



UVRepeat™
Lamp/Ballast Monitor

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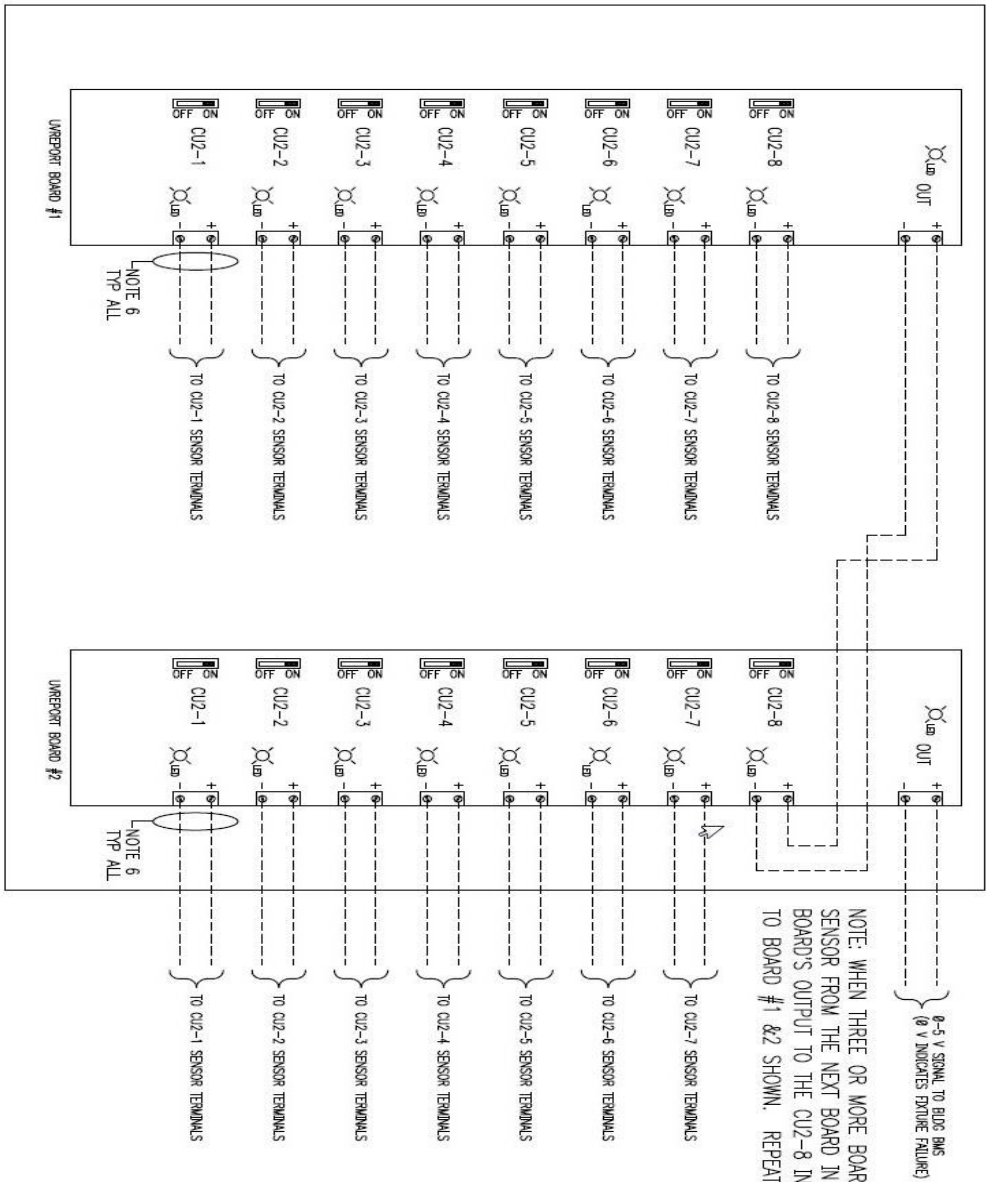
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90000403 Rev. A 2/11

The UVRepeat is a unique UV-C system product that is designed to work in conjunction with UV Resources, CU2™ current sensors. It is intended to be housed in a NEMA enclosure where it will monitor and communicate the ON/OFF status of individual lamp/ballast circuits that incorporate a CU2 sensor between each ballast and lamp combination. Each individual board will monitor up to eight (8) lamp/ballast, CU2 equipped circuits, and each connected and active circuit is confirmed by a corresponding, lit LED. Additionally, when all circuits are active and working properly, the “Out” terminal also confirms this status by lighting its own LED and providing an average 3.5V signal to the “Out” terminal Screw-down lugs. When more than eight (8) circuits are to be monitored, UVRepeat boards may be daisy-chained together to monitor up to 23 (lamp/ballast) circuits in one enclosure. See the incorporated drawing showing two as an example. The UVRepeat requires no outside power source.

Each UVRepeat board has eight (8) input lugs that are numbered CU2 “1” through CU2 “8”. Each lamp/ballast to be monitored must have a CU2 installed by running two of the same color lamp wires (i.e. red) through it. When the lamp/ballast combination is on, an average of 3.5V is produced at the CU2’s plus and minus lugs. A “twisted pair” (CAT 5 stripped) of low voltage wires is used to connect each CU2 to its corresponding UVRepeat board. Each circuit input lug of the UVRepeat board has an off/on switch. When one or more of these inputs is used, each must be switched On to be monitored. When On, that circuit becomes an integral connection to an IC circuit which acts as a port replicator. If all connected circuits are active the “Out” terminal LED will light and its terminal plus/minus lugs will produce an average output voltage of 3.5V. If one of the switched On circuits fails, the “Out” terminal LED will go out and the terminal plus/minus lugs will produce no, or 0V, indicating that one of the lamp/ballast circuits connected to the board, is off or has failed. When the Out is connected to a typical BMS, it instructs the BMS as to whether any one of the lamp/ballast combinations is off or has failed. Each UVRepeat is powered by the CU2’s that are connected to it.

When more than one board is required (more than eight lamp/ballast circuits), a primary board is simply daisy-chained to a subsequent board. In this case, one (1) to eight (8) input circuit’s may be connected to the first board and seven (7) may be connected to each additional board, up to three (3) boards total. The daisy-chain is facilitated by connecting the “Out” circuit lugs of the first board to the “CU2 8” input lugs of a subsequent board using the same low voltage, twisted pair wire. The number CU2 8 switch must be switched on for it to become an active part of the port replication circuit of the combined boards. This will leave the remaining one (1) through seven (7) input circuits to be used to monitor seven (7) additional lamp/ballast circuits for a total of fifteen (15). Using the same procedure, one more board may be connected to the two previous boards by connecting the “Out” circuit lugs of the second board to the “CU2 8” lugs of the third board using the same low voltage, twisted pair wire” as used throughout. See the incorporated drawing. This will provide monitoring of up to 22 lamp/ballast combinations. Contact the factory when there is a requirement of monitoring more than 22 lamp/ballast combinations as it can be done. See the UV Resources CU2 IOM for additional information.

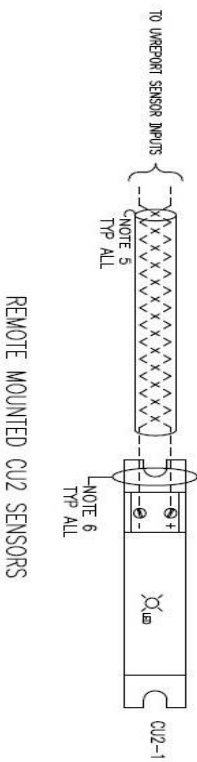


NOTE: WHEN THREE OR MORE BOARDS ARE REQUIRED, DELETE THE CU2-8 SENSOR FROM THE NEXT BOARD IN THE SERIES. WIRE THE ADDITIONAL BOARD'S OUTPUT TO THE CU2-8 INPUT OF THE PREVIOUS BOARD, SIMILAR TO BOARD #1 & 2 SHOWN. REPEAT FOR EACH ADDITIONAL BOARD.

GENERAL NOTES:

1. TYPICAL FOR 1 UVREPEAT AND UP TO 8 CU2'S.
2. CONNECTIONS MUST BE POLARIZED.
3. UVREPEAT MUST BE GROUNDED.
4. UVREPEAT HOUSING MUST BE NEMA 2 OR HIGHER.
5. USE ONLY SHIELDED, TWISTED PAIR WIRING TO CONNECT SENSORS TO CONTROL BOARD.
6. TAPE BACK ALL SHIELDS AT DEVICE TERMINATION POINTS

UVREPEAT CONTROL ENCLOSURE



GENERAL INSTALLATION INSTRUCTIONS

UVRepeat™ UV-C lamp/ballast Monitoring System



CAUTION! Never Expose Eyes or Skin to UV-C Light – Completely Read all Materials Before Starting

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause fire, electrical shock, or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your supplier for information or assistance. The qualified installer or agency must use factory kits or accessories when installing this product. Refer to the individual instructions packaged with kits or accessories when installing them. Follow all safety codes, wear safety glasses and work gloves. Read all instructions thoroughly and follow any warnings or cautions attached to any accessed area. Consult local building codes and the National Electrical Code (NEC) for all applicable requirements.



Understand the signal words DANGER, WARNING or CAUTION. These words are universally used for overall safety. DANGER identifies the most serious hazards, which will result in severe personal injury or death. WARNING signifies hazards, which could result in personal injury or death. CAUTION is used to identify unsafe practices, which would result in minor personal injury or product and property damage.

WARNING: Before installing or servicing this unit, turn off and lock-out all power, there may be more than one (1) switch.

General:

The UVRepeat is a continuous monitoring device that will provide a direct on/off LED display and an average 3.5V on or 0V off signal. This may be used to signal a Building Management System or Alarm, etc. that the monitored UV-C lamp/ballast combinations are operational.

Power Input / Output:

The UVRepeat is powered by the CU2's connected to it and therefore requires no external power. It provides an average output of 3-5V.

CAUTION: Using the UVRepeat other than shown voids the product warranty and may do damage to the entire system.

Installation:

These instructions assume that the UVRepeat enclosure and CU2 equipped are installed in their respective locations.



1. Consult all applicable NEC and local codes before installing;
2. The UVRepeat must be wired with **Insulated; Twisted-Pair Wires only** – no bare wires. Stripped CAT5 wire is an acceptable wire size and type to use;
3. The back plate that the UVRepeat is mounted to must be grounded. Run one or both of a twisted pair from a PC board stand-off screw to a suitable ground outside the enclosure;
4. Calculate the number and length of twisted pair wires needed and prepare accordingly, then strip each end ¼ inch;
5. Using the drawing, run a twisted pair of wires from each CU2 screw-down lug to each UVRepeat lug starting with CU2 1 and then to CU2 2, etc. until all connections are complete. The wiring must be polarized – plus to plus & minus to minus;
6. Where wires from a CU2 are connected to a given UVRepeat lug, turn it's corresponding switch to the "on" position;
7. When all wire connections are made power up the UV system and the LED's on the CU2's should light as should the LED's associated with the "wired to" screw-down lugs on the UVRepeat;
8. For any LED's not lit on the CU2 please check the CU2 IOM to trouble shoot the problem;
9. For LED's not lit on the UVRepeat, run through the following troubleshooting steps;
 - a. Ensure that power has been applied to all ballast/lamp combinations;
 - b. Be sure two of the same colored lamp wires (i.e. red) are passing through the CU2 sensor;
 - c. Make sure that all connections are polarized, i.e. positive to positive and negative to negative;
 - d. Be sure that the off/on switch is on at each set of screw-down lugs where CU2 wires are running to them;
 - e. Be sure that the PC board is grounded.
10. All CU2 LED's and the LED's at each set of UVRepeat lugs with CU2 wires running to them should be lit

Operation:

1. As current flows from the ballast to the lamp, voltage is induced to light the LED and sends power to the UVRepeat;
2. Power flows to the corresponding UVRepeat lugs and with the switch on, lights the LED and travels to the IC as "ON";
3. If all circuits are working power from the IC flows to the "OUT" lugs and can be used as an average 3.5V signal;
4. If a lamp, ballast or power to a lamp/ballast combination fails the CU2 and related UVRepeat LED's will go out;
5. If a circuit fails the average 3.5V signal at the "OUT" lugs will switch off and alarm whatever is connected to it.

EQUIPMENT WARRANTY

UV Resources™ (UVR) warrants to the original buyer that its Products shall be free from defects in material or workmanship under normal use and service for the periods of time set forth below. This warranty is contingent upon proper use of Products and will not apply if adjustment, repair or parts replacement is required because of an accident, unusual physical, electrical or electro-mechanical stress, neglect, misuse, failure of electric power, humidity control, transportation, unauthorized repair actions, or not installed or maintained in accordance with UVRs' specifications hereunder, or where Product serial numbers have been altered, defaced, or removed. UVRs' obligation under this warranty shall not arise until the Purchaser of the Product returns the defective part to UVR. This warranty is limited to the repair and/or replacement of parts. This warranty does not cover any labor or subsequent damage incurred as the result of Product failure or indirectly arising from the design, construction, installation, servicing, or operation of Products. UVR and its resellers' liability under this warranty shall in no event exceed the cost of goods sold under the original sale contract.

Under the conditions specified above, UV Resources warrants the UVRepeat for a period of five (5) years from date of purchase provided that it is installed within 3 months from date of purchase. Buyer must provide proof of purchase. This is UVRs' sole warranty. No warranties are extended beyond those described herein and it is expressly agreed that this warranty will be in lieu of all warranties of fitness and merchantability. UVR neither assumes, nor authorizes any person to assume for it, any obligation in connection with the Products. Buyer shall not return to UVR any allegedly defective goods without UVRs' prior written authorization. This warranty may not be assigned or transferred.