# SmartSensor HD

USER QUICK-REFERENCE GUIDE

1 Install the SmartSensor Manager HD (SSMHD) software

1 Download the setup program from the Wavetronix website, www.wavetronix.com. Go to the **Support** tab, click the **SmartSensor** product line icon, then use the drop-down menu to select **SmartSensor HD**. Click the **SmartSensor Manager HD** link to download the setup file.

2 Once it's downloaded, open the file and follow the steps included in the install wizard.

2 Make a connection

1 Make a connection between your computer and the sensor. This can be done with a Click wired or wireless communication module; this module must be mounted on the same T-bus as the Click 200.

2 Select **Communication** on the SSMHD main menu.

3 Select the type of connection you want to make (serial, modem, or Internet; virtual is for testing and training purposes).

4 Change any necessary settings, such as connection port or speed.

5 Click **Connect**.
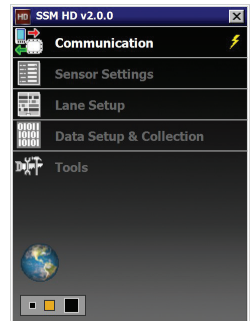
3 Enter the sensor settings

Select **Sensor Settings** on the SSMHD main menu and edit the following in the **General** tab (if necessary):

- **Subnet –** For creating groups of sensors
- **ID –** Change this only if it's the same as another sensor's on the network
- **Description/Location –** Can be added to help you identify the sensor
- **Orientation –** Indicates the direction the sensor is pointing; helps you identify it
- **RF Channel –** Changing this prevents radars from interfering if sensors face each other
- **Units –** Lets you choose English or metric
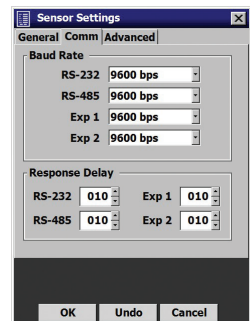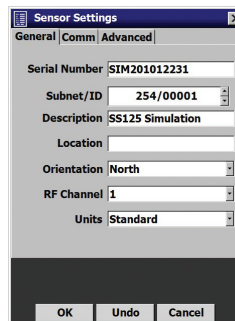
Edit the following in the **Comm** tab (if necessary):

- **Baud rate –** Changes the baud rate of each communication port
- **Response delay –** Sets how long sensor waits before responding to a message

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4 Complete sensor alignment

1 Select **Lane Setup** from the main menu, then **1. Sensor Alignment**.

2 Adjust the sensor according to the arrow. A green arrow means the sensor is positioned for optimal performance; a yellow or red arrow means the sensor is NOT correctly aligned with the roadway. For audio verification, check the **Sound** box.

3 If needed, tighten the sensor mount's strap screws the rest of the way.

In order for the tool to function properly, traffic must be flowing freely. Also, if the sensor is not already aligned close to perpendicular to traffic, this tool will display a message indicating that the sensor is too far out of alignment for the tool to function properly.

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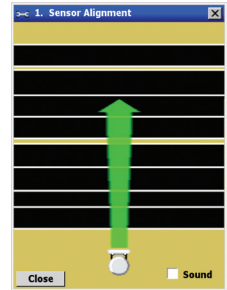
5 Configure and verify lanes

Automatic Configuration
Follow the steps below to automatically configure the SmartSensor HD:

1 Select **Lane Setup** from the main menu, then **2. Lane Configuration**.

2 In the Lane Configuration window, click the **Tools** icon and select **Clear Edit Area**.

3 Click the **Tools** icon again and then click **Restart Auto Cfg**.

Manual Configuration
The tools on the Lane Configuration window (as mentioned above, select **Lane Setup** from the main menu, then **2. Lane Configuration**) can help you manually set lanes and adjust lane setup.

- **Sidebar Display –** Sets what the sidebars display: automatically configured lanes, lanes saved on the sensor, distances to each lane, relative occurrence of events or a track for each detected vehicle.
- **Vehicle Display –** Sets how vehicles are drawn and what is displayed on them. If set to display by class, the vehicles show a bin number (see Bin Definitions in Part 6).
- **Tools –** Allows you to save and load configurations and to reboot the sensor.
- **Magnifying Glass –** Lets you show or hide automatically configured lanes, lane names, lane direction and/or a compass.
- **Shoulder Area –** Clicking in the shoulder lets you add or exclude lanes and/or the shoulder.
- **Lane Window –** Clicking on a lane lets you change information about it.

To save the settings you just changed, click the **OK** button.

Verify Lanes
To verify the lanes were configured properly, close the **Lane Configuration** screen and click **3. Lane Verification**. Like the Lane Configuration screen, this screen contains the **Sidebar** and **Vehicle Display** tools, plus these two additional tools:

- **Play/Pause/Stop Buttons –** Allow you to control the data display and whether passing vehicles are being included in the counts.
- **Lane Adjustment –** Clicking inside a lane allows you to adjust lane volume, detection, speed, length or extension time.
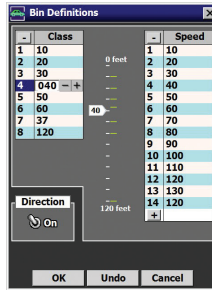
6 Set up data collection

The Data Setup & Collection link on the SSMHD main screen lets you configure data collection.

Bin Definitions

Bins are classifications of vehicles based on length ("classes"), speed or direction; once bins are set, data can be collected for these groups of vehicles.

- **For class or speed**, use the corresponding drop-down menu to select the number of bins to define. Click on a bin and use the - / + that appear to change the definitions.

- **For direction**, turn the switch on. Vehicles will be sorted into Right and Wrong bins, based on whether the vehicles are traveling in the direction that the lane is configured to go.

Approaches

Approaches are lane groupings used in data collection. To create approaches:

1. Select the lanes for the approach from the window on the left.

2. Click the right-facing arrow to assign them to the approach.

3. Enter a name for your approach in the text field on the upper right.

4. If you'd like to make more approaches, click the numbered tabs at the top of the screen to open new approach screens.
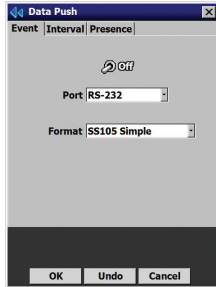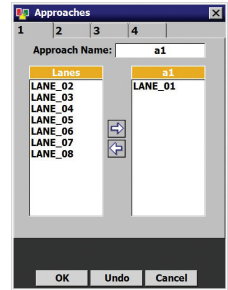
Data Push

Use this to set your sensor to periodically push data to your computer without waiting for a request from SSMHD.

1. Select the kind of data to push from the tabs at the top and flip the switch on.

2. Select the port you wish to push data over, and the format the data should be in, from their drop-down lists.

3. If you're using the SS125 format, set the destination subnet/ID. This is the destination subnet/ID the sensor will push data to.

Date & Time

Click ⬇ and then **OK** to change the sensor date and time to match the computer.

To change the time on the sensor or computer, use the up and down arrows.

SSMHD uses the local setting of the computer it is running on to display the date and time in local units.
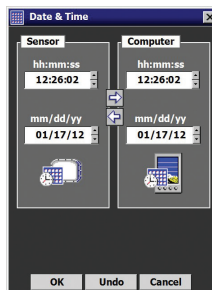
Loop Emulation Setup

Lets you set how the sensor emulates dual loops. Use the size and spacing settings to adjust loop size and loop spacing.

These settings are read by a contact closure device and do NOT modify the data that the sensor reports.
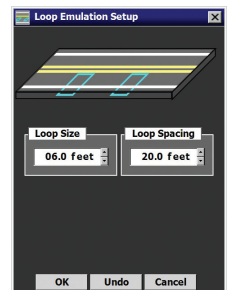
7 Collect data

Per Vehicle Data

Per vehicle data is recorded each time a vehicle is detected. The data is not stored onboard the sensor, so you must have an open connection with SSMHD to collect per vehicle data. The Per Vehicle window displays this information about detections in your configured lanes:

- **Lane –** Which lane the vehicle was detected in
- **Timestamp –** Time the vehicle was detected
- **Speed –** Speed of the vehicle in mph
- **Length –** Length of the vehicle in feet

Use the pause and play buttons under Events to start and stop the recording of events. To log interval data, turn the **Logging** switch on.

Interval Data

Interval data is collected about all vehicles over a set period of time. The Interval Data window displays this information about data collected during the interval:

- **Name –** Lane name
- **Volume –** Number of vehicles detected in lane during interval
- **Occupancy –** % of time the lane was occupied during the interval
- **Speed –** Average of all cars detected in lane, in mph
- **85% –** 85th percentile speed
- **Classes –** Number of cars detected belonging to length-based bins
- **Headway –** Average time between cars (front bumpers)
- **Gaps –** Average time between cars (back bumper to front bumper)

To change the interval time, click the **Interval** button. To log interval data, turn the **Logging** switch on.

Data Storage and Download

Click **Storage Settings** to configure storage:

- **Data Interval Length –** For interval data collection
- **Storage Mode –** Whether sensor begins overwriting old data when full
- **Delete Storage**
- **ON/OFF Switch –** Turn on to tell sensor to start storing data

Select **Storage Status** to monitor data collection: when SSMHD collects, how full the sensor's onboard storage is, and how long until that storage is full.

Click **Data Download** to download data from the sensor. Follow these steps to set the time for which stored data will be retrieved and the location where it will be saved:

1. Click the magnifying glass under Filename to select or create a file to download to.
2. Select the radio button of the download type you want.
3. Click **Start Download**.