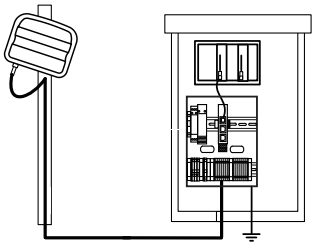
SmartSensor Advance

INSTALLER QUICK-REFERENCE GUIDE

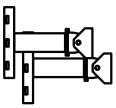
Introduction

Complete steps 1–7 to integrate the Wavetronix Advance Detection system into a signalized intersection. If you need technical support or have questions, please contact Wavetronix Technical Services at (801) 764-0277. For more information, see the *SmartSensor Advance User Guide*.

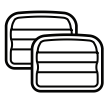


1 Ensure that all necessary components are available

The components below, all of which can be ordered from Wavetronix, may be needed to install your sensor; for more information on any of these, see the Wavetronix product catalog.



Mount brackets



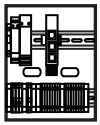
Sensors

Sensor cables

Homerun cable

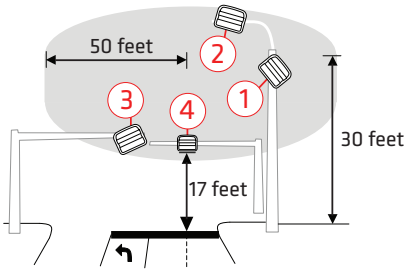
Patch cords

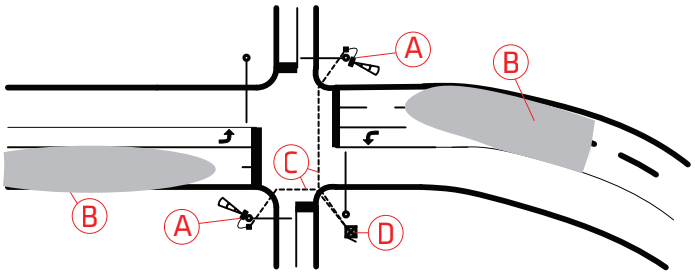
Rack cards



Preassembled backplate

2 Identify sensor's location and pull homerun cable through conduit





Suggested mounting locations:

1 Near-side vertical pole
2 Near-side luminaire
3 Back-side opposing mast arm
4 Front-side mast arm

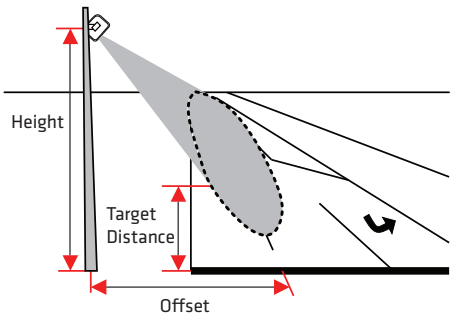
Sensor detection coverage:

A SmartSensor Advance
B Detection Coverage
C Homerun Cable
D Traffic Cabinet

3 Select the mounting height, attach and point at target

1. Use this table to determine the target distance based upon height and offset. The offset is measured from the center of the lanes of interest.
2. Strap the mount to the pole.
3. Pan and tilt the mount so that the head of the mount points towards target.
4. Verify pointing, and tighten the mount bolts. One way to verify pointing is to attach a bar clamp to mount's head; the bar should point at the target.

Offset (ft / m)	Height (ft / m)					
	17 / 5.2	**20** / 6.1	**25** / 7.6	**30** / 9.1	**35** / 10.7	**40** / 12.2
0 / 0	**40** / 12.2	**45** / 13.7	**55** / 16.8	**60** / 18.3	**70** / 21.3	**75** / 22.9
5 / 1.5	**45** / 13.7	**45** / 13.7	**60** / 18.3	**65** / 19.8	**70** / 21.3	**80** / 24.4
10 / 3	**50** / 15.2	**50** / 15.2	**60** / 18.3	**65** / 19.8	**75** / 22.9	**80** / 24.4
15 / 4.6	**50** / 15.2	**55** / 16.8	**65** / 19.8	**70** / 21.3	**75** / 22.9	**80** / 24.4
20 / 6.1	**55** / 16.8	**55** / 16.8	**65** / 19.8	**75** / 22.9	**80** / 24.4	**90** / 27.4
25 / 7.6	**60** / 18.3	**65** / 19.8	**65** / 19.8	**75** / 22.9	**80** / 24.4	**90** / 27.4
30 / 9.1	**65** / 19.8	**70** / 21.3	**75** / 22.9	**80** / 24.4	**85** / 25.9	**95** / 28.9
35 / 10.7	**70** / 21.3	**75** / 22.9	**85** / 25.9	**85** / 25.9	**95** / 28.9	**95** / 28.9
40 / 12.2	**80** / 24.4	**90** / 27.4	**90** / 27.4	**95** / 28.9	**95** / 28.9	**100** / 30.4
45 / 13.7	**95** / 28.9	**100** / 30.4	**100** / 30.4	**100** / 30.4	**100** / 30.4	**105** / 32
50 / 15.2	**100** / 30.4	**100** / 30.4	**105** / 32	**110** / 33.5	**115** / 35	**120** / 36.6

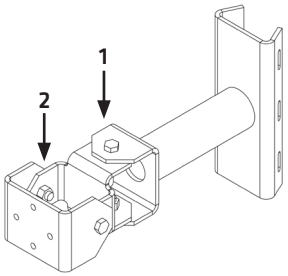


Vertical pole:

1. Use first swivel joint to pan.
2. Use second swivel joint to tilt.

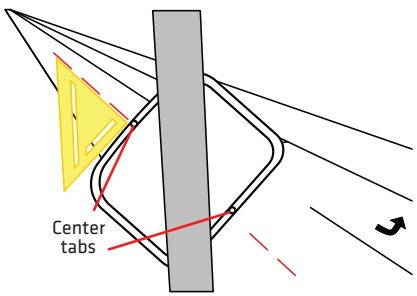
Horizontal pole:

1. Use first swivel joint to tilt.
2. Use second swivel joint to pan.



4 Align sensor to roadway by rolling backplate

1. Loosely attach the backplate to the mount.
2. Roll the backplate until the sensor lines up with the roadway. You can use a rafter square placed on the top (or bottom) of the sensor next to the center tabs (as shown).
3. Tighten the bolts that attach the backplate to the mount so that the sensor can no longer roll.
4. When the alignment and mounting is secure, you can double-check both pointing and roll. You can attach the bar clamp to the sensor to re-verify aiming.



5 Attach the SmartSensor 6-conductor cable and ground the sensor

1. Squeeze about 25% of the silicon dielectric compound into the connector at the base of the sensor. Wipe off any excess compound.
2. Insert the cable into the connector and twist clockwise until you hear it click into place.
3. To avoid undue movement from wind, strap the cable to the pole or run it through a conduit, but leave a small amount of slack at the top of the cable to reduce strain.

The cable should run straight to the main traffic cabinet. In areas with an abundant amount of electrical surges, it is recommended that you use a pole-mount box with surge protection at the base of the pole.

It is necessary, however, to ground the sensor:

1. Connect a grounding wire to the grounding lug on the bottom of the sensor.
2. Connect the other end of the grounding wire to the earth ground for the pole that the sensor is mounted on. Do not attempt to run the grounding wire back to the main traffic cabinet.
3. In the main traffic cabinet, use a volt meter to verify there is no electrical potential difference between sensor ground and cabinet ground. Volt meter probes between the 6-conductor black GND/DC- wire and cabinet ground.

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6 Mount the preassembled backplate in the main traffic cabinet

Once installation of the sensor is complete, the intersection preassembled backplate must be installed in the main traffic cabinet. To do so, locate the area planned for mounting the backplate; it can usually be mounted on the side panel of a NEMA-style cabinet. Then attach the backplate with the U-channel mounting screws.

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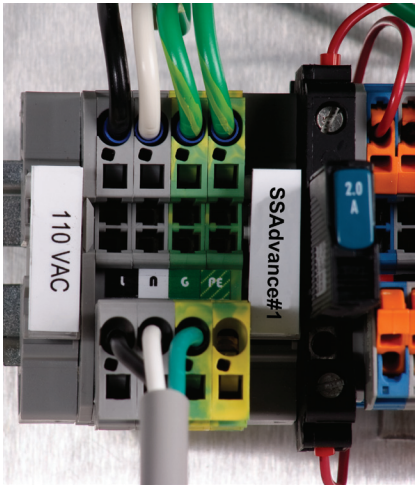
7 Wire power to the backplate

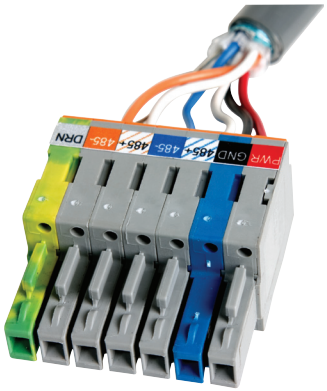


Use the following steps to connect power to the AC terminal block on the bottom DIN rail:

1. Connect a line wire (usually a black wire) to the bottom of the “L” terminal block.
2. Connect a neutral wire (usually a white wire) to the bottom side of the “N” terminal block.
3. Connect a ground wire (usually a green wire) to the bottom of the “G” terminal block.
4. Turn on AC mains power.
5. Press the circuit breaker switch on the left side of the top DIN rail to switch power to the backplate.
6. Verify power is regulated by verifying that the DC OK LEDs are illuminated on the Click 201/202/204.

8 Terminate the SmartSensor 6-conductor cable

To land the 6-conductor cable into the terminal block section:



1. After routing your SmartSensor 6-conductor cable into the cabinet, carefully strip back the cable jacket and shielding on the service end of the cable.
2. Open the insulation displacement connectors on the plug by inserting a small screwdriver into each square slot and rocking it back.
3. Insert the wire leads into the bottom side of the plug-in terminal according to the colors of the wires and the labels on the plug. Make sure the wires are completely inserted in the terminal.
4. Close the insulation displacement connector by reinserting the screwdriver into the square slot and rocking it forward. The plug-in terminals will automatically complete the electrical connection. There is no need to manually strip the insulation on the end of each wire.
5. If you removed the plug to wire it, insert it back into the terminal block section.

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9 Complete wiring

The Click 222 has three RJ-11 jacks on the faceplate:

- **RS-485 A (yellow) –** Connects the data bus from sensor 1 to the rack cards.
- **RS-485 B (orange) –** Connects the data bus from sensor 2 to the rack cards.
- **RS-485 Bridge (blue) –** Connects the configuration buses from sensors 1 and 2 to the control bridge, to the detector rack cards, and to the T-bus. This jack combines the input from ports C and D.

Note. For information about how to configure the Click 112/114, see the Click Series User Guide or the Click 112/114 Quick-Reference Guide.

To connect and autobaud to the detector rack cards:

1. Connect from the Click 222 RS-485 A port to a bus 1 port on the appropriate rack card. Connect from the Click 222 RS-485 B port to a bus 1 port on another rack card.
2. If you are using Click 112 cards, use a patch cord to share bus 1 between cards dedicated to the same sensor. If you have more than two sensors in your system, repeat steps 1–3 to connect bus 1 for all remaining rack cards.
3. Connect from a Click 222 bridge port to bus 2 of the rack cards.
4. Daisy-chain between the bus 2 ports of all of the rack cards for device configuration.
5. The Click 112/114 should begin to receive data from the sensor.