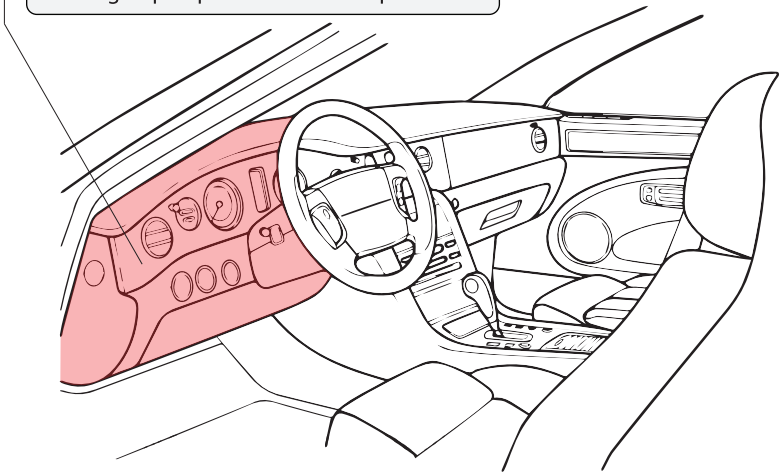
* Replacement Bolt (92750A716) and Washer (95060A330) are available at McMaster Carr.
** 8ft Antenna Extension (SEER-ZZ-HNS-004), 20ft Antenna Extension (SEER-ZZ-HNS-005)

4 'Control Module' Location & Mounting

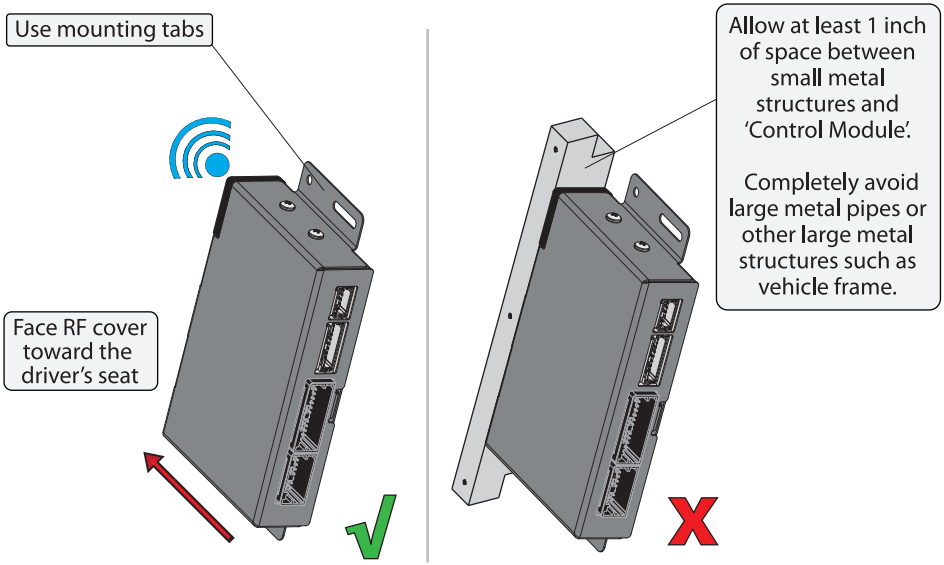
ATTENTION

'Control Module' location may vary depending on the vehicle type and size
See Pg. 16 SEER Assistant App to find the best 'Control Module' location

It is preferred to mount the 'Control Module' behind the dash in the highlighted area as high up as possible for best operation

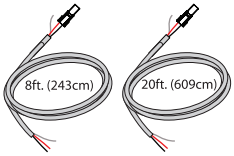


ATTENTION **AVOID BLOCKING RF TRANSMITTER COVER KEEP IT AWAY FROM METAL OBSTRUCTION**



ATTENTION

Install the components below in their locations as shown.
If you experience erratic behavior, refer to the Troubleshooting Guide (Pg. 21)

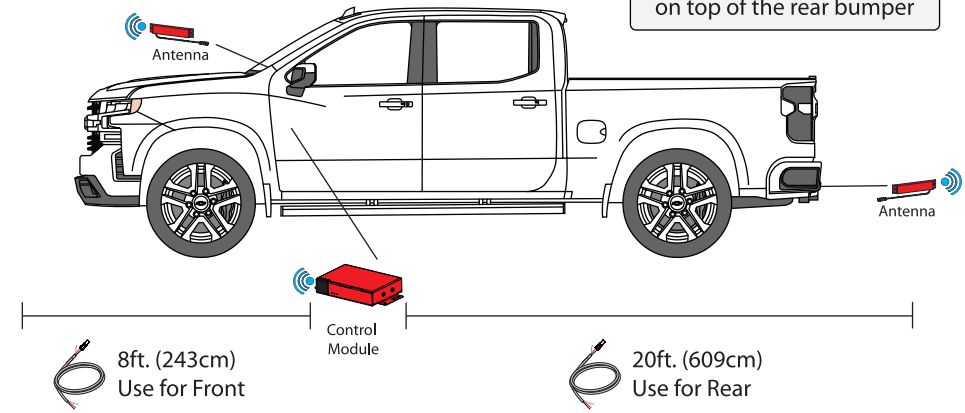


Use the appropriate 'Antenna Extension' based on where the 'Control Module' will be located.

See example below.

Place 'Antenna' 1 behind or underneath the dashboard as high up as possible

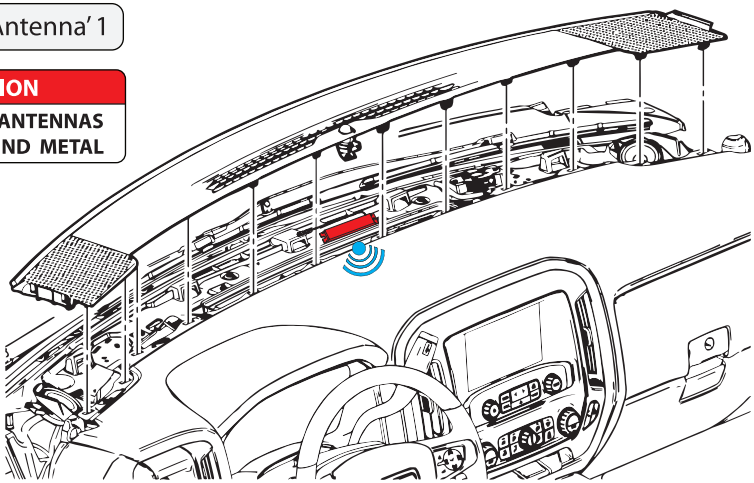
Place 'Antenna' 2 behind or on top of the rear bumper



DASH 'Antenna' 1

ATTENTION

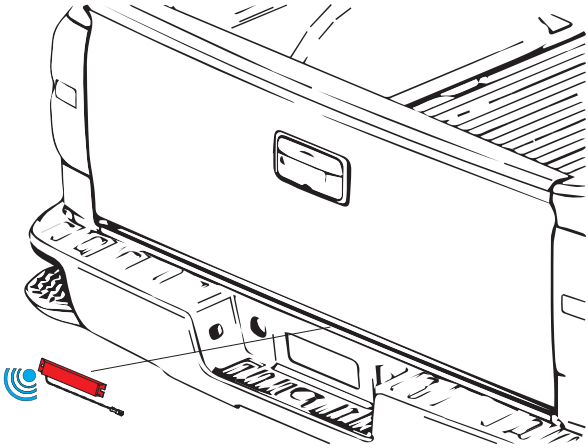
DO NOT PLACE ANTENNAS UNDER OR BEHIND METAL



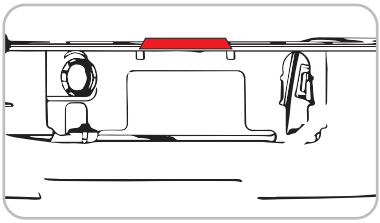
* Image For Reference Only: Actual Dashboard May Vary

ATTENTION
DO NOT PLACE ANTENNAS UNDER OR BEHIND METAL

TRUCK 'Antenna' 2

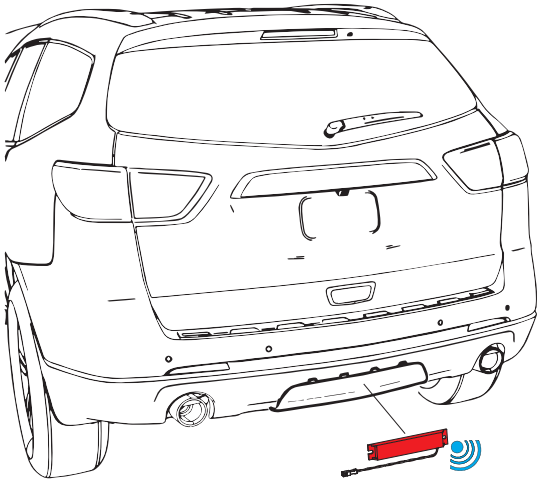


Place 'Antenna' 2 on top of the rear bumper



BEHIND BUMPER VIEW

SUV/SEDAN 'Antenna' 2

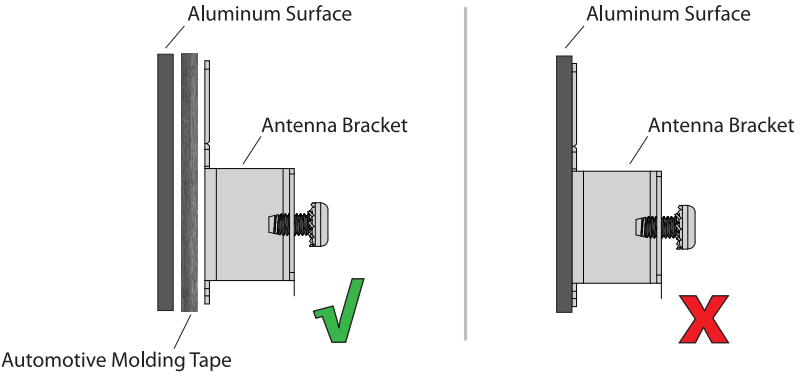


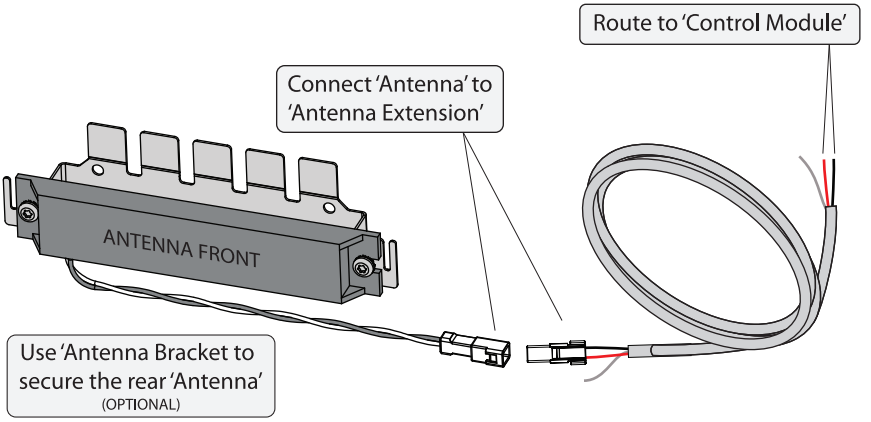
ATTENTION
DO NOT PLACE ANTENNAS UNDER OR BEHIND METAL

Avoid metal insert panels and metalized surfaces on the back of the bumpers.

Place 'Antenna' 2 behind the rear bumper

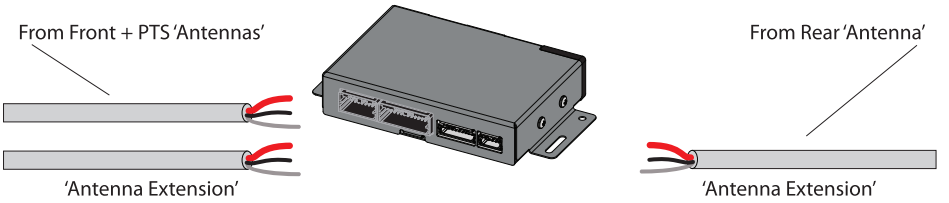
ATTENTION Avoid electrical contact when mounting to Aluminum





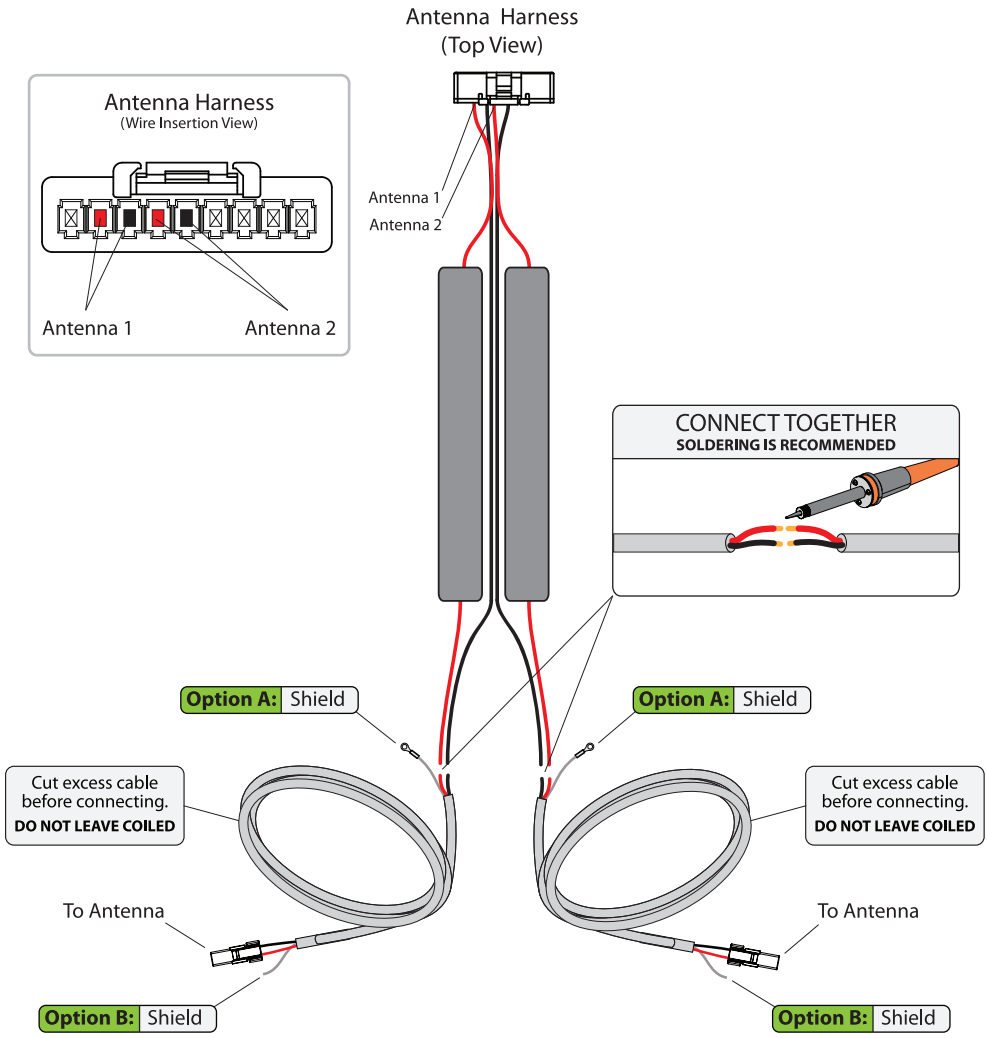
Route each 'Antenna Extension' to the planned mounting location of the 'Control Module'.

- Mount in dry and safe location
- Secure the 'Control Module' in place
- DO NOT block RF Cover (See Pg. 4)



8 Connecting 'Antenna Extensions'

Connect both 'Antenna Extension(s)'
to each pair of leads as shown
(Pairs are separated by tape. DO NOT mix pairs.)



ATTENTION

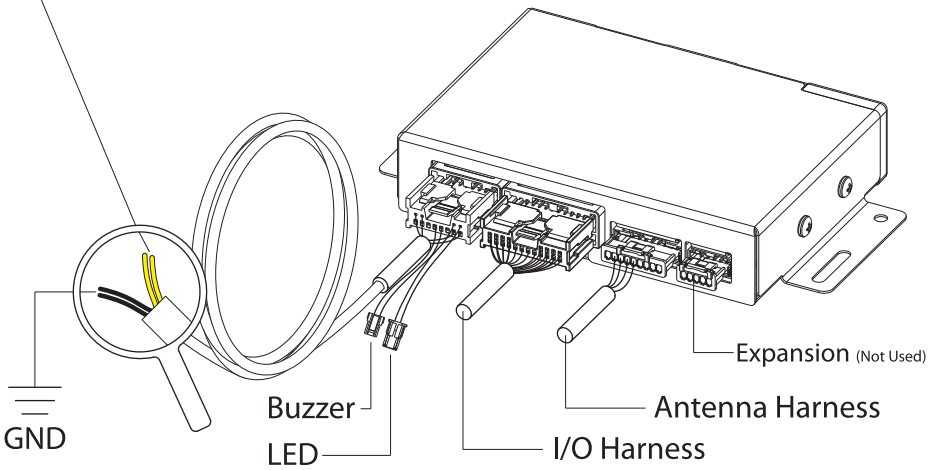
Connect only Option A or Option B Shield to Ground
DO NOT CONNECT BOTH

ATTENTION

YOU MUST CONNECT THE ANTENNA HARNESS PRIOR TO CONNECTING POWER

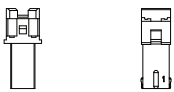
Use the supplied 'Fuse Link' when connecting to 12V
USE ONLY FOR SEER

⚠ CONSTANT BATTERY POWER ONLY



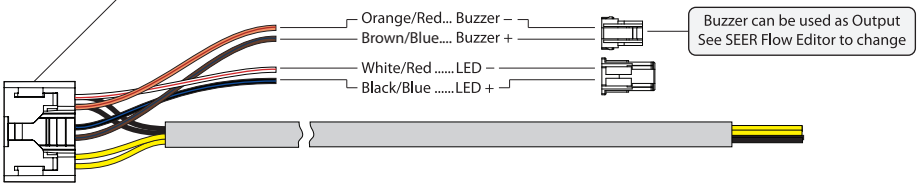
Buzzer and LED are not included.
If your application calls for either option you may order the mating connectors shown or cut off the existing connectors and use the diagram below to make your connections.

MATING CONNECTORS



TE 1969442-2 Molex 0512270200

DISCONNECT MAIN POWER HARNESS CONNECTOR BEFORE CUTTING



INPUTS

In the default configuration, Inputs are set for the actions listed below.

IGNITION 12V+ - You must still connect IN0 solid White wire to Ignition.
MUST BE CONNECTED WITH PROGRAMMING MODE BUTTON. See Pg. 12 for details.

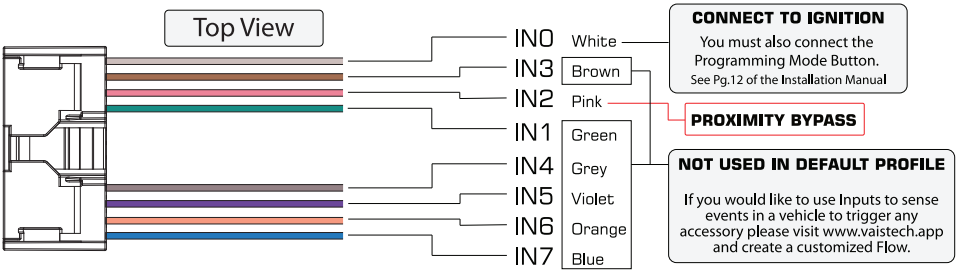
ATTENTION
YOU MUST CONNECT SEER TO A TRUE ON/OFF IGNITION SOURCE

IN-MOTION EVENT - Not active by default. Required for vehicles with remote start.

IN1 (Green) can be connected to the Foot Brake (+) signal for cars with remote start.
MUST BE ADDED TO DEFAULT FLOW. www.vaistech.com/feh107

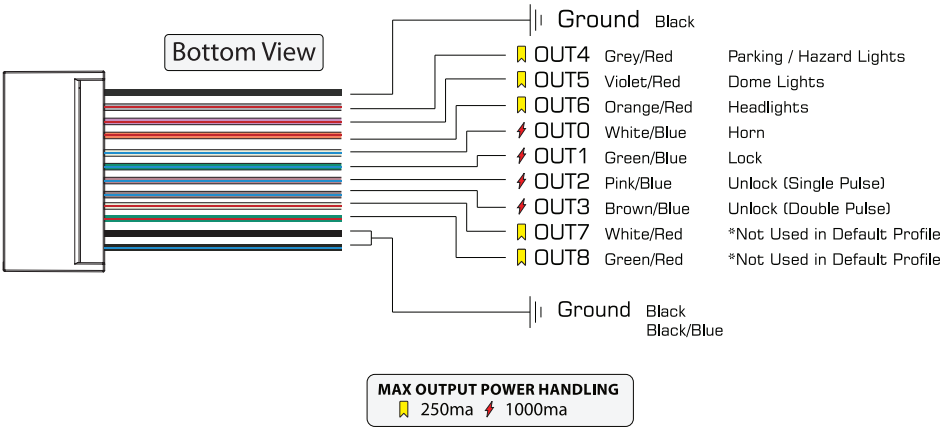
PROXIMITY BYPASS - Active by default. With 12V+, SEER will stop all proximity recognition

IN2 (Pink) Positive Input can be connected to Door Trigger or a toggle switch.
CAN BE TURNED OFF IN FLOW EDITOR. www.vaistech.com/feh108

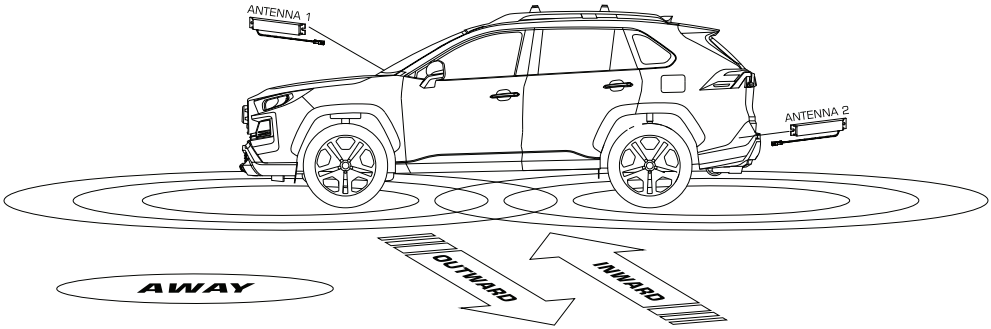


OUTPUTS

In the default configuration, Outputs are set for the actions listed below.
YOU MUST CONNECT ALL 3 GROUND WIRES FOR SEER TO OPERATE PROPERLY



DEFAULT BEHAVIOR



APPROACH

Inward movement will trigger the following:

When the Keytag is first recognized on approach SEER will activate:

- Interior Lighting via Output 5
- Headlights via Output 6
- Both Interior Lighting and Headlights are on a 30 second timer

Closer to the vehicle with High Security SEER will activate:

- Unlock (Single Pulse) via Output 2
- Unlock (Double Pulse) via Output 3
- Hazard / Parking Lights (Double Flash) via Output 4
- Horn (Double Chirp) via Output 0
- Buzzer (Double Chirp) via BUZZER/OUT (See Pg. 9)

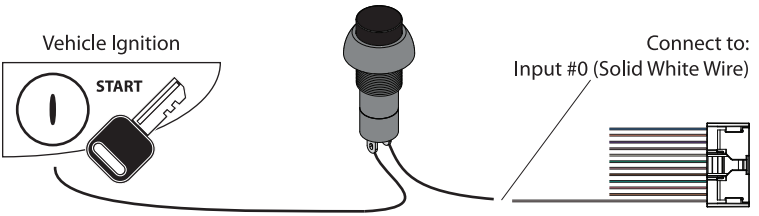
DEPARTURE

Outward movement will trigger the following:

When the Keytag is no longer recognized SEER will activate:

- Lock via Output 1
- Horn (Single Chirp) via Output 0
- Buzzer (Single Chirp) via BUZZER/OUT (See Pg. 9)
- Hazard / Parking Lights (Single Flash) via Output 4
- Headlights will shut off 2 seconds after exiting the zone

Use the supplied 'Programming Mode Button' to connect one lead to Ignition and one lead to Input #0 (Solid White Wire) on the I/O Harness.
IF BROKEN OR LOST REPLACE WITH NORMALLY CLOSED BUTTON ONLY



HOW TO ENTER PROGRAMMING MODE (VEHICLE OFF)

1. Turn on Ignition
2. Start pressing within 2 seconds (2s)
3. Press Rapidly
4. Press button (x) times (shown below) for the mode to be entered
5. LED will flash each time button is pressed. (Short)
6. LED will turn solid for 1 second when programming mode is entered.

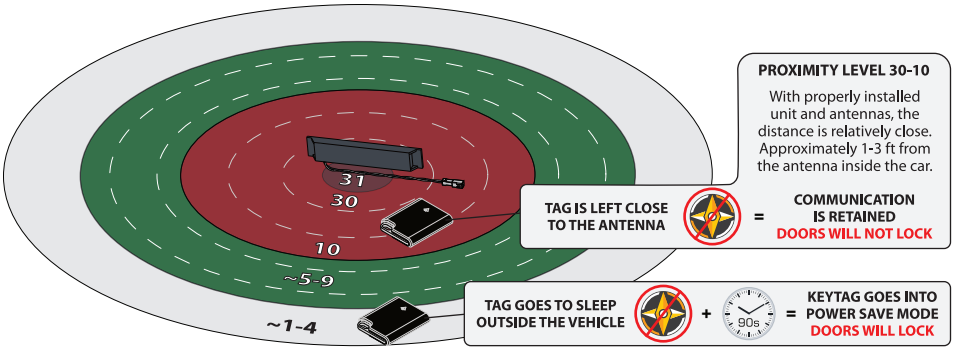
		EXIT PROCEDURE
x3	**UPLOAD NEW FLOW UPDATE FIRMWARE**	END SESSION (LOCATED ON APP) OR 2 MINUTE TIMEOUT
x5	**REGISTER SEER TO YOUR ACCOUNT**	END SESSION (LOCATED ON APP) OR 2 MINUTE TIMEOUT
x7	**PAIR A REPLACEMENT KEYTAG**	ON/OFF OR 2 MINUTE TIMEOUT
x15	**ERASE PAIRING OF ALL KEYTAGS** * IF ALL TAGS ARE ERASED YOU WILL NOT BE ABLE TO USE SEER UNTIL A NEW TAG IS PAIRED!	AUTO EXIT

Modes with "2 Minute Timeout" will autosave and exit after 2 minutes of inactivity. For modes with ON/OFF, turn off Ignition for 10 seconds, turn Ignition back on, immediately press button (x) times to exit. To cancel programming and start over turn off Ignition for 15 seconds.

* For detailed instructions on each programming mode visit https://vaistech.com/tech-bay or scan the QR Code below

KEYTAG SLEEP

Keytag is equipped with an accelerometer and will go into sleep mode if inactive for over 90 seconds.
DO NOT LEAVE KEYTAG INSIDE ANY METAL ENCLOSURE



CONTROL MODULE SLEEP

If the Control Module does not see activity from the Keytag or Ignition for 36 hours it will go into a power saving mode and eventually deep sleep.

	NORMAL OPERATION	Keytag recognition is checked often for fast operation
36h	**SLEEP STAGE - 1**	Keytag recognition is reduced to save power consumption
36h x2	**SLEEP STAGE - 2**	Keytag recognition is reduced more drastically to further save power

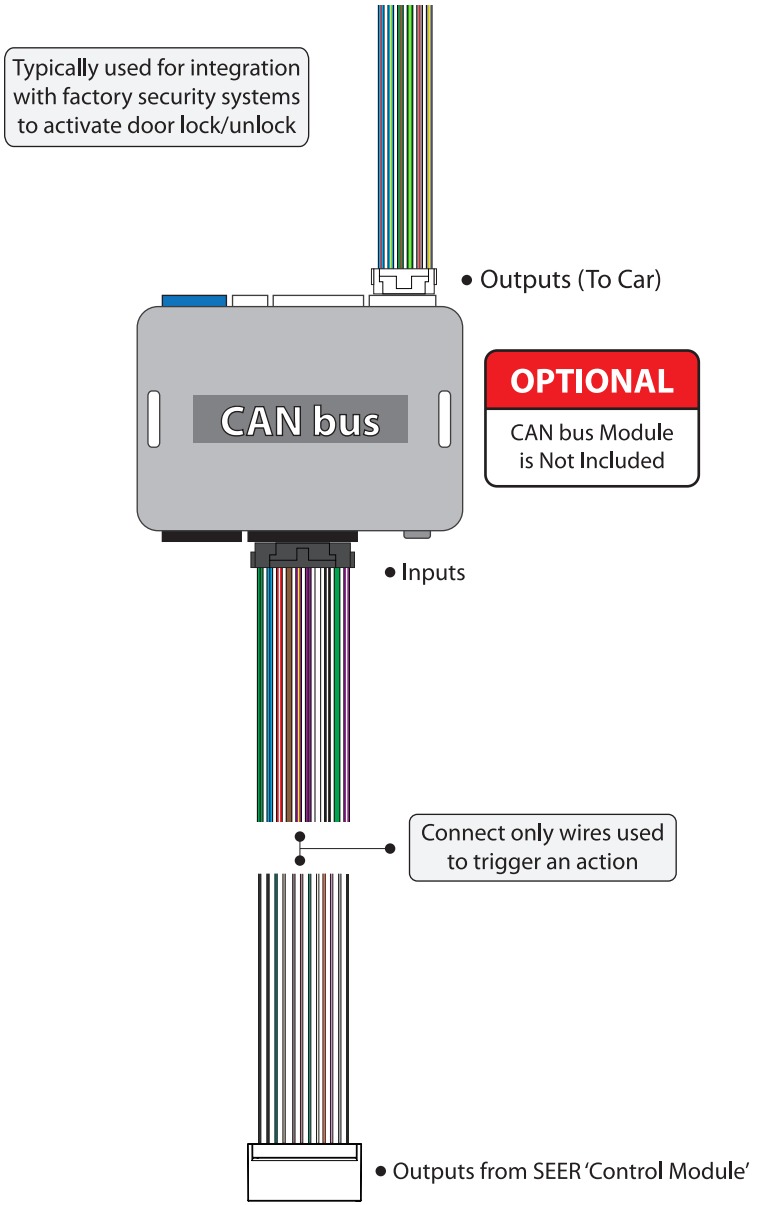
During Sleep Stages 1-2 Keytag recognition may be delayed. When the Control Module recognizes the Keytag, normal operation will be resumed.

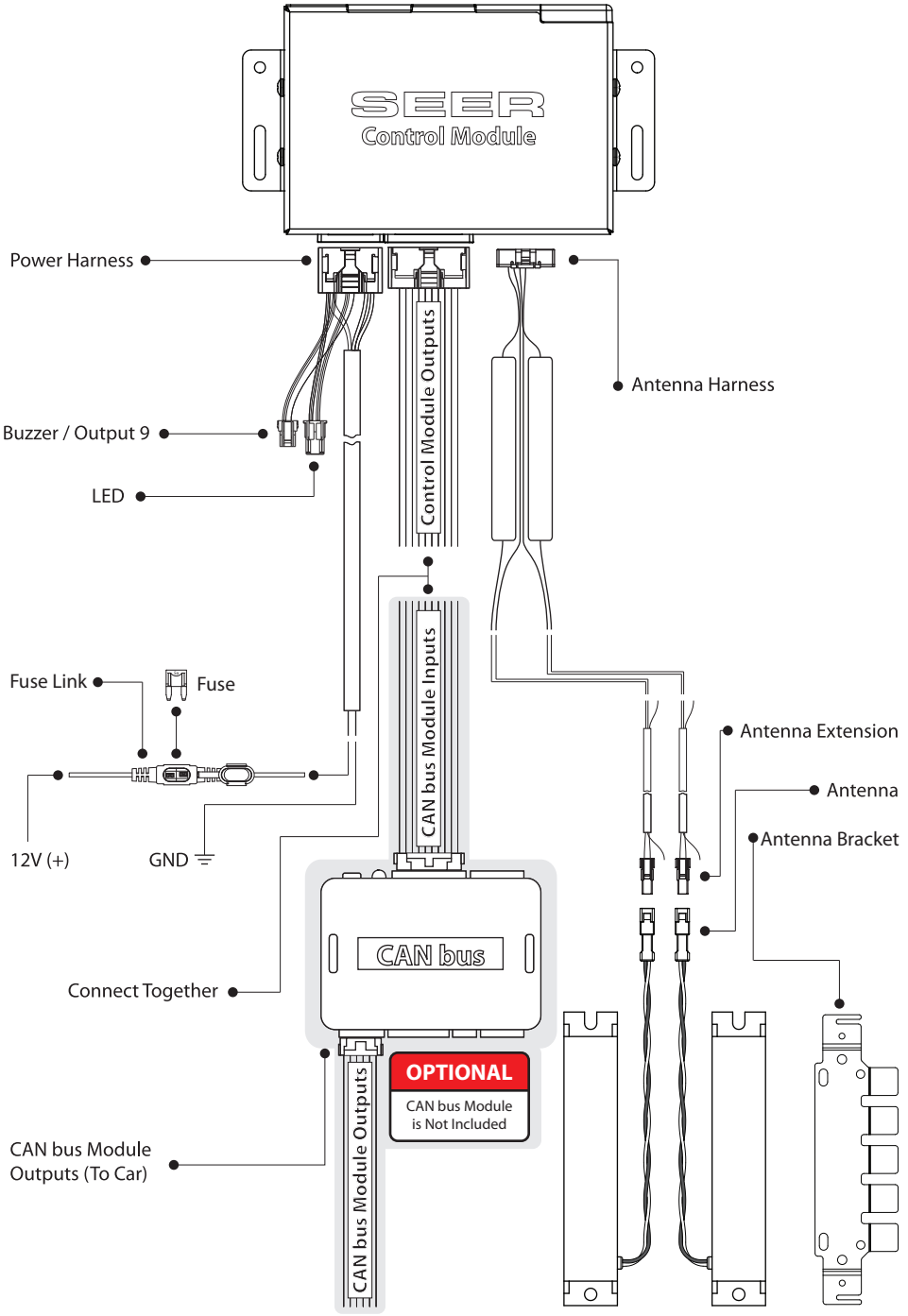
36h x3	**SLEEP STAGE - 3 (DEEP SLEEP)**	Keytag recognition is no longer checked. Once SEER reaches Deep Sleep, the user will need to turn on ignition for 5 minutes to wake up the system.

TURN IGNITION ON — 5m WAIT 5 MINUTES — WIRELESS COMMUNICATION RESUMED

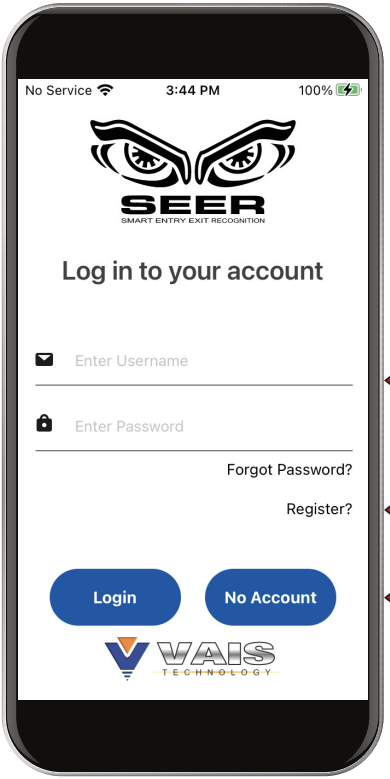
CAN BUS MODULE IS NOT INCLUDED

SEER can be connected directly to many industry standard CAN bus integration modules. Refer to 3rd party module wiring diagram for details.




SEER
Control Module
Power Harness
Control Module Outputs
Antenna Harness
Buzzer / Output 9
LED
CAN bus Module Inputs
Fuse Link
Fuse
Antenna Extension
Antenna
Antenna Bracket
12V (+)
GND
CAN bus
Connect Together
OPTIONAL
CAN bus Module
is Not Included
CAN bus Module
Outputs (To Car)
CAN bus Module Outputs

SEER ASSISTANT APP



AVAILABLE ON iOS AND ANDROID

Download on the App Store

Download from Google Play

Enter your credentials

Create an account

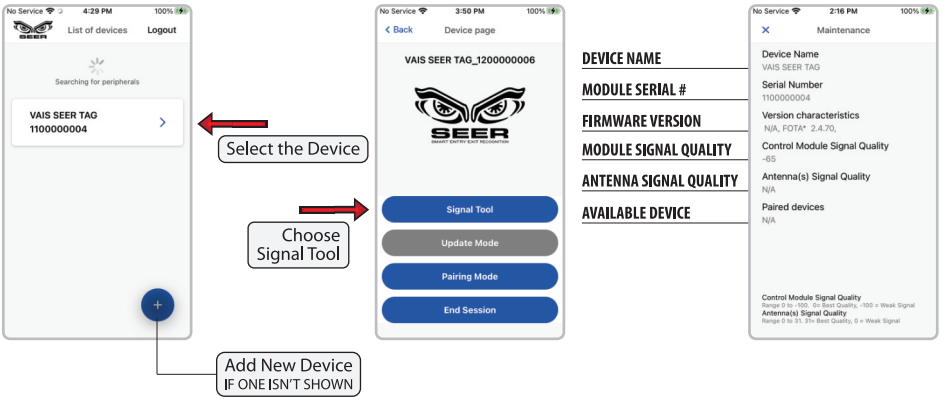
No account?
You can still use the 'Signal Tool'

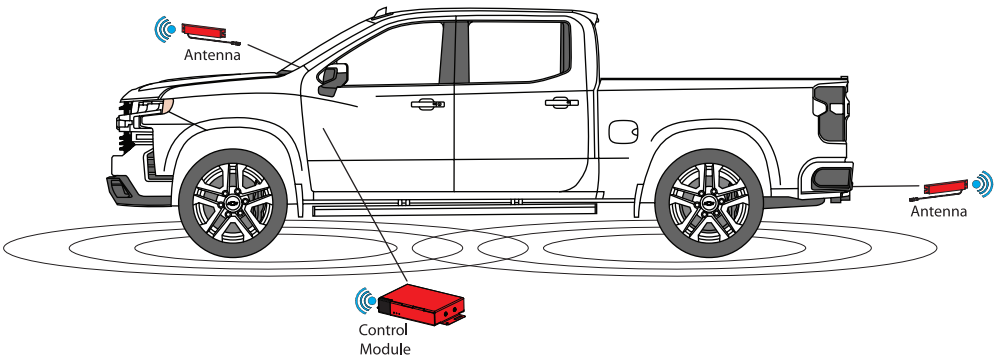
SEER ASSISTANT APP CAN:

- Register and update SEER
- Pair a replacement 'Keytag'
- Upload a SEER Flow
- Test 'Antenna' signal quality using 'Signal Tool'

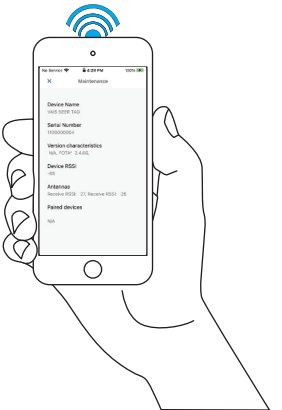
SIGNAL TOOL

PRIOR TO REASSEMBLY OF THE VEHICLE USE THE SEER ASSISTANT APP TO CONFIRM SIGNAL QUALITY FOR THE 'CONTROL MODULE' AND 'ANTENNAS' IS OPTIMAL

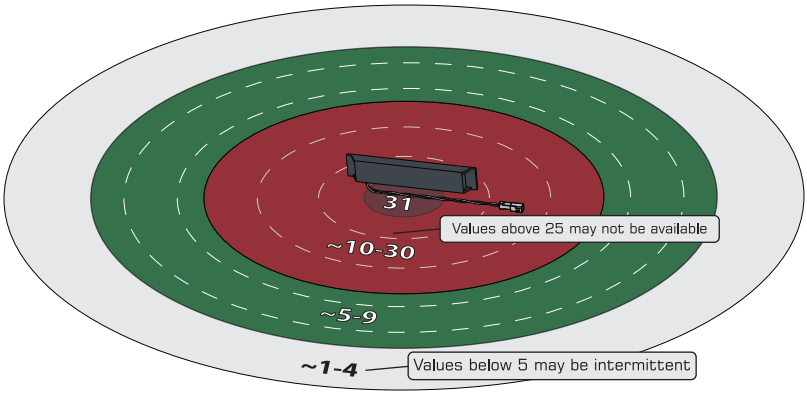




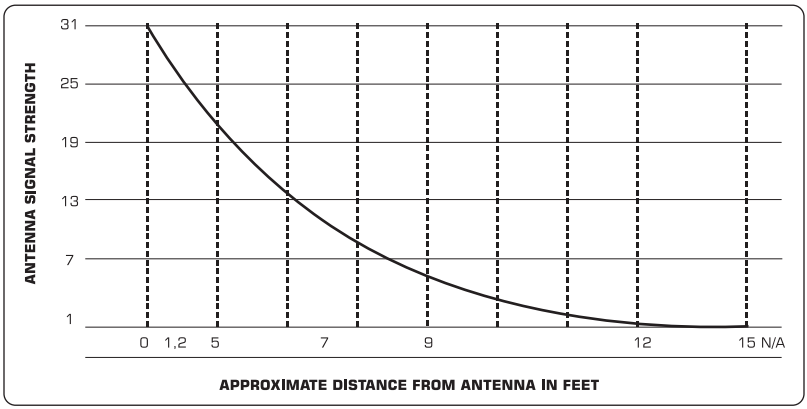
CONTROL MODULE SIGNAL QUALITY	ANTENNA SIGNAL QUALITY
Ranges from 0db to -100db	Ranges from 0 to 31
0 = Best Signal	31 = Best Signal
-100 = Weak Signal	1 = Weak Signal



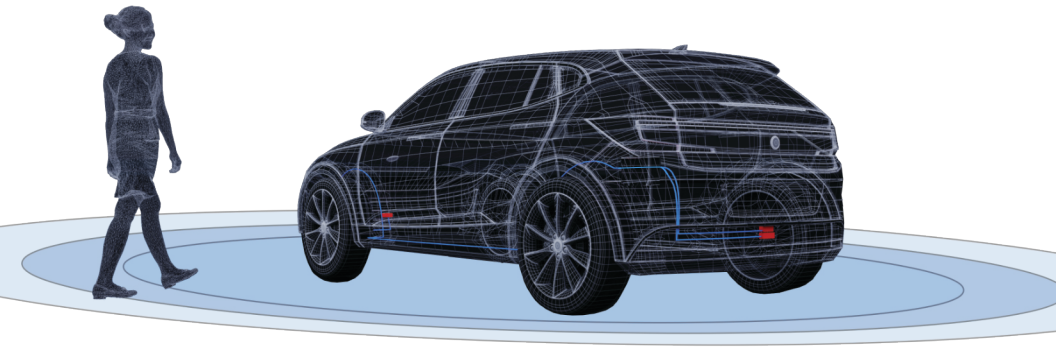
Proximity Antennas use logarithmic function, nonlinear curve.
Signal quality is relative to the placement of each Antenna.



SIGNAL DROP OFF IS EXPONENTIAL WITH RANGE



* USE FOR REFERENCE ONLY. ACTUAL DISTANCE DEPENDS ON INSTALLATION AND VEHICLE TYPE



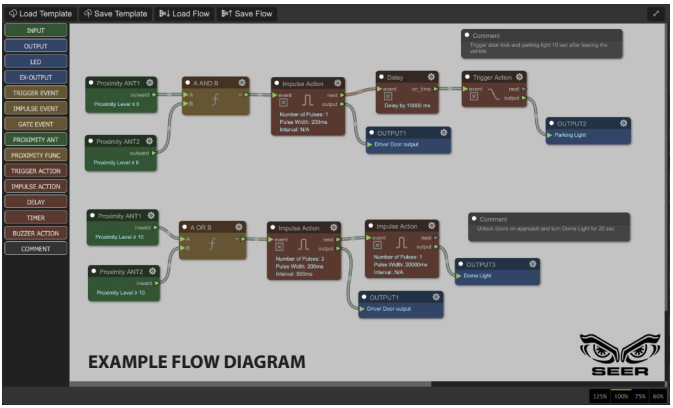
ATTENTION

SEER Control Module ships with a standard profile template that will fit most basic vehicle applications.

Refer to the default wiring information on Pg. 10 for details.

SEER FLOW EDITOR

SEER Flow Editor is used to customize and configure the module to fit your custom vehicle application needs. (See Example Below) Refer to the SEER Flow Editor training modules for further details.



Go to www.vaistech.app to create an account.

LOGIN

Email or Username

Password

Enter your credentials here.
USES SAME LOGIN AS SEER ASSISTANT APP

Remember Me

LOGIN

I forgot my password

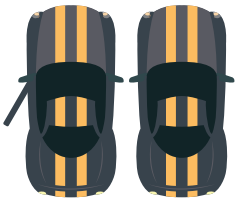
Don't have an account? Sign Up

Create an account here.

NEGATIVE INPUTS

SEER Inputs are designed to receive a positive 12V+ signal without any modification.
For using Inputs with negative signals, see the information below.

1 Measure Voltage
*Based on fully charge car battery.



	DOOR OPEN	DOOR CLOSED	
A	0.00V+	12V+	✓ Connect Directly to SEER Input
B	0.00V+	0.00V+	✓ Measure Resistance (Follow Step 2)
C	0.00V+	2V-9V+	✗ DO NOT USE THIS SIGNAL! * Signals in this range are likely data. **DO NOT CONNECT.**

2 Measure Resistance

Verify there is a change between states.
See example below.

DOOR OPEN — 100 Ω

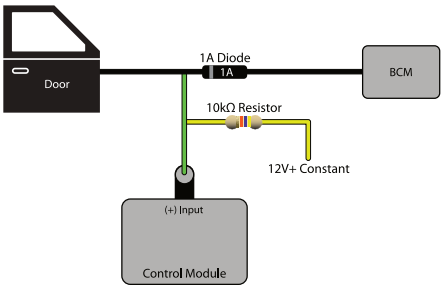
DOOR CLOSED — 100 kΩ — 10 MΩ

IF RESISTANCE CHANGES, CHOOSE A OR B

2A Connect Input with Resistor Pull-up

2B Connect Input with Polarity Adapter

2A Resistor Pull-up (Negative Door Triggers)

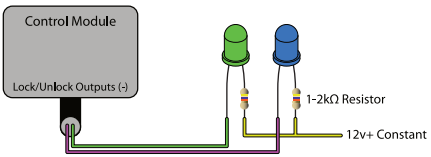


2B Polarity Inverter - (SEER-ZZ-ADP-001)

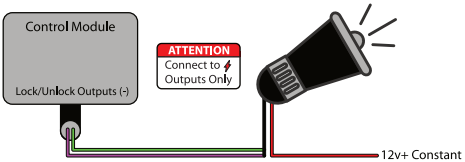
Polarity Inverter can be used in place of resistors.
AVAILABLE FROM VAIS TECHNOLOGY PART# SEER-ZZ-ADP-001

TESTING OUTPUTS

SEER Outputs are designed to send a Negative (-) signal to activate any accessory.
To test Outputs using negative signals, see the information below.



Connect Lock/Unlock Outputs to LEDs with Resistors.
TEST APPROACH/DEPARTURE AND VERIFY LEDS FLASH



Connect Lock/Unlock Output to Siren Negative (-)
TEST APPROACH/DEPARTURE AND VERIFY SIREN SOUNDS

Troubleshooting Guide

Symptom	Check
No lock or unlock when approaching or departing	1. Check Antennas using Signal Tool (Pg. 17) 2. Power cycle the Control Module (Pg. 9)
Car locks or unlocks randomly	1. Verify (2) Keytags are not on the same ring (Pg. 1) 2. Make sure Keytag is not obstructed 3. Relocate Control Module or Antennas (Pg. 4)
Car locks with Keytag inside	1. Test leaving the Keytag in a different place 2. Update Control Module to latest firmware
Car locks with doors open	1. Relocate Control Module or Antennas (Pg. 4) 2. Connect Proximity Bypass wire (Pg. 10)
Car locks or unlocks when driving	1. Ignition is not connected properly (Pg. 10)
Car locks during entry	1. Relocate Control Module or Antennas (Pg. 4) 2. Verify IGN is ON instantly (Dodge/Jeep)
Factory alarm triggers with unlock or approach	1. Use factory disarm wire 2. Connect CAN bus module (If applicable)
Car will not unlock when remote started	1. Add In-Motion Event to Flow. Visit www.vaistech.app for Flow Editor
Control Module will not enter programming modes	1. Verify you are connected to a true Ignition 2. Temporarily replace IGN with a Toggle Switch

TECH BAY

* For additional help on the symptoms above visit
https://vaistech.com/tech-bay or scan the QR Code below

VAIS TECHNOLOGY

Warranty is available for download: https://www.vaistech.com/download/15244

To request a paper warranty copy please contact us:

VAIS Technology
Warranty Department
8811 American Way
Unit 125
Englewood, CO 80112
720-733-2348
sales@vaistech.com

SCAN FOR LATEST MANUAL VERSION

VAIS Technology is not responsible for or liable for any installation cost, property loss, damages whatsoever, including but not limited to, any consequential damages, incidental damages, loss of time, loss of earnings, commercial loss, loss of economic opportunity and the like that may or may not be resulted from the operation of the SEER product(s). Manufacturer does offer a limited warranty to replace or repair the control module. See Warranty for more information.