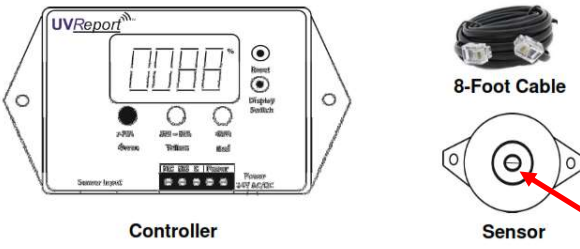
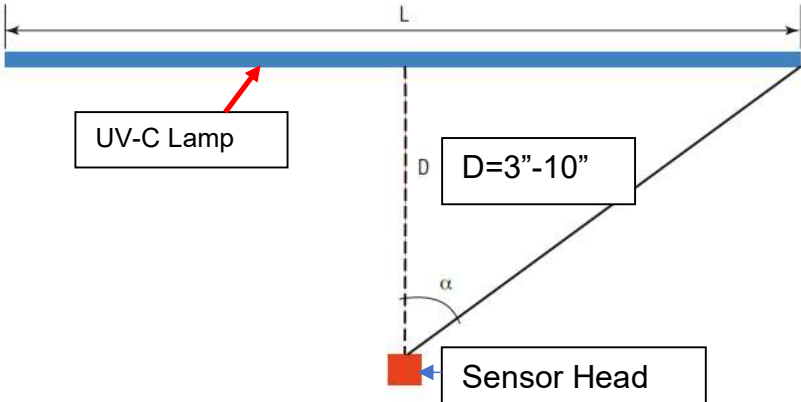
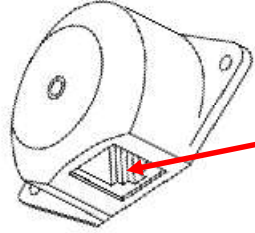


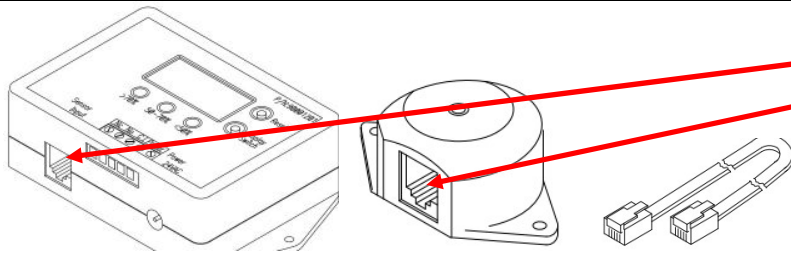
## Supplemental Installation Instructions

### UVReport™

Please refer to the UVReport Installation, Operation Manual  
for additional installation instructions

<p>The UVReport kit is comprised of a Controller, UV sensor and an 8-foot cable.</p>  <p>Controller</p> <p>8-Foot Cable</p> <p>Sensor</p> <p>Figure.1</p>	<p>Be sure that you have all four components included in the UVReport Kit</p> <ol style="list-style-type: none"> <li>1. Controller</li> <li>2. 8-Foot data cable</li> <li>3. Sensor</li> <li>4. Step-Down 120-277V to 24V Transformer (not shown)</li> </ol> <p>Sensor window (lens)</p>
 <p>UV-C Lamp</p> <p>L</p> <p>D=3"-10"</p> <p>Sensor Head</p> <p><math>\alpha</math></p> <p>D</p>	<p>Secure sensor-head, with "sensor-window" facing lamp approximately 3"-10" away from the middle of a single lamp</p>
	<p><b>NOTE:</b> Using 2 screws (supplied), mount the Sensor with <b> cable connector facing down (a must)</b> on a clean, flat surface <b>where no water will carry-over or drip directly on or in the Sensor plug or Sensor Window (lens).</b></p>

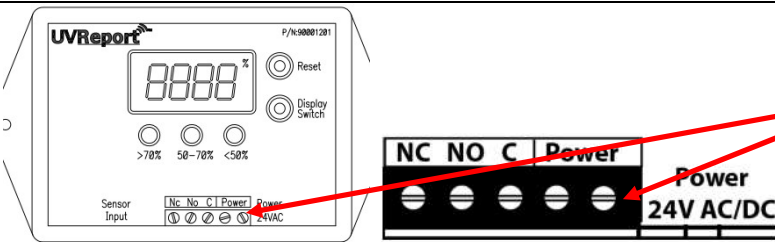
Using 2 screws (supplied), level and mount the Controller within 8-feet of the sensor (the length of the supplied cable is 8 feet) on a clean, flat surface outside the AHU where temperature and humidity are less than 110°F (43°C) @ 90% RH.



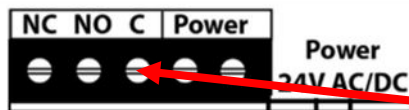
Use the supplied 8-Foot Cable to connect sensor-head to the controller - module into the labeled "sensor- input" port. Plug the other end into the sensor head

**NOTE: One sensor-head to one controller ONLY**

Secure cable



Connect **CLEAN** 24V AC/DC power to the power screws on Controller



**NOTE: DO NOT BRING CONTROL POWER TO THE UVREPORT FROM THE BMS/BAS.\***

The UVReport will provide a 5A signal that the BAS/BMS will need to pick up.

\*If external power is supplied to the NC/NO or C ports the LCD screen will continuously display 100% even when UV lamps are off.

If using the NC/NO relay, connect the hot lead to either the NC or NO port and the neutral to the "C" or common port.

The switching specifications are: DPDT relay, NO (normally open)/ NC (normally closed) - 24Vac / 5A or 30Vdc / 5A.

**CAUTION:**

The output of all commercially available UV-C lamps can fluctuate with temperature; i.e. a lamp's UV output at one air temperature will be different at a higher or lower air temperature.

**UV-C Lamps should be calibrated while the Air Handler is operating at its maximum cooling temperature!**

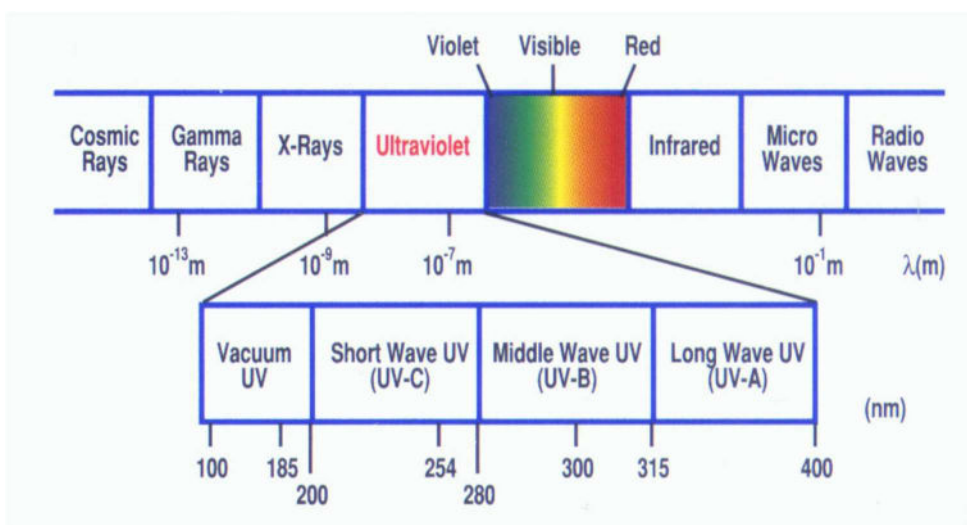
**Additional Information and Trouble Shooting:**

UV radiometers can be designed to show actual UV intensity at different wavelengths (e.g. UV-A, UV-B, UV-C) or, the “relative intensity” of a UV lamp from a set-point in time (e.g. output at beginning of life being 100%) and through the lamp's life as it degrades. Remember, a properly functioning quality UV lamp will show very little degradation over the 9000 hours of operation (roughly 15-20%) and a radiometer may not detect a loss until close to the end of the lamp's life.

A calibrated laboratory radiometer can be extremely accurate and is typically used by UV equipment and lamp manufacturers to test and verify UV equipment. These laboratory radiometers are quite expensive and are tuned to specific wavelengths; i.e. UV-C (200-280 nm). More sensitive and expensive models can be tuned to the specific wave-length of 253.7 nm.

The “stationary radiometers” used in commercial UV applications are not of laboratory quality and give a *relative indication* of UV output; more specifically, the relative output of the single lamp that the sensor window is viewing.

Our Stationary radiometers are set up to read the 253.7nm, but may read stray light from other visible light and ultraviolet sources (see chart below)



**CAUTION:** This stationary radiometer is not the same as a piece of laboratory equipment calibrated to a known standard. It is intended to indicate relative output of a single lamp and when lamp replacement is needed. Sensors exposed to UV-C degrade over time with constant exposure. If an accurate measurement of UV intensity is required, a calibrated laboratory radiometer would be used.

### **Additional notes regarding calibration and some of the requirements:**

Note:

1. Before calibration, the system should be run for four days (100 hours), or more, to stabilize the lamps in the air handling unit; this is referred to as “lamp burn in”.
2. After the 100 hour-burn in, set the AHU to maximum cooling (lowest temperature) and highest airflow with the UV lamps turned on until the lamps are cooled...roughly, 15-20 minutes.
3. Ensure all other light sources (e.g. marine lights) in the plenum are turned off when resetting (calibrating) a stationary radiometer.
4. While the lamps are at their coldest you should now reset the radiometer by pushing and holding the “Reset” button on the controller module. Note: This will also reset the hour meter function of the UVReport™.
5. Recalibrate the radiometer each time lamps are replaced following these procedures.

Some of the issues inherent with proper calibration of stationary radiometers are:

1. AHU must be at its coldest operating temperature and its highest airflow (as referenced above in note 1. This must be done until the system stabilizes). Recall from above that UV output is subject to the temperature of its surroundings. Therefore, as the AHU’s performance characteristics fluctuate, so will the UV output and, in turn, fluctuating radiometer readings.
2. The sensor is usually placed directly across from one lamp and takes it’s reading from that single lamp. It *may* sense the output from the lamp on either side, or above and below. It may, also, sense the irradiance from a marine light or light entering through a view port window. It is possible that lamps out of view of the sensor may stop working and the sensor would not pick up the loss of UV energy.
3. The UV-C lamps that were provided have a very stable lamp degradation which allows the lamps to maintain close to their initial UV output for much of the lamps life (9000 hours). If the UV radiometer is calibrated correctly, it may not read much degradation over the 9000 hours of operation.