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.

WAVETRONIX
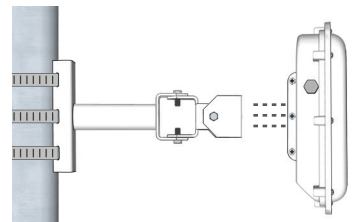
4 Align the sensor to the roadway

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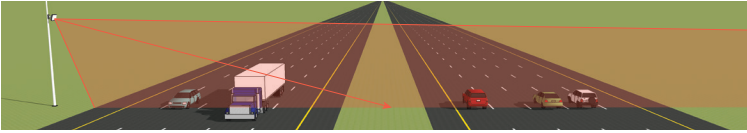
2 Adjust the side-to-side angle as close to perpendicular to the flow of traffic as possible. This will be fine-tuned later.

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.
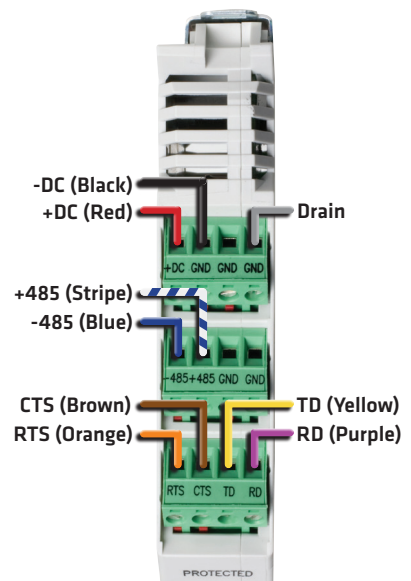
To attach the pole-mount cabinet to the pole:

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.

-DC (Black)
+DC (Red)
Drain
+DC GND GND GND
+485 (Stripe)
-485 (Blue)
-485 +485 GND GND
CTS (Brown)
RTS (Orange)
TD (Yellow)
RD (Purple)
RTS CTS TD RD
PROTECTED

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 click **Communication** on 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**.
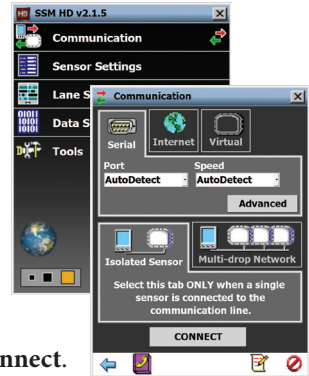
8 Enter the sensor settings

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 –** (**Advanced** tab) Ensure that this is set to Antenna.
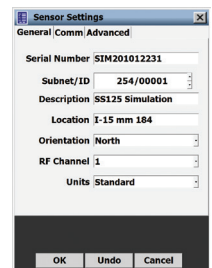
## 9 Complete sensor alignment and configure lanes

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. If the sensor is too far out of alignment, you'll receive an error message pop-up.

3   Tighten the strap screws holding the mounting bracket the rest of the way once the sensor is aligned properly.

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.

Follow the steps below to automatically configure the SmartSensor HD:

1   From the Lane Setup window, click **2. Lane Configuration**.

2   In the window that opens, click the **Tools** icon and select **Clear Edit Area**.

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

4   As the tool runs, blue lanes will appear where the sensor detects them. Once all the lanes have been detected and placed, Click **OK**. If no lanes appear, click on the magnifying glass and make the top line says "Hide Auto Lanes"; this indicates lanes are set to be shown.

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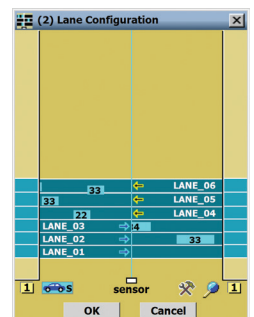
10 Set up data collection

The **Data Setup & Collection** link 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 Setup & Collection** from the main screen, then click on **Bin 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.

- For class, use the - / + buttons under the class section to add or remove bins.
- For speed, use the - / + buttons under the speed section to add or remove bins.
- For any given bin, click on it and type or use the - / + buttons to change the definitions.

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

Interval Data

Click **Interval Data** on the Data Collection screen to change the interval (a defined period of time in which data is collected about all vehicles that pass the sensor). Once the screen is open, click the clock icon and change the time, then click **OK**.

Approaches

Click **Approaches** on the Data Collection screen to configure your approches (lane groupings used in data collection). To create approaches:

1. Select the lane for the approach from the Lanes list on the left, then click the right-facing arrow to assign them to the approach.
2. Repeat step 1 for all lanes you want in the approach.
3. Enter a name for your approach in the text field at the top of the window.
4. Click **OK** to save.
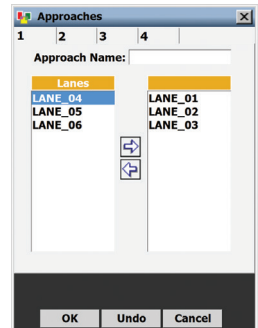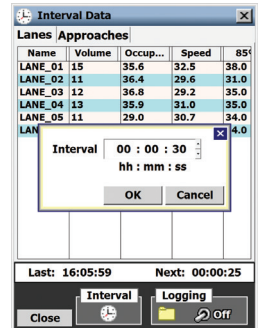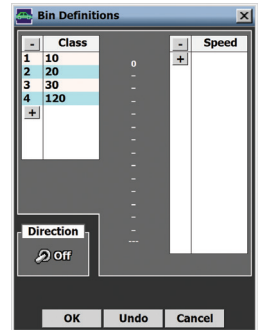
11 Create a backup
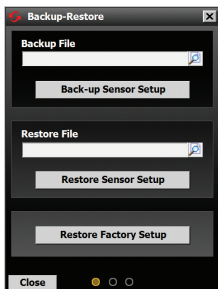
After configuring the sensor, you should always make a backup of the sensor settings.

1. Select **Tools** from the main menu, then click **Backup/Restore**.
2. Under the Back-up 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.