

Thank you for purchasing BioZone Scientific's CoilCare® UV disinfection system for commercial HVAC applications. CoilCare® can keep Air Handler coils clear of contamination and biofilms, allowing significant savings in energy and maintenance costs. CoilCare® works by bathing evaporator coils in germicidal ultra-violet light. The UV light inactivates microorganisms and breaks down organic residue, preventing growth and keeping coils clean and operating efficiently.

Safety



Warning: This system produces UV light in wavelengths that can damage skin and eyes. Prolonged exposure can have long term health consequences. The following precautions must be observed:

1. Do not look at unshielded light
2. Avoid any direct exposure to light produced by UV Photonizers
3. Avoid prolonged exposure to indirect or reflected light produced by UV Photonizers
4. Safety interlock switches must be installed at all access points where users may be exposed to the systems UV lamps.
5. Photonizers contain glass and hazardous materials. Handle in accordance with the instructions in this manual
6. Only qualified personel should carry out installation of this product
7. Follow all applicable building and electrical safety codes when installing and operating this product



System Overview

The CoilCare® system consists of the following components

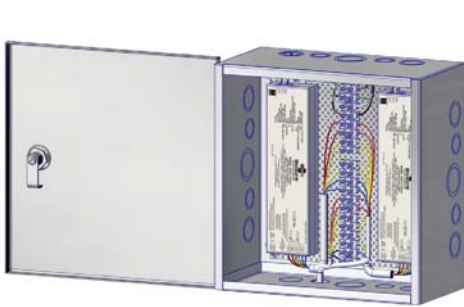


Figure 1: Panel Assembly

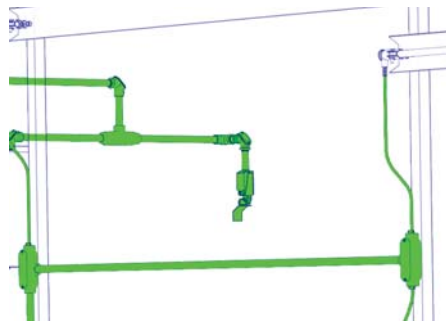


Figure 2: Electrical Interconnects



Figure 3: Photonizers

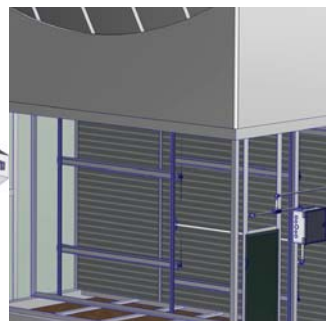


Figure 4: Mounting Structures

The Panel assembly can be obtained from BioZone Scientific as a kit that includes, a NEMA enclosure, ballasts, terminal blocks and mounting hardware and a high-voltage safety interlock switch. Each enclosure can contain up to 4 ballasts which allow for powering up to 4 Photonizers total. Photonizers can be obtained from BioZone Scientific International.

Photonizers are available in 36, 48 and 64 inch nominal lengths to accomodate a wide variety of Air Han-



Figure 5: Photonizer connector

dlers. Each Photonizer includes a water-resistant connector assembly with a 2 meter length of 4-wire jacketed cable.

The customer or installer will need to provide the following

- EMT Conduit-1/2" ID (Figure 11 on page 4)
- Elbows, Tees and junction boxes (quantity varies by installation)
- Insulated wire butt splices.
- Heatshrink sleeving
- Metal framing, channel with regularly spaced holes: 3 pieces, each the hieght of the Air Handler compartment where the Photonizers will be installed
- 4X Ø1/4" x 5/8" sheet metal screws for mounting the panel assembly
- 4X Ø1/4" nominal flat washers for mounting panel assembly.
- Electrical power to the CoilCare control box.

Surface Disinfection Analysis Report

To fully optimize coil treatment, BioZone Scientific or one of its distributors will provide you with a Surface Disinfection Analysis report which outlines the recommended configuration for your partiular evaporator coil. It includes

- a sumamary of your coils dimensions
- A positioning diagram and measurements showing the placement of the Photonizers with respect to the coil.
- Specifications for the Photonizer units
- A report on surface irradiation and microbial survival times during operation

The report is provided whent the system is quoted. A copy should be kept on hand to serve as a reference for system specifications and ordering replacement parts. To obtain a copy or generate a new quote, contact BioZone Scientific or your authorized distributor.

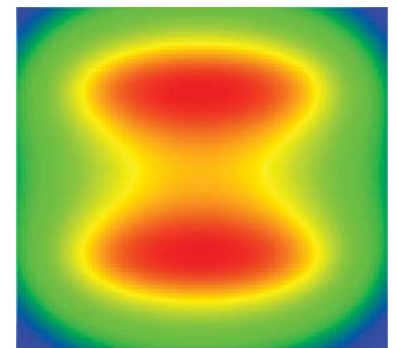


Figure 6: Coil Disinfection Plot from report

Assembly

Prior to assembly, verify that all parts shown are included and in good condition. If components are missing or damaged, contact your product distributor or BioZone Scientific International's customer service department.

Fixture Assembly

Assemble fixture as shown:

Repeat the procedure for each fixture

Fixture Installation

For optimal Photonizer coverage by the CoilCare® system, plan your installation according to the configuration outlined in the BioZone Surface Disinfection Analysis Report.

The Photonizers are designed to be fastened to vertical, upright support members such as Unistrut®. Each Photon Concentrator has a pair of 5/16-18 threaded inserts for this purpose.

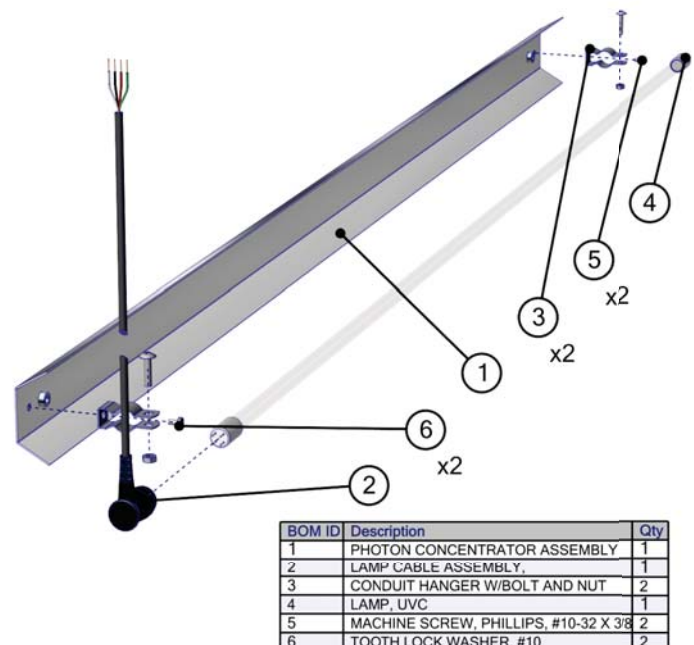


Figure 7: Photonizer Fixture Assembly

Use the following table to set the spacing between the strut centerlines.

Model Number	Mounting Hole Centerline distance
CCX36	29.56 in [750.8 mm]
CCX48	41.57 in [1055.8 mm]
CCX64	57.55 in [1461.8 mm]

Cut unistrut members to a length that allows them to be bolted at the top and bottom to the frame of the Air Handler compartment (Figure 8).

Fasten the Photonizers to the metal framing channel using the 5/16-18 x 5/8" screws and Ø5/16 nominal washers provided with the Photonizers.

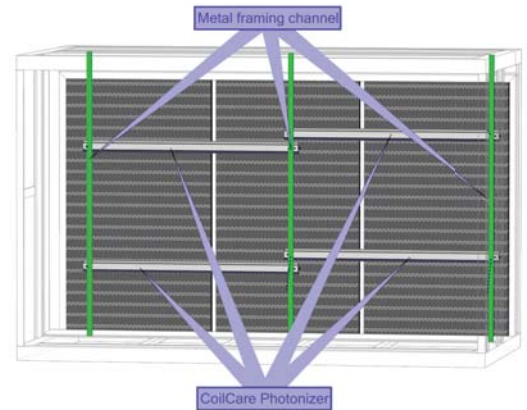


Figure 8: Installed mounting struts

Panel Assembly

Panel assembly should be carried out by a qualified technician. This product uses high-voltage components and incorrect installation could pose hazards to occupational safety.

CoilCare® Photonizers are powered by enclosed ballasts which convert the building mains power (120-277VAC 50/60Hz) to the high voltage required for the lamps.

The ballasts are connected to the Photonizers via terminal blocks included with the installation kit.

For installation purposes, it is generally easier to assemble the ballasts and terminal blocks to the enclosure back plane and then wire the connections between the ballasts and terminal blocks. Afterward, install the backplane assembly into the enclosure and wire the lamps and mains power to the panel.

The first step is to remove the perforated panel from the enclosure by removing the screws, nuts and washers at each of it's corners. Retain fasteners for installation.

Using the provided M3.5 x 6 screws and flat washers, fasten the ballasts to the perforated panel approximately as shown (Figure 9)

Fasten the terminal blocks to the perforated panel where shown using M3.5 x 19 screws provided.

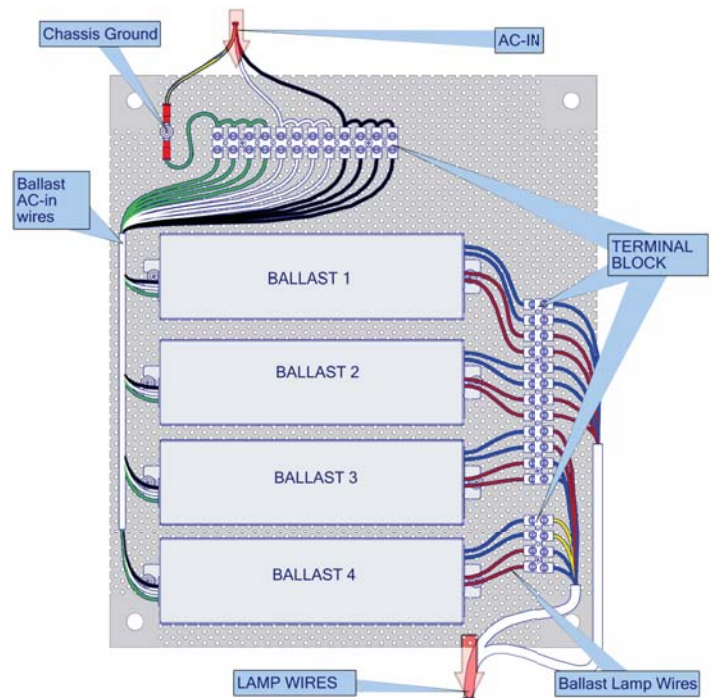


Figure 9: Backplane (mounting panel) layout

Using the system wiring diagram at the end of this document (See "Wiring Diagrams" on page 7), connect the ballast power input and lamp output wires to the terminal blocks with 18AWG Solid Core wire, For each wire, strip back 3/8" (10mm) insulation from each end.

Feed wires into terminal blocks and secure by tightening adjustment screws.

Feed wires into their indicated terminals on the ballasts by pushing each solid core wire into its terminal until the bare wire is fully inserted. Test the connection by pulling the wire and ensure it does not pull out of the terminal.

Install the assembled back plane in the enclosure, fastening it to the enclosure studs using the nuts and washers that came with the enclosure.

Mount Enclosure to Air Handler exterior or a nearby structural column using lag or sheet metal screws (not included). The enclosure with two ballasts weighs approximately 15 lbs (6.7 Kg). (Figure 10)

Conduit Installation

The lengths and quantities of conduit materials needed will vary based on the dimensions of the air handler, location of the panel and clearance requirements for other air handler system components.

(Figure 11) provides a basic configuration example including the recommended strain reliefs and junction boxes.

Wiring Ballasts to Photonizers

The length of each wire will be based on the placement of the Photonizers and the panel box. Each Photonizer includes a 2 meter jacketed 4-conductor cable that can be cut to a length convenient for installation and maintainance. The conductors are color-coded for easy pairing (See “Wiring Diagrams” on page 7).

Measure out wires to their corresponding lamp connectors and ballast output terminal block locations. Cut lengths of wire to connect to the lamp connectors at each photonizer location. The lengths should have enough additional length to ensure they can reach the photonizer locations and be trimmed to join the lamp connector wires.

Feed wires through conduit and junctions, ensuring that all Photonizer wires are completely enclosed except for the ends of the Photonizer connector cables and that these are strain relieved with wire clamps.

Splice Photonizer connector wires to ballast wires using insulated butt splices or appropriate hardware.(Figure 12).

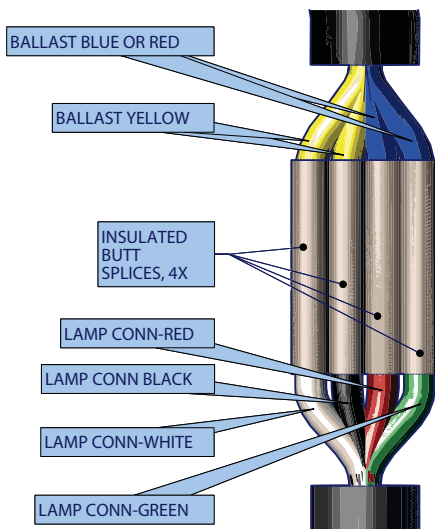


Figure 12: Splices between Connector cables and panel wires

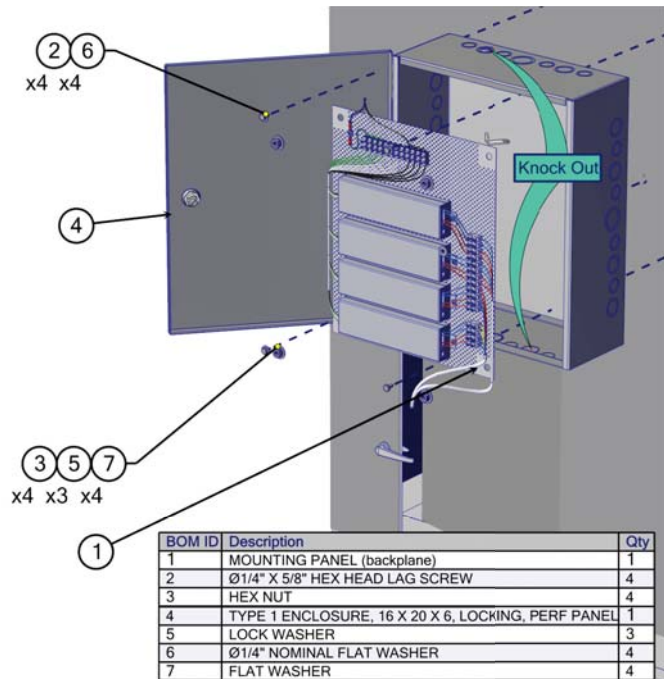


Figure 10: Backplane and Panel Installation

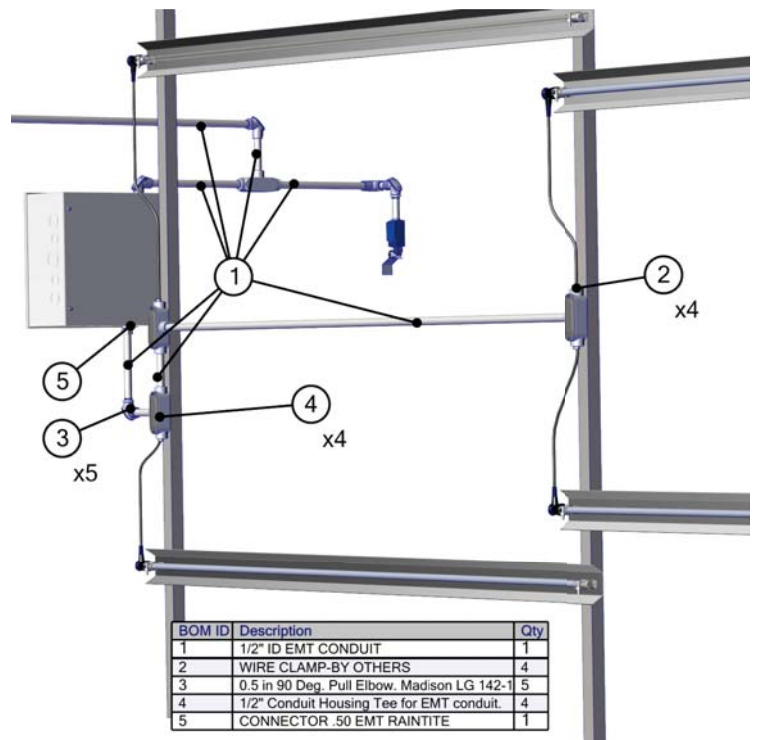


Figure 11: Recommended conduit and junctions (by others)

Cover spliced regions with heatshrink sleeve or other insulated material. Ensure that wire conductors and splice connectors are fully enclosed to prevent shorting or arcing between wires. For these allow an appropriate length of loose cable for easy connect and disconnect from the Photonizers.

Seal conduit around Photonizer cables using liquid-tight cord grips.

Wiring Building Mains Power to Panel

Using a punch or screw-driver, remove one of the Knock-outs from the bottom of the panel assembly.

Strip 3/8" of wire from the end of each photonizer wire and connect the 120-277 single phase AC Line and Neutral from the building mains to the ballast input terminal block. Connect the building ground wire to the panel back plane grounding screw. Secure by tightening screw terminals on wire ends.

Remove one of the panels upper knock-outs and feed the AC-in wires through this opening.

Connect the building mains AC wires to the terminal strip locations shown in (Figure 9) using 18AWG SolidCore wire.

Interlock Switch

For each user access point on the air handler where personnel may be exposed to the UV light generated by CoilCare®, you will need to install a safety interlock switch rigged to interrupt mains power to the panel assembly (Figure 13).

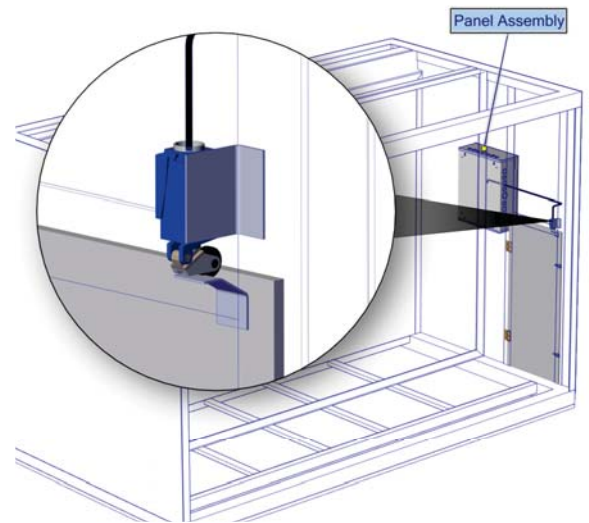


Figure 13: Interlock Switch

Warning and maintenance Labels

CoilCare® comes with two warning labels which should be located on the entrance to the Air Handler compartment and the enclosure as shown (Figure 14).

Sight Glass

It's recommended that the customer install a sight glass made of polycarbonate or another UV-C filtering plastic material to allow personnel to verify operation of the system.

Operation

The CoilCare® system begins operating as soon as power is connected to an uninterrupted circuit.

The CoilCare® system only requires periodic maintenance. On an occasional basis, the Photonizers should be wiped with a clean, cloth dipped in alcohol solution to remove deposits or residue.

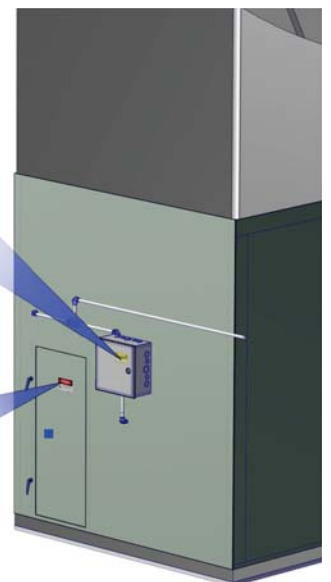


Figure 14: Locations of Warning Labels

Photonizer Replacement

UVC lamps lose effectiveness over time and should be replaced on an annual basis. To replace the UVC lamp, disconnect the lamp connector cable and remove the screws from the hanger clips that support the lamp. The lamp will then pop out of the hanger clips by pushing with slight force. Installation is the reverse of removal.

Only handle UVC Lamps by the insulators on the ends as oils in finger prints may damage the quartz material



Figure 15: Removing UVC lamp from fixture

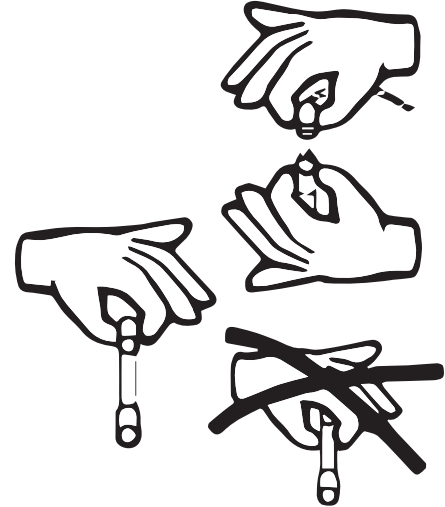


Figure 16: UVC lamp handling

UVC lamps contain small amounts of Mercury. If the lamp quartz envelope is broken, avoid direct contact with the Mercury and do not inhale fumes. Consult your hazardous waste clean-up procedures and take appropriate safety precautions. Store and dispose of UVC lamps in accordance with local and national laws regarding handling of Mercury and glass.

The enclosure warning label contains a log where you can record replacement dates for future reference.

To obtain replacement parts, contact BioZone Scientific International.

Replacement Photonizers have the following part numbers and are based on the lamp size.

CoilCare® Photonizer Catalog Number	Nominal Length	Replacement UVC lamp Catalog Number
CCX36	36"	10-36000
CCX48	48"	10-48000
CCX64	64"	10-64000
CCXH036	36"	10-H36000
CCXH048	48"	10-H48000
CCXH064	64"	10-H64000

Contact Information

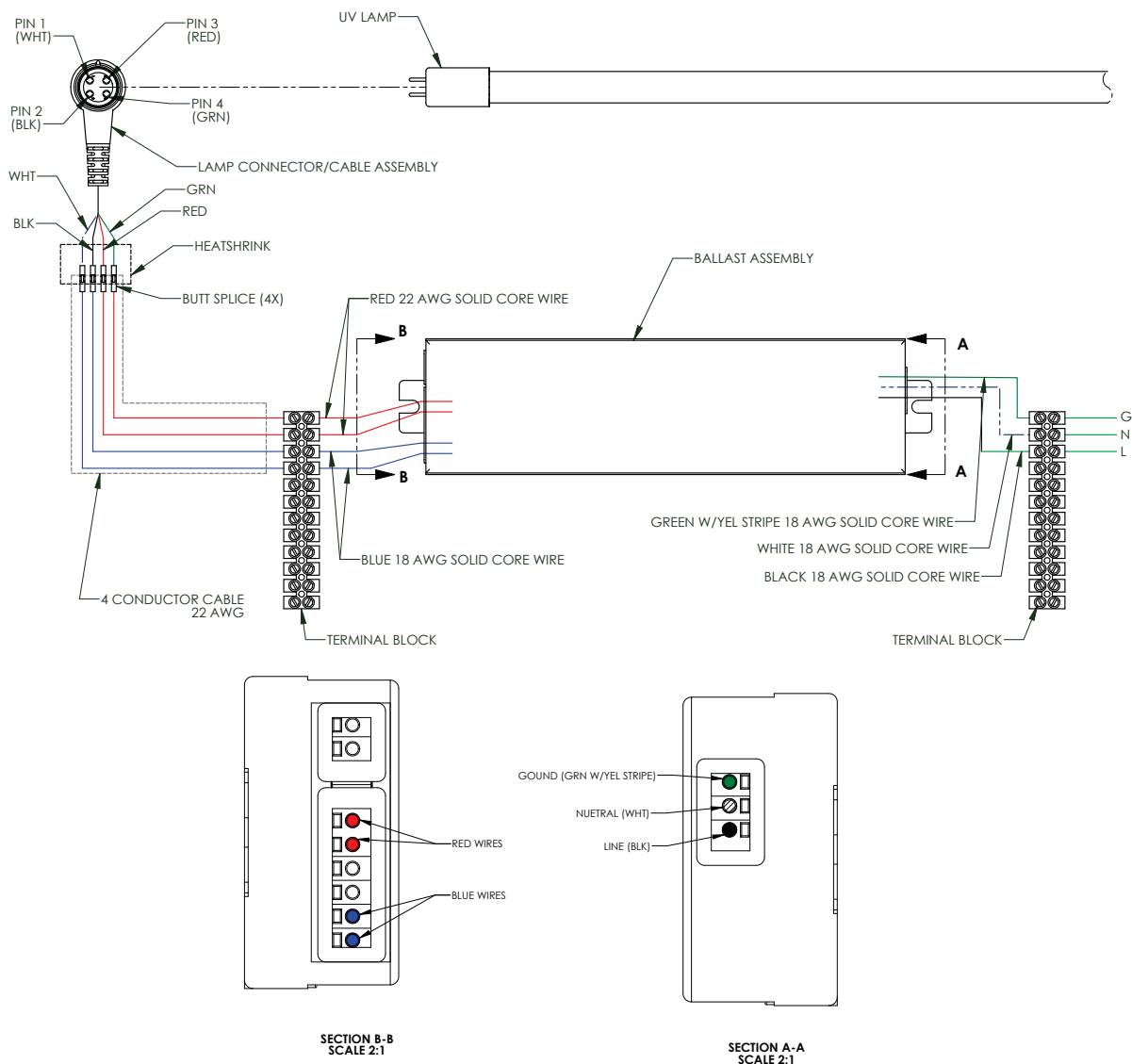
For information on Ordering replacement components or new products or to obtain service, contact BioZone Scandinavia AB:

Smedbyvägen 4
184 32 Åkersberga
0707330414
email: par@biozone.se
Web: www.biozone.se



Figure 17: More about
CoilCare

Wiring Diagrams





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