



Seeker D
Digital Leakage Detection System
User's Guide



Notice

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Chapter 1

General Information

Ordering Information

For additional information about our products and services, contact your local Viavi representative or visit <https://www.viavisolutions.com/en-us/how-buy>.

Where to Get Technical Support

Phone US: +1-844-GO-VIAVI or +1-844-468-4284

Outside US: +1-855-275-5378

Email: Trilithic.support@viavisolutions.com

Website: <https://support.viavisolutions.com/welcome>

How this Manual is Organized

This manual is divided into the following chapters:

- Chapter 1, “General Information” provides contact information and describes how this operation manual is structured.
- Chapter 2, “Seeker D Introduction” introduces what the Seeker D is and what it does. This chapter discusses the practical application, connections and controls of the Seeker D. Finally, this chapter discusses the battery of the Seeker D and how to update your firmware.
- Chapter 3, “Seeker D Operation” describes how to configure and operate the Seeker D.
- Chapter 4, “Leakage Testing” describes the steps needed to perform leakage testing using the Seeker D.
- Chapter 5, “Appendix” shows the technical specifications of the Seeker D as well as any error codes that may appear on the Seeker’s display screen.

Optional Software

Although the Seeker D comes preconfigured and ready to use from the factory, the following software is required for advanced configuration of the Seeker D:

- **Seeker Setup** is used to configure the Seeker D, enabling the operator to assemble files containing channel frequencies, squelch levels, and other settings. Users can efficiently download configurations to one or more leakage detectors.

The following software is required for leakage data analysis using a Seeker Mobile Communications Adapter (MCA):

- **Leakage Analysis Workshop (LAW)** is software that manages the storage and retrieval of leakage information collected by vehicle mounted Seeker GPS systems. Installed on a server, it receives leakage data uploads via the Internet/LAN, Wi-Fi access point or cellular connection. Data stored in LAW server may be displayed on maps or as text, used to generate leakage work orders, or downloaded to other VIAVI or third-party applications.

Conventions Used in this Manual

This manual has several standardized conventions for presenting information:

- Connections, menus, menu options, and user-entered text and commands appear in **bold**.
- Section names, web, and e-mail addresses appear in *italics*.



A **NOTE** is information that will be of assistance to you related to the current step or procedure.



A **CAUTION** alerts you to any condition that could cause a mechanical failure or potential loss of data.



A **WARNING** alerts you to any condition that could cause personal injury.

Precautions



Do not use the Seeker D in any manner not recommended by the manufacturer.



A strong electromagnetic field may affect the measurement accuracy of the Seeker D.



Use only the battery charger supplied with the Seeker D.



All spent batteries should be disposed of according to local laws and guidelines.

Chapter 2

Seeker D Introduction

This chapter:

- Describes the purpose of the Seeker D
- Gives a feature overview of the Seeker D
- Lists the equipment supplied with the Seeker D and optional accessories
- Gives a guided tour of the Seeker D and Mobile Mount and explains the display screen
- Discusses the battery of the Seeker D
- Discusses updating the firmware of the Seeker D

What is the Seeker D?

The VIAVI Seeker D™ leakage detector teamed up with our analog leakage platform provides the complete leakage solution. The Seeker D is specifically designed for efficient distribution leakage management, displaying numerical measurements of leaks on up to ten selectable channels and emitting a tone proportional to leak strength.

The Seeker D accurately detects and measures signal leakage within the frequency range of 610.5–615 MHz and aeronautical bands frequency range of 135–139 MHz. The Seeker D may be used in its Mobile Mount for driveouts, or removed from the mount for leakage troubleshooting on foot with a rubber duck or with optional dipole or yagi antennas.

The Seeker D (Meter/Receiver) functions with the new CT-4™ head end 1U rack mounted unit (Tagger/Transmitter) to provide an uncompromised tagging solution for active analog or digital systems. This feature detects tagged leaks and ignores untagged leaks, saving time from false alarms from signals not originating in your system.

Seeker D Features

Easy Frequency Configuration

The Seeker Setup software simplifies the configuration process. Instead of going to the factory to make hardware modifications, you can use the Seeker Setup software to adjust frequencies.

Multiple Frequency Presets

Your Seeker D can be setup to operate on up to 10 different frequency presets, which makes it easier to monitor and maintain multiple cable systems. These presets define the leakage monitoring frequency and, if desired, the tag detection frequency as well. You have the option of setting up only one frequency preset for simple operation, or multiple leakage frequencies for maintaining multiple cable systems. Frequency settings range from 135–139 MHz (low band) and 610.5–615 MHz (high band) in 12.5 kHz increments.



NOTE

While in monitoring mode, the Seeker D can toggle between both the low band and high band for dual-band leakage detection.



NOTE

For the sake of this manual, the term “low band” refers to the frequencies of 135–139 MHz and “high band” refers to the frequencies of 610.5–615 MHz.

Channel Tag Compatibility

Compatibility with the VIAVI CT-4 channel tag devices is another feature of your Seeker D. The CT-4 can act as a traditional CT-2™ or CT-3™, and can insert the VIAVI proprietary tagged signals in both the aeronautical range and the near LTE range at the same time. The CT-4 eliminates the risk of affecting any adjacent digital channels by injecting an adjustable signal from 10–30 dBmV, targeting approximately 30 dB below the chosen digital carriers. Channel tag values are configured using the Seeker Setup software.

Squelch Operation

Squelch level is the RF signal threshold that the Seeker D uses to determine the validity of the signal. The signal “breaks squelch” when the RF leakage is greater than the squelch level and tag qualifiers are met as well. The receiver will not alarm for signals below the squelch level.

The squelch level has a factory default of 2 μ V/m. However, it can be reconfigured using the Seeker Setup software.

Source Localization

The Seeker D emits an audible tone to help you pinpoint the leakage source. The tone frequency increases with signal strength. As you move closer to the leak, the frequency of the tone will increase.



Common leakage areas are around the tap, drop cable, and any connection of the cable to other devices.

Vehicle Battery Protection

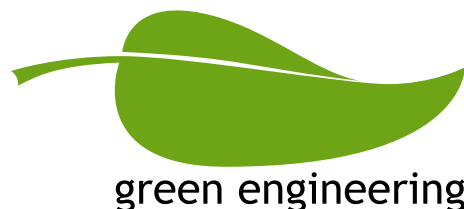


CAUTION

“Green Engineering” Mobile Mounts are compatible only with “Green Engineering” Seeker MCA units. Do not attempt to use an MCA with a Mobile Mount unless both devices feature the “Green Engineering” logo.

The following devices feature battery protection circuitry and are identified with a “Green Engineering” logo on the device.

- Seeker Mobile Mount (see note)
- Seeker MCA (see note)
- Seeker BB-2 (see note)
- Seeker D Mobile Mount
- Seeker MCA III



NOTE

Some early Seeker Mobile Mounts, MCA & BB-2 MCA units did not include this feature, look for the “Green Engineering” logo on the device.

The mobile mounts and the optional mobile communication adapters (MCA) that are equipped with the “Green-Engineering” circuitry automatically power down the MCA when the vehicle’s ignition is turned off, only after all data upload processes have been completed. This feature allows the vehicle to be parked and left unattended for long periods of time without concern for depleting the vehicle’s battery.

This feature allows a vehicle equipped with these devices to automatically upload leakage data to the LAW server via Wi-Fi, Ethernet or Cellular connection while parked and left unattended. Upon completion of the data upload (or after a user-programmed number of attempts to upload data), the MCA will automatically power down. The MCA will also stay on for a selectable time period to avoid any “cold start” delay required by the GPS receiver after a power down (based on the vehicle timer setting).

Vehicle Power Switch & Shutdown Timer (VPS-1)

The Vehicle Power Switch is necessary to allow the devices which do not feature “Green Engineering” battery protection circuitry to power down after a pre-programmed number of hours. This function allows the devices to upload leakage data to the LAW application via the Wi-Fi connection, and prevents the device from depleting the vehicle’s battery when left unattended for long periods of time.

The following steps provide detailed instructions on how to install the Vehicle Power Switch (VPS-1) with devices which do not feature the “Green Engineering” battery protection circuitry.

1. At the Mobile Mount or Seeker BB-2, disconnect the power cable from device.
2. Install the Vehicle Power Switch inside the cab of the truck/van, within reach of the existing power cable.



NOTE

The Vehicle Power Switch is not weather-proof, and must be installed inside the vehicle, where it will be protected from moisture.

3. Re-route the power cable to the Vehicle Power Switch.



NOTE

Do not connect the Vehicle Power Switch to a power source greater than 15 Volts. Any voltage greater than 15 V could cause damage to the Vehicle Power Switch.

4. Route the cable included with the Vehicle Power Switch from the switch to the Mobile Mount or Seeker BB-2.



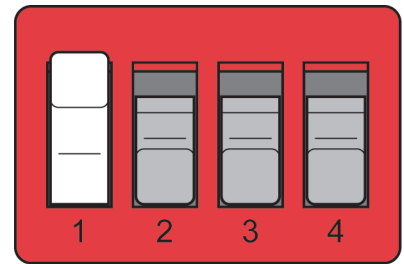
This illustration shows the white wire connected to an ignition-keyed power source. This is typical for “Green Engineering” installations of the Mobile Mount or Seeker BB-2, in which case the device features battery protection circuitry. On most installations, the white and red wires will have both been connected to the vehicle’s battery.



NOTE

5. Configure the power settings for the Vehicle Power Switch, using the DIP (Dual In-Line Package) switch.

- Position the left-most rocker switch in the UP position to allow the ignition (white) wire to bypass the Vehicle Power Switch’s countdown timer function. In this configuration, the Vehicle Power Switch (and the Mobile Mount or Seeker BB-2) will power up when the vehicle’s ignition is turned on, and will re-enable the timer function when the vehicle’s ignition is turned off.
- Position the left-most rocker switch in the DOWN position to ignore the ignition (white) wire. In this configuration, the Vehicle Power Switch (and the Mobile Mount or Seeker BB-2) will power up when the vehicle is running and will power down only after the vehicle’s ignition is turned off and the countdown timer has expired.

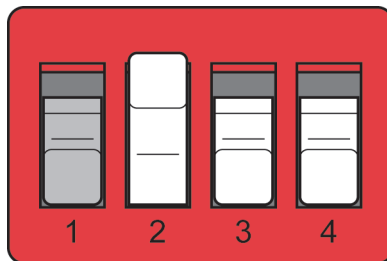


6. Configure timer settings for the Vehicle Power Switch, using the DIP (Dual In-Line Package) switch.

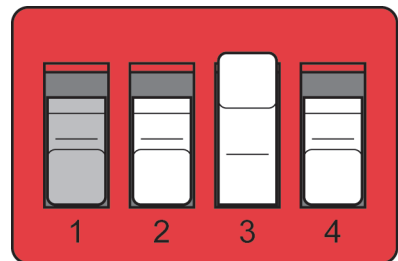
- Using the three right-most rocker switches, set the Vehicle Power Switch's countdown timer for the number of hours (1 to 7) to remain powered on, after the vehicle's ignition is turned off. Refer to the following illustrations to set the Vehicle Power Switch's countdown timer:



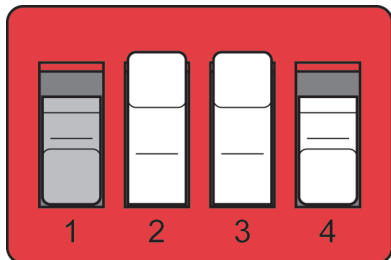
0 hours



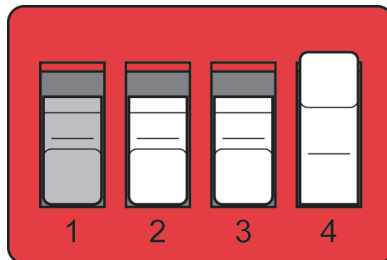
1 hour



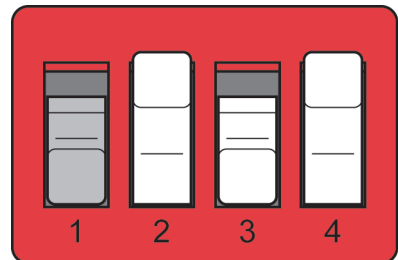
2 hours



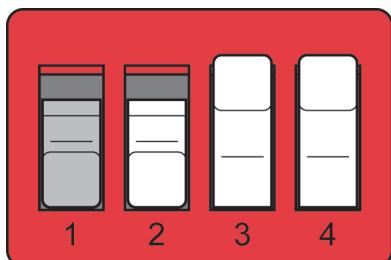
3 hours



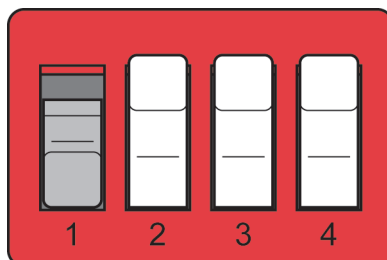
4 hours



5 hours



6 hours



7 hours

LED Power Status Indicator

- When the vehicle's ignition and the Vehicle Power Switch are ON, the LED will be steadily illuminated green.
- When the vehicle's ignition is turned OFF, triggering the Vehicle Power Switch's countdown timer (and the countdown timer has not yet expired), the LED will flash green for one second, then off for one second.
- With the vehicle's ignition OFF and when the Vehicle Power Switch's countdown timer expires, the LED will be off.

Low Battery Protection Feature

- The Vehicle Power Switch features a voltage sensing circuit which will power down the switch and the Mobile Mount or Seeker BB-2 if the vehicle battery's voltage drops below 10.5 Volts. This feature will protect the vehicle's battery from being depleted.
- Should the vehicle battery's voltage drop below 10.5 V, the green status LED on the Vehicle Power Switch will briefly flash, once per second, for 15 seconds. After 15 seconds, the Vehicle Power Switch and Mobile Mount or Seeker BB-2 will power down.

Equipment Supplied with Your Seeker D

The Seeker D comes with the following:



Seeker D
Assembled View



Seeker D Leakage
Detector



High Band
Rubber Duck
Antenna

Low Band
Rubber Duck
Antenna



Mobile Mount
to Diplexer Cable



Seeker D Mobile Mount with
Mounting Arm & Hardware



Antenna Diplexer



AC Travel Charger &
USB Data Cable



Mobile Mount DC
Power Cable



Vehicle Wiring
Protection Kit



The Seeker D requires a low and high band vehicle mounted antenna (not included) for use with the mobile mount.

Replacement Parts for Your Seeker D

The following replacement parts are available for the Seeker D:

Part Number	Description
2071679000	Low Band Rubber Duck Antenna
2071679001	High Band Rubber Duck Antenna
2072237001	Seeker D Mobile Mount & Power Cable
2071688000	Seeker D Mobile Mount Arm
2071585007	Mobile Mount Power Cable
2071585046	Vehicle Wiring Protection Kit
2071585044	Mobile Mount to Diplexer Cable
0710140000	Antenna Diplexer
0610169006	AC Travel Chager & USB Power/Data Cable
0610169002	AC Travel Chager
2072585004	USB Power/Data Cable
0090048000	Seeker D Battery

To place an order, contact your local VIAVI representative, call 1-844-GO-VIAVI, or visit <https://www.viavisolutions.com/en-us/how-buy>.

Accessories for Your Seeker D

The following accessories are available for the Seeker D:

Part Number	Description
0610169007	Vehicle Power Adapter (12 VDC Cigarette Lighter)
0610169012	Euro Power Adapter
0610169013	UK Power Adapter
0610169014	Australian Power Adapter
2010477000	NFP-1 Near Field Probe
2010650000	APM-3 Vehicle Antenna - Permanent Mount (108 to 160 MHz)
2010379000	AVM-3 Vehicle Antenna - Magnetic Mount (108 to 160 MHz)
2011645000	APM-4 Vehicle Antenna - Permanent Mount (600 to 700 MHz)
2011646000	AVM-4 Vehicle Antenna - Magnetic Mount (600 to 700 MHz)
2010436000	AFS-2 Handheld Dipole Antenna - Long Pole (108 to 160 MHz)
2011411000	AFS-2 Handheld Dipole Antenna - Short Pole (108 to 160 MHz)
2011644000	AFS-7 Yagi Antenna - Handheld (580 to 640 MHz)

To place an order, contact your local VIAVI representative, call 1-844-GO-VIAVI, or visit <https://www.viavisolutions.com/en-us/how-buy>.

A Guided Tour of Your Seeker D

Front View

DISTANCE button

Press this button to change the distance from the vehicle to the cable plant.

VOLUME button

Press this button to change the speaker volume of the leakage tone. Brief presses increase the volume to maximum and then it rolls over to the minimum volume.

SNAPSHOT button

Press this button to activate the Snapshot mode or press and hold this button to synchronize data with the option Seeker MCA III when the Seeker D is in the mobile mount.

ON/OFF button

Press and hold this button to turn the Seeker D on or off. Also, when the meter is on, press this button to activate the display's backlight for approximately 60 seconds.

CHANGE button

Toggles or alters the current display selection.

SELECT button

Press to advance to the next display mode.



Back View

Antenna connection

The antenna connection is used to connect the Seeker D to the Mobile Mount antenna connection.



Right Side View

Mini-USB connection

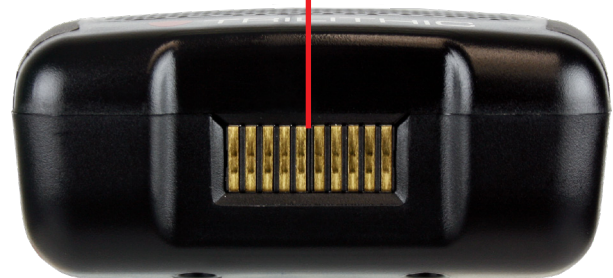
The Mini-USB connection is used to connect the charger to the Seeker D and/or to connect a PC or laptop computer to the Seeker D using the mini-USB charge / data cable.



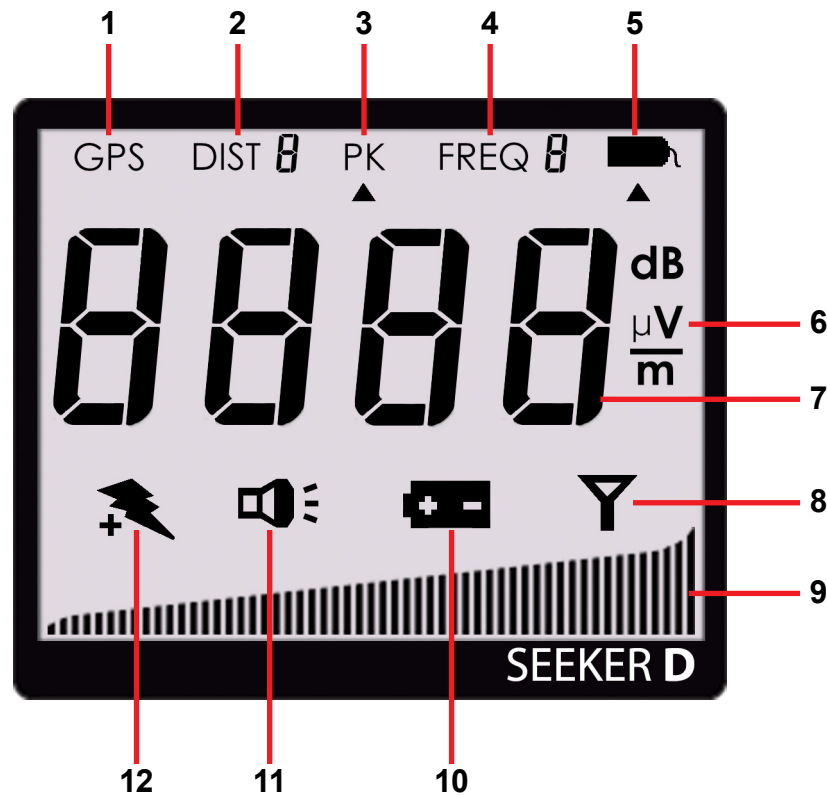
Bottom View

Mobile Mount interface

When the Seeker D is in the mobile mount, this is used to charge the Seeker D and allow communication between with the Seeker MCA III and the Seeker D.



Display Screen



1. GPS – Shown when the Seeker D is placed in the Mobile Mount and a GPS connection is established with an optional Seeker MCA III. When the icon is not shown, the Seeker D is not in the Mobile Mount or the GPS connection cannot be established with the optional Seeker MCA III. If the icon flashes, the Seeker MCA III is connected to the GPS but the GPS does not have a good position fix.
2. DIST – Indicates the number of the currently selected distance preset when the distance correction has been enabled using the Seeker Setup software. Distance correction is used to adjust the level of the received signal based on the distance from the vehicle to the cable plant. Up to eight preset distance correction values can be enabled for the Seeker D.
3. PK – Shown when the Peak Hold feature is active. When the icon is not shown, the Peak Hold feature is turned off.
4. FREQ – Indicates the number of the currently selected frequency preset.
5. Tag – Shown when tagged signal leakage is detected.

6. Measurement units – Show the measurement units that are selected in Seeker Setup.
7. Main display – Shows various parameters, and its function depends on the current display mode selection.
8. Antenna – Flashes when the signal mode is selected. This is the normal mode for leakage detection.
9. Bar graph – Shows the level of various Seeker D and Seeker GPS parameters, and its function depends on the current display mode selection.
10. Battery – Flashes when the battery mode is selected. The icon will stay on when the battery needs to be recharged.
11. Speaker – Flashes when the **VOLUME** button is pressed.
12. Charge – Flashes when the battery is being charged, or when the device is placed in the Mobile Mount and the Battery Charge Level screen is displayed.

A Guided Tour of Your Mobile Mount

Front View

Antenna connection

This is used to connect the Seeker D antenna input to the Seeker D Mobile Mount. This bypasses the rubber duck antenna input of the Seeker D allowing the use of low and high band vehicle mounted antennas.

Spring loaded cradle

The cradle is spring loaded to ensure that the Seeker D is held securely in the Mobile Mount.

To place the Seeker D into the Mobile Mount, place the bottom of the Seeker D in the cradle and press down while pressing the top of the Seeker D back into the Mobile Mount to connect the Seeker D antenna input to the mobile mount antenna connection.

The spring return of the cradle will secure the top of the Seeker D upward into the recess in the top of the mobile mount.

Mobile Mount interface

When the Seeker D is in the mobile mount, this is used to charge the Seeker D and allow communication between with the Seeker MCA III and the Seeker D.



CAUTION

If the spring return of the mobile mount cradle is broken or not working properly, contact 1-844-GO-VIAMI for repairs.

Mounting arm

This is used to secure the Mobile Mount to the vehicle. Use the knob to tighten and loosen the arm and then adjust the angle of the arm to achieve the proper mounting angle. The arm should be securely fastened to the vehicle with four screws or bolts.



Rear View

Antenna input

This is used to connect the included antenna diplexer for use with low and high band vehicle mounted antennas.

Auxilliary Mobile Mount connection

This is used to daisy chain an existing Seeker Mobile Mount to the Seeker D Mobile Mount in order to share a single Seeker MCA III.

MCA III serial connection

This is used to connect the Seeker D Mobile Mount to the Seeker MCA III.

DC power cable input

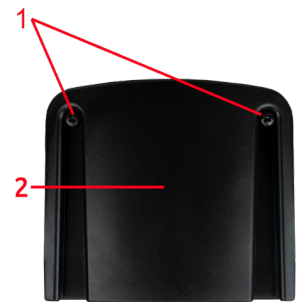
This is used to connect the included mobile mount power cable.



Assembly of Seeker Mobile Mount & MCA III (Optional)

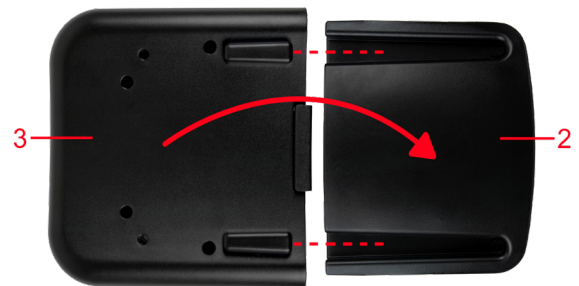
If you are using the optional Seeker MCA III, the following steps provide detailed instructions on how to install the Seeker MCA III onto the bottom of the Seeker D Mobile Mount. Note that the Seeker Mobile mount is shown for display purposes only, this procedure will also work with the Seeker D Mobile Mount in the same way.

1. Remove the two 1/4" Screws (1) from the bottom of the Seeker D Mobile Mount (2) that are closest to the front mobile mount as shown to the right. Discard these screws, they are no longer



needed.

2. Align the ridges on the top of the Seeker MCA III (3) with the slots in the bottom of the mobile mount (2) and then place the bottom of the



Seeker MCA III against the bottom of the mobile mount as shown to the right.



3. Slide the Seeker MCA III (3) forward until the Alignment Tab (4) comes into contact with the back side of the mobile mount (2) as shown to the right.
4. Insert and tighten the two 1-1/4" Screws (included) into the mounting holes (5) on the bottom of the Seeker MCA III as shown to the right. To prevent damage to the Seeker MCA III housing, take care not to over tighten the screws.



Installation of the Seeker D System

The following steps provide detailed instructions on how to install the Seeker system in your vehicle.

1. Install the Seeker D Mobile Mount and Seeker MCA III in your vehicle.

- Install the Seeker D Mobile Mount & Seeker MCA III securely in a location where the driver will be able to see the Seeker D & Seeker MCA III display.



- Install the Seeker D Mobile Mount & Seeker MCA III in a location that prevents damage to the attached data, GPS, or antenna cables.



Before installation, see the previous section for instructions on how to assemble the Seeker D Mobile Mount and the Seeker MCA III.



Before installation, configure the Seeker D and MCA III as shown in the Seeker Setup Software Operation Manual.

2. Connect the Seeker D Mobile Mount to the Seeker MCA III using the serial data cable.



Mobile Mount & MCA III
Rear View

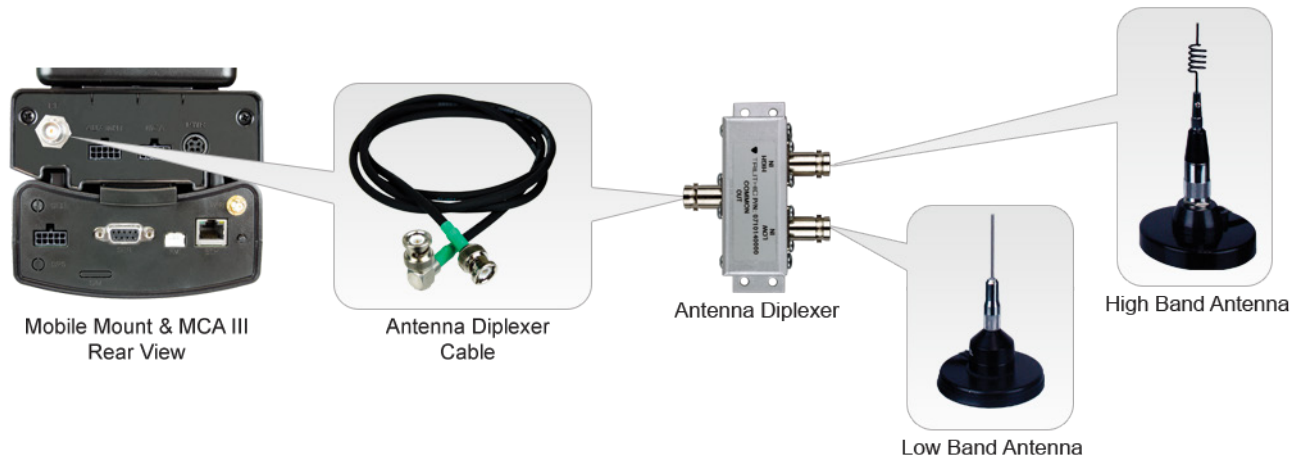


Serial Data Cable



This step only applies when using the Seeker D Mobile Mount with the Seeker MCA III.

3. Connect the Seeker D Mobile Mount antenna connection to the right angle connector of the antenna diplexer cable. Connect the other end of the antenna diplexer cable to the output of the antenna diplexer. Finally, connect the low and high band antennas to the corresponding inputs of the antenna diplexer.

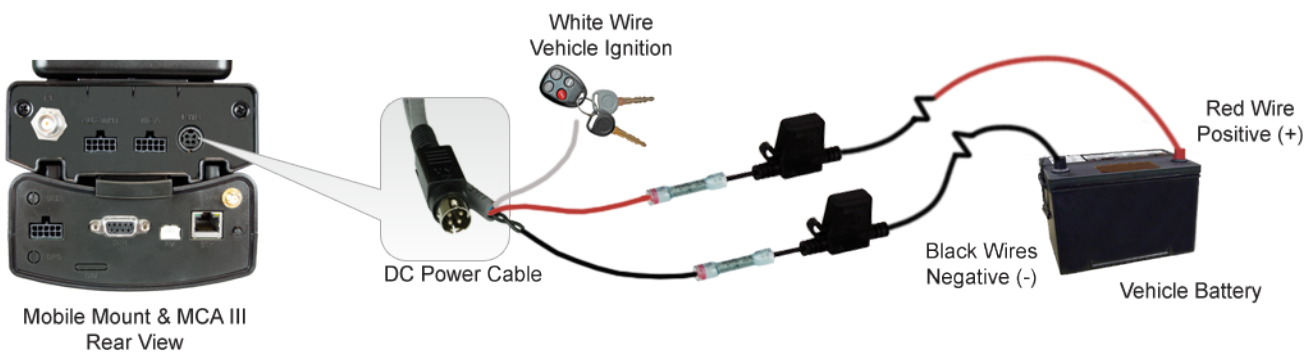


When using the Seeker D Mobile Mount, an APM-3 or AVM-3 vehicle mounted whip antenna (not included) is *REQUIRED* for Low Band Monitoring.



When using the Seeker D Mobile Mount, an APM-4 or AVM-4 vehicle mounted colinear array whip antenna (not included) is *REQUIRED* for High Band Monitoring.

4. Wire the DC power cables to the vehicle battery and an ignition-switched power source, and then connect the cable to the back of the Seeker D Mobile Mount. The DC power cable should be wired as follows:
- Red wire **MUST** be wired to the positive (+) battery terminal.
 - White wire **MUST** be wired to an ignition-switched power source in order to allow the Seeker MCA III to determine when the vehicle is turned OFF.
 - Both black wires should be wired to ground or the negative (-) battery terminal.
 - The provided in-line fuse holders **MUST** be wired in series between the end of the red and black DC power cables and the vehicle battery to provide protection to the Seeker D Mobile Mount.

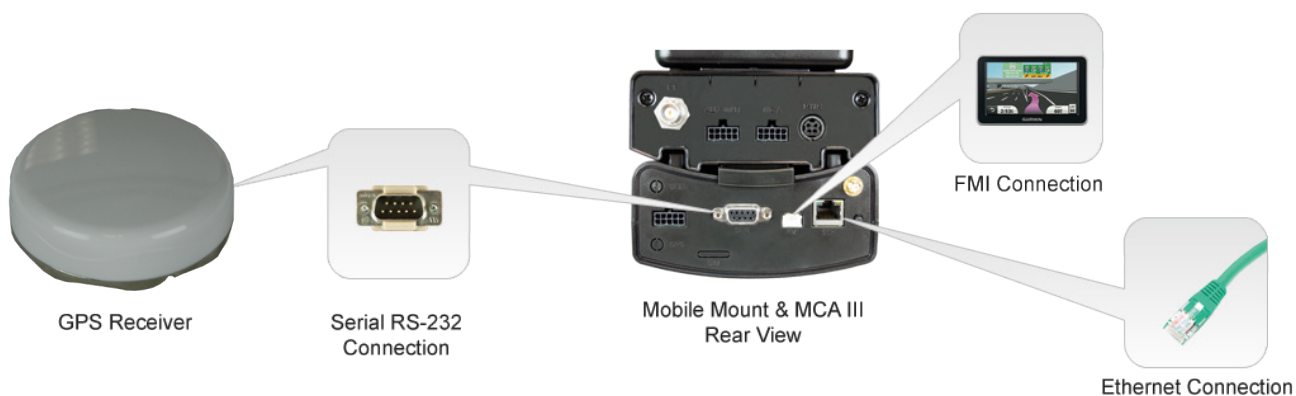




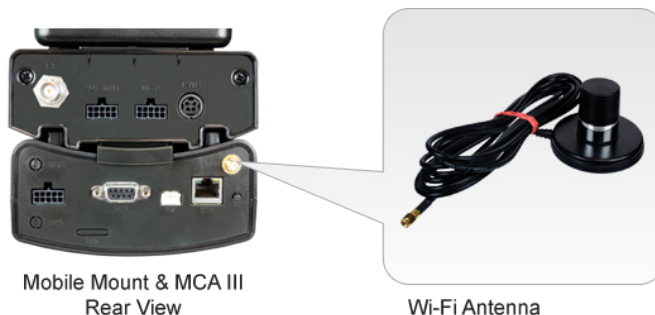
The following steps only apply when using the Seeker D Mobile Mount with the Seeker MCA III.

5. Connect the GPS Receiver, Ethernet Cable, and FMI Cable to the Seeker MCA III.

- Connect the GPS Receiver, Ethernet Cable, and FMI Cable directly to the Seeker MCA III.
- The Ethernet & FMI Connections are not required.
- The Ethernet connection can be used for initial configuration and/or automatic upload of leakage records to LAW via the Ethernet connection of a mobile network provider.
- The Fleet Management Interface (FMI) connection is compatible with GARMIN FMI Enabled Portable Navigation Devices (PND).
- Mount the GPS receiver in a location that has a line of sight to the GPS satellites and will enable a reliable GPS location fix.



6. Connect the Wi-Fi antenna to the Seeker MCA III. Mount the antenna in a location that will enable communication with Wi-Fi access points.



About the Battery of Your Seeker D

The Seeker D uses Lithium-Ion batteries. The batteries are charged during manufacture and should be ready to use as long as it has not been stored for a long period of time.

Lithium-Ion batteries operate differently than Nickel-Cadmium batteries. They should be charged daily, and should not be deeply discharged as this could damage the battery. There is no memory effect and concerns about charging too soon or with little use are unwarranted.

USB Charging

You can charge the Seeker D outside of the Mobile Mount using either of the following USB charging methods:

- Connecting the Mini-USB cable and charger from an AC power source to the Seeker D. The Mini-USB charge / data cable and charger must be connected to both the Seeker D and a working power outlet before AC charging can begin.
- Connecting the Mini-USB charge / data cable from a PC or laptop computer to the Seeker D. The Mini-USB charge / data cable must be connected to both the Seeker D and a PC or laptop computer that is ON before USB charging can begin.

The following conditions apply when charging the Seeker D via USB:

- When the Seeker D is off and it is charging, the device will go into background charging and nothing will be shown on the display screen.
- If the Seeker D is on when it is connected to a PC, laptop computer, or working power outlet, the device will automatically turn off.
- If the Seeker D is turned back on when USB charging, the Measurement mode is disabled while the Seeker D is USB charging.
- When the Seeker D is on and is charging, the screen shown in the image to the right will be displayed, the Charge icon will flash, and the on-screen bar graph will show the charging progress.



Mobile Mount Charging

Placing the Seeker D into the Mobile Mount will begin Mobile Mount charging. The following conditions apply when charging the Seeker D via the Mobile Mount:

- The Mobile Mount DC power cable must be connected to the Mobile Mount and the vehicle power supply before Mobile Mount charging can begin.
- When the Seeker D is off and it is placed in the mobile mount, the device will go into a background charging and nothing will be shown on the display screen.
- When the Seeker D is on and it is placed in the mobile mount, the measurement will not be disabled while the Seeker D is mobile mount charging.

With the Optional Seeker MCA III

When the Seeker D is used with the optional Seeker MCA III, the following charging actions will occur.

- When the Seeker D is on and is charging, the display will remain on the Measurement mode screen.
- If the Seeker D is turned off and is placed in the Mobile Mount, the Seeker D will automatically turn on when the vehicle is turned on.
- If the Seeker D is turned on and is placed in the Mobile Mount, the Seeker D will automatically turn off when the vehicle power has been turned off and the Park Delay timer of the Seeker MCA III has expired.



The batteries in the Seeker D will not charge in the Mobile Mount unless the Seeker D has been turned off. However, when the Seeker D is on and is in the Mobile Mount the batteries will not discharge either.

Chapter 3

Seeker D Operation

This chapter:

- Provides information on operation and display modes of the Seeker D

Available Configuration Settings

You must configure the settings of the Seeker D using the Seeker Setup software. The Seeker D comes from the factory with default settings, but it is likely they will need to be customized. Detailed instructions can be found in the Seeker Setup Software Operation Manual.

Feature	Available Values	Default Value	Device	Software
Display & Notification Settings				
Toggle Speaker Volume	Low to High	High	YES	NO
Toggle Ambient Noise Measurement	On, Off (momentarily)	Off	YES	NO
Set Display Units	uV/m, dBuV, dBuV/m	uV/m	NO	YES
Truck Squelch	2 to 10 uV/m	2 uV/m	NO	YES
Squelch	2 to 2000 uV/m	20 uV/m	NO	YES
Frequency Settings				
Enable Presets	Enable, Disable (<i>min of 1, max of 10</i>)	2 Enabled	NO	YES
Toggle Between Presets	0 to 9 (<i>only each enabled</i>)	1 to 2	YES	NO
Set Frequency Values	135 to 139 & 610.5 to 615 MHz	See the Selecting a Preset Frequency section later in this Chapter	NO	YES
Set Primary Frequency Preset	0 to 9 (<i>select only one</i>)			
Set Secondary Frequency Preset	0 to 9 (<i>one for each primary</i>)			
Set Tag Spacing	1 or 2			
Peak Hold Settings				
Enable Peak Hold Function	Enable, Disable	Disabled	YES	YES
Toggle Peak Hold Function	On, Off (<i>only when enabled</i>)	Off	YES	NO
Distance Correction Settings				
Enable Distance Correction	Enable, Disable	Disabled	NO	YES
Toggle Between Distances	1 to 8 (<i>only when enabled</i>)	1	YES	NO
Set Available Presets	Enable, Disable (<i>up to 8</i>)	See the Distance Correction Settings section later in this Chapter	NO	YES
Set Distance Values	0 to 255			
Set Measurement Units	Feet, Meters			
Device Management				
Technician ID	Custom Alphanumeric	trilithi	NO	YES
Clock Synchronization	Sync with PC Clock	GMT	NO	YES
Update Firmware	N/A	N/A	NO	YES

Basic Operation

Power On/Off

Press and hold the red **ON/OFF** button until you hear three ascending tones. Within a few moments your Seeker D will startup into the RF Signal Measurement Mode.

Low Battery Warning

A very low battery may cause the Seeker D not to turn on. When the battery is too low for your Seeker D to function, the screen shown to the right will appear. The battery must be charged for a few minutes before using again.



Low Battery Warning

Seeker MCA III Communication Successful (Optional)

After placing the Seeker D in the mobile mount and upon successful communication with the optional Seeker MCA III the screen shown in the image to the right will be displayed.



Communication Successful



Ensure that the Seeker D is properly seated in the Mobile Mount, otherwise the Seeker D will display an error message and it will not be able to communicate with the Seeker MCA III.

PC Communications Mode

This mode is used by the Seeker Setup software to send and retrieve configuration parameters from your Seeker D. To enter this mode, connect the Seeker D to a PC or laptop computer using a mini-USB charge / data cable and then open the Seeker Setup software to communicate with the Seeker D. The screen shown to the right will be displayed while your Seeker D is in this mode.



PC Communication Mode

RF Signal Measurement Mode

The RF Signal Measurement Mode is the default display mode for leakage testing and is used to accurately determine the strength of a leak, pinpoint its location, and provide a leakage value for documentation. Measured RF leakage values can range from 2 to 2000 $\mu\text{V}/\text{m}$ and are displayed in large, easy-to-read numbers. A bar graph at the bottom of the display illuminates proportionally to the signal strength of the leak.

Additionally, an audible tone will sound if the measured signal breaks squelch. The signal breaks squelch when the RF leakage is greater than the squelch level and tag qualifiers are also met. This tone can be used to help locate the potential source of the leak.

When the Signal Level display is selected, the Antenna icon flashes as indicated by the red circle in the following images.

Freezing the Measurement Display

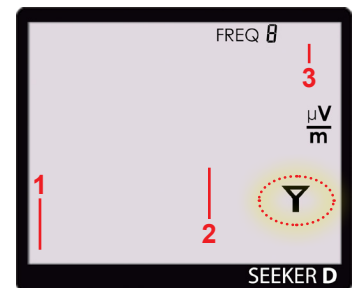
To momentarily freeze the numerical display in order to document a leakage value, press the **CHANGE** button. To unfreeze the display, press either the **CHANGE** or **SELECT** button.

The display will flash to remind you it has been frozen. Even though the numerical display doesn't change, the bar graph will continue to update and the audible tone will still sound if the measured signal breaks squelch.

No Signal Detected

If there isn't a signal detected for the primary or secondary frequency, the following will occur:

1. The bar graph will remain blank.
2. The numerical display will remain blank.
3. The Tag icon will not appear in the upper right corner of the screen.



No Signal Detected

Untagged Signal Detected

If there is a signal detected for the primary frequency and it does not contain the CT-4 channel tag (ambient noise), the following will occur:

1. The bar graph will indicate the relative signal level.
2. The numerical display will remain blank.
3. The Tag icon will not appear in the upper right corner of the screen.



Untagged Signal Detected

Tagged Signal Detected on Primary Frequency

If there is a signal detected for the primary frequency and it contains the CT-4 channel tag, the following will occur:

1. The bar graph will indicate the relative signal level.
2. The RF signal level will be displayed numerically.
3. The audible tone will sound proportional to signal strength.
4. The Tag icon will appear in the upper right corner of the screen.

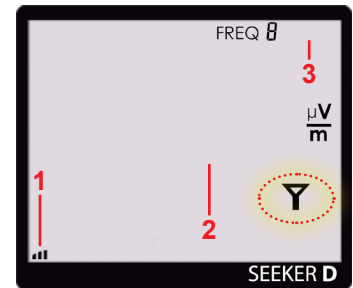


**Tagged Signal Detected
(Primary Frequency)**

Tagged Signal Detected on Secondary Frequency

If there is a signal detected for the secondary frequency and it contains the CT-4 channel tag, the following will occur:

1. The audible tone will sound proportional to signal strength.
2. The bar graph will indicate the relative signal level.
3. The numerical display will remain blank.
4. The Tag icon will not appear in the upper right corner of the screen.



**Tagged Signal Detected
(Secondary Frequency)**

Secondary Frequency Numerical Display

When the Seeker D is in the Mobile Mount, press the **SNAPSHOT** button to numerically display the RF signal level of the secondary frequency. The screen shown to the right will be displayed before showing the RF signal level of the secondary frequency.

After a few seconds, the display will automatically revert to a numerical display of the primary frequency RF signal level.



**Alternate Frequency
Display**

Device Information & Settings

While testing for leaks, you will need to view the information shown by the Seeker's display modes.

- Use the **SELECT** button to toggle through its display modes. As you toggle, the display modes will appear in the same order in which they are discussed in this section.
- Use the **CHANGE** button to adjust the settings of some display modes.



Viewing the Battery Charge Level

To check the battery level, turn your Seeker D on and press the **SELECT** button once.

- When the Battery Charge Level display is selected, the Battery icon flashes as indicated by the red circle in the following image.
- When this display is selected, the following will occur:
 1. The bar graph will indicate the amount of battery charge available. As long as there are at least a few bars left, your Seeker D has enough charge to operate. If the battery meter shows less than 50%, the Seeker D should be charged.
 2. The numerical display will continue to display the RF signal level.



Battery Charge Level



NOTE

After a few seconds in the Battery Charge Level display without any action by the user, the display will revert to the Signal Level display.

Low Battery Alert

If the battery is getting low and needs to be recharged soon, the battery icon is displayed constantly on all screens. An example of a low battery warning while performing a level measurements is shown in the image to the right.

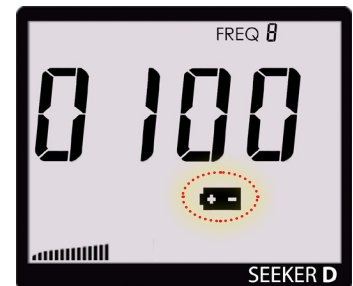


Low Battery Alert

Firmware Version

When you are in the Battery Charge Level display, pressing the **CHANGE** button will display the following information:

- The Battery icon will continue to flash and the bar graph will continue to indicate the relative battery charge level
- The screen first displays the application firmware version number. In the image shown to the right, the application firmware is version 1.00.



Application Firmware

- After 5 seconds, the screen automatically displays the FPGA firmware version number. In the image shown to the right, the FPGA firmware is version 3.26.



FPGA Firmware



NOTE

After a few seconds in the Firmware Version display without any action by the user, the display will revert to the Battery Charge Level display.



If the Seeker D is not completely seated in the Mobile Mount, the charge screen will not be available.

NOTE

Viewing the Battery Charging Status

To view the charging status of the battery, turn your Seeker D on and press the **SELECT** button twice.

- The Charge icon will flash to show you are in the Battery Charging Status display.
- The numerical display will continue to display the RF signal level.
- The bar graph will display the progress of the charging cycle. If two or more bars are displayed, then power is present and charging is in progress.



Battery Charging Status



If the Seeker D is not detecting any power to the Mobile Mount, the bar graph will not be displayed.

NOTE



After a few seconds in the Battery Charging Status display without any action by the user, the display will revert to the Signal Level display.

NOTE

Enable/Disable Peak Hold

To enable/disable the Peak Hold function, turn your Seeker D on and press the **SELECT** button repeatedly until the arrow appears under the PK icon, as indicated by the red circle in the image below.

- When the Peak Hold display is selected, pressing the **CHANGE** button will enable/disable the Peak Hold function.
- When this display is selected, the following will occur:

- If the Peak Hold function is currently disabled, the PK icon will flash with the arrow below the icon as indicated by the red circle in the image to the right.



Peak Hold Disabled

- If the Peak Hold function is currently enabled, only the arrow below the PK icon will flash as indicated by the red circle in the image to the right.



Peak Hold Enabled



NOTE

After a few seconds in the Peak Hold display without any action by the user, the display will revert to the Signal Level display.

- When the Peak Hold function is enabled, the following will occur in the Signal Level display:

1. The PK icon will be constantly displayed at the top of the screen.
2. The numerical display will hold the latest peak RF level reading for up to five seconds unless the RF level increases. This is useful if you are not able to look at the display immediately or if you want to confirm the highest level reading.
3. The peak element of the bar graph at the bottom of the display will also hold its peak indication for five seconds while the other elements of the bar graph continue to indicate the signal strength of the live signal.



Signal Level Display

Selecting a Preset Frequency

The Preset Frequencies display is used to select the RF signal level measurement frequency presets used by the Seeker D. The preset frequencies are numbered from 0 to 9 and can be configured using the Seeker Setup software.

The Seeker D is programmed at the factory with the following preset frequencies:

FREQ #	Default	Enabled	Primary Frequency	Secondary Frequency	Tag
1	YES	YES	612.0000	None	1
2	NO	YES	138.0000	None	1
3	NO	NO	<empty>	None	N/A
4	NO	NO	<empty>	None	N/A
5	NO	NO	<empty>	None	N/A
6	NO	NO	<empty>	None	N/A
7	NO	NO	<empty>	None	N/A
8	NO	NO	<empty>	None	N/A
9	NO	NO	<empty>	None	N/A
0	NO	NO	<empty>	None	N/A



NOTE

For detailed instructions on how to set the primary and secondary frequency presets and their associated tag settings, see the Seeker Setup Software Operation Manual.

To select a preset frequency, turn your Seeker D on and press the **SELECT** button repeatedly until the FREQ icon flashes at the top of the display, as indicated in the below images.

- When the Preset Frequency display is selected, the FREQ icon at the top of the display will flash as indicated by the red circle in the following images.
- When the Preset Frequencies display is selected, pressing the **CHANGE** button will step through the enabled presets in numerical order starting at 1 and ending at 0.



Preset #1



Preset #2

When first entering the Preset Frequencies display or after selecting a new preset frequency, the following will occur:

- The numeric display will show the first three digits of the primary frequency (digits before decimal) as shown in the image to the right.



First Three Digits

- After a few seconds the numeric display will change to show the last four digits of the primary frequency (digits after decimal) as shown in the image to the right.



Last Four Digits

- After a few more seconds the numeric display will change to show the tag for the primary frequency.
- When the numerical display has cycled through the primary frequency information, the display will show the same information for the secondary frequency (if a secondary frequency has been selected).
- When the numerical display has cycled through the information for both the primary and secondary frequency (if selected), the display will resume RF signal level measurement of the selected preset frequencies.



Tag Selection



NOTE

In this example, the frequency preset is 138.000 MHz, Tag 1.



NOTE

After a few seconds in the Preset Frequencies display without any action by the user, the display will revert to the Signal Level display.

Antenna Selection Alert

When the Seeker D is either removed from the Mobile Mount, turned on, or the selected preset frequency is changed to another frequency band (High to Low, Low to High), the following will occur:

- An alert is displayed that tells you which antenna should be used based on the selected preset frequency as shown in the following images.
- Attach the proper antenna and then press any button to dismiss the alert.



Attach Low Band Antenna



Attach High Band Antenna

Ambient Noise Level Measurement

This measurement is used to find ambient noise sources such as vehicle wiring, Wi-Fi access points, or cellular devices that may be emitting RF signals at the currently selected leakage frequency. This provides a useful tool for troubleshooting noise issues that may occur when the Seeker D is installed in close proximity to other devices within a vehicle.

To perform a measurement of ambient noise that does not carry the tagged signal of the CT-4, turn your Seeker D on and press the **SELECT** button repeatedly until the arrow appears under the TAG icon, as shown in the image below.

- When the Ambient Noise Level Measurement display is selected, pressing the **CHANGE** button will enable/disable the Ambient Noise Level Measurement function.
- When this display is selected, the following will occur:
 - If the Ambient Noise Level Measurement function is currently disabled, only the arrow below the TAG icon will flash as indicated by the red circle in the image to the right.



Ambient Level Measurement Disabled

- If the Ambient Noise Level Measurement function is currently enabled, the TAG icon will flash with the arrow below the icon as indicated by the red circle in the image to the right.



Ambient Level Measurement Enabled



NOTE

After a few seconds in the Ambient Noise Level Measurement display without any action by the user, the display will revert to the Signal Level display.

- When the Ambient Noise Level Measurement function is enabled, the following will occur in the Signal Level display:
 1. The bar graph will indicate the relative signal level of the ambient noise.
 2. The RF signal level of the ambient noise will be displayed numerically.



Signal Level Display



NOTE

After approximately 1 minute, the display will revert to the normal Signal Level display.

Distance Correction Adjustment



NOTE

*This feature is disabled by default at the factory. In the Seeker Setup software, the **Enable Distance Correction** checkbox must be selected and at least one distance has been configured and enabled before this feature will work.*

While testing for leaks, you may need to adjust the distance correction value to account for differences in distance between the Seeker D and the cable plant.

Use the **DISTANCE** button to display the Distance Correction mode.



NOTE

After a few seconds in the Distance Correction display without any action by the user, the display will revert to the Signal Level display.

Selecting a Distance Correction Preset

The Distance Correction display is used to select the distance correction preset used by the Seeker D. The preset distances are numbered from 1 to 8 and can be configured using the Seeker Setup software. The Seeker D is programmed at the factory with the following preset distances:

DIST #	Enabled	Distance	Units
1	YES	6	Meters
2	NO	12	
3	NO	24	
4	NO	48	
5	NO	72	
6	NO	96	
7	NO	120	
8	NO	148	



For detailed instructions on how to set the distance correction values, see the Seeker Setup Software Operation Manual.

NOTE

To select a preset frequency, turn your Seeker D on and press the **DISTANCE** button.

- When the **DISTANCE** button is selected, the distance preset will step through the enabled presets in numerical order starting at 1 and ending at 8 as indicated by the red circle in the following images.
- The distance value that corresponds to the selected distance correction preset will be displayed numerically as shown in the following images.



Preset #1



Preset #2

Speaker Volume Level

While testing for leaks, you may need to adjust the volume of the leakage tone.

- Use the **VOLUME** button to adjust the speaker volume. The bar graph will indicate the speaker volume level as shown in the image to the right.



Adjusting the Speaker Volume

To check the volume level, turn your Seeker D on and press the **VOLUME** button once.

- When the Speaker Volume Level display is selected, the Speaker icon is continuously displayed as indicated by the red circle in the following image.
- When this display is selected, the following will occur:
 1. The bar graph will indicate the speaker volume.
 2. The numerical display will continue to display the RF signal level.
- Press the **VOLUME** button again to increase the speaker volume of the leakage tone. Brief presses increase the volume to maximum and then it rolls over to the minimum volume.



Speaker Volume



NOTE

After a few seconds in the Speaker Volume Level display without any action by the user, the display will revert to the Signal Level display.



NOTE

The speaker volume does not change during adjustment, but is instead indicated by the bar graph. When leaks are found, you will hear the volume change in the leakage tone.

Saving Measurement Snapshots

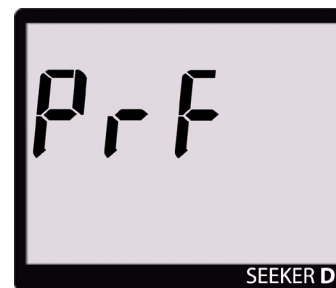
While testing for leaks, you may need to record the pre fix and post fix leakage information recorded by the Seeker. D

Use the **SNAPSHOT** button to display the Snapshot mode. The Snapshot modes will appear in the same order in which they are discussed in this section.



Pre-Fix

To record the pre-fix leakage information recorded by the Seeker, press the **SNAPSHOT** button when the following screen is displayed:



Pre-Fix Snapshot

Post-Fix

To record the post-fix leakage information recorded by the Seeker, press the **SNAPSHOT** button when the following screen is displayed:



Post-Fix Snapshot

No Snapshot

To cancel the snapshot of the information recorded by the Seeker, press the **SNAPSHOT** button when the following screen is displayed:



No Snapshot



In Snapshot Mode, the display will cycle through the screens displayed above until you make a selection. This enables you many opportunities to take a snapshot of the leakage signal.

Data Synchronization with Seeker MCA III (Optional)

If you do not have a network connection for LAW uploads when using the Seeker D with the Seeker MCA III, the data recorded in the Seeker MCA III can be synchronized with the internal memory of the Seeker D for later upload through a PC.



Data synchronization will only work when the Seeker D is in the Mobile Mount. The **SNAPSHOT button is used to record leakage information recorded by the Seeker D when it is not in the Mobile Mount.**

To synchronize the data between the Seeker MCA III and the Seeker D, press and hold the **SNAPSHOT** button until SYNC appears. While the Seeker MCA III is transferring data to the Seeker D, the screen shown in the image to the right will be displayed.



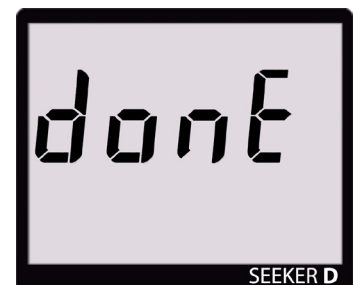
Synchronization Progress



CAUTION

The bar graph will show the progress of the data synchronization, do not remove the Seeker D from the Mobile Mount until the data synchronization is completed, otherwise data corruption will occur.

When the Seeker MCA III is done transferring data to the Seeker D, the screen shown in the image to the right will be displayed. Press any button to return to the RF Signal Measurement display.



Synchronization Done

Seeker MCA III Display Screens (Optional)

GPS Signal



NOTE

When the Mobile Mount is not connected to a Seeker MCA III, the GPS icon is not shown on the display.

When the Seeker D is placed in the Mobile Mount, the GPS icon is used to display the status of the GPS Signal as follows:

- When the GPS receiver is receiving a satellite signal, the GPS icon will be displayed constantly.
- When the GPS receiver is not receiving a satellite signal, the GPS icon will flash.



GPS Signal



NOTE

When the GPS receiver has been off or has not been able to receive a satellite signal, for more than five minutes, the device will beep twice every few seconds until the condition is corrected.



NOTE

When the GPS receiver IS NOT receiving a satellite signal, the MCA III will not record leakage data from the Seeker.

Chapter 4

Leakage Testing

This chapter:

- Discusses how to test for leaks using the Seeker D

Before You Begin Leakage Testing

- A low battery may cause the Seeker D to NOT turn on. Try charging your battery for 3 hours to see if that fixes the problem, or use the Seeker D while in the mobile mount.
- The Seeker D will retain the setup from when the meter was last shut off. For example, if you were testing frequency preset number two and then turned off your Seeker D, when you turned it back on again the meter would automatically begin testing that same preset.

Testing For Leaks



The CT-4 Digital Channel Tagger must be installed and setup within the system before testing for leaks.

NOTE

The Seeker D should be configured with the Seeker Setup software before beginning leakage testing.

1. Turn on the Seeker D

Press the red **ON/OFF** button until you hear 3 ascending tones. The Seeker D will power up in RF Level Measurement Mode.

2. Confirm the desired frequency preset (0–9) is selected

If using the Seeker D for the first time, the default frequency preset during configuration with Seeker Setup software will be selected.

If the Seeker D has been used since configuration with Seeker Setup software, the last frequency used will be selected.



For more information about using the Preset Frequency or Channel Tag features, see Chapter 3: Seeker Operation, Display Modes.

NOTE

3. Confirm the Seeker is in the RF Level Measurement mode

The Antenna icon on the display should be flashing for the RF Level Measurement mode. If necessary use the **SELECT** button to move to the Measurement mode.

4. Begin leakage testing

Move the Seeker D around the test area. If the detected leakage level exceeds the squelch level (default 2 mV/m), the Seeker D will alarm.

The frequency of the alarm tone will increase as the detected signal strength increases. Continue to move the Seeker D in the direction producing the highest tone frequency to locate the source of the leak.

5. Turn OFF the Seeker D

When testing is complete, turn off the Seeker D by holding down the red **ON/OFF** button until you hear 3 descending tones. This step is not required if you leave the Seeker D in the Mobile Mount.

Specifications

Frequency Range	Low band: 135–139 MHz High band: 610.5–615 MHz Adjustable in 12.5 kHz Steps via Seeker Setup Software
Frequency Settings	10 user-adjustable operating frequencies, selectable on front panel Set using the configuration methods listed below
Receiver Sensitivity	-115 dBmV
Calibrated Level Range	Low band: 2 to 2000 μ V/m scaled to match an analog carrier with an AFS-2/4 Handheld Dipole or AVM-3 Vehicle Mounted Whip Antenna High band: 2 to 2000 μ V/m scaled to match an analog carrier with an AFS-7 Handheld Yagi antenna OR 4 to 2000 μ V/m scaled to match an analog carrier with an AVM-4 Vehicle Mounted Colinear Array Antenna
Level Accuracy	\pm 2.0 dB
Numerical Display	Readout of any detected leakage within sensitivity range
Audible Tone	Tone is present if leakage amplitude exceeds squelch setting and digital tag is detected Pitch is proportional to strength of leak
Automatic Noise and Overbuild Discrimination	Internal circuitry discriminates between leaks and noise Overbuild discrimination provided by CT-4 channel tagger installed in hub or head-end
Power	Internal battery with eight hours of operation per charge OR Vehicle power of 12 VDC while in Mobile Mount
Configuration Method	USB connection from Leakage Detector to local PC running Seeker Setup Software OR Ethernet or Wi-Fi connection from Seeker MCA III to the LAW Server while the Leakage Detector is located in the Mobile Mount

Display Messages & Error Codes

Seeker D Error Codes

The codes shown below are displayed on the Seeker D display screen as “E##” to indicate an error with the Seeker D.



“E##” Code	Error Description	Solution
01	The checksum is not valid for this area or the calibration date for this area is not set.	If a power cycle does not fix this, return to the factory for recalibration.
02	The checksum is not valid for this area or the calibration date for this area is not set.	If a power cycle does not fix this, return to the factory for recalibration.
03	The identity voltage read does not correspond to a known configuration.	If a power cycle does not fix this, return to the factory for repair.
04	There was an error re-writing the temperature calibration trigger pattern when starting the temperature cal cycle.	If a power cycle does not fix this, return to the factory for repair.
05	An error occurred while writing values during the temperature calibration cycle.	If a power cycle does not fix this, return to the factory for repair.
06	The temperature calibration cycle has completed, but CalibrATE has not yet read and checked the results.	If a power cycle does not fix this, return to the factory for repair.
07	A problem occurred during a hot sync from an MCA back into a meter.	Try the sync process again.

“E##” Code	Error Description	Solution
08	The flash ID read did not correspond to approved devices.	If a power cycle does not fix this, return to the factory for repair.
10, 11	An error occurred during the Seeker D to MCA III auto-pairing process.	If a power cycle does not fix this, return to the factory for repair.
12	Neither the downloaded or factory “backup” copies of the FPGA images are valid.	Try downloading a current FPGA image.
13	The downloaded FPGA image is not valid. The factory “backup” copy will be used but may be an earlier version.	Try downloading a current FPGA image. This error can be dismissed by any key press.
14	Error booting the FPGA.	If a power cycle does not fix this, return to the factory for repair.
15	RF power did not turn on.	If a power cycle does not fix this, return to the factory for repair.
16	RF power did not turn off.	If a power cycle does not fix this, return to the factory for repair.
17	Error in stored unit serial number.	If a power cycle does not fix this, return to the factory for repair.
18	Low battery.	Recharge battery and retry. If the error persists, return the device to the factory to repair.
19	PLL frequency lock failed.	If a power cycle does not fix this, return to the factory for repair.
20	Error during FPGA operation.	If a power cycle does not fix this, return to the factory for repair.
21	No FPGA clock source detected	If a power cycle does not fix this, return to the factory for repair.

Seeker MCA III Error Codes (Optional)

The codes shown below are displayed on the Seeker D display screen as “CE##” to indicate an error with the optional Seeker



MCA III

“CE##” Code	Error Description	Solution
3	Factory Calibration is not valid	Return the device to the factory for repair.
4	User Parameters are not valid	Use Seeker Setup to reconfigure the device.
7	Invalid Flash ID detected	Cycle power on the unit, if the error persists return the device to the factory for repair.
8	Flash memory is Full	Use any of the means available to either erase the data, synchronize to the meter, or move the data to a valid LAW connection.
9	Flash memory write failed	If the error persists, return the device to the factory for repair.
10	Wi-Fi SPI interface failed	If the error persists, return the device to the factory for repair.
11	Wi-Fi module boot failure	If the error persists, return the device to the factory for repair.

“CE##” Code	Error Description	Solution
12	Wi-Fi band selection failure	If the error persists, return the device to the factory for repair.
15	Wi-Fi Post Failure	If the error persists, return the device to the factory for repair.
19	WiFi signal level communications failed	If the error persists, contact support as this error may require a firmware update to correct.
23	Flash memory erasure error	If the error persists, return the device to the factory for repair.
27	No data erasure command received from LAW after data upload	If this error persists, contact support to confirm that your LAW server is set up correctly.
28	Ethernet communications attempt caused an upload to be postponed. Information only, uploading was postponed due to a Seeker Setup connection attempt.	If the error persists, return the device to the factory for repair.
29	Wi-Fi Association Failed	Check the Wi-Fi information and ensure that the security keys are correct and reconfigure the device using the correct Wi-Fi settings.
30	Wi-Fi DHCP Request Failed	Verify that the Access Point has a DHCP server enabled or has a route to a network DHCP server.
31	Wi-Fi DNS request failed	Check the IP information and ensure that the DNS servers are correct and reconfigure the device using the correct Wi-Fi settings.

“CE##” Code	Error Description	Solution
32	Wi-Fi connection could not establish a network socket to the desired end point	Check to ensure that your connection settings are correct and reconfigure the device using the correct information.
33	Undefined Wi-Fi Error	Cycle power on the unit, if the error persists return the device to the factory for repair.
34	Ethernet connection could not establish a network socket to the desired end point	Check to ensure that your connection settings are correct and reconfigure the device using the correct information.
36	Ethernet DNS request failed	Check the IP information and ensure that the DNS servers are correct and reconfigure the device using the correct Ethernet settings.
37	Ethernet connection failure	If the error persists, contact support as this error may require a firmware update to correct.
38	Factory options invalid	Cycle power on the unit, if the error persists return the device to the factory for repair.
39	Unit serial number invalid	Cycle power on the unit, if the error persists return the device to the factory for repair.

Seeker MCA III Communication Messages (Optional)

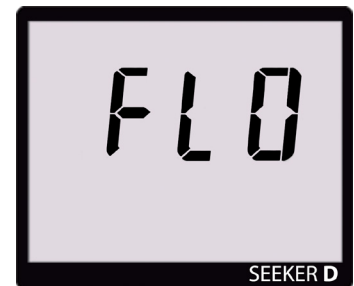
The codes shown below are displayed on the Seeker D display screen as “CA#” to indicate the communication status between the Seeker D and the optional Seeker MCA III.



“CA##” Code	Error Description
0	The Seeker D meter has successfully established a connection to an MCA.
1	The Seeker D meter is in the process of “syncing” snapshots to the MCA memory.

Memory Full Messages

The codes shown below are displayed on the Seeker D display screen as “FL#” to indicate the internal memory status of the Seeker D and the optional Seeker MCA III.



“FL##” Code	Error Description
0	MCA internal memory is full. Shows after “CA0” if there are less than 30,000 records available. This display is cleared by a button press on the Seeker D meter, which will cause a 1 hour “snooze” until the FL0 message is displayed again.
1	Seeker D internal memory is full. Shows at power-on if there is not enough room for at least an 8-hour day’s worth of data (30,000 records). Shows at sync time if there is not enough room to store the MCA III contents in the meter memory.
2	Seeker D “snapshot” memory is full - needs to be cleared with Seeker Setup or docked to transfer snapshots to an MCA III.

Bootloader Error Codes

The codes shown below are displayed on the Seeker D display screen as “bE##” to indicate an error with the Seeker D bootloader software.



“bE##” Code	Error Description	Solution
01	Loading factory backup	Continue by pressing the SELECT button.
02	Flash ID is invalid	Cycle power on the unit, if the error persists return the device to the factory for repair.
03	No application	Cycle power on the unit, if the error persists return the device to the factory for repair.
04	Failed to load application	Cycle power on the unit, if the error persists reload the application software using Seeker Setup.
05	Application failed verification	Cycle power on the unit, if the error persists reload the application software using Seeker Setup.
06	No application and battery is too low	Recharge battery and retry. If the error persists, return the device to the factory to repair.

Bootloader Messages

The codes shown below are displayed on the Seeker D display screen as “bL#” to indicate the bootloader status of the Seeker D.



“bL##” Code	Error Description
01	Erasing the application area.
02	Loading factory “backup” application.
03	Loading downloaded application.

Limited Warranty

For the latest warranty information, visit

<https://www.viavisolutions.com/literature/viavi-solutions-inc-general-terms-en.pdf>



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English

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