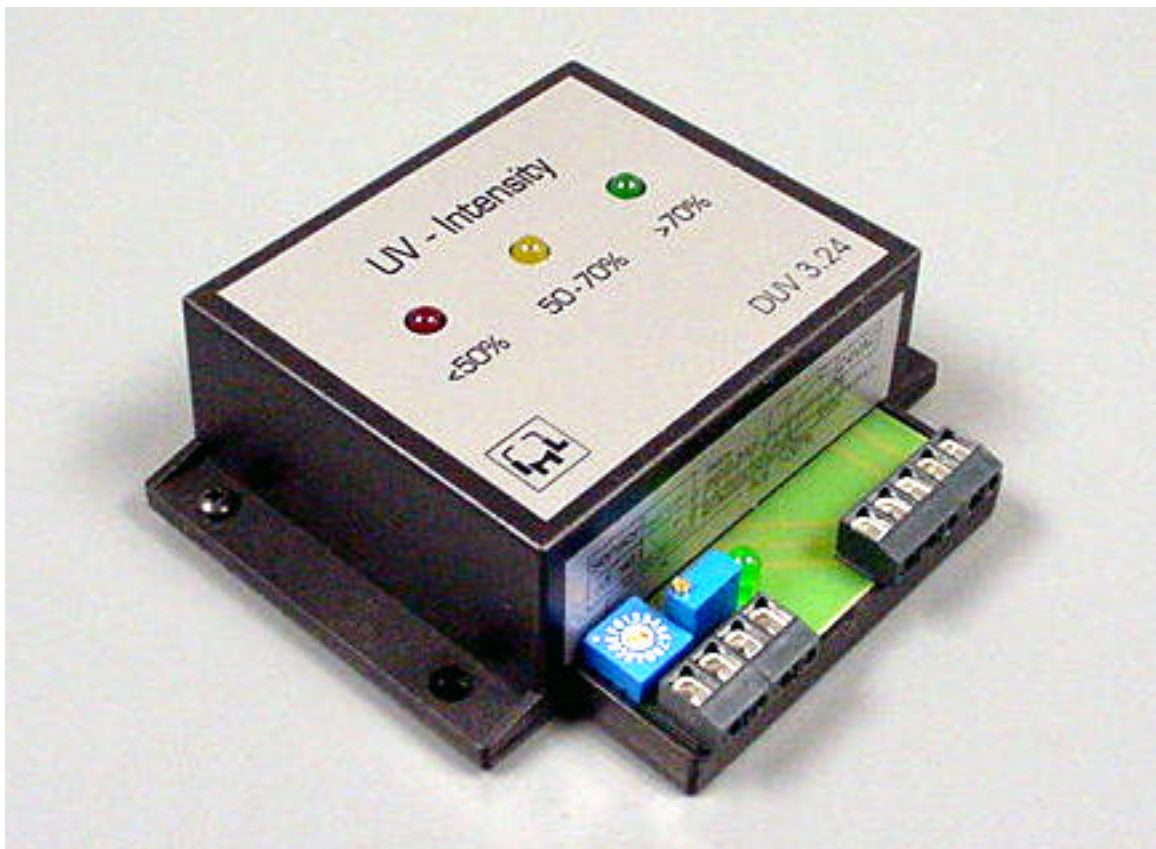


Stationary Radiometer

INSTALLER/OWNER'S GUIDE



ALTRU...V
REAL SCIENCE FOR HVAC MAINTENANCE

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Stationary Radiometer Installation, Care and Use Instructions

RADIOMETER – WHAT IT DOES

A radiometer is generally used to monitor the output of a UVGI system. It measures the UV intensity produced by UV lamps. This type of radiometer is designed to indicate *relative* UV output and, therefore, does not display in microwatts of UV intensity or in UV dosage. Rather, it should be calibrated (i.e. set) to “100” when the lamps are new and operating under normal air conditioning system operation. As the life of the lamps progresses, or if an unusual event such as a burned out lamp occurs, the relative UV output will show significantly lower.

Several factors affect the output of UV lamps, including:

- Air temperature
- Air velocity
- Reflectivity and cleanliness of system and lamps
- Age of lamps

To obtain a meaningful reading from this radiometer, measurements must be taken under the exact operating conditions that the radiometer was calibrated/set at. (For your convenience, a sticker for this information is included with your unit. It is recommended that when the radiometer is calibrated, the system conditions be recorded and this sticker adhered near the radiometer for future reference.)

A typical UV lamp will have a life of about 9,000 hours (1 year at constant operation) or more. As the lamp ages, the UV output will decrease. Once the lamps drop below 70% of their original output, they should be replaced.

Assuming the UV system was sized and installed properly, sufficient UV output was provided to allow for the normal reduction of UV from “wind chill” due to the air velocity and temperature. **It is mandatory that calibration and measurements be taken at the same velocity and temperature.** This should be at the system’s coldest and highest airflow operating condition. If this is done properly, when the relative reading is 70 or less, the lamps need attention.

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 and when lamp replacement is indicated. Radiometer sensors degrade over time with constant exposure to UV. If an accurate measurement of UV intensity is required, a calibrated laboratory radiometer should be used.

Application

The Stationary Radiometer in conjunction with a UV sensor is designed for monitoring UV lamps.

Technical Description

The Stationary Radiometer is a wall mount device. Terminals for power supply, UV sensor, relay contact and analog output are located on the lower side of the housing. Three LED's on the front side display the actual relative UV intensity in steps of "> 70%"; "50...70%" and "<50%" of an initial setting of 100% (new lamps).

The relay contact can be programmed for UV intensities between 20% (position 0) and 95 % (position F) in 5%-steps. A time delay of about 1 sec. prevents the relay contact from switching at short UV fluctuations. The switch for programming the relay contact switch point is located close to the terminal row and can be operated with a small screwdriver.

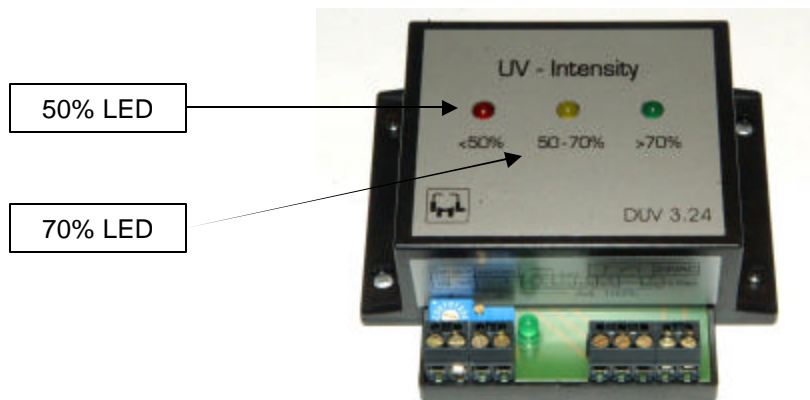
A blinking function of the LED's indicates mal-functions:

50% LED Blinking =

- Sensor Cable Broken
- UV Lamp Off
- UV Intensity Below 10% of Nominal.

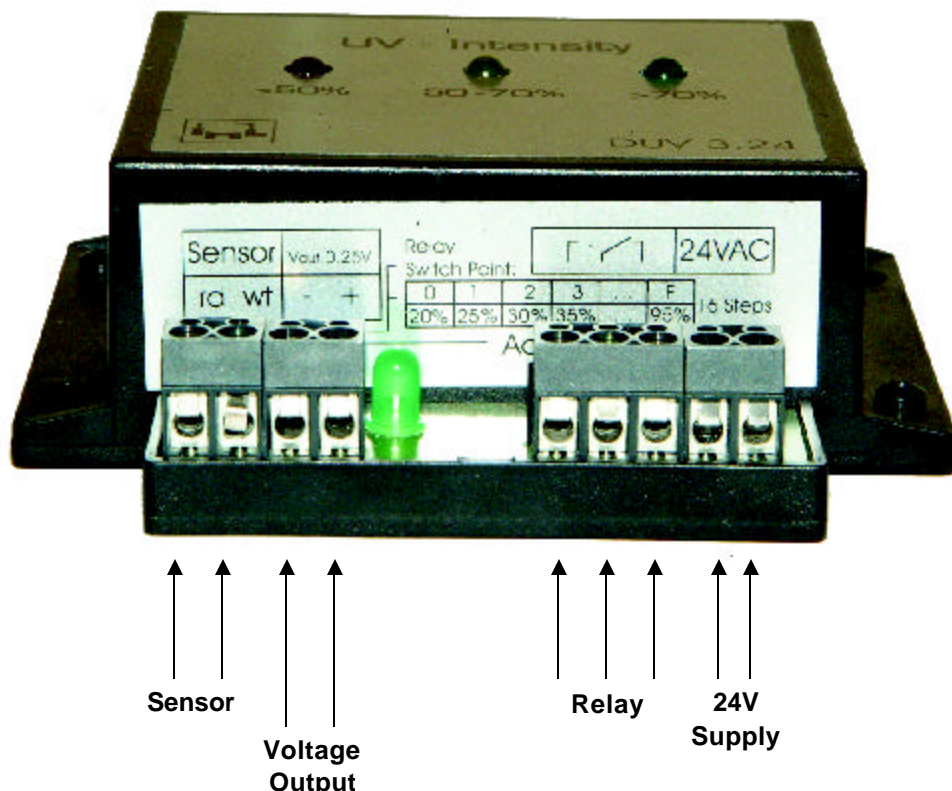
70% LED Blinking =

- UV intensity above adjustable range



Installation and start of operation

The monitor is to be wall or external duct mounted using the two mounting holes, on each side of the housing. Power supply, UV sensor; relay contact and analog output are to be connected to the terminals (see diagram below). **Note: UV sensor and analog output are critical in their polarity.**



Note:

1. Before calibration, the system should be run for four days or more to stabilize.
2. Set the system into its maximum cooling mode.
3. It is helpful to record the system conditions on the enclosed label for future reference.
4. Recalibrate the radiometer each time lamps are replaced.

Power on all three LED's and the relay contact are activated for a few seconds to test their operational status.

The potentiometer, "Adj." is used to adjust the nominal value (100%) after new lamps are installed. Turn the potentiometer slowly. The green LED close to the potentiometer starts to blink when the potentiometer is near the 100% level. When the 100% level is reached the green LED is permanently on. Exceeding 100% is indicated with a blinking green LED at a higher blinking rate.

If a permanent on of the green LED cannot be reached, change the position of the UV sensor relative to the UV lamps. Finally the switch point of the relay contact can be set with the 16-step switch using a small screwdriver. Position "0" sets the switch point to 20% of nominal. Each step increases the switch point value by 5% as noted below.

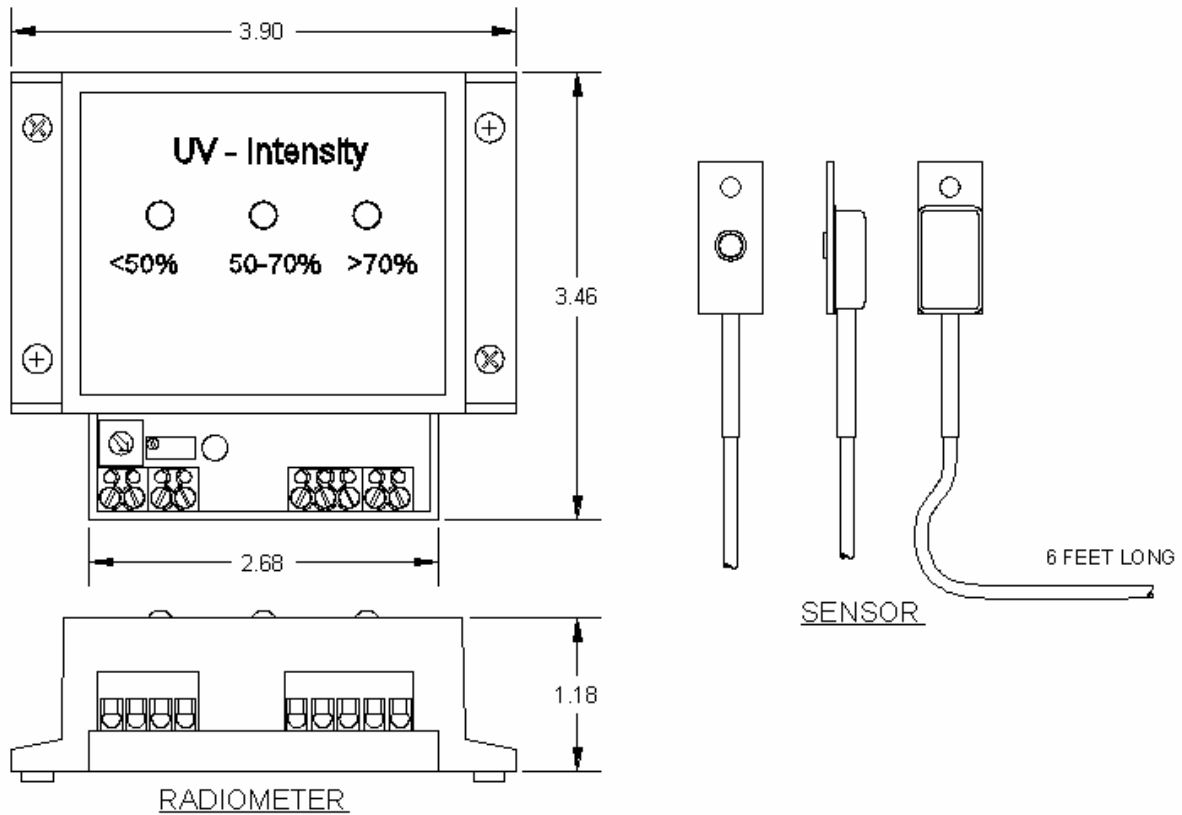
Position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Switch point	20 %	25 %	30 %	35 %	40 %	45 %	50 %	55 %	60 %	65 %	70 %	75 %	80 %	85 %	90 %	95 %

Installation of the UV sensor

The UV sensor may be mounted with a single screw. The aperture angle of the sensor is 60°. Connect the red wire to the “rd” terminal, the white wire to the “wt” terminal.

Technical Specification

Mechanical Dimensions: 100mmW x 90mmH x 33mmD
 Mass: ca. 220 g
 Power supply: 24 V AC / 0.2A; 50/60 Hz
 Relay contact: 127 V/6A
 Analog output: 0...0.25 V @ 110%
 Operating temperature: 0° to 50°C



NOTES

EQUIPMENT WARRANTY

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