SmartSensor HD

QUICK-REFERENCE GUIDE

1 Ensure that all necessary components are available

You will need a number of items in order to install your sensor, including but not limited to the items below:

- Mount bracket and Band-It clamping system
- Sensor cable and homerun cable
- Click equipment and pole-mount box
- Laptop with SmartSensor Manager HD, downloaded from wavetronix.com
- Bucket truck

2 Select a mounting height

Use the table to select the mounting height for the sensor based on the offset from the nearest detection lane. The range of ideal offsets is highlighted in gray. If possible, use the height contained in the second column (Recommended Mounting Height).

In areas with a lot of truck traffic, consider a higher mounting height to help mitigate occlusion.

Note. This table is truncated. For a complete table, refer to the HD user guide.

*Reduction in number of reported speeds

| Offset from first Detection Lane (ft/m)	Recommended Mounting Height (ft/m)	Minimum Mounting Height (ft/m)	Maximum Mounting Height (ft/m)
6 / 1.8	**12** / 3.7	**9** / 2.7	**19*** / 5.8*
10 / 3	**12** / 3.7	**9** / 2.7	**22** / 6.7
15 / 4.6	**15** / 4.6	**12** / 3.7	**26** / 7.9
20 / 6	**18** / 5.5	**15** / 4.6	**30** / 9.1
25 / 7.6	**26** / 7.9	**17** / 5.2	**33** / 10
30 / 9.1	**29** / 8.8	**19** / 5.8	**37** / 11.2
35 / 10.7	**30** / 9.1	**20** / 6	**40** / 12.2
40 / 12.2	**33** / 10	**22** / 6.7	**43** / 13.1
45 / 13.7	**36** / 11	**23** / 7	**40** / 14
50 / 15.2	**39** / 11.9	**25** / 7.6	**50** / 15.2

3 Attach the sensor and mount bracket to the pole

1. Attach the mount bracket to the pole using the straps.
2. Tighten the strap screws partway. The sensor alignment will need to be fine-tuned later, so keep the straps slightly loose.
3. Attach the sensor to the bracket; the connector at the bottom of the unit should point towards the ground.
4. Place the lock washers onto the bolts, thread on the nuts and tighten.

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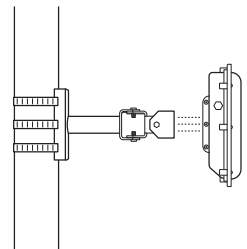
4 Align the sensor to the roadway

1 Tilt the sensor down so that the front is aimed at the center of the detection area, as shown below.
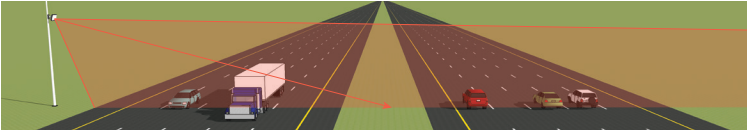
2 Adjust the side-to-side angle as close to perpendicular to the flow of traffic as possible. This will be fine-tuned later.

5 Attach the cable and pole-mount cabinet

To attach the cable to the sensor and the pole:

1 Squeeze about 25% of the silicon dielectric compound into the connector at the base of the sensor. Wipe off any excess.

2 Insert the cable into the connector and twist clockwise until it clicks.

3 To reduce strain, strap the cable to the pole or run it through a conduit, leaving a small amount of slack at the top, as shown.
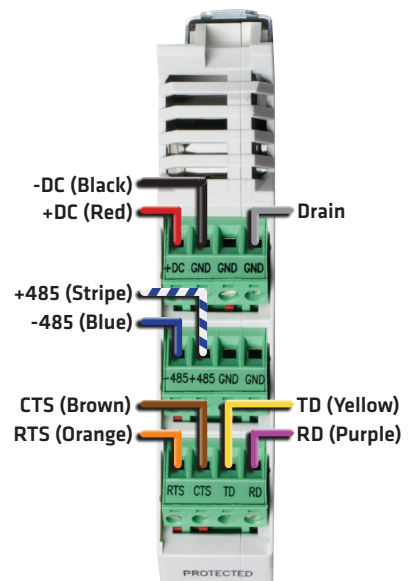

To attach the pole-mount cabinet to the pole:

1 Attach the mounting brackets to the back of the pole-mount box; thread in the mounting straps.

2 Attach the pole-mount box to the pole using the mounting straps.

3 Run the sensor/homerun cables through the cable grips on the bottom of the pole-mount box.

6 Connect surge protection and power

Standard HDs use the 8-conductor cable. To land this cable from the sensor to the Click 200 in the pole-mount cabinet, do the following:

1 Disconnect the Click 200 from the DIN rail.

2 Disconnect the green screw terminals on the appropriate side of the Click 200 and wire the sensor cable as shown at right.

3 Connect the Click 200 to the DIN rail.

4 Connect the ground terminal to the DIN rail and the earth ground wire to the lug bolt on the bottom of the pole-mount box.

5 Connect the exterior lug bolt to earth ground.

6 Connect 10–30 VDC to the +DC and –DC terminals on the appropriate side of the Click 200.

Note. The Click 200 has sides marked PROTECTED and UNPRO-TECTED; which you use depends on your installation. If you're unsure, consult Chapter 2 of the *SmartSensor HD User Guide* or Wavetronix Technical Services.

This image shows wiring into the protected side, as you would do if you had an underground cable run connecting the pole-mount box to a traffic cabinet.

7 Make a connection

Open SmartSensor Manager HD (SSMHD) on your laptop to connect to the sensor:

1 Make a physical or wireless connection to the sensor; generally you do this via a Click device that has a communication connection with sensor—for instance, you could connect to an Ethernet device on same T-bus as the Click 200 surge protector the sensor is connected to.

2 Launch SSMHD and choose **Connect** from the main menu. Based on the kind of connection you're making, go to the **Serial** or **Internet** tab.

3 Change any necessary settings, such as port, speed or address, and click **Connect**.

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8 Enter the sensor settings

From the SSMHD main menu, open **Settings**, to configure certain settings for this sensor.

■ **Description –** (**General** tab) Add text here to help you identify the sensor later.

■ **Location –** (**General** tab) Add the sensor's location here to help you identify it later.

■ **Output Type –** (**Outputs** tab) Ensure that this is set to Antenna.
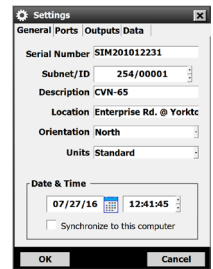
## 9 Complete sensor alignment and configure lanes
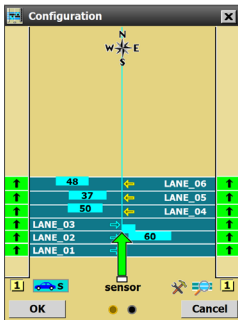
1 Select **Lanes** from the main menu, then click the **Configuration** option.

2 Click the magnifying glass icon to open the View menu; click **Show Alignment** and an arrow will appear on the sensor, pointing out over the roadway.

3 Adjust the sensor according to the arrow. A green arrow means the sensor is positioned for optimal performance; yellow or red indicates poor alignment.

4 Once the sensor is aligned properly, tighten the strap screws holding the mounting bracket the rest of the way.

For this tool to function properly, traffic must be flowing freely. Each time you adjust the sensor, several vehicles need to pass before the alignment tool's output is valid.

To automatically configure lanes:

1 You should still be on the Configuration screen. Click the hammer and wrench icon to open the Tools menu, and select **Clear Edit Area**.

2 Open the Tools menu again and then click **Restart Auto Cfg**. Click **OK**.

3 As the tool runs, blue lanes will appear where the sensor detects them. (If no lanes appear, click on the magnifying glass and make sure the top line says **Hide Auto Lanes**; this indicates lanes are set to be shown.)

4 Once all the lanes have been detected and placed, Click **OK**.

5 A window will pop up to ask if you'd like to save the configuration. Choose **Yes**.
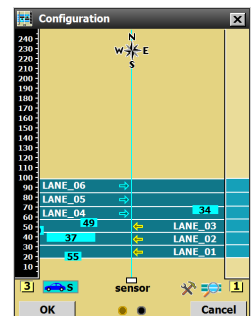
10   Set up data collection

The **Data** option on the main screen lets you set up data collection. For a basic HD installation, you will need to configure the following settings.

Definitions

Select **Data** from the main screen, then click on **Definitions**. In this section you will define classifications of vehicles based on certain criteria; once bins are set, data can be collected for these groups of vehicles. Available bins include:

- **Class** (length) and **Speed**: use the - / + buttons to add or remove bins, and click on an existing bin to edit it.
- **Direction** (right or wrong): click the checkbox to turn this on.

You can also change the interval length, if needed, and set up approaches (clicking the **Approaches** area will open a new window where you define your approaches).

Click **OK** when you're done.

Other data collection options

The following options will likely not be needed for a basic HD installation, but you may find yourself needing them under certain circumstances:

- **Interval Data –** Here you can see interval data for lanes and approaches being updated in real time. You can also use the **Logging** button, along with the **Log Lanes** and **Log Approaches** checkboxes, to create logs of interval data.
- **Storage –** Shows how full the sensor's storage is, and lets you pause/erase it.
- **Download –** Allows you to download sensor data then view or export it in several different formats.
- **Push –** Allows you to set the sensor up to push data (rather than waiting to be polled for data) as required by certain advanced applications.

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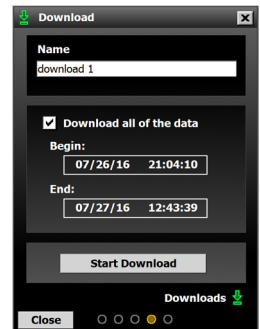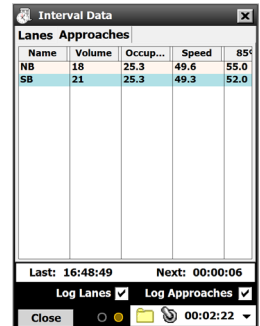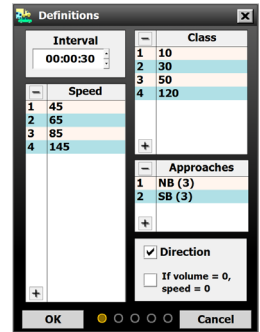
11   Create a backup
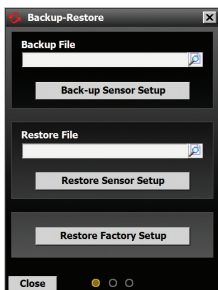
After configuring the sensor, you should always make a backup of the sensor settings.

1. Select **Tools** from the main menu, then click **Backup-Restore**.
2. Under the Backup File heading, click on the magnifying glass. In the window that opens, navigate to where you want the backup file to be stored. Give the backup file a name, and then hit **OK**.
3. Click **Back-up Sensor Setup**.

To use a backup file, use the **Restore Sensor Setup** option on the same screen.