



A Safe Fleet Brand



SEAT MONITOR AND DATA ACQUISITION SYSTEM DATA COLLECTOR MANUAL

The SBA document set includes the following:

SBA1GD General Description

SBA1HM Hardware Manual

SBA1UG User Guide

SBA2DC Data Collector Manual

SBA2EM OEM Guide

**Data
Collector**



FIRE RESEARCH CORPORATION

www.fireresearch.com

26 Southern Blvd., Nesconset, NY 11767

TEL 631.724.8888 FAX 631.360.9727 TOLL FREE 1.800.645.0074

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Glossary of Terms

Pairing

Note: A VDR shall not be paired until the vehicle is delivered and the pairing process is carried out using the end user's copy of HAWK software.

This process establishes a permanent association between the copy of HAWK software that is loaded on the end users computer and the vehicle VDR. Stored data from the VDR can only be uploaded and saved to this copy of HAWK software.

Paired Vehicle VDR

The VDR is secured so that the program and stored data is only accessible by personnel authorized by the end user. A paired VDR has the vehicle name, vehicle identification number, and the end user's password embedded into its memory.

Unpaired Vehicle VDR

This is a new VDR that has not been associated with a copy of HAWK software. An unpaired VDR can be accessed using HAWK OEM software to upload programming.

INTRODUCTION

This Data Collector Manual includes the information needed to use the FRC Data Collector module.

Refer to the General Description (SBA1GD) for overall system information; the Hardware Manual (SBA1HM) for hardware specifications, mounting instructions, and wiring; the User Guide (SBA1UG) for HAWK software installation, set-up, and how to instructions for the data management software; the Data Collector Manual (SBA2DC) for instructions on using the FRC portable data collector; the OEM Guide (SBA2EM) for information needed by body builders, dealers, and service personnel to use the body builder/service programs in HAWK.

The standard vehicle mounted hardware for the Seat Monitor and Data Acquisition System includes the vehicle data recorder and a seat monitor display.

Overview

The Data Collector is a portable device designed specifically to collect stored data from the FRC Vehicle Data Recorders (VDR) and transfer that data to the HAWK Data Management Software. The Data Collector comes in a protective case and operates in the field from a replaceable 9 VDC battery. It connects to the computer USB port with a standard USB cable.

Features

- Collect Stored Data from Multiple Vehicles
- Built-In Wireless Transmitter and Receiver
- Simple to Use with Minimal Training Required
- Extremely Portable with a Protective Carry Case
- Menu Driven Operation

Specifications

Supply Power:

Portable Operation 9 VDC Lithium Battery

USB Port Connected USB Cable

Dimensions: 4 1/2" W 7 3/4" H 1 1/4" D

DATA COLLECTOR BASICS

The data collector is a two-way communication device that is used to transfer information between the FRC Vehicle Data Recorders (VDR) and the HAWK software.

Data Collector Controls

Scrolling Arrows

The four arrows move the screen cursor up, down, or across the screen. They are also used when making menu selections or entering numbers.

SELECT Button

Press the SELECT button to choose the highlighted item.

MENU GO BACK or MENU FORWARD

These buttons are used to move between menu screens.

ON - OFF

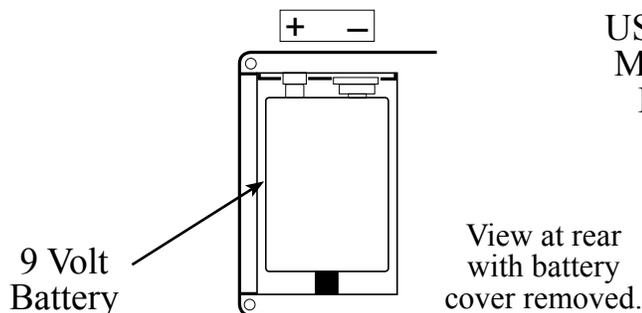
The ON - OFF button is used to power the data collector from the battery. When the data collector USB cable is connected to the computer, the data collector is powered via the computer USB port and the ON - OFF button is not used.

USB Connector

The USB 2.0 Mini-B port is located on the side of the data collector.

Battery

The 9 volt battery is located under a cover at the bottom rear of the data collector.



Data Collector

Battery Replacement

The data collector uses a 9 volt lithium battery. (A 9 volt alkaline battery may be substituted, it will have 1/3 the service life.)

1. Slide off the battery cover on the back of the module.
2. Remove the battery by lifting from the terminals end.
3. Install a fresh 9 volt battery, pay attention to the correct polarity.
4. Replace the cover.

Starting Out

Before it can be used the data collector must be initialized to the owners copy of HAWK software. This process downloads the VDR password and user names with passwords into the data collector.

The Vehicle Data Recorder Administration Password is entered during the installation of HAWK software on the computer. This password is extremely important for security of all data recorded and stored by the VDR. The password is passed to each VDR during the pairing process.

The user names and passwords are set up in each users profile. Only users that have the **Data Collector User Permission Enable** box checked on the **Users** form are passed to the data collector and make up the user login list. These users are the only personnel authorized to upload stored VDR data.

Refer to Seat Monitor and Data Acquisition System User Guide (SBA1UG) for more information.

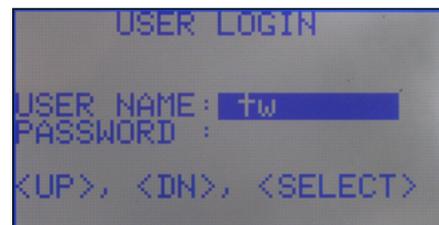
Power the data collector from the battery.

Press the ON - OFF button.

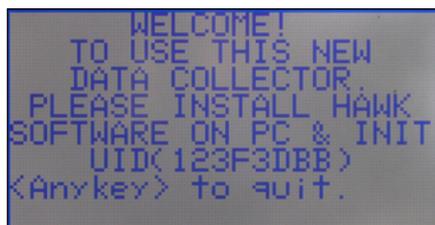
The following screen shows in the display:



If after 5 seconds the user login screen opens, the data collector is ready for use. Refer to Data Collector Wireless Operation Section.



If after 5 seconds the welcome screen opens, the data collector has not been initialized. Refer to Initializing a Data Collector.



Power the data collector from a computer. Connect the USB cable.
(Do not press the data collector ON - OFF button.)

The following screen shows:



The data collector is powered from the computer USB port and can be initialized or synchronized with HAWK to upload or download data. Refer to Data Collector and HAWK Section.

DATA COLLECTOR AND HAWK

The correct operation of the data collector is dependent on the HAWK software being installed on the users computer with all passwords and user names in place.

The data collector communicates with HAWK through one of the computer USB ports. The Data Collector Synchronization window provides the user interface.

Data Collector Tab

When the Data Collector tab is clicked on it opens the Data Collector Synchronization window. This window has three menu tabs that provide the user interface between HAWK and the data collector. Each menu is used to pass different types of information.

The data collector must be connected to the computer USB port with a standard USB cable. The data collector is powered via the USB cable, do not press the ON - OFF button. The display shows PC Connected.

(If the data collector was powered from the battery and in the wireless mode, highlight 2) Connect to PC on the main menu and press the SELECT button to change to the PC connected mode. Refer to Main Menu.)

A green check mark shows in the Data Collector Synchronization window to indicate that it the data collector is connected to the computer and recognized by HAWK.

Synchronization Tab

This tab opens a window that is used to synchronize the data collector with HAWK software. Synchronizing the data collector to upload data is the most frequently used function under the Data Collector tab. It is used every time data needs to be moved between HAWK and the data collector.

When the data collector is connected to the computer USB port a list of the vehicles that data has been collected from is uploaded to HAWK. This list is shown in table format when this window is opened. When the Sync button is pressed the data is uploaded to HAWK and new information in HAWK is downloaded to the data collector.

(Refer to Synchronize with HAWK Software.)

Pre-pairing Tab

This tab opens a form that is used to enter vehicle information for the process of pairing a VDR with HAWK software. The pairing process is done once for each VDR.

(Refer to Pairing a VDR Using a Data Collector.)

Settings Tab

This tab opens a window that is used to initialize the data collector. A data collector only needs to be initialized one time.

(Refer to Initializing a Data Collector.)

Synchronize with HAWK Software

Notes:

The data collector must be initialized before it can be synchronized with HAWK. This only needs to be done the first time the data collector is used. Refer to [Initializing a Data Collector](#).

A VDR must be paired to the owners copy of HAWK before stored data can be uploaded. This only needs to be done the first time the VDR is accessed. Refer to [Pairing a VDR Using a Data Collector](#).

The data collector needs to be synchronized with a VDR to upload the data stored in that VDR. Refer to [Collect VDR Data Using a Data Collector](#).

Synchronizing the data collector to upload data is the most frequently used function under the **Data Collector** tab. It is used every time data needs to be moved between HAWK and the data collector.

When the data collector is synchronized with HAWK collected data is uploaded into the HAWK database. If new VDR firmware has been imported into HAWK, it is downloaded to the data collector. The user login list is updated to include any new users.

1. Connect the data collector to the computer with the USB cable.
2. Open the **Data Collector** tab in HAWK.
3. Select the **Synchronization** tab.

Result: Any new data retrieved files in the data collector are listed in the table. This would include all vehicles that the data collector was synchronized with.

4. Click on the **Sync** button.

Result: The data collector and HAWK synchronize. The collected data is uploaded to the database. New and updated information is transferred between the two.

Pairing a VDR Using a Data Collector

The data collector must be synchronized with the HAWK software prior to pairing a VDR. The synchronization process downloads information from HAWK software into the data collector. This includes vehicle names and VINs, along with current user names and passwords. (Only users that have the **Data Collector User Permission Enable** box checked on the **Users** form are downloaded.) These users are the only personnel authorized to upload stored VDR data.

Once the new vehicle information from the **Pre-pairing** form is downloaded into the data collector it is used to establish communications with the vehicle data recorder.

Note: When the pairing process is complete, the VDR will be married to the vehicle. The Vehicle Identification Number (VIN) and the Unique Identity (UID) number of the VDR are recorded. Once paired a VDR cannot be used on a different vehicle.

Download Vehicle Information to the Data Collector

Note: This procedure assumes that the data collector has been initialized.

1. Connect the data collector to the computer with the USB cable.
2. Open the **Data Collector** tab in HAWK.
3. Select the **Pre-pairing** form.
4. Click on the **Add** button.
5. Enter new vehicle name and VIN.
6. Click on the **Save** button to move the vehicle name to the list for pairing.
7. Click on the **Sync** button.

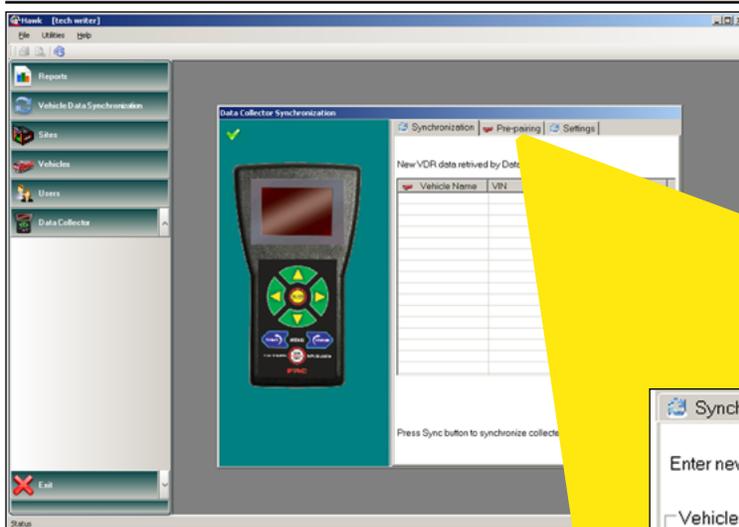
Result: HAWK and the data collector synchronize and information is transferred between the two.

The information needed to pair a VDR is now loaded in the data collector.

Click on the computer task bar button to safely remove a USB mass storage device, wait for the safe to remove message, and disconnect the USB cable.

Follow the procedures to establish communication with a new VDR using a data collector. Refer to **Pairing a VDR using a Data Collector**.

After acquiring information from the VDR, the data collector must be synchronized with HAWK software to upload the VDR information onto the owners computer. Refer to **Synchronize with HAWK Software**.



Before using the data collector to pair a VDR with HAWK, vehicle information from HAWK has to be downloaded into the data collector.

The vehicle name and VIN is entered on the data collector Pre-pairing form.

This is a close-up of the 'Pre-pairing' form. It has a title bar with 'Synchronization', 'Pre-pairing', and 'Settings' tabs. Below the title bar is the instruction: 'Enter new vehicle names and VIN to be paired by the Data Collector.' There are two input fields: 'Vehicle Name:' and 'VIN:'. Below these fields are three buttons: 'Add', 'Update', and 'Remove'. At the bottom right of the form is a 'Sync' button.

This is a close-up of the 'Pre-pairing' form with the 'Vehicle Name' field containing 't-21' and the 'VIN' field containing '987654321'. The 'Save' button is highlighted. Below the input fields is a table with columns 'Vehicle Name' and 'VIN'.

Vehicle Name	VIN

The Save button is clicked to add the vehicle name and VIN to the list for pairing.

This is a close-up of the 'Pre-pairing' form showing the vehicle information 't-21' and '987654321' added to the list. The 'Sync' button is highlighted.

Vehicle Name	VIN
t-21	987654321

The Sync button is clicked to synchronize HAWK and the data collector. Information needed to connect to the vehicle and continue the pairing process has been downloaded.

Initializing a Data Collector

The **Settings** tab is used to initialize the data collector. Before using the data collector it needs to be formatted and information from the owners copy of HAWK has to be downloaded into the data collector.

Note: The initializing process clears the data collector memory and resets it to the HAWK software that is loaded on the computer. All users and passwords are reset.

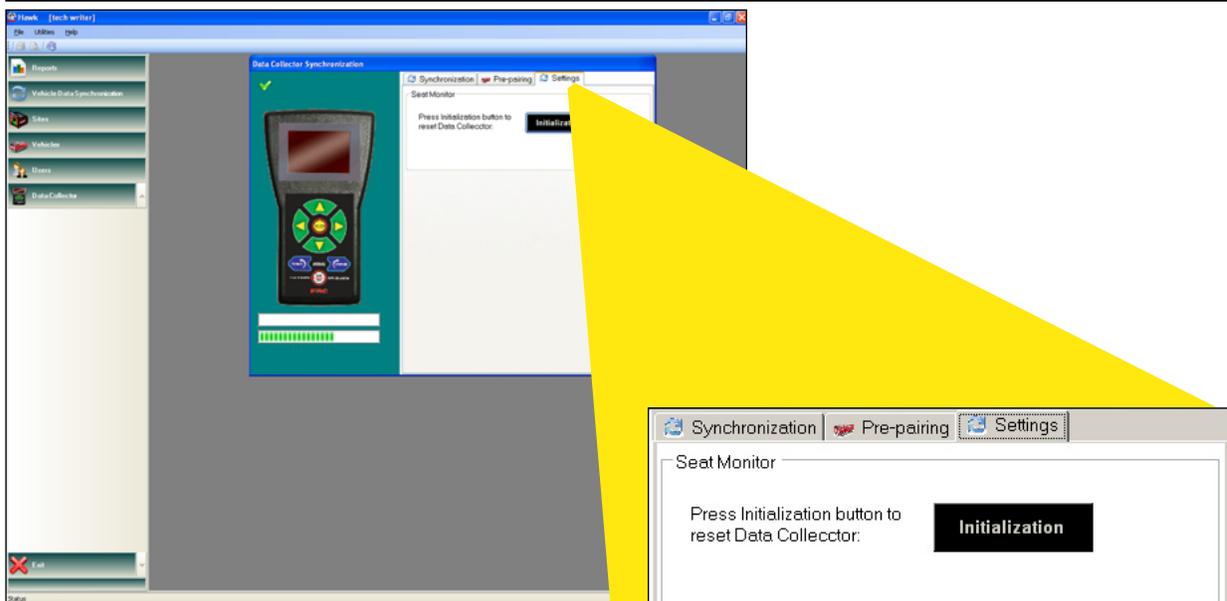
If a data collector has been in use and is re-initialized, the process does the following:

- Removes all stored data in memory.

- Removes and reloads the VDR administration password.

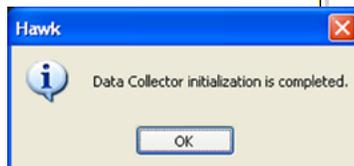
- Removes and reloads user names and passwords.

- Removes and reloads the list of paired vehicles.



The data collector is initialized to the owners copy of HAWK by clicking on the Initialization button.

This process completely resets the data collector and any data in memory is lost.



All data has been uploaded from HAWK to the data collector.

```

WELCOME!
TO USE THIS NEW
DATA COLLECTOR.
PLEASE INSTALL HAWK
SOFTWARE ON PC & INIT
UID(123F3DBB)
<Anykey> to quit.

```

If the data collector ON - OFF button is pressed to power-up and the welcome screen shows in the display, the data collector has not been initialized.

DATA COLLECTOR WIRELESS OPERATION

Notes:

The data collector has to be initialized to the same copy of HAWK that the VDR is paired with. Refer to *Initializing a Data Collector*.

If the VDR has not been paired the data collector needs to be set up for the pairing process. Refer to *Pairing a VDR Using a Data Collector*.

The data collector must be synchronized with HAWK before it can communicate with a VDR. Refer to *Synchronize with HAWK Software*.

The VDR is always powered and constantly checking for a request to connect. (This is indicated when the VDR is in sleep mode by the green **STATUS POWER LED** blinking). It may take up to 30 seconds, once the data collector starts searching for a new VDR, for a connection to be made. When the connection is made the VDR green **STATUS POWER LED** stays on and the seat monitor display comes on.

The vehicle ignition must be off to establish communications. If the ignition is turned on after the data collector is connected to the VDR, the communication link remains open as long as the vehicle is in range.

User Login

When the ON - OFF button is pressed the data collector display shows the version of software that is loaded and after 5 seconds it shows the **USER LOGIN** screen. The data collector is in the wireless mode. To gain access to the wireless menus, a user must login with the correct password.

1. Use the up and down arrow buttons to scroll through the list of user names.
2. Press the **SELECT** button.
3. Enter a password.

Use the left and right buttons to move the cursor to the position of the digit to be entered.

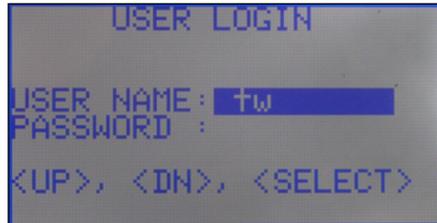
Use the up and down buttons to set the value of the digit.

4. Enter the 4-digit password for the selected user name.
5. Press the **SELECT** button.

Result: A valid password is entered for the user name the data collector display shows the main menu screen.

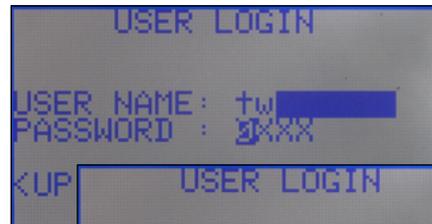
If a non-valid password is entered the display shows **UNAUTHORIZED ENTRY!**

Power the data collector from the battery by pressing the ON - OFF button. The **USER LOGIN** screen shows in the display. The data collector is in the wireless mode. If the welcome screen shows in the display, the data collector has not been initialized.



Use the up-down arrows to scroll and the **SELECT** button to choose a user name.

A user name is selected ...
... input the password.



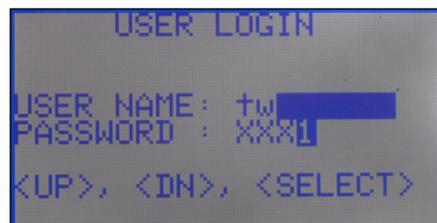
Use the up-down arrows ...
... select the correct digit.



Use the right arrow ...
... move to the next digit.

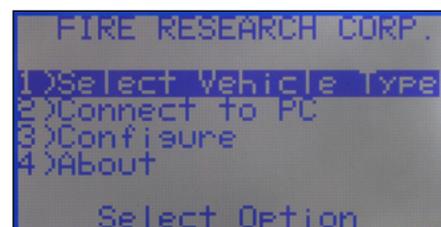


Use the up-down arrows ...
... select the correct digit.



Enter the 4-digit password and press the **SELECT** button.

The data collector main menu screen shows on the display.



Main Menu

When a user is selected and a valid password is entered, the main menu is shown on the display. Use the up and down arrow buttons to scroll menu options. Highlight a menu item and press the **SELECT** button.

There are four selections available on the main menu.

1) Select Vehicle Type

When selected, a new menu opens with two selections.

Find Paired Vehicle: Brings up a list of all the vehicles within range of the data collector that are paired to the users copy of HAWK. Refer to "Collect VDR Data Using a Data Collector."

Pair New Vehicle: Establishes the initial communication with a vehicle. Refer to "Pairing a VDR Using a Data Collector."

2) Connect to PC

The data collector operates in two modes. Which mode is determined by how the data collector is powered. In the wireless mode it is powered from the battery and in the PC connected mode it is powered from the USB port via a cable.

When operating in the wireless mode and connected to a USB port this menu selection changes to the PC connected mode and the data collector is able to communicate with HAWK. The wireless operation is shut down.

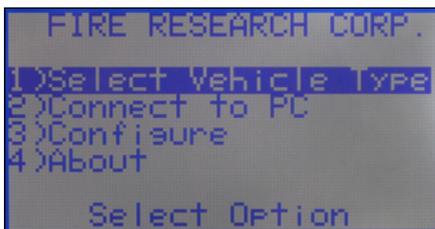
To go back into the wireless mode press the **ON - OFF** button and power the data collector from the battery.

3) Configure

This mode allows the date and time settings in the data collector to be adjusted. This date and time are for local use only and are not used for, or attached to any data moving through the data collector.

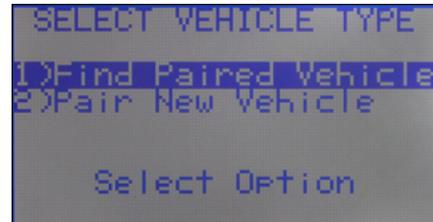
4) About

The display shows the date and time along with the UID and MAC numbers.



The main menu has four selections available.

1) Select Vehicle Type:
Used to connect via the wireless interface to vehicles with VDRs installed.



2) Connect to PC:
Used to connect via the USB cable to a computer with HAWK software installed.



3) Configure:
Used to reset the date and time for the data collector.



4) About:
Used to display the unique numbers associated with the data collector.



Collect VDR Data Using a Data Collector

Once the data collector has been synchronized with the HAWK software, a list of the authorized users and their associated passwords is stored in the data collector. Refer to Synchronize with HAWK Software.

The VDR is constantly checking for a request for a connection. (This is indicated when the VDR is in sleep mode by the green STATUS POWER LED blinking). It may take up to 30 seconds once the data collector starts searching for a VDR for a connection to be made. The vehicle ignition must be off to establish communications.

Note: Only vehicles that have been paired with the same copy of HAWK software as the data collector will respond.

Search for VDRs in Range, Establish Communication, and Collect Data

All communication is via wireless technology. The transmit/receive distance between the data collector and the VDR is greater than 100 feet with no interference.

1. Log in on the data collector to open the main menu. Refer to User Login.
2. Highlight 1) SELECT VEHICLE TYPE and press the SELECT button.

Result: The SELECT VEHICLE TYPE menu opens.

3. Highlight 1) Find Paired Vehicle and press the SELECT button.

Result: The data collector searches for all FRC VDRs in the transmit/receive range that have been paired. The green STATUS POWER LED on each VDR stays on. The PAIRED VEHICLE menu opens.

4. Highlight the vehicle name to synchronize with on the PAIRED VEHICLE menu and press the SELECT button.

Result: The VEHICLE menu opens. The VDR green STATUS POWER LED stays on. All other VDRs go into the sleep mode.

5. Highlight 1) Synchronize VDR and press the SELECT button.

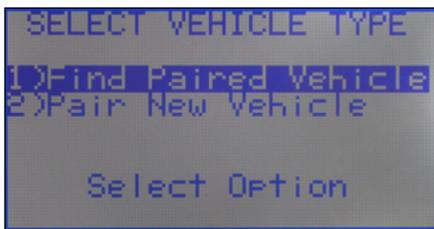
Result: The data collector synchronizes with the VDR and data is transferred.

6. Press the SELECT button when SYNC COMPLETED shows in the display.

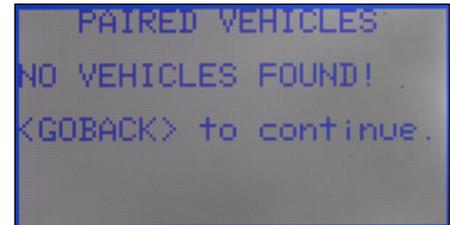
Result: The data collector returns to the SELECT VEHICLE TYPE menu. The VDR goes into the sleep mode.

7. Repeat steps 3 through 6 to collect data from each VDR.

After acquiring information from the VDR, the data collector must be synchronized with HAWK software to upload the VDR information onto the owners computer. Refer to Synchronize with HAWK Software.



The PAIRED VEHICLE menu opens.



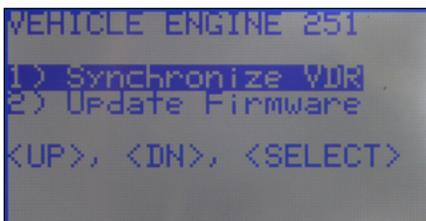
The STATUS POWER LED on the VDRs of all paired vehicles within range come on and all vehicles are listed in the PAIRED VEHICLE menu.

No paired vehicles respond to the wireless signal.

Highlight the vehicle name that is to be synchronized with the data collector.



The seat monitor display comes on and the seat belt icons flash in a green C pattern and the VDR green STATUS POWER LED stays on.



The data collector synchronizes with the VDR and data is transferred.



Repeat process for each VDR.



When the wireless disconnects, the VDR goes into sleep mode, the STATUS POWER LED blinks, and the seat monitor display is off.

Pairing a VDR Using a Data Collector

The data collector must be synchronized with the HAWK software and the new vehicle information from the Pre-pairing form downloaded prior to pairing a VDR. Refer to Pairing a VDR Using a Data Collector.

To establish the initial communications between the data collector and the VDR, the user needs to have access to the vehicle. The seat monitor display **SILENCE** button needs to be pressed to confirm the vehicle selection. The pairing procedure only needs to be done the first time that the data collector communicates with the VDR.

Establish Communication with a VDR

All communication is via wireless technology. The transmit/receive distance between the data collector and the VDR is greater than 100 feet with no interference.

1. Log in on the data collector to open the main menu. Refer to User Login.
2. Highlight 1) **SELECT VEHICLE TYPE** and press the **SELECT** button.

Result: The **SELECT VEHICLE TYPE** menu opens.

3. Highlight 1) **Pair New Vehicle** and press the **SELECT** button.

Result: The **CONNECT TO VDR** screen opens.

4. Press and hold the seat monitor display **SILENCE** button and then press the data collector **SELECT** button.

Result: The seat belt icons form an amber **C** pattern.

5. Release the **SILENCE** button.

Result: The data collector finds the VDR. The green **STATUS POWER LED** on the VDR stays on. The seat belt icons form a green **C** pattern. The **NEW VEHICLES** menu opens.

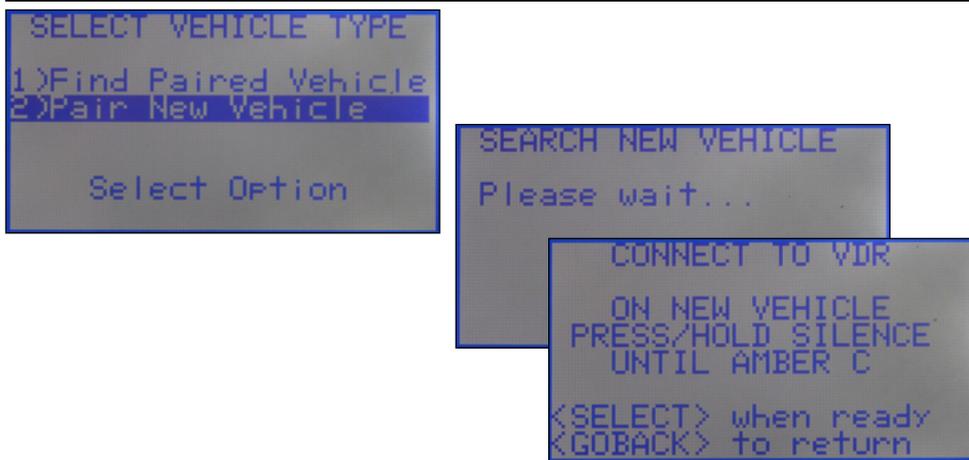
6. Highlight the vehicle that is listed and press the **SELECT** button.

Result: The data collector synchronizes with the VDR and data is transferred.

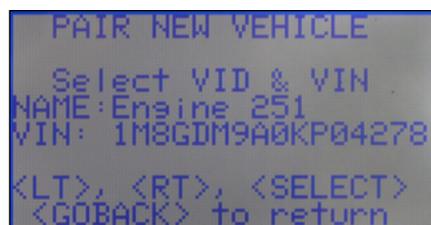
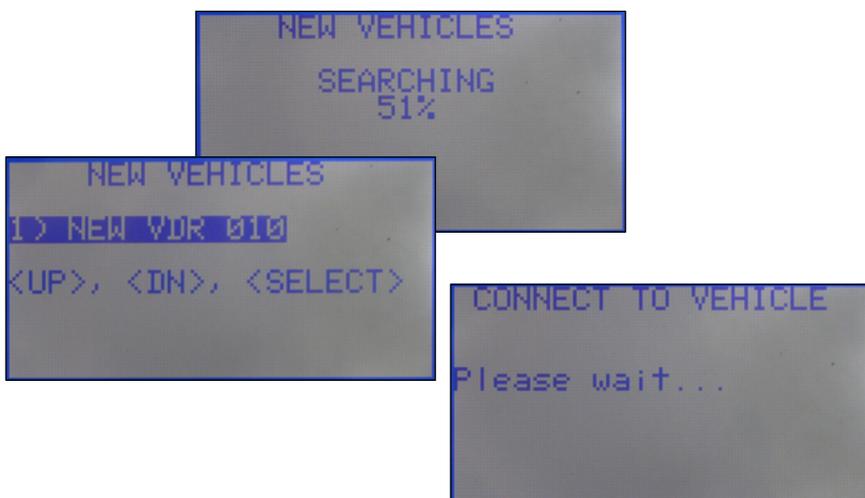
After Pairing

The data collector and the VDR are able to communicate with each other once the VDR is paired without having to press any button on the vehicle display module.

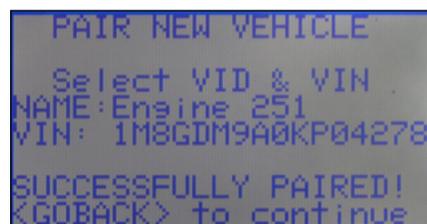
After acquiring information from the VDR, the data collector must be synchronized with HAWK software to upload the VDR information onto the owners computer. Refer to Synchronize with HAWK Software.



When pairing a vehicle, the seat monitor display SILENCE button needs to be pressed.



After the pairing process, only the authorized personnel set up with the correct permissions can use the data collector to retrieve VDR data.



Each VDR is associated with a specific vehicle. If an attempt is made to improperly swap out the VDR, HAWK software recognizes this as a mismatch.

Updating VDR Firmware

New versions of VDR firmware will be supplied to customers in the form of a custom zip file. This file has to be imported into HAWK using the Utilities menu. HAWK keeps a catalog of all VDR firmware revisions.

When the data collector is synchronized with HAWK, the new VDR firmware is downloaded into the data collector. The updated firmware is available the next time the data collector is synchronized with a VDR.

Download New Firmware

All communication is via wireless technology. The transmit/receive distance between the data collector and the VDR is greater than 100 feet with no interference.

1. Log in on the data collector to open the main menu. Refer to User Login.
2. Highlight 1) SELECT VEHICLE TYPE and press the SELECT button.

Result: The SELECT VEHICLE TYPE menu opens.

3. Highlight 1) Find Paired Vehicle and press the SELECT button.

Result: The data collector searches for all FRC VDRs in the transmit/receive range that have been paired. The green STATUS POWER LED on each VDR stays on. The PAIRED VEHICLE menu opens.

4. Highlight the vehicle name to synchronize with on the PAIRED VEHICLE menu and press the SELECT button.

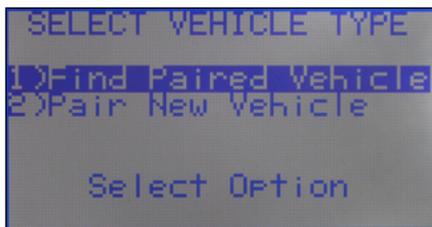
Result: The VEHICLE menu opens. The VDR green STATUS POWER LED stays on. All other VDRs go into the sleep mode.

5. Highlight 1) Update Firmware and press the SELECT button.

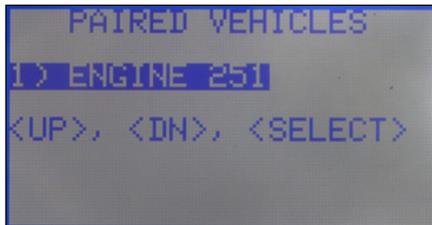
Result: The data collector synchronizes with the VDR and the SELECT VDR FIRMWARE menu opens.

6. Highlight the revision of firmware that is to be downloaded and press the SELECT button.

Result: The new firmware is downloaded to the VDR.

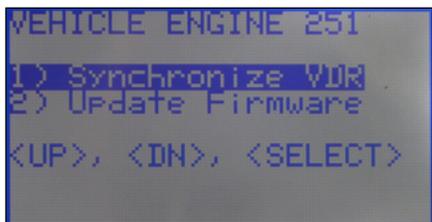


The PAIRED VEHICLE menu opens.



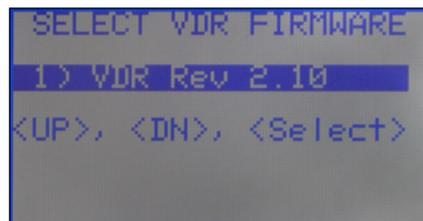
The STATUS POWER LED on the VDRs of all paired vehicles within range come on and all vehicles are listed in the PAIRED VEHICLE menu.

Highlight the vehicle name that is to be synchronized with the data collector.

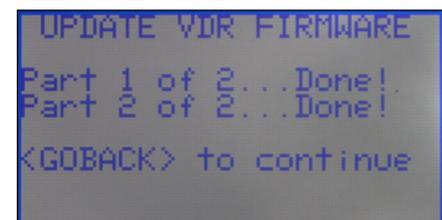
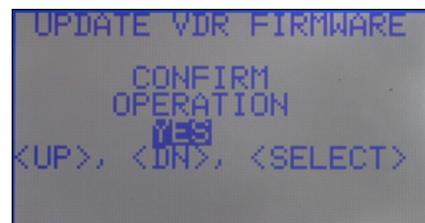


Choose to update firmware.

The firmware update can be chosen by revision number using the SELECT VDR FIRMWARE menu.



The firmware update can be transferred to the VDR using the UPDATE VDR FIRMWARE menu.





DANGER

PERSONAL RESPONSIBILITY CODE

The member companies of FEMSA that provide emergency response equipment and services want responders to know and understand the following:

1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.
2. It is your responsibility to read and understand any user's instructions, including purpose and limitations, provided with any piece of equipment you may be called upon to use.
3. It is your responsibility to know that you have been properly trained in Firefighting and/or Emergency Response and in the use, precautions, and care of any equipment you may be called upon to use.
4. It is your responsibility to be in proper physical condition and to maintain the personal skill level required to operate any equipment you may be called upon to use.
5. It is your responsibility to know that your equipment is in operable condition and has been maintained in accordance with the manufacturer's instructions.
6. Failure to follow these guidelines may result in death, burns or other severe injury.



Fire and Emergency Manufacturers and Services Association, Inc.
P.O. Box 147, Lynnfield, MA 01940 www.FEMSA.org

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