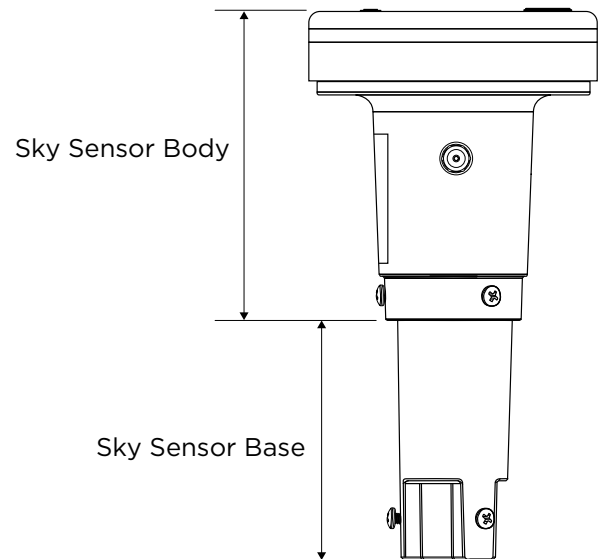


Sky Sensor Installation Guide

The roof-mounted Sky Sensor provides external light level data and infrared temperature data to the View system to allow optimization of tint levels for each zone. The assembly includes the Sky Sensor with a 4 ft. length of CAT5 Ethernet cable attached.



Work Performed By:

Low-Voltage Electrician

Package Includes

1. Sky Sensor Assembly (P/N: 010-101894)
2. 300 ft Shielded CAT5 ethernet cable spool (P/N: 390-101607)
3. Sky Sensor Installation Kit (P/N: 015-102194)

Tools and Materials Required

1. 3/4" Rigid Metallic Tubing (RMT) for roof mast
2. #2 Phillips screwdriver
3. Grounding wire: 14 AWG THHN green or green/yellow
4. Liquid tight conduit clamps and bushings
5. Standard Junction box (10 x 10 x 6")

PoE Injector Requirements

1. For systems with Control Panel 2.0, use PoE injector with P/N: 015-101821-01
2. For systems with older Control Panel, use PoE injector with P/N: 330-101504
3. For CP 3.0, POE cable can be connected to Advantech POE switch (see CP 3.0 Data sheet for port options)
4. For CP 5.0 the cable is powered by the switch in the Telco Rack. No external POE required.

Additional Supporting Documentation

1. Sky Sensor Data Sheet - QDM-02-000062
2. For CP 3.0, POE cable can be connected to Advantech POE switch (see CP 3.0 Data sheet for port options). [Click here for NEMA Weatherproof Enclosure \(l-com.com\)](#).

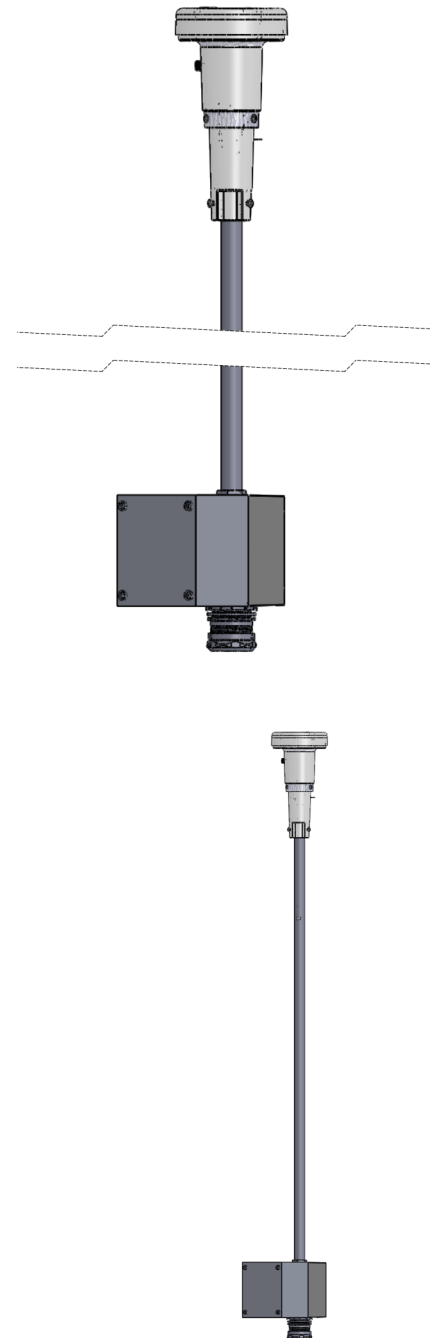
System Requirements

The Sky Sensor communicates to the View System and receives power via PoE. In CP 3.0 or lower this occurs via external PoE device. CP 5.0 provides PoE direct from the switches.

1. PoE voltage requirements: Class 0, 36 - 57 VDC. Powering device should be Type 1 and not higher.
2. Category CAT5 shielded cable or above.
3. For CAT5 cable, the maximum cable length is 328 feet (100 meters). When cable length is over 328 feet, fiber optic cable must be used.

Mounting Requirements

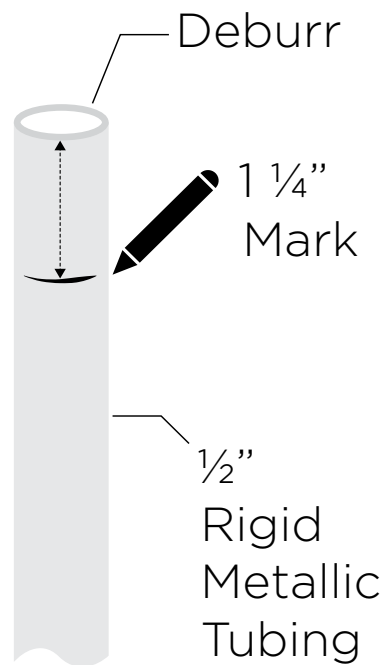
1. Sky Sensor shall be mast mounted on the roof.
2. Elevate sensor height as required to obtain clear line of sight to the horizon for optimum system performance.
3. Top of Sky Sensor shall be mounted at minimum 2-feet above the highest obstruction on the roof of the building. Provide 360 degree unobstructed view horizontal.
4. Ensure mounting height will not be obscured based on average snowfall.
5. Mounting system must be bonded to building ground at the location of electrical junction box.
6. Verify mounting location in field with building owner and View Interconnect Drawings.
7. Mounting system and mast needs to comply with local building codes and withstand high winds based on geographical location.
8. If possible, for a building with a lightning arrestor system, the Sky Sensor and electrical junction box to be installed a minimum of 5-10 meters from any of the lightning rods.
9. For a building with a singular lightning tower, the Sky Sensor should be installed 2 ft. lower the highest point of the lightning tower.
10. When installed, the electrical junction box (EJB) bottom surface needs to be at least 1 ft above ground level.



Installation

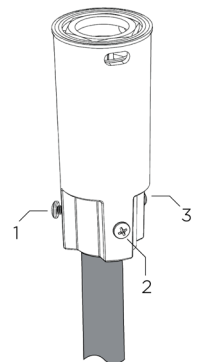
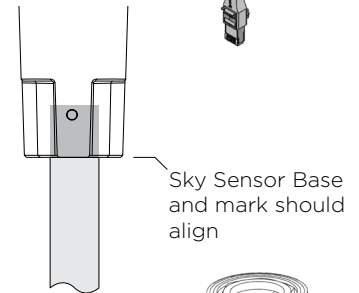
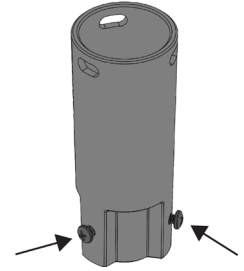
Step 1: Install the Mast

1. Using 3/4" Rigid Metallic Tubing (RMT), mount the mast to the top of the roof using standard industry procedures. Minimum length of the RMT must be 1 ft. Ensure the installation complies with local building ordinances. Note: Do not use EMC/EMT.
2. Deburr the top of the mast so that a cable can be routed through the mast and not cause damage to the cable.
3. Install electrical junction box (EJB) to the top of the mast (see Best Known Methods).
4. Add included pipe to top of the EJB for the sky sensor base assembly, make a mark 1-1/4" from the top of this pipe as shown. Make sure the top of the sky sensor is 2-feet above the highest obstruction on the roof.
5. Mounted EJB must be bonded to the building ground.



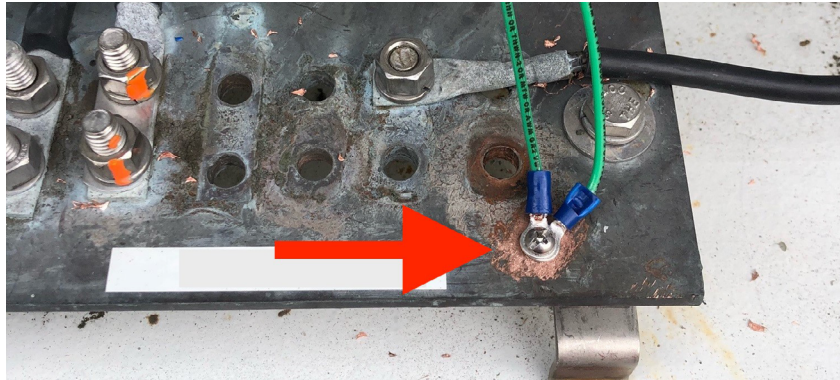
Step 2: Install Sky Sensor Base and Route Ethernet Cable

- Using a Phillips head screwdriver, loosen the three set screws at the base of the Sky Sensor. This will allow you to slide the base down onto the mast.
- Feed the View supplied 4-foot CAT5 Ethernet cable into the Electrical Junction Box (EJB) until the end of the cable with the dust cap is sitting inside the Sky Sensor Base on top of the mast. Use caution to ensure you don't damage the RJ45 connector. Leave the metal dust cap on the end of the Ethernet cable during this step.
- Slide the Sky Sensor base down onto the 1/2" galvanized steel pipe and ensure the bottom of the Sky Sensor Base lines up with the mark that you made 1-1/4" from the top. If the two align, this indicates that the 1/2" pipe is fully inserted into the Sky Sensor.
- Hand tighten the three set screws until firmly secured to the 1/2" pipe. Note: Do not over tighten and strip the screws. Do not use power tools.
- Using standard CAT5 Ethernet tester, test end-to-end to confirm Ethernet is not damaged after installation through the mast. Additional testing is required upon final installation.
- Connect Sky Sensor cable to one of the RJ 45 Jacks (EJB surge protector). The two Ethernet jacks on the top of the protector are not specific, the cable from the Sky Sensor can be plugged into either of the jacks.



Step 3: Connecting to Grounding Coupler and View Control Panel

1. Install Standard Junction Box a maximum of 10 ft. from Control Panel
2. Mount the surge protector to the inside of the Standard Junction box with the four mounting ears and suitable self-tapping screws.
3. Crimp the provided ring lug on a suitable length (site specific) 14AWG THHN green or green/yellow wire (not provided by View) to bond the protector to a designated earth ground. If there is any doubt on the proper facility ground point, consult with the electrician on site.



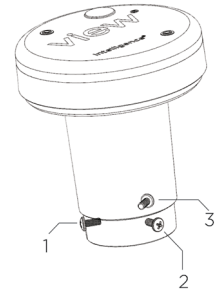
4. Connect the ethernet cable from the EJB to one of the RJ45 jacks. The two Ethernet jacks on the top of the protector are not specific, the cable from the EJB can be plugged into either of the jacks.



5. Connect the extension Ethernet CAT6 shielded cable (UTP or STP) to the other port on the protector and then to the View control panel. For CP 3.0 and lower, the connection may be to a PoE injector midspan. Please review to View interconnect drawings and consult View Project Manager.
6. Verify connectivity of the sensor to the panel.

Step 4: Prepare Sky Sensor Body for installation

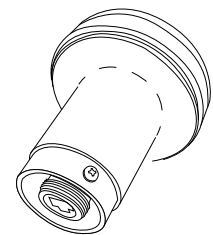
1. Using a Phillips screwdriver, loosen the three set screws on the Sky Sensor Body.



2. Remove the dust cap on the bottom inside of the Sky Sensor Body.



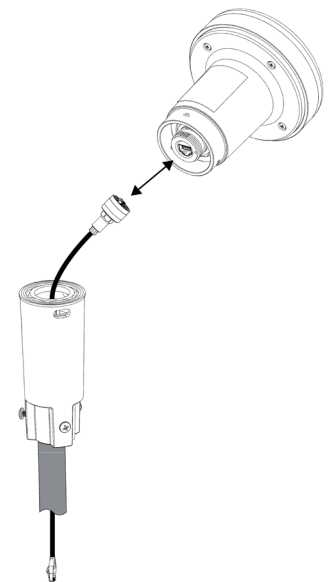
Before



After

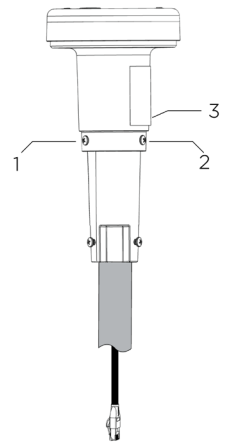
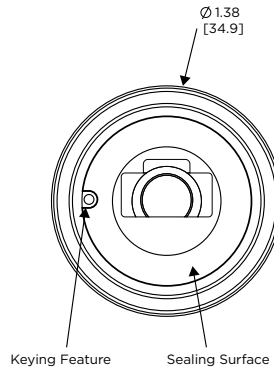
Step 5: Connect Data Cable to Sky Sensor

1. Remove the dust cap from the CAT5 ethernet cable inside the Sky Sensor Base on the mast.
2. Align the RJ 45 connector and the keying feature (see below) and small hole on the bottom of the Sky Sensor. Once aligned, carefully press the two together and hand-tighten the black colored sleeve securely to the base of the Sky Sensor.
3. Ensure the mid span injector is installed and then test the sensor connectivity by connecting your laptop to the “network” (vs “network + power”) side of the midspan injector. For CP 3.0 and lower, this test can also be done from the control panel by plugging a laptop into one of the available Ethernet jacks on the top of the control panel (any jack other than J17). For CP 5.0 connect to service port on switch in Telco rack. Refer to wiring schematic for port location.



Step 6: Mount the Sky Sensor

1. With the RJ45 connected to the Sky Sensor, place it onto the Sky Sensor Base.



2. Using a Phillips screwdriver, tighten the three set screws on the Sky Sensor to secure it to the Sky Sensor base. The screw will thread into the base until the head of the screw bottoms-out on the wall of the sensor; it does not need to be tightened past this point.

Step 7: Test the Sky Sensor Pending Update

1. This process is for CSS based deployment.
2. Login to the Master Controller to run the commands:
 - a. Show raw data from the Sky Sensor:


```
curl http://127.0.0.1:3002/sensorData.xml
```
 - b. Read the Sky Sensor device firmware version:


```
[service@view4646mn200 utilities]$ sh run_cmd.sh 'vff_nm get_hostmcu_fwversion'
```
 - c. Verify Monitoring Service logs that indicate if device is active or not:


```
/home/service/Documents/skysensor_beetle/skysensor1p2_dashboard/utilities/monitoring_scripts  
$ cat beetle_monitor_2021-10-29_17_53_55.log
```
 - d. Verify if the Sky Sensor is assigned a valid IP address for the predefined MAC id:

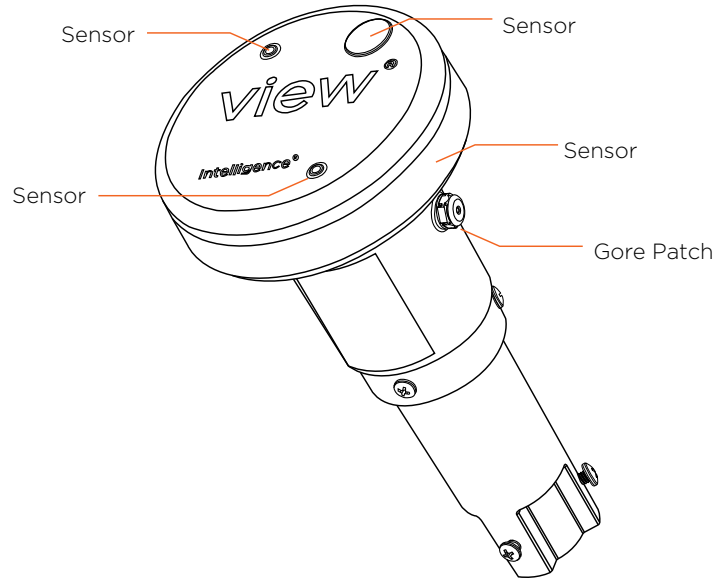

```
[service@view4646mn200 utilities]$ docker logs 15030874c2b8  
-- replace with your Dhcp service container id
```
 - e. Ping the device:


```
$ ping 10.50.80.151
```
 - f. Verify if Sky Sensor data is stored in the database in the MC:


```
mysql --user=view --password=coolglass -e "SELECT * FROM sensors.rs_measurement WHERE  
idrs=1 ORDER BY time DESC LIMIT 10"
```

Step 8: Final Operation Preparation

1. Using an optical cleaning wipe, clean the sensors on the sides and top of the Sky Sensor. Ensure all sensors are free of dust, debris, and oils from fingers.
2. Ensure the Gore Patch on the side of the sensor is not damaged, taped over or covered by silicone.



Best Known Methods

