

**For the SPEEDCHECK-12/15/18****SPEEDCHECK-12****SPEEDCHECK-15/18**

85405\_GUIDE\_SpeedCheck-Manager\_RevE

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## 1.0 Software Installation

### 1.1 Introduction

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SpeedCheck Manager is designed for use with SpeedCheck devices manufactured after January of 2002. Field upgrades are available for all units manufactured before that date. The latest version of the software can be found here: [support.carmanah.com](http://support.carmanah.com). Navigate to the software section and fill out the form to download the software. The software can also be included with the install / Bluetooth dongle programming kit.

**Note before installing - previous DeviceManager or DisplayManager users:** the installer will preserve your previous data files and Scheduler settings. The installer will prompt you to make a backup copy of your files if you so desire. All files in the My Documents\SpeedCheck folder will be moved to the new directory location of:

- Windows 7, 10 & 11 – C:\Users\Public\Documents\Carmanah Technologies\SpeedCheck Manager\Data Files

The legacy Excel based TrafficAnalyzer has been replaced with a version which does not require Excel, known as SpeedCheck Traffic Analyzer. The legacy data has been saved in the Data Files folder in a folder named “Old Data Files”. SpeedCheck Manager / Traffic Analyzer must be installed with administrative privileges (right click the installer and click “run as administrator”).

#### SpeedCheck Manager/Traffic Analyzer Overview

SpeedCheck Manager – runs on a personal computer (PC) enabling the user to set up the various functions of the SpeedCheck display or flasher including event scheduling and downloading vehicle speed data. This software was previously known as DisplayManager or DeviceManager.

SpeedCheck Traffic Analyzer – runs on a PC enabling the user to process the raw data and provide visual aids for analysis of the traffic speed data gathered by the SpeedCheck display. This software was previously known as TrafficAnalyzer.

Note: Using a Palm device to program and download data: The Palm E2 and TX are not compatible with the latest firmware and software. Palm is no longer selling new PDA devices and is no longer supported by Carmanah.

#### System Requirements

- PC running Windows 7 or later
- Microsoft .NET 4.5.2 or newer. The latest version of .NET can be found here: <https://dotnet.microsoft.com/download/dotnet-framework>

### 1.2 Installation and Configuration

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1. The installer must have Administration rights to move forward with the installation.
2. Confirm you have the USB flash drive or digital download of the software.
3. Run the installer executable and follow the prompts on the screen to complete the installation.
4. Confirm you now have desktop icons for SpeedCheck Manager and SpeedCheck Traffic Analyzer.

## 2.0 SpeedCheck Manager (PC)

### 2.1 Communication

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The SpeedCheck Manager application provides communication between a Windows-based PC and SpeedCheck radar feedback/advisory signs and flashers.

SpeedCheck Manager is designed to communicate directly with a sign or flasher via Bluetooth, direct serial connection (Cable), or remotely via cellular (Network).

- A USB Bluetooth dongle is shipped with each order, which is to be used for PCs that do not have native Bluetooth radio. Some native Bluetooth modules may not be compatible with SpeedCheck Manager – in these instances use a USB Bluetooth dongle. See [Section 5.0](#).
- Serial connections require that your PC has a RS-232 serial port available. Alternatively, a serial-to-USB adapter can be used instead. The serial connection requires a custom cable that is installed into the SpeedCheck controller located inside the system.

### 2.2 Operation

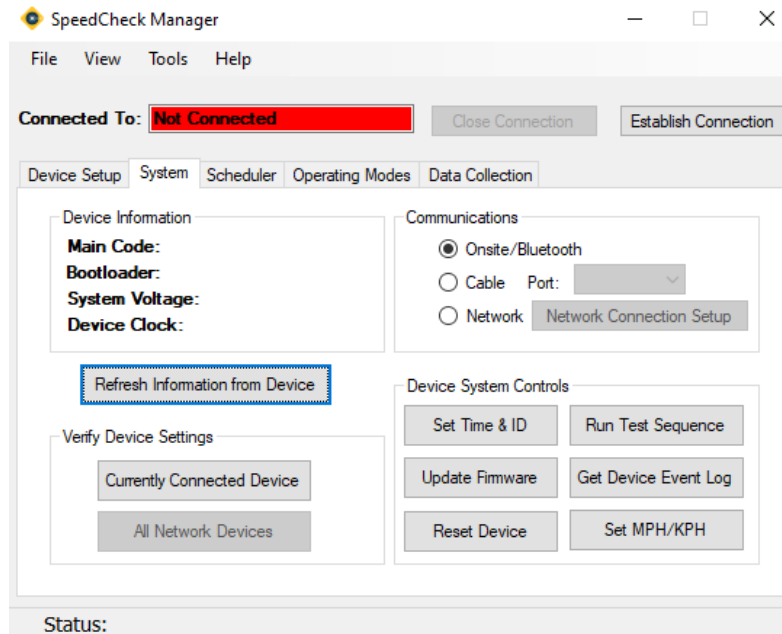
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SpeedCheck Manager allows the setting of communication and operation parameters of the SpeedCheck system. There are six basic steps in using SpeedCheck Manager:

1. Select the communication method (Bluetooth, Cable, Network).
2. Establish a connection with the system.
3. Set the system's internal clock/calendar and provide an alphanumeric name for the system (Set Time & ID).
4. Select whether one set or two sets of speed settings will be used, or if the Scheduler is to be used (Device Setup/Operating Modes/Scheduler).
5. Enter the desired parameters under Operating Modes/Scheduler based on step 4.
6. Apply the settings to program the sign.

## 2.3 System Tab

Upon starting SpeedCheck Manager the software will show the System tab below:



You will note that several tabs are displayed which allow setting of various options. Which tabs show will be based on system configuration:

- Scheduler only shows when selected as an operating mode under Device Setup, if enabled at the factory by Carmanah.
- Data Collection only shows if enabled at the factory by Carmanah.

Both Scheduler and Data Collection were optional add-ons previously and are now shipped as standard features by Carmanah starting in 2020 Q1.

The Scheduler tab allows for creating and editing schedules without being connected to a system. Schedules can then be sent to the system once a connection is established.

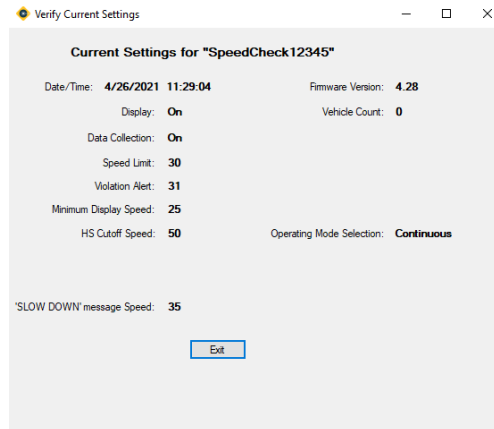
All other tabs require a connection to be established before changes can be made.

### Refresh Information From Device

Refreshes the screen for any updates to the currently connected system.

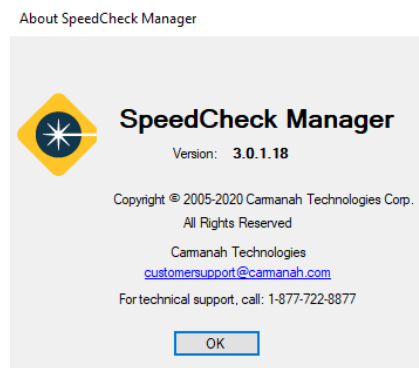
## Currently Connected Device

Provides a snapshot of the settings from the currently connected system.



## Software Version

The version number of SpeedCheck Manager can be found by click on **Help → About SpeedCheck Manager**.



## 2.4 Communications

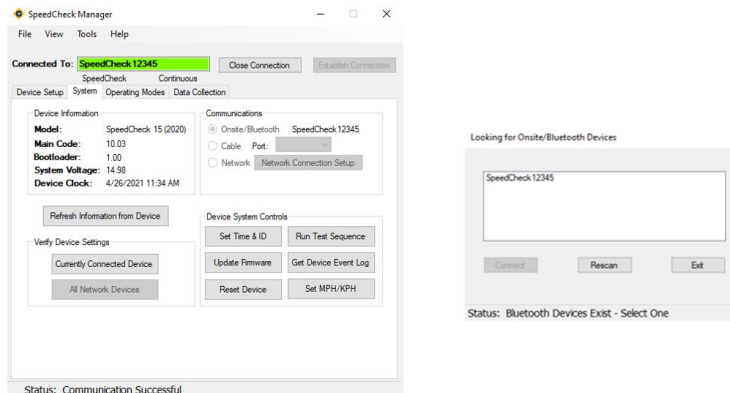
A communications method must be chosen before establishing a connection. Each communication method requires its own unique hardware setup.

- Bluetooth – Local wireless connectivity; requires a PC with internal or external Bluetooth capabilities. You must be within range (less than 100 feet, and the closer the better) of the system to send and receive data when using Bluetooth.
- Cable – Local wired connectivity; requires an RS-232 serial port connection or serial-to-USB adapter. A custom cable from Carmanah is also required to connect to the system.
- Network – Remote wireless connectivity; requires each system to have the following:
  - Cellular connectivity configured with an active cellular modem
  - Ethernet connectivity configured with a serial-to-Ethernet converter
    - See [support.carmanah.com](https://support.carmanah.com) for documentation on Ethernet connectivity
  - Internet access to connect to the system via a PC

## Bluetooth Connection Setup

The Bluetooth option allows you to scan for the system and connect to via the Establish Connection button. SpeedCheck systems by default will appear as “SpeedCheck#####” to distinguish from other Bluetooth enabled devices.

1. Insert the USB Bluetooth dongle into your PC (as required) or ensure the integrated Bluetooth is enabled.
2. Open SpeedCheck Manager.
3. Click on the Onsite/Bluetooth radio button, if it is not already selected.
4. Click on Establish Connection.
5. Bluetooth devices within range will appear in the window. Choose the correct system and click Connect.
  - a. If you don’t know which system you are connected to, click on Run Test Sequence afterwards and look at the display LEDs to verify (if applicable). SpeedCheck Manager should now reflect that it is connected to the system.
  - b. Updated programmable control boards will require pairing the Bluetooth connection. Please refer to the SpeedCheck user manual at [support.carmanah.com](http://support.carmanah.com) for more information.
6. **The default password for all systems starting 2023 Q1 is “speedcheck”.**



## Serial Connection Setup (Cable)

The wired serial option allows the system to be connected using a custom supplied cable from Carmanah. The cable features an RS-232 serial connector that plugs into a PC supporting this port. Most modern PC’s typically do not feature a serial port so a serial-to-USB adapter would be required instead.

1. Connect the serial cable to the PC.
2. Open SpeedCheck Manager.
3. Click on the Cable radio button, if it is not already selected.
4. Select the applicable available port.
5. If you are unsure which port to use, you can reference the Windows Device Manager applet to confirm which port number has been assigned by Windows.
6. Click on Establish Connection.
7. SpeedCheck Manager should now reflect that it is connected to the system.

## Remote Connection Setup (Network)

The remote connection option utilizes a cellular modem or serial-to-Ethernet converter (with Internet access) to connect to individual systems without leaving your office as if you were on site using the Bluetooth or serial option.

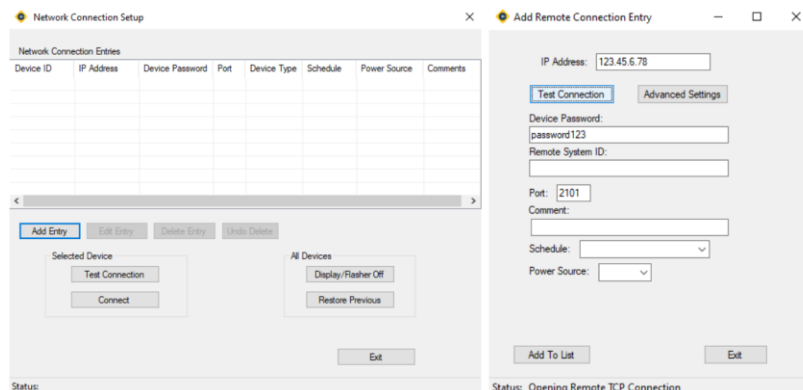
This option requires a cellular modem or serial-to-Ethernet converter installed at each system with a dedicated IP address and an Internet connection on the PC which will program the system remotely via SpeedCheck Manager. The system must be in an area with cellular coverage to send and receive data for the cellular option.

Resources required:

- SpeedCheck system
- Active cellular modem with a known dedicated IP address or DNS; or serial-to-Ethernet converter
- Windows based PC with SpeedCheck Manager and Internet connectivity

Each modem has a unique IP address. The Device ID as set in SpeedCheck Manager must also be unique and descriptive so you can identify each system.

1. The cellular modem must be activated and configured with a valid dedicated IP address. Make sure the sign is powered on for at least two minutes before trying to connect.
2. Open SpeedCheck Manager.
3. Click on the Network radio button, if it is not already selected.
4. Click on Network Connection Setup.
5. Click on Add Entry.
6. Enter the IP address of the cellular modem.
7. If a password has been established for this particular system enter the password under Device Password.
8. Click on Test Connection. A successful connection will respond with "Remote System has responded with XXXXXX (name of system)".
9. Click Add to List to add the system.
10. Repeat this process for all other cellular-based systems.



The screenshot shows two overlapping windows from the SpeedCheck Manager software.

The background window is titled "Network Connection Setup". It features a table with the following columns: Device ID, IP Address, Device Password, Port, Device Type, Schedule, Power Source, and Comments. Below the table are buttons for "Add Entry", "Edit Entry", "Delete Entry", and "Undo Delete". There are also sections for "Selected Device" (with "Test Connection" and "Connect" buttons) and "All Devices" (with "Display/Flasher Off" and "Restore Previous" buttons). A "Status:" label is at the bottom left.

The foreground window is titled "Add Remote Connection Entry". It contains the following fields and controls:
 

- IP Address: 123.45.6.78
- Buttons: "Test Connection" and "Advanced Settings"
- Device Password: password123
- Remote System ID: (empty field)
- Port: 2101
- Comment: (empty field)
- Schedule: (dropdown menu)
- Power Source: (dropdown menu)
- Buttons: "Add To List" and "Exit"
- Status: Opening Remote TCP Connection

Add, edit, or delete additional entries via the Network Connection Setup screen.





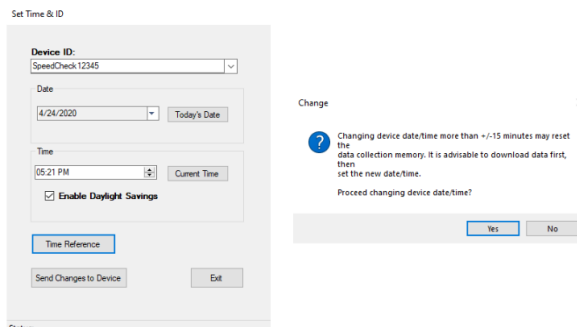
## 2.5 Device System Controls

- **Set Time & ID** – Allows you to enter a name for the sign location and set the internal date and time. The ID field allows for up to 24 alphanumeric characters. Be as specific as possible to distinguish between other signs nearby and when connecting remotely.
- **Run Test Sequence** – Initiates a display digit roll-up test (displaying in succession the numbers 01, 12, 23, 34, etc.) to test the operation, correct position, and connection of both the left and right display boards.
- **Update Firmware** – The SpeedCheck Manager comes packaged with the latest version of firmware available at the time when it is downloaded/installed. This feature allows you to update individual signs to the latest firmware version.
  - It is **not recommended** to update legacy systems running firmware version 3.47 or older to the latest firmware. A new hardware revision in 2021, known as the updated programmable control board, requires a firmware version (starting with 10.05) that is not compatible on older versions of hardware. Contact Carmanah for more information.
- **Get Device Event Log** – Opens a menu to show historical system logs.
- **Reset Device** – Performs a soft reset on the system and runs the test sequence. Wait for the system to completely reset before communicating with it. This can take up to 60 seconds.
- **Set MPH/KPH** – Used for the following scenarios:
  - Legacy programmable controller – uses current radar programming or converts the incoming data from the radar to mph or kph. This is only to be used for systems that may be inadvertently set to the incorrect unit of speed. It is recommended to leave the setting in Radar Default mode, otherwise the system may report inaccurate speeds.
  - Updated programable controller – selects the appropriate unit of speed. Choose the correct unit based on your installation location. The updated programmable controller is easily identified as they do not require coin cell batteries. See page 12 for a visual representation.

### Set Time & ID

The Set Time & ID screen allows naming of the system location (24 alphanumeric characters), and internal clock/calendar. Adjusting the time may reset the data collection memory. If data collection is enabled, it is advised to download the current data first before adjusting the system date/time. Set the Device ID string to a recognizable name such as an intersection or landmark for the installation for later identification. For example, “2<sup>nd</sup> and Main St.” or “North Park Elementary NB”.

Time Reference will only show if you have the GPS “TimeKeeper” option installed. This button performs a time reference test via the GPS which takes up to two minutes.



The screenshot shows the 'Set Time & ID' configuration window. It includes fields for 'Device ID' (set to 'SpeedCheck12345'), 'Date' (4/24/2020), and 'Time' (05:21 PM). There is a 'Current Time' button and a checked 'Enable Daylight Savings' checkbox. At the bottom are buttons for 'Time Reference', 'Send Changes to Device', and 'Exit'. A status bar at the very bottom reads 'Status:'. Overlaid on the right is a 'Change' dialog box with a question mark icon. The text in the dialog says: 'Changing device date/time more than +/-15 minutes may reset the data collection memory. It is advisable to download data first, then set the new date/time. Proceed changing device date/time?'. It has 'Yes' and 'No' buttons.

## Update Firmware

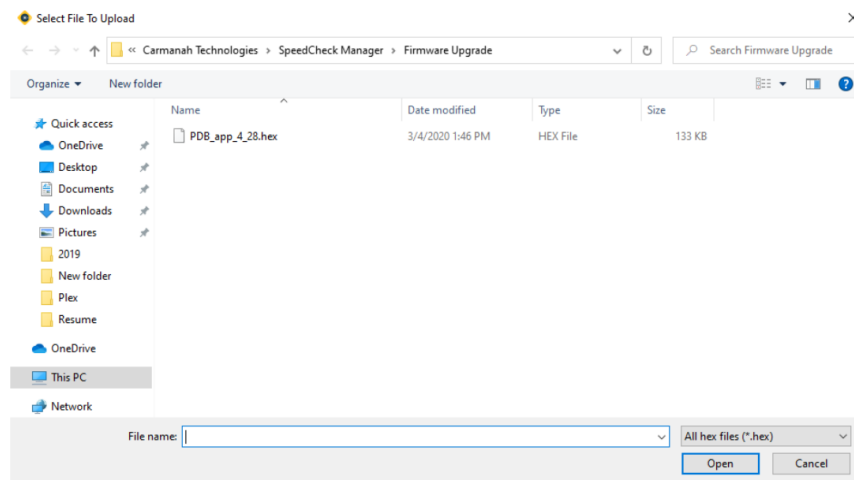
SpeedCheck Manager will automatically navigate to the folder with the latest firmware available, based on the software version. This means that newer versions of software may contain newer releases of firmware. The software looks for any .hex files available to use and will display accordingly.

Select the appropriate file and click Open and then Upload Firmware. This process can take up to 60 seconds to complete. After successfully uploading the new firmware, the sign will perform a soft reset and display roll-up. The date and time will need to be reset so it is recommended to download any radar data from the system first.

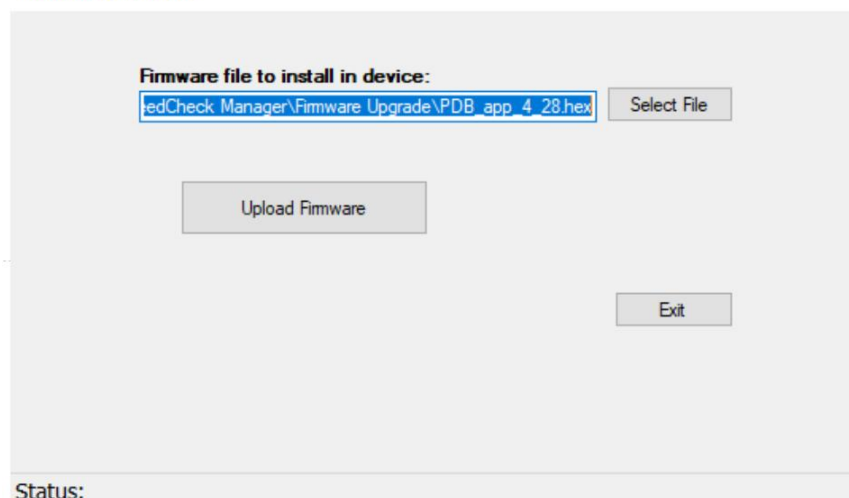
Note – if an operating schedule was active at the time of the firmware update process, that schedule will remain active. If the Scheduler feature was not in use the operating modes will remain as they were set under the Operating Modes tab prior to the firmware update.

Carmanah cannot guarantee firmware compatibility with legacy hardware. It is **not recommended** to upgrade any firmware version 3.47 or older.

Updated programmable controllers running firmware version 10.05 or newer are on a new hardware platform and are not compatible with legacy firmware versions 4.28 or older.



### Install New Firmware



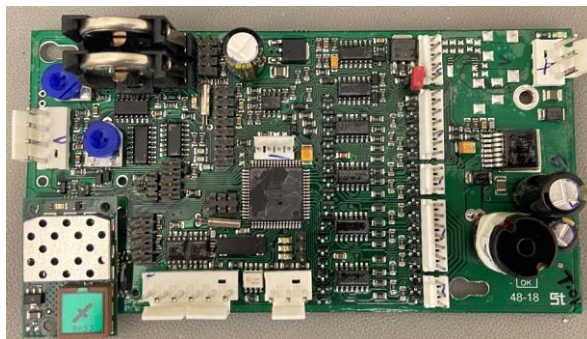
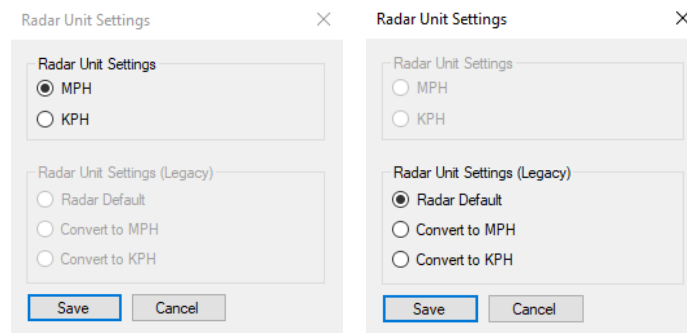
## Set MPH/KPH

SpeedCheck Manager will detect the firmware loaded into the system and restrict your options for this setting based on your hardware.

- **Updated Programmable Controller** – The controller will read back the current setting within the radar. User must select MPH or KPH under Radar Unit Settings for their application. This is normally preprogrammed based on your local requirements. This is for versions of the SpeedCheck controller that don't have coin cells but are Bluetooth programmable. Go to [support.carmanah.com](http://support.carmanah.com) for more information on the difference between controller revisions.
- **Legacy Programmable Controller** – Defaults to Radar Default. This means the controller interprets what the radar is set to already and passes this data through (no conversion is done).
  - Convert to MPH – the controller will take the data from the radar and apply a conversion to mph.
  - Convert to KPH – the controller will take the data from the radar and apply a conversion to kph.

This feature should be left in Radar Default unless the radar is inadvertently factory programmed to the incorrect unit of speed for your application. For example, if you notice that speeds are being detected at a much higher number than expected it can be assumed the radar is programmed for a kph application. Simply multiply the expected speed by 1.6 to confirm. In this example you can select **Convert to MPH** to rectify the issue.

Do not adjust this setting unless you are certain the radar is incorrectly set to the wrong unit of speed.



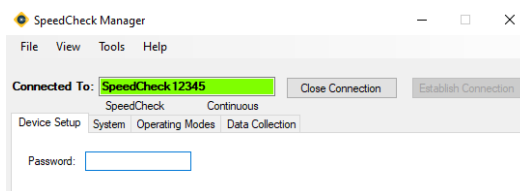
*Legacy Programmable Controller*



*Updated Programmable Controller*

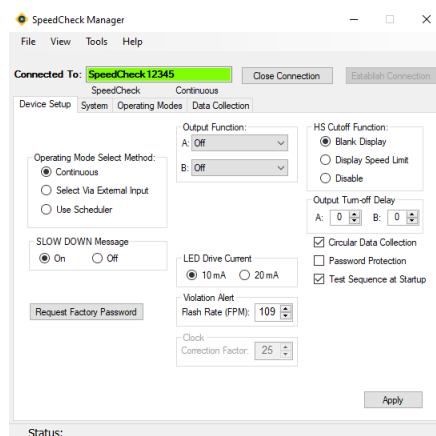
## 2.6 Device Setup Tab

The Device Setup tab is used to gain access to change the basic operating modes. The first time you access this tab after opening the software and connecting to the system will require the password “**unlock**”.



### Device Setup After Password Entered

After entering the password, you will see a screen similar to the one below. The available modes will change based on your system type and configuration.



### Operating Mode Select Method

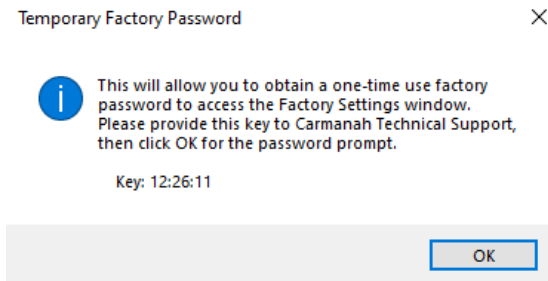
- **Continuous** – will provide one set of speeds on the Operating Modes tab to control operation of the system. The standard operating mode for most systems.
- **Select Via External Input** – will provide two sets of speeds on the Operating Modes tab to control operation of the system. One set is for normal operation and one set is for when an external input triggers the system, such as a time switch for a school zone application. **Mode 1** settings are for if the input to the system is open (not in use) and **Mode 2** settings are for if the input to the system is closed (in use). Additional hardware and cabling required for this feature. See [Section 2.7](#).
- **Use Scheduler** – this mode is used to create a schedule for when and how the system should function. Using this feature will no longer show the Operating Modes tab which will not be used for this application. Option will only be available if enabled at the factory by Carmanah. Starting 2020 Q1, this was feature was made standard on all orders at no additional charge.

### SLOW DOWN Message

- Option to turn on or off the Slow Down message after the speed limit has been exceeded. This is based on the Slow Down setting in the Scheduler or Operating Modes tab. Option will only be available if enabled at the factory by Carmanah for orders that contain LED boards with the slow down message.

## Request Factory Password

- Used to gain a one-time access into advanced factory settings. Contact Carmanah for more information. You must be on site with the six-digit date key to provide to Carmanah over the phone. This is required if you have a system with the Slow Down option installed but it is not available under the Device Setup tab.



## Output Function

- For the A and B auxiliary outputs (flashing beacons, strobe, camera).
  - Off** – will turn off the selected output.
  - Continuous** – will provide a constant 12VDC signal to the selected output when the corresponding output activation speed is reached or exceeded.
  - Flash** – will provide a 50% duty cycle 12VDC signal (0.5s on, 0.5s off) to the selected output when the corresponding output activation speed is reached or exceeded.
  - Fast** – will provide a 12VDC signal which follows the display digit flashing rate to the selected output when the corresponding output activation speed is reached or exceeded.
  - Strobe** – will provide a 12VDC pulse to activate an external strobe device when the corresponding out activation speed is reached or exceeded.

## Sync

- Used to set Output A and Output B to either alternate or sync (unison) with each other. Option will only be available if Output A and B are set to either Flash or Fast.

Output Function:
 

A: Flash

B: Flash

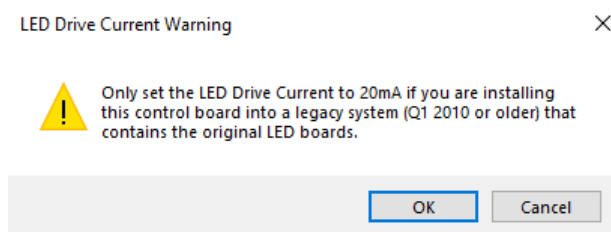
Sync
 

☐ Sync B to A
 ☒ Alt B with A

**LED Drive Current** – User-selectable LED drive current for legacy systems running original LED boards. Contact Carmanah for clarification. This needs to be adjusted only if the following conditions are met:

- SpeedCheck controller is Bluetooth capable but does not have replaceable coin cell batteries (updated programmable controller).
- Serial number of system is 14550 or lower, manufactured in April 2010 or earlier, and contains original LED display boards.

Older legacy systems that meet the conditions above should have the drive current set to 20mA. Newer systems contain more efficient LED display boards and can run at a lower intensity (10mA) to achieve the same brightness. Running the system at the wrong intensity setting result in a dimmer looking display or higher than anticipated power draw.



#### **Violation Alert – Flash Rate (FPM)**

- User selectable flash rate for the display digits. Default is set to 109 flashes per minute (fpm) which is triggered when the violation alert speed threshold has been met or exceeded. The valid range is between 30-150 fpm. The sign does not vary the flash rate as speed increases or decreases while above the violation alert speed. Requires firmware version 10.05 or later and the updated programmable control board. See [support.carmanah.com](http://support.carmanah.com) for more information on the updated programmable controller.

#### **Time Zone**

- Select your time zone. Option will only be available if the GPS TimeKeeper option was purchased. Output Function B (flashing beacon) will not be available if the GPS TimeKeeper option is enabled.

#### **Clock Correction Factor**

- The clock correction factor is used to improve the accuracy of the internal clock. Once per week, at 12:05 am on Sunday, the sign will apply this correction factor. The clock will always have some error due to temperature and other external affects. To determine the correction to apply, determine the amount of time gained or lost over the course of a week and add/subtract that amount of time to the current correction factor.

#### **HS (High Speed) Cutoff Function**

- **Blank Display** – will stop displaying speeds at or above the high speed cutoff value.
- **Display Speed Limit** – will display the speed limit at or above the high speed cutoff value.
- **Disable** – will continue display speeds up to the maximum value (99).

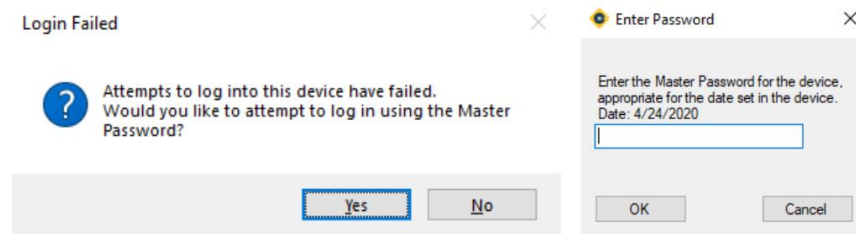
#### **Circular Data Collection**

- Prevents the data memory from filling to a point where it stops connecting data. When nearly full (98% at 240,000 data points), the circular data option overwrites the oldest data records.



## Password Protection

- Enables the ability to assign a password to the system.
- Once this setting has been enabled you will be prompted to enter your selected password. You will then require this password each time you connect to the system. A network (cellular/Ethernet) accessed system only requires the password be entered the first time a connection is made, if not entered on the Network Connection Setup screen. Passwords are case sensitive and can be up to 12 characters long, restricted to ASCII codes 0 – 127.
- If you have forgotten the system password, you can enter an incorrect value five continuous times before the option for a Master Password will become available. Contact Carmanah when on site with the date that SpeedCheck Manager gives you as per below:



You will then be required to enter a new password for the system once you have gained access using the Master Password.

## Test Sequence at Startup

- Enables the LED display rollup sequence when the sign is first powered on. This feature is helpful to confirm the LED segments are coming on properly.

Press the **Apply** button once done making all changes to send the update to the system.



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## 2.7 Operating Modes Tab

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The Operating Modes tab shows various parameters set for system operation. A connection with the system must be established to see and change the settings. Some settings are visible only if the appropriate options are selected in the Device Setup tab ([Section 2.6](#)) or factory programmed by Carmanah.

This tab will show up to two columns of parameters. If you select **Continuous** in the Device Setup tab, there will only be one column of parameters available. If **External Input** is selected, a second column of parameters will be available. **Mode 1** settings are for if the input to the system is open (not in use) and **Mode 2** settings are for if the input to the system is closed (in use). Additional hardware and cabling required for this feature. If **Scheduler** is selected, the Operating Modes tab will not be available.

The following parameters can be set from a range of 0-99 (or On/Off):

### Display

- On or off.
- For radar-based systems, off will not show speeds on the LED display boards but will still collect vehicle speed data. This feature is useful if you wish to collect vehicle speed data without drivers being aware the system is in use.

### Data Collection

- On or off.
- For radar-based systems, collects vehicle speed data.
- Must be factory enabled by Carmanah. Starting 2020 Q1 this feature was made standard on all orders at no additional charge.

### Speed Limit

- Sets the speed limit entered into the speed sample data file for later reference. This needs to be set whether data collection is used or not.

### Violation Alert Speed

- Sets the speed at which the LED display boards begin flashing to alert drivers that they are exceeding the speed limit.

### SLOW DOWN Speed

- If installed and enabled, sets the speed at which the Slow Down message is activated. If you enable this without the Slow Down option install the LED display boards will flash “88” at and above this speed.

### High Speed Cutoff

- Sets the maximum speed displayed by the LED display boards. This is recommended to be set to a low enough value above the speed limit to discourage drivers using it to detect excessive speeds.

### Minimum Display Speed

- Sets the minimum speed displayed by the LED display boards. The lowest recommended speed is 5 mph or 8 kph.

### Output A Speed

- If enabled, sets the speed at which auxiliary Output A is to provide 12VDC for external devices.
- 0 = always on, 199 = disabled.

### Output B Speed

- If enabled, sets the speed at which auxiliary Output B is to provide 12VDC for external devices.
- 0 = always on, 199 = disabled.

### Output A/B – On or Off

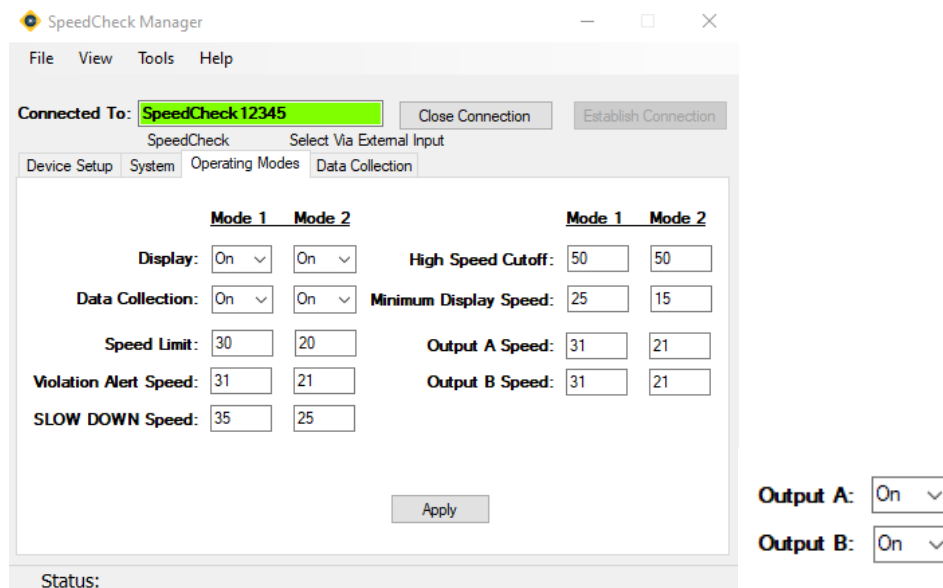
- Turns auxiliary Output A and Output B on or off.
- For flasher or strobe equipped systems only.

### Mode 1

- If enabled, these are the parameters when the **external input is not activated**.
  - For example, when using a time switch this would be the speed settings **during non-school hours**.

### Mode 2

- If enabled, these are the parameters when the **external input is activated**.
  - For example, when using a time switch this would be the speed settings **during school hours**.



The screenshot shows the SpeedCheck Manager application window. The 'Connected To' field displays 'SpeedCheck 12345'. The 'Operating Modes' tab is selected, showing a table of settings for Mode 1 and Mode 2. The settings include Display, Data Collection, Speed Limit, Violation Alert Speed, SLOW DOWN Speed, High Speed Cutoff, Minimum Display Speed, Output A Speed, and Output B Speed. The 'Apply' button is visible at the bottom of the settings table. To the right of the main window, there are two additional dropdown menus for 'Output A' and 'Output B', both set to 'On'.

	Mode 1	Mode 2		Mode 1	Mode 2
Display:	On	On	High Speed Cutoff:	50	50
Data Collection:	On	On	Minimum Display Speed:	25	15
Speed Limit:	30	20	Output A Speed:	31	21
Violation Alert Speed:	31	21	Output B Speed:	31	21
SLOW DOWN Speed:	35	25			

Output A: On

Output B: On

Press the **Apply** button once done making all changes to send the update to the system.

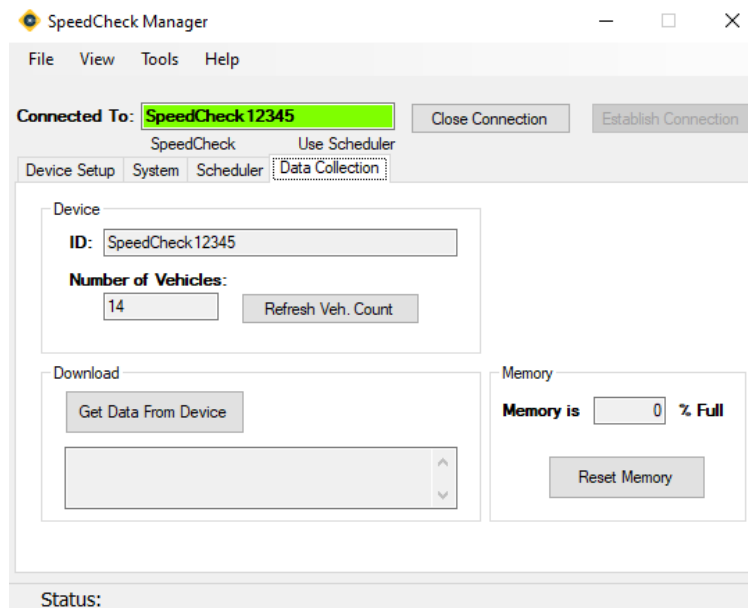
## 2.8 Data Collection Tab

The Data Collection tab allows for the following features:

- System ID naming
- Current vehicle count report
- Refresh vehicle count
  - Will update the current vehicle count since the screen was accessed
- Memory usage report
- Memory reset
- Download system data

This tab will only be available if enabled at the factory by Carmanah.

The data downloaded from the system will be able to be imported into SpeedCheck Traffic Analyzer for a more in-depth graphical analysis. See [Section 4.0](#) for more information.

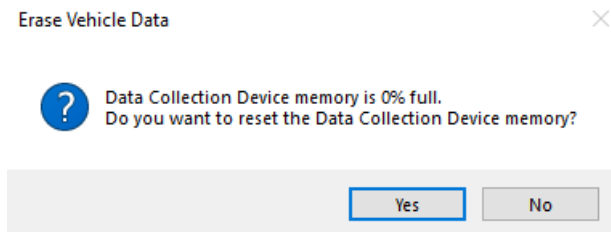


**Circular Data Collection** (see page 15), when activated, prevents the data memory from filling to a point where it stops collecting data. When nearly full (98% at 240,000 data points) the oldest data will begin to be overwritten.

## Downloading Data

The process for downloading stored speed data from a sign is the same whether your connection is via Bluetooth, serial cable, or network (cellular/Ethernet). Click on the **Data Collection** tab and then click on **Get Data From Sign**.

After the data is downloaded you will choose whether to reset your memory or not.



The data will be stored into a CSV file saved in this directory (Windows 7 and 10):

- C:\Users\Public\Documents\Carmanah Technologies\SpeedCheck Manager\Data Files

Files are automatically named and timestamped for proper identification.

## Data Accuracy

It is important to note that while using radar devices to detect vehicle speeds is very accurate, the use of this method for absolute vehicle counting is **not recommended**. This is simply due to the fact that radar detection works by the reflection of high frequency signals off of moving targets. Those targets (vehicles) each have unique size, shape, and reflection characteristics. Thus, a small car behind a truck will likely be missed in the count, and two like-sized cars travelling close together could be “dithered” – the radar cannot tell which target is measuring at that particular time. Occasional missed counts and multiple counts can result in errors in the total. However, the **speed values will remain accurate**, typically within +/- 1mph. For this reason we recommend that the speed data can be use as presented, but the vehicle counts should be considered relative in nature and should be supplemented by a hard data collection method like a road tube system if vehicle count accuracy is absolutely critical.

---

## 2.9 Scheduler Tab

---

This Scheduler tab allows for selection and editing of the following parameters:

- Operating Modes
- Daily Timetables
- Schedules
- Exceptions
- Manage Groups
- Send Schedule
- Read Schedule

Unique schedules for each system can be created, managed, and saved for future use using this tab. A nearly unlimited number of different schedules can be created in advance without being connected to a system.

This option will only be available if enabled at the factory by Carmanah and selected as the Operating Mode in the Device Setup tab. Starting 2020 Q1 this feature was made standard on all orders at no additional charge.

### **Operating Modes**

- List of speed thresholds at which various options are triggered.

### **Daily Timetables**

- Selections of Operating Modes to be used at predetermined times during the day.

### **Schedules**

- Weekly programs of Daily Timetables.

### **Exceptions**

- Used to amend schedule for holidays, special events, or a range of dates such as school closures.

### **Manage Groups**

- Allows for assigning schedules to a group of systems and sending a saved schedule to a system or a group of systems via a cellular connection.

### **Send All Schedules**

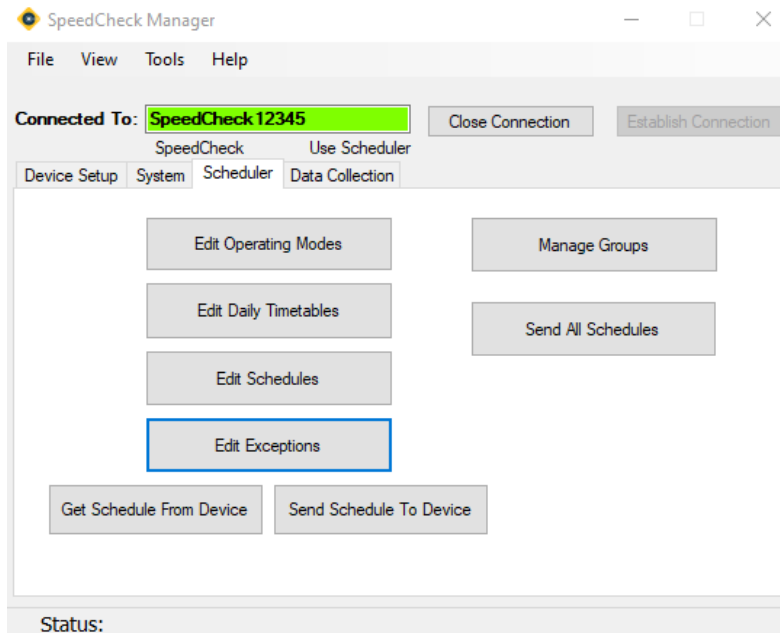
- Used to send schedules selected in Manage Groups to each system listed under the group or subgroup using that schedule.

### **Get Schedule From Sign**

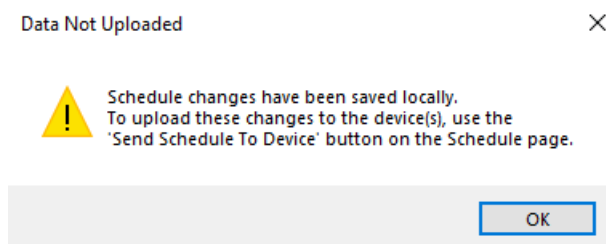
- Used to download the schedule from a system to confirm what is currently programmed. A TXT file will automatically open up with the downloaded schedule.

## Send Schedule To Sign

- Used to send a saved schedule to a system. Connect to the system and return to this screen and click on **Send Schedule To Sign** to choose the correct schedule from the list.



Making changes to the Operating Modes, Daily Timetables, or Schedules does not automatically send those saved changes to a system. After saving changes you will see a message reminding you to connect to the system and then send the changed schedule.



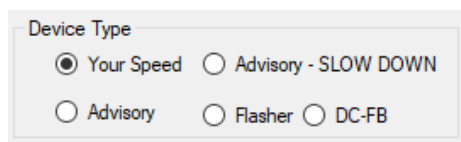
## Edit Operating Modes

You may configure nearly an unlimited number of **Operating Modes**. Each mode can be programmed with your choice of settings depending on the options purchased and selections in the Device Setup tab. Certain options not selected will have an impact on what is available to select. Click **Add Mode** to create a new operating mode.

Right-click on a mode name to rename, copy, or delete the mode. The **All Off** mode is available by default for your convenience; it cannot be renamed, copied, or deleted.

Each mode created must identify the **Device Type**:

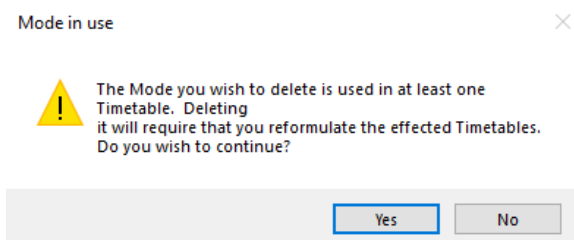
- **Your Speed**: the most common system. Displays the speed reported by the radar with an optional slow down message.
- **Advisory**: displays the speed limit as a static number (radar disabled).
- **Advisory – SLOW DOWN**: displays the speed limit as a static number with slow down message when the speed limit is exceeded (radar enabled).
- **Flasher**: flashing beacon system only (radar optional).
- **DC-FB**: Device Controller-Flashing Beacon, external time switch and flasher controller for beacons.



A dialog box titled "Device Type" with five radio button options: "Your Speed" (selected), "Advisory - SLOW DOWN", "Advisory", "Flasher", and "DC-FB".

Any selected mode can be duplicated to make entering similar modes easier. Remember to rename the duplicated mode with a unique name. Check all settings carefully.

Since Operating Modes, Timetables, and Schedules are all intertwined, deleting or renaming a mode that is used in a timetable will cause that timetable to not work.



Refer to [Section 2.7](#) for a description of the different Operating Modes parameters.

**Edit Operating Modes**

Define the various device operating configurations that you will use.

Operating Modes

- Default
- Always On 30 MPH**
- School Hrs. 15 MPH
- No School 40 MPH
- All Off

**Always On 30 MPH**

Display  
☒ On ☐ Off

Speed Limit  
Speed Limit:

Limits  
HS Cutoff:   
Min. Display:

Output Mode  
A: ON at:  MPH/KPH ☒ On ☐ Off  
B: ON at:  MPH/KPH ☒ On ☐ Off

Data Collection  
☒ On ☐ Off

Violation Alert  
Speed:

SLOWDOWN  
Speed:

Rename Duplicate

Add Delete

Device Type

☒ Your Speed ☐ Advisory - SLOW DOWN

☐ Advisory ☐ Flasher ☐ DC-FB

Save Changes

Exit

Remember, you must click the **Save Changes** button before proceeding to the next screen.

## Edit Daily Timetables

You may configure nearly an unlimited number of **Daily Timetables** based on single or multiple start and stop times. Each of the timetables can be set to a previously defined Operating Mode to control operation of the display.

Timetables should be named to make them easily identifiable. To create a new timetable, click on the **Add** button.

**Add new timetable**

Timetable names are used in the schedules. When you create a new timetable, give it a name that matches the locations, and circumstances for its use

Example: Elem - school day 15/35

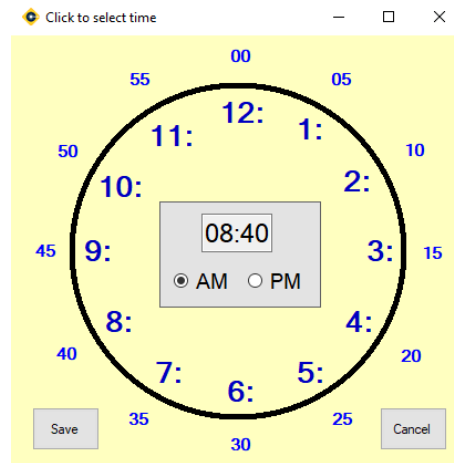
This name will remind you that this timetable is for use in elementary schools, on school days, where the normal speed limit is 35 MPH.

Note that timetable names are limited to 24 characters in length.

☐ Do not show this message again

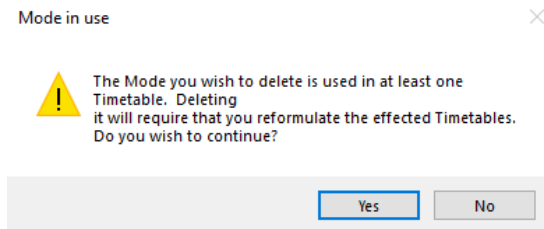
To enter or change a time, click on the Time drop-down menu and a clock window will pop up. Enter the time required, AM or PM, and click Save. The associated numbers can be clicked on or the time can be manually entered in the text box.



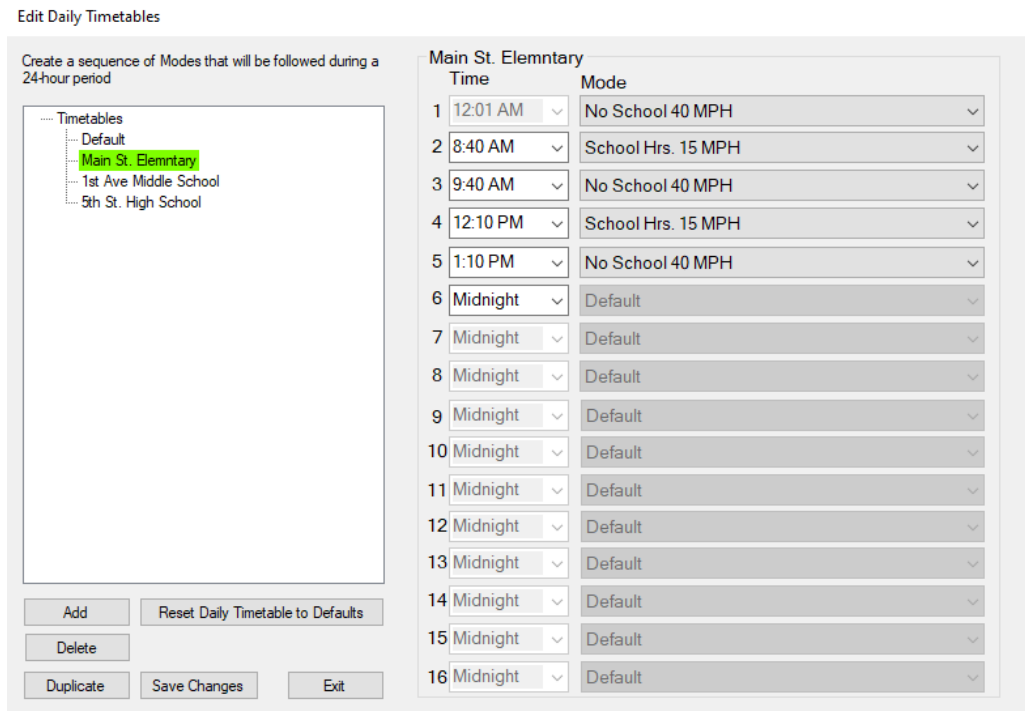


To rename, duplicate, or delete a timetable, right-click on the name or choose the menu option. The **All Off** timetable may not be renamed, copied, or deleted. Reset a selected timetable by click on the **Reset** button.

Since Operating Modes, Timetables, and Schedules are all intertwined, deleting or rename a mode that is used in a timetable will cause that timetable not to work.



These sample timetables illustrate different mode changes:



One sample would be the sign uses the following modes:

- 12:01 AM to 8:40 AM – No School 40 MPH
- 8:40 AM to 9:40 AM – School Hrs. 15 MPH
- 9:40 AM to 12:10 PM – No School 40 MPH
- 12:10 PM to 1:10 PM – School Hrs. 15 MPH
- 1:10 PM to Midnight (12:00 AM) – No School 40 MPH

This system will run the normal non-school hours settings at all times other than the specific start and dismissal time periods.

All timetables automatically start with 12:01 AM and end with midnight (12:00 AM).

Edit Daily Timetables

Create a sequence of Modes that will be followed during a 24-hour period

Timetables

- Default
- No School Day
- Main St. Elementary**
- 1st Ave Middle School
- 5th St. High School

	Time	Mode
1	12:01 AM	No School 40 MPH
2	8:40 AM	School Hrs. 15 MPH
3	9:40 AM	No School 40 MPH
4	12:10 PM	School Hrs. 15 MPH
5	1:10 PM	No School 40 MPH
6	Midnight	Default
7	Midnight	Default
8	Midnight	Default
9	Midnight	Default
10	Midnight	Default
11	Midnight	Default
12	Midnight	Default
13	Midnight	Default
14	Midnight	Default
15	Midnight	Default
16	Midnight	Default

Another sample is the sign uses the following mode:

- 12:01 AM to Midnight (12:00 AM) – No School 40 MPH

This system will run the normal non-school hours settings at all times. This can be used for a weekend, holiday, or any other non-scheduled school day. You can also restrict specific times you would not want the system (radar/beacons) to be operational on these particular days.

Remember, you must click the **Save Changes** button before proceeding to the next screen.

## Edit Schedules

You may configure nearly an unlimited number of **Schedules**, and each can be set to run any of the previously defined timetables on any of the seven days of the week. **Exceptions** are an additional way to attach non-recurring events.

Each week is identical and any of the predefined timetables may be selected to run on any day of the week.

To create a new schedule, click on the **Add Schedule** button.

Enter a name that will clearly identify the schedule you are creating as this is the name you will see when selecting a complete schedule to send to a sign. Right-click on a schedule name to rename, copy, delete, or use the menu options at the bottom of the screen.

Use the drop-down menu to choose a timetable for each day of the week. The timetable chosen for Monday automatically populates this for each weekday. You can select a different timetable for each day of the week as required. The timetable chose for Saturday will then be populated for Sunday as well.

Edit Schedules

Always On 30 MPH

Middle School 2020

**Elementary School 2020**

High School 2020

**Schedule Name**

Elementary School 2020

Assemble Daily Timetables into weekly Schedules with up to two years' worth of Exceptions for holidays and special events.

**Schedule**

**Day** **Use Daily Timetable**

Monday Main St. Elementary

Tuesday Main St. Elementary

Wednesday Main St. Elementary

Thursday Main St. Elementary

Friday Main St. Elementary

Saturday No School Day

Sunday No School Day

**Exceptions**

Date	Daily Timetable

Add

Delete

Delete Old

Rename

Add Schedule

Duplicate

Delete

Save Changes

Exit

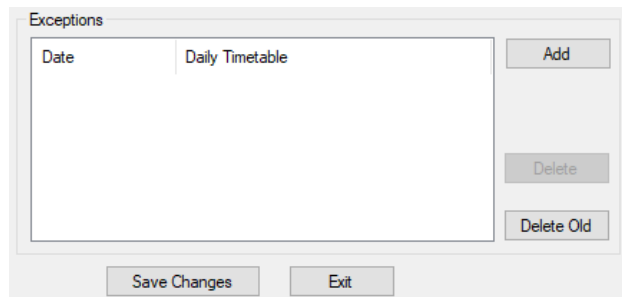
In the above sample the weekdays use the timetable Main St. Elementary and the weekend uses No School Day.

## Adding Exceptions

The **Exceptions** list is an additional way to attach non-recurring event days, such as holidays, to selected schedules using a different operating mode or timetable. Since a single exception date will likely be used in multiple schedules (i.e. Veterans Day), exception lists can be created and then added to the schedules that they apply to.

There are two ways to create or access exceptions:

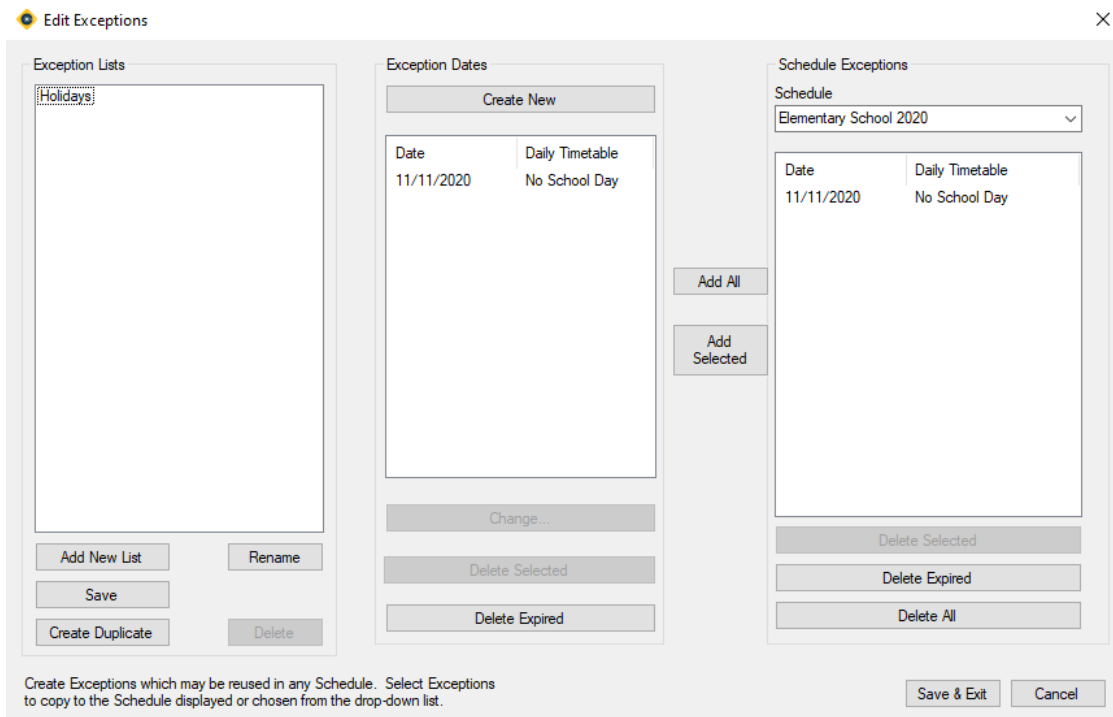
1. When creating a schedule (Edit Schedule) – click on the **Add** button in the Exceptions box. The exceptions created will apply to the current schedule.



Date	Daily Timetable

Buttons: Add, Delete, Delete Old, Save Changes, Exit

2. When creating an exception (Edit Exceptions).



**Exception Lists**

Holidays

Buttons: Add New List, Rename, Save, Create Duplicate, Delete

**Exception Dates**

Create New

Date	Daily Timetable
11/11/2020	No School Day

Buttons: Change..., Delete Selected, Delete Expired

**Schedule Exceptions**

Schedule: Elementary School 2020

Date	Daily Timetable
11/11/2020	No School Day

Buttons: Add All, Add Selected, Delete Selected, Delete Expired, Delete All

Buttons: Save & Exit, Cancel

Create Exceptions which may be reused in any Schedule. Select Exceptions to copy to the Schedule displayed or chosen from the drop-down list.

## Creating an Exception List

1. Click the **Add New List** button and name it appropriately (i.e. Holidays).
2. Click the **Create New** button and use the calendar to select your date range. Then choose a timetable from the drop-down menu.
3. Continue adding any additional dates or events as required. Additional lists can be created as well to segregate the event types. Any list can be copied to help make new lists faster to create.

**Add Exception Date**

Exception Start Date: Nov 11 2020

Exception End Date: Nov 11 2020

Use the following daily timetable:

- Default
- No School Day
- Main St. Elementary
- 1st Ave Middle School
- 5th St. High School

OK Cancel

## Add Exceptions to a Schedule

1. Select the exception date(s) you wish to add to a schedule. You can CTRL + left-click or SHIFT + left-click to select multiple dates.
2. Choose the correct schedule from the drop-down menu of available schedules.
3. Add the exceptions by using the **Add Selected** or **Add All** buttons.
4. Click **Save & Exit**.

**Edit Exceptions**

Exception Lists

- Holidays

Add New List Rename

Save

Create Duplicate Delete

Exception Dates

Create New

Date	Daily Timetable
11/11/2020	No School Day
12/19/2020	No School Day
12/20/2020	No School Day
12/21/2020	No School Day
12/22/2020	No School Day
12/23/2020	No School Day
12/24/2020	No School Day
12/25/2020	No School Day
12/26/2020	No School Day
12/27/2020	No School Day
12/28/2020	No School Day
12/29/2020	No School Day
12/30/2020	No School Day

Change... Delete Selected Delete Expired

Schedule Exceptions

Schedule: Elementary School 2020

Date	Daily Timetable
11/11/2020	No School Day
12/19/2020	No School Day
12/20/2020	No School Day
12/21/2020	No School Day
12/22/2020	No School Day
12/23/2020	No School Day
12/24/2020	No School Day
12/25/2020	No School Day
12/26/2020	No School Day
12/27/2020	No School Day
12/28/2020	No School Day
12/29/2020	No School Day
12/30/2020	No School Day
12/31/2020	No School Day

Delete Selected Delete Expired Delete All

Save & Exit Cancel

Create Exceptions which may be reused in any Schedule. Select Exceptions to copy to the Schedule displayed or chosen from the drop-down list.

**Delete Expired** will delete any exception that has expired as of the current date.

**Deleted Selected** will delete only the exceptions highlighted.

**Change** allows individual or multiple exceptions to be changed. Individual allows changes of date and daily timetable. Multiple allows only changes to the daily timetable.

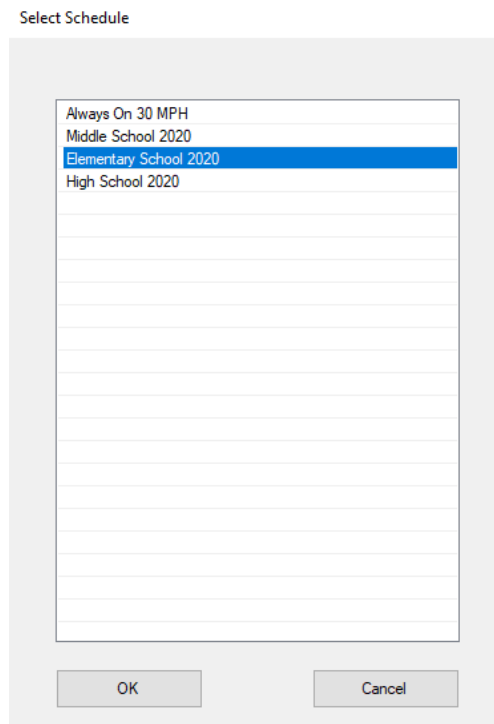
**Save & Exit** will save the schedule and exception selections you have made and return to the Scheduler tab.

The **Operating Mode**, **Timetable**, and **Schedule** selections are saved in SpeedCheck Manager for later uploading to your SpeedCheck system.

## Send Schedule To Sign

Once you have completed entering in your operating mode(s), timetable(s), schedule(s), and applicable exception(s), you are ready to upload the schedule to your SpeedCheck system.

1. Connect to the system in SpeedCheck Manager.
2. Select the Scheduler tab.
3. Selected **Send Schedule To Sign**.
4. Choose from the appropriate schedule.



Because each schedule is comprised of multiple components (operating modes, timetables, schedules, exceptions), carefully plan, name, and check each schedule before uploading to each system. Once the schedule has been sent you will see the status change at the bottom of the window. Confirm it states the schedule was sent successfully.

Status: Schedule Sent Successfully

## Get Schedule From Sign

When connected to a system operating a schedule, you can download the schedule information already loaded into the system. The downloaded schedule can be saved as a text file or webpage for future reference.

```
SpeedCheck12345 -- Downloaded Schedule

Modes:

      Name      Display      Speed      Violation      Minimum      Cutoff      Output      Output      Data      Slowdown
      No School 40 MPH      ON      40      45      5      55      OFF      OFF      ON      50
      School Hrs. 15 MPH      ON      15      17      5      35      OFF      OFF      ON      20

Timetables:

Main St. Elementary
00:01 No School 40 MPH      08:40 School Hrs. 15 MPH      09:40 No School 40 MPH      12:10 School Hrs. 15 MPH      13:10 No School 40 MPH      00:00 No School 40 MPH

No School Day
00:01 No School 40 MPH      00:00 No School 40 MPH

Schedule:

Monday: Main St. Elementary
Tuesday: Main St. Elementary
Wednesday: Main St. Elementary
Thursday: Main St. Elementary
Friday: Main St. Elementary
Saturday: No School Day
Sunday: No School Day

Exceptions:
11/11/2020 No School Day
12/21/2020 No School Day
12/22/2020 No School Day
12/23/2020 No School Day
12/24/2020 No School Day
12/25/2020 No School Day
12/26/2020 No School Day
12/27/2020 No School Day
12/28/2020 No School Day
12/29/2020 No School Day
12/30/2020 No School Day
12/31/2020 No School Day
1/1/2021 No School Day
```

## Manage Groups

The **Manage Groups** tool requires Internet access and an active cellular modem in each SpeedCheck system.

Manage Groups is used to send schedule information to multiple systems. If you have a large number of systems with the same schedule, then using this tool will save you time. Each system must first be individually set up with an IP address, device ID, current time and date, and other user defined functions. Depending on how many systems you have, it may be easier to send schedules one at a time to each system.

Before using Manage Groups you must do the following:

1. Connect to each system and then add them to the Network Connection Entry list (see [Section 2.4](#)).
2. Create modes, timetables, and schedules for the system.
3. Determine which systems can operate on the same schedule as this will become your group.

The process of Manage Groups is as follows:

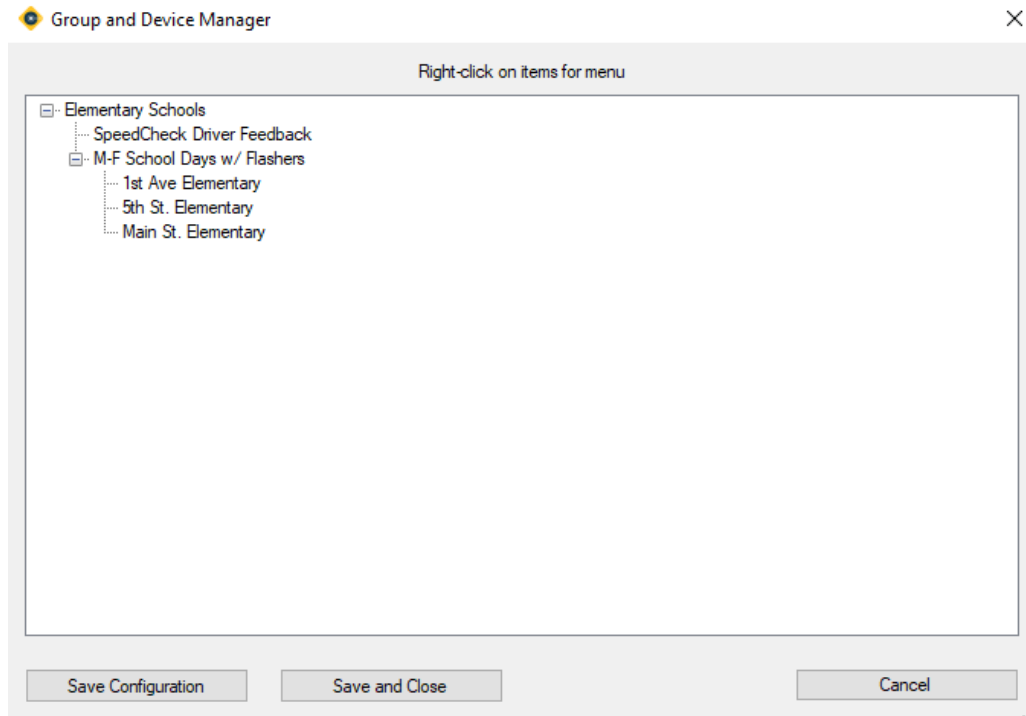
1. Delete any unused groups (i.e. flashers).
2. Create major groups by system type (right-click for menu).
3. Create sub-groups for all systems that will be using the same schedule.
4. Add the schedule which the group of systems will use.
5. Add the systems to the group.
6. Click **Send All Schedules** to send the selected schedule to all systems assigned to the group.

Clicking on Manage Groups will display the common system types as groups:

- Changeable Speed Limit (Variable Speed Limit)
- Driver Feedback (SpeedCheck, most common)
- Flashers (beacons)

Right-click on the system type that you are not using and delete. Once unused groups are deleted, right-click on the system and rename as required (i.e. School Zones). Right-click and choose **Add Group**, select the system type, then assign the group a name. The best way to organize your systems is to group all similar ones together.

Sub-groups can be used to organize systems into unique groups. All systems under a sub-group will use the same schedule.



Using schools as an example, many schools would most likely have the same school hours so they could share the same timetables. All systems in a group must use the same schedule. You can have multiple sub-groups as required that use different schedules. Rather than send schedules to signs one at a time, Manage Groups will send the selected schedule to all signs listed under that subgroup schedule.

### Send All Schedules

This command will send the schedules selected in Manage Groups to each sign listed under the group or sub-group using that schedule. Options for sending schedules are select all signs, select by schedule, or click on individual signs.

The **Send All Schedules** will automatically connect to each system and do the following:

1. Send the appropriate schedule.
2. Disconnect from the system.
3. Repeat the process for all remaining systems in the Network Connection Setup screen.

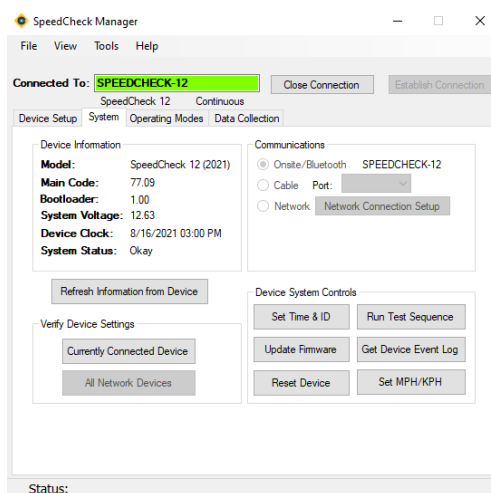
Passwords are not required for each system when using Send All Schedules, since the passwords are stored in the Network Connection Setup data.



## 3.0 SPEEDCHECK-12 Specific Features & Settings

SPEEDCHECK-12 has support for the mobile app and PC versions of SpeedCheck Manager. There are four main functions of the PC software version that are not currently supported by the mobile app:

- Changing the Operating Mode (Continuous or Scheduler)
- Creating and uploading schedules
- Retrieving vehicle speed data
- Evaluating vehicle speed data with SpeedCheck Traffic Analyzer (bundled with PC version of SpeedCheck Manager)



SpeedCheck Manager will detect when you're connected to a SPEEDCHECK-12 sign and will expose and restrict certain applicable features and settings. The primary feature additions are as follows:

- System Status (System tab)
- Strobe On/Off (Operating Modes & Scheduler tabs)
- Strobe Speed (Operating Modes & Scheduler tabs)

Other features applicable to SPEEDCHECK-15/18 systems will either be grayed out or no longer exposed when connected to a SPEEDCHECK-12 system.

### NOTE

SpeedCheck Manager (PC) version 3.0.2.3 or newer is required for operation with SPEEDCHECK-12 radar speed signs. Starting with this release all models (SPEEDCHECK-12/15/18) are supported. Download the latest version at [support.carmanah.com](https://support.carmanah.com).

### NOTE

SPEEDCHECK-12 firmware versions are different than SPEEDCHECK-15/18 and are not interchangeable.

### NOTE

SpeedCheck Manager mobile is available free of charge on the Apple App Store and Google Play Store for compatible devices.

## 4.0 SpeedCheck Traffic Analyzer

### 4.1 Introduction

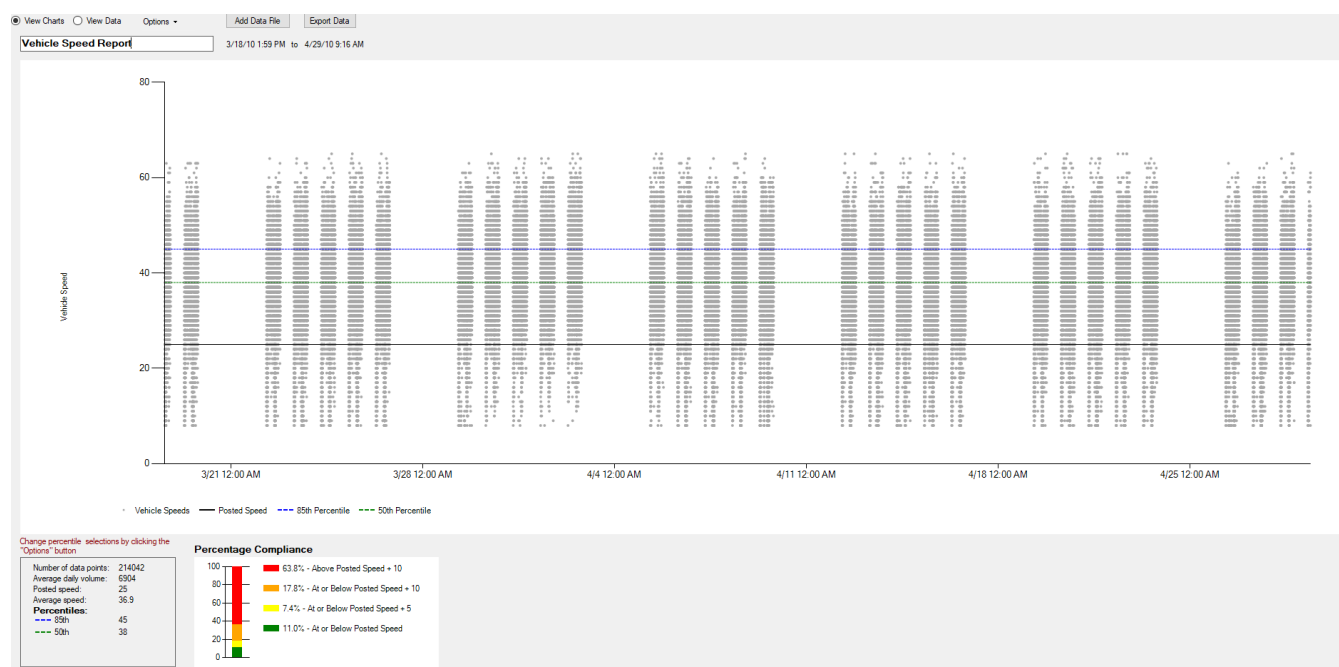
SpeedCheck Traffic Analyzer allows viewing, manipulation, charting, and printing of speed data downloaded from radar enabled SpeedCheck systems. The data is a useful tool in studying speed problems, speed reduction programs, or speed trends over time. SpeedCheck Traffic Analyzer is a standalone program that provides charting, statistical analysis, combining of data files, windowing data to particular days or hours of operation, and removal of speed data outside the areas of study.

Refer to [Section 2.8](#) to download the data for the system you are looking to analyze.

To view your data, open SpeedCheck Traffic Analyzer. Once open the application will automatically look for saved data files via SpeedCheck Manager. The directory these files are location is as follows:

- Windows 7 & 10 – C:\Users\Public\Public Documents\SpeedCheck\Data Files

Select the data file you wish to analyze and click **Open**.



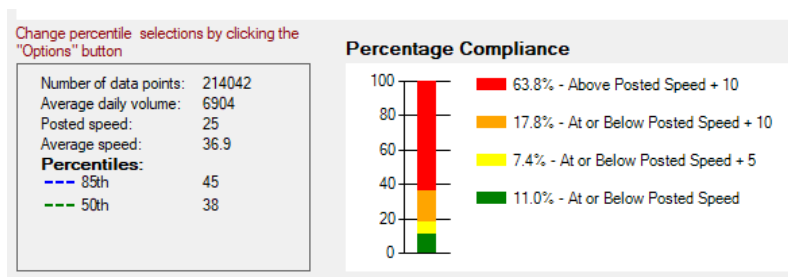
## 4.2 Operation

### Compliance

The bar chart will show vehicles that are:

- Above the posted speed limit plus excessive speeding (red bar).
- At or below posted speed limit plus excessive speeding (orange bar).
- At or below posted speed limit plus minor speeding (yellow bar).
- At or below the posted speed limit (green bar).

The posted speed limit, minor speeding, and major speeding thresholds can all be changed to suit your specific needs. This is covered in the **Chart Options** menu.



- **Number of data points** – numerical value of data points collected by SpeedCheck Manager. Refer to [Section 2.8](#) regarding data accuracy.
- **Average daily volume** – the average daily volume based on the total number of data points and database range.
- **Posted speed** – the speed limit as set in **Chart Options**.
- **Average speed** – the average speed across all data points.
- **Percentiles** – the default percentiles are 85<sup>th</sup> and 50<sup>th</sup>:
  - 85<sup>th</sup> percentile – the speed at or below which 85% of the data points collected fall under.
  - 50<sup>th</sup> percentile – the median speed; half of the data points collected are below this value and half of the data points collected are above.

### View Charts

Provides a scatter plot chart of the raw data imported from SpeedCheck Manager. The entire range of the data will be displayed initially, but this can be filtered out further under the **Options** menu to suit your specific needs.

### View Data

Provides a spreadsheet style view of the raw data imported from SpeedCheck Manager. The entire range of the data will be displayed initially, but this can be filtered out further under the **Options** menu to suit your specific needs.

## Chart Options

### Speed Axis Scale Parameters

Sets the parameters for the vertical axis of the graph. Uncheck **Use Default Scale** to input your own parameters.

### Chart Display Options

- **Chart Points** – is used to turn on or off the display of individual data points. Leaving the default setting of Chart Points unchecked results in faster screen drawing, faster viewing of only the moving average and statistical quantities without displaying the data.
- **Chart Moving Average** – is used to enable the moving average line which shows the average of the most recent data points. The number value input here will set the number of data points used for the moving average. More points will provide an average over a longer time frame, whereas fewer provides will provide a line that follows the individual data points more closely. If no number is input here, the chart will use a moving average of 10% of the displayed data.
- **Chart Posted Speed** – is used to turn on or off the display line that indicates the posted speed limit. The number value entered here sets the Posted Speed line.
- **Chart Average** – is used to turn on or off the display line that indicates the average of all of the displayed points.
- **Percentile** – is used to set the display line that indicates the percentage of all of the display points, most commonly the 85<sup>th</sup> percentile. Additional percentile lines can be added by entering the number in the spaces provided. Blank entries will not be displayed.

A moving average is an average of the preceding N-values in the data set. The default N is 50, meaning each point on the moving average line is the average of the preceding 50 points. The value of N can be changed in the Chart Options menu.

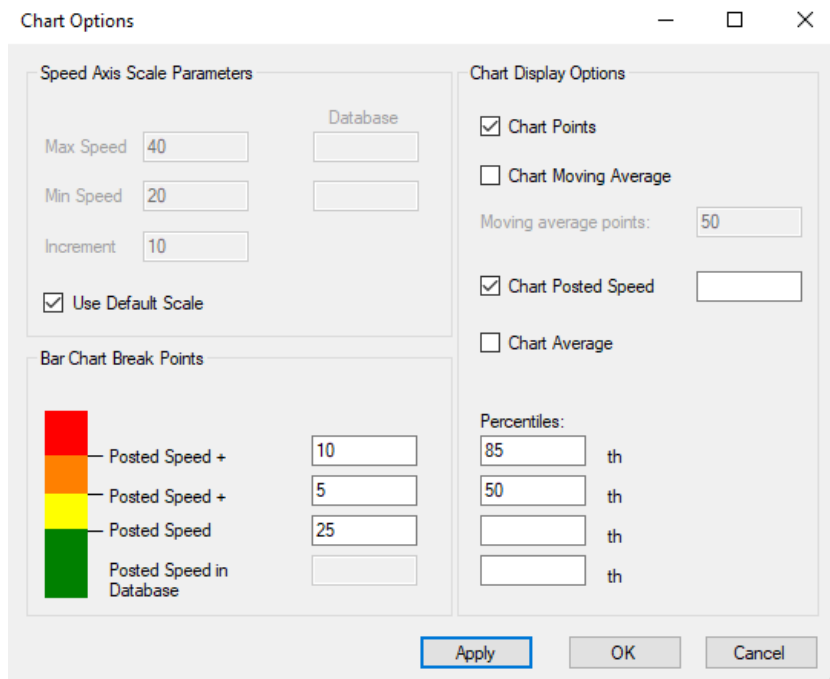


Chart Options

Speed Axis Scale Parameters

Max Speed: 40

Min Speed: 20

Increment: 10

☒ Use Default Scale

Bar Chart Break Points

Posted Speed + 10

Posted Speed + 5

Posted Speed 25

Posted Speed in Database

Chart Display Options

☒ Chart Points

☐ Chart Moving Average

Moving average points: 50

☒ Chart Posted Speed

☐ Chart Average

Percentiles:

85 th

50 th

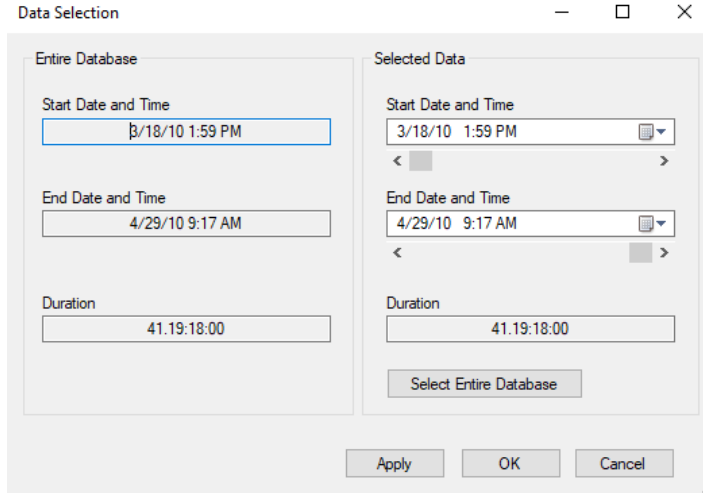
th

th

Apply OK Cancel

## Data Selection

The **Data Selection** menu allows you to change the data start and end points. The dates and times can be adjusted to suit your specific needs.



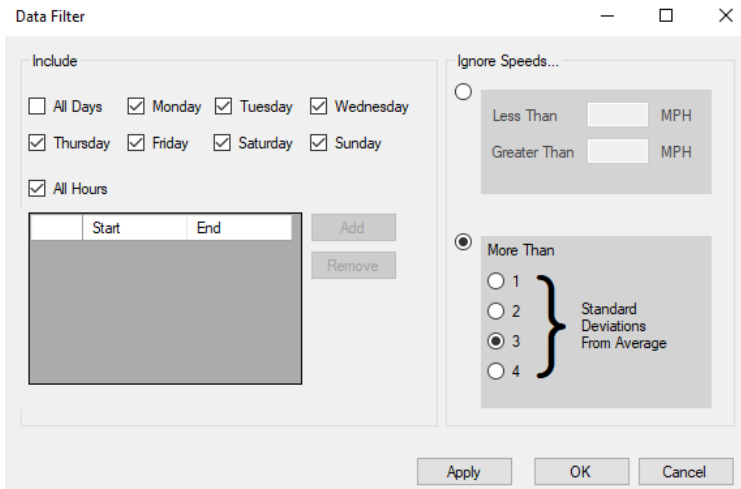
The **Data Selection** dialog box is divided into two main sections: **Entire Database** and **Selected Data**. Both sections have fields for **Start Date and Time**, **End Date and Time**, and **Duration**. The **Entire Database** section shows a start time of 3/18/10 1:59 PM, an end time of 4/29/10 9:17 AM, and a duration of 41.19:18:00. The **Selected Data** section shows the same start and end times but with a dropdown arrow next to each, and the same duration. A **Select Entire Database** button is located below the **Selected Data** section. At the bottom of the dialog are **Apply**, **OK**, and **Cancel** buttons.

## Data Filter

The **Data Filter** menu allows you to use the data filtering and windowing options. You may select which days of the week to include in the analysis and which hours of the day to include. Optionally you may exclude speeds greater than or less than specific thresholds outside your range of interest or exclude speeds that are more than one to four standard deviations from the average. The default setting is to remove data points greater than three standard deviations from the mean.

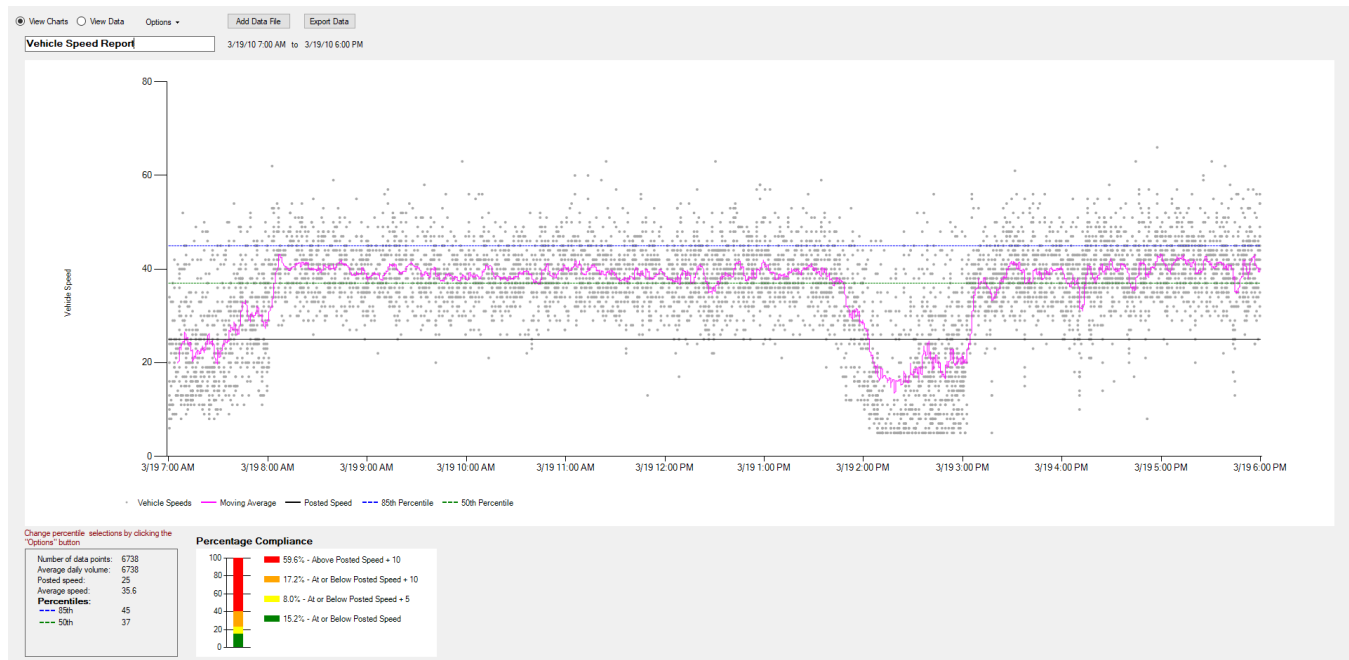
Standard deviation is a statistical term that indicates variability from an average (mean) data level in a particular data set. Assuming the data conforms to a bell curve distribution, below is the breakdown of the coverage:

- One standard deviation on each side of the average will include 68% of all data in the set.
- Two standard deviations on each side of the average will include 95% of all data in the set.
- Three standard deviations on each side of the average will include 99.6% of all data in the set.
- Four standard deviations on each side of the average will include 99.8% of all data in the set.



The **Data Filter** dialog box has two main sections: **Include** and **Ignore Speeds...**. The **Include** section has checkboxes for **All Days**, **Monday**, **Tuesday**, **Wednesday**, **Thursday**, **Friday**, **Saturday**, **Sunday**, and **All Hours**. Below these is a table with **Start** and **End** columns and **Add** and **Remove** buttons. The **Ignore Speeds...** section has two radio buttons: **Less Than** and **More Than**. The **Less Than** option has two input fields for **Less Than** and **Greater Than** in **MPH**. The **More Than** option has four radio buttons for **1**, **2**, **3**, and **4** standard deviations from the average, with a bracket indicating they are **Standard Deviations From Average**. At the bottom are **Apply**, **OK**, and **Cancel** buttons.

## Sample Filtered Data



## Add Data File

This will allow you to merge additional data sets into one complete report. You will have three choices on how the data gets merged in the case of duplicated data (data points with same timestamp recording the same speed)

Merging Data...

Some of the dates in the selected data file overlap with data that is already loaded. How would you like to handle the overlapping data?

☒ Use existing data for overlap period  
☐ Use imported data for overlap period  
☐ Use overlap data from both files

OK Cancel

## Export Data

This will allow you to export the data (all data or filtered data) into a CSV file. You can also export the current View Chart view into a PDF file under **File → Export to PDF**.

Exporting Data...

You can export all of the data points loaded into this program or you can export the data with the filters applied. Which data set would you like to export?

☐ Export all data to CSV  
☒ Export filtered data to CSV

OK Cancel

## 5.0 Troubleshooting

Refer to the SpeedCheck user manual found at [support.carmanah.com](http://support.carmanah.com) for more information.

## 6.0 File Names

Software and firmware files used by SpeedCheck Manager include the following:

- SpeedCheck<xxxx>.hex is the SpeedCheck firmware program that resides in the display sign, controlling all functions of the system and any options purchased with it. The SpeedCheck product can be updated with this firmware file through SpeedCheck Manager (see [Section 2.5](#)).
- <sign\_name> <mm-dd-yy> <hh:mm>.csv is the SpeedCheck vehicle speed data file as it appears on your PC after downloading. This file will be saved in:
  - Windows 7, 10 & 11 – C:\Users\Public\Documents\Carmanah Technologies\SpeedCheck Manager\Data Files

The data file name will have a trailing two-digit file number representing the time of day the data files was downloaded. For example, "Fifth & Main Sep-26-08 15;44.csv".



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