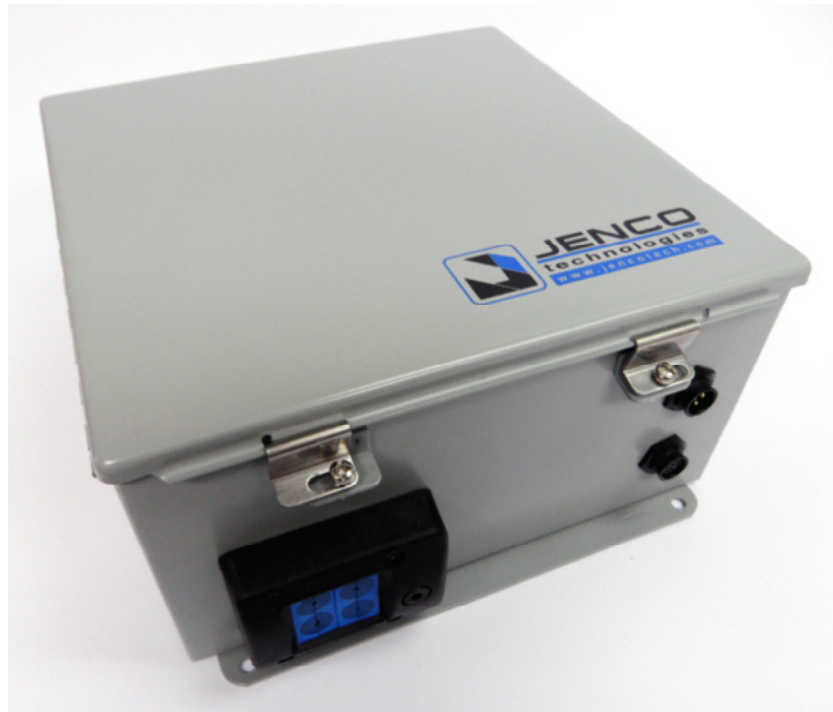


EZLink Users Manual

Version A



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Warnings, Cautions, Liability, Warranty, and General Notes

Safety Considerations

When installing or using this product, observe all safety precautions during handling and operation. Failure to comply with the following general safety precautions and with specific precautions described elsewhere in this manual violates the safety standards of the design, manufacture, and intended use of this product. Jenco assumes no liability for the customer's failure to comply with these precautions.



Depending on the specific signal cards used within the EZLink enclosure, a fiberoptic transmitter may be present. Fiberoptic laser transmitters used within the EZLink enclosure, contain class IIIb laser products as defined by the U.S. Department of Health and Human Services, Public Health Service, Food and Drug Administration. These laser products comply with 21 CFR, Chapter I, Subchapter J of the DHEW standards under the Radiation Control for Health and Safety Act of 1968. The laser operates at nominally 1310 nm or 1550 nm (depending on the model) with less than 30 mW optical output. The typical optical output for this product is less than 10 mW. The protective laser plug-in module housing prevents a user from being exposed to hazardous optical output levels. Since there is no human access to the laser output during system operation, no special operator precautions are necessary when fiber is connected to the transmitter and receiver. During installation, service, or maintenance, the service technician is warned to not look directly into the fiber connector or the fiber, which is connected to the fiber connector before it is connected to the fiberoptic receiver. The light emitted from the fiberoptic connector or any fiber connected to the connector is invisible and may be harmful to the human eye. Use either an infrared (IR) viewer or fluorescent screen for optical output verification. All handling precautions as outlined by Federal agencies or other authorities of class IIIb lasers must be observed. Do not attempt to modify or to service the laser diode module. Return it to Jenco for service and repair. Contact the Jenco for a return authorization and further instructions.

Electrostatic Sensitivity

Observe electrostatic precautionary procedures. Semiconductor laser transmitters and receivers provide highly reliable performance when operated in conformity with their intended design. However, a semiconductor laser may be damaged by an electrostatic charge inadvertently imposed by careless handling. Static electricity can be conducted to the laser chip from the center pin of the RF input connector, and through the DC connector pins. When unpacking and otherwise handling the transmitter, follow ESD precautionary procedures including use of grounded wrist straps, grounded workbench surfaces, and grounded floor mats. Exposure to electrostatic charge is greatly reduced after the transmitter has been installed in an operational circuit.

Service

Do not attempt to modify or service any part of the system other than in accordance with procedures outlined in this Operation Manual. If the system does not meet its warranted specifications, or if a problem is encountered that requires service, return the apparently faulty plug-in or assembly to Jenco for evaluation in accordance with Jenco's warranty policy. When returning a plug-in or assembly for service, include the following information: Owner, Model Number, Serial Number, Return Authorization Number (obtained in advance from Jenco), service required and/or description of the problem encountered.

Warranty

Jenco warrants to the original purchaser all standard products sold by Jenco to be free of defects in material and workmanship for one (1) year from date of shipment from Jenco. During the warranty period, Jenco's obligation, at our option, is limited to repair or replacement of any product that Jenco proves to be defective. This warranty does not apply to any product that has been subject to alteration, abuse, improper installation or application, accident, electrical or environmental over-stress, negligence in use, storage, transportation, or handling. This warranty is the only warranty made by Jenco and is in lieu of all other warranties, expressed or implied, except as to title, and can be amended only by a written instrument signed by an officer of Jenco. Jenco sales agents or representatives are not authorized to make commitments on warranty returns.

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Parts List & Accessories

Parts Included with EZLink

The following equipment is included with the EZLink enclosure.

- EZLink Enclosure with 6 stainless steel hinged cover clamps
- EZLink Users Manual
- AC power cord
- Status connector mating adapter
- ROXTEC assembly hex key
- ROXTEC assembly lubricant

Accessories

The following parts may be ordered separately from Jenco Technologies.

- DC power supply
- EZLink AC power cord
- EZLink pole mounting kit
- AC power mating connector, P/N JT-502-3182-3SG-3DC
- Stainless steel hinged cover clamps
- Stainless steel locking hinged cover clamps
- Status connector mating adapter, P/N JT-502-3282-9PG-3DC
- ROXTEC insert assembly
- ROXTEC assembly hex key
- ROXTEC assembly lubricant
- Right angle RF connectors for Optiva cards

Scope

This document describes the primary procedures and information needed to install the Jenco EZLink Outdoor Unit (ODU). Additional detailed product specification can be found in the Product Marketing Datasheet, available at www.jencotech.com.

The EZLink NEMA enclosure may be configured to accommodate the fiberoptic transmission of any of the following signals.

- 50 – 3000 MHz Analog L-Band
- 1 – 20 MHz Reference Clock
- IRIG-B
- 3G HD-SDI, SMPTE 424M Video
- HD-SDI, SMPTE 292M Video
- DVB-ASI Video
- SD-SDI, SMPTE 259M Video
- 12-Bit Composite Video
- 8-Bit Composite Video
- S-Video
- Dual Link DVI Video
- VGA & Component Video
- AES/EBU Digital Audio
- Balanced/Unbalanced Analog Audio
- Gigabit Ethernet
- 10/100 Ethernet
- USB 1.1/2.0 Serial Data
- RS-422/485 Duplex Serial Data
- RS-232 Duplex Serial Data
- Contact Closure

Environment Specifications & Requirements

- Ambient outside air temperature: -20°C to 50°C
- Storage temperature: -40°C to +85°C
- Start Up Temperature: 0°C minimum
- Absolute Maximum Rating (damage may occur beyond these limits) < -30°C and > +70°C
- NEMA/EEMAC Type 4, 12, 13

Mechanical Installation

The EZLink ODU product is a NEMA/EEMAC Type 4, 12, 13 wall mountable enclosure, powered with redundant power supplies, as shown in Figure 1 and Figure 2. A continuous hinge, combined with stainless steel clamps on three sides, provide environmental protection and security in indoor or outdoor applications. The enclosure consists of 14 gauge steel with seams continuously welded and ground smooth. Stainless steel clamps on three sides secure the enclosure door. A continuous oil-resistant gasket seals between door and box. Finish is ANSI 61 gray polyester powder paint inside and out.

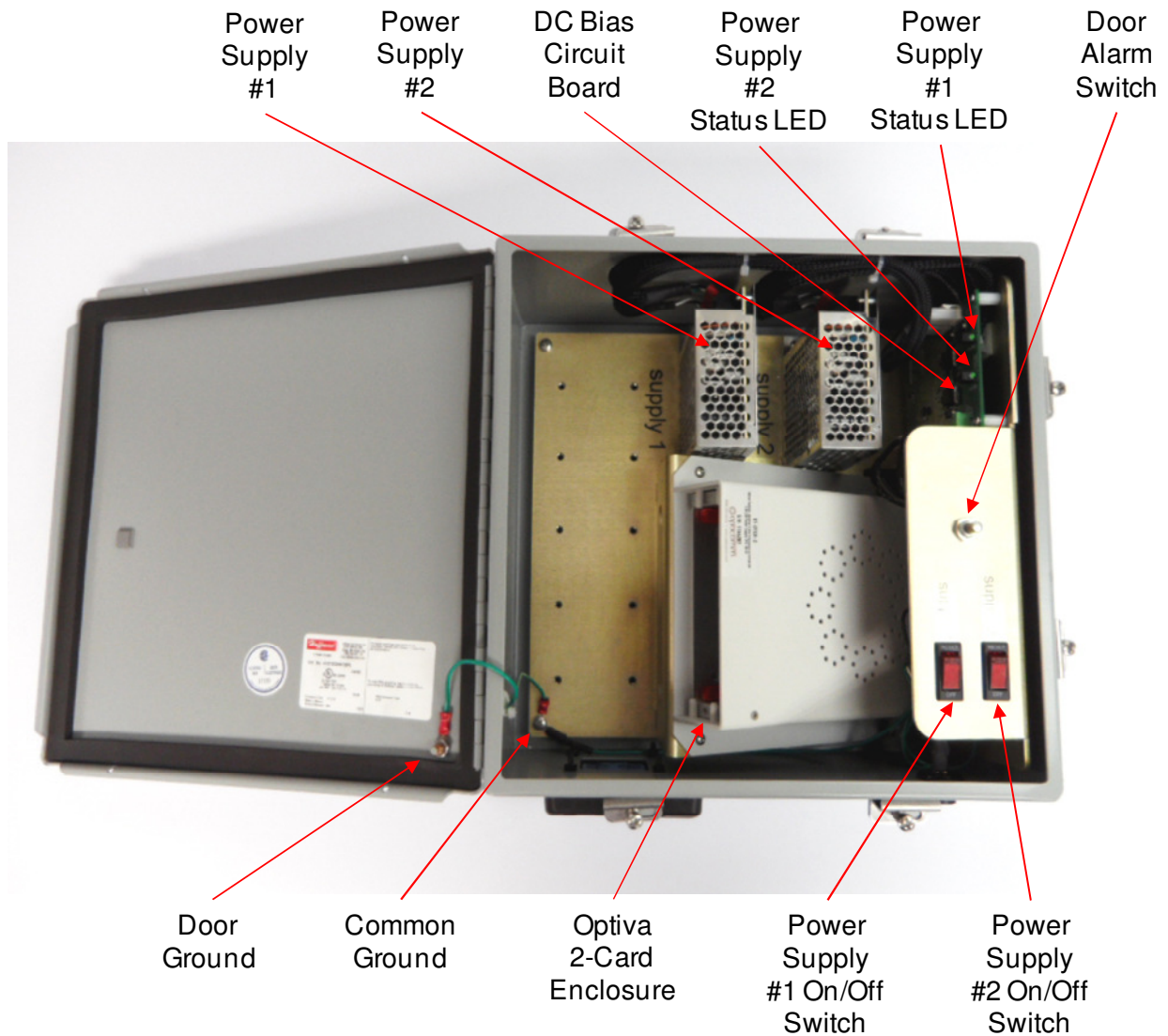


Figure 1. EZLink Interior View

Wall mounting is via external brackets. Four 0.310" mounting holes accommodate 0.250" bolts, screws, and/or lags. The weight of the box without Optiva fiberoptic transport cards is 20.6 pounds. Each of one or two Optiva cards weighs from 7 – 11 ounces depending on model.

Optiva insert cards and power supplies may be inserted or removed while the power supplies are turned on, although it is advisable to have the RF connectors disconnected during installation and removal.

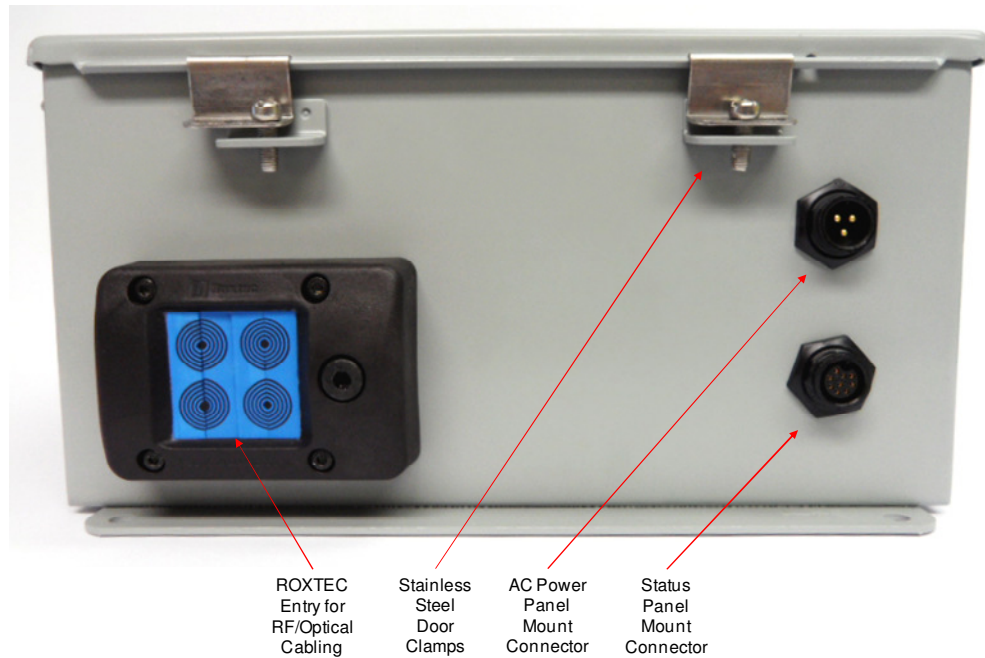


Figure 2. EZLink Bottom View

The outside dimensions of the EZLink enclosure are as shown in Figure 3. The weight of the EZLink enclosure is 20.6 lb (9.4 kg). A typical Optiva insert card weighs 0.62 lb.

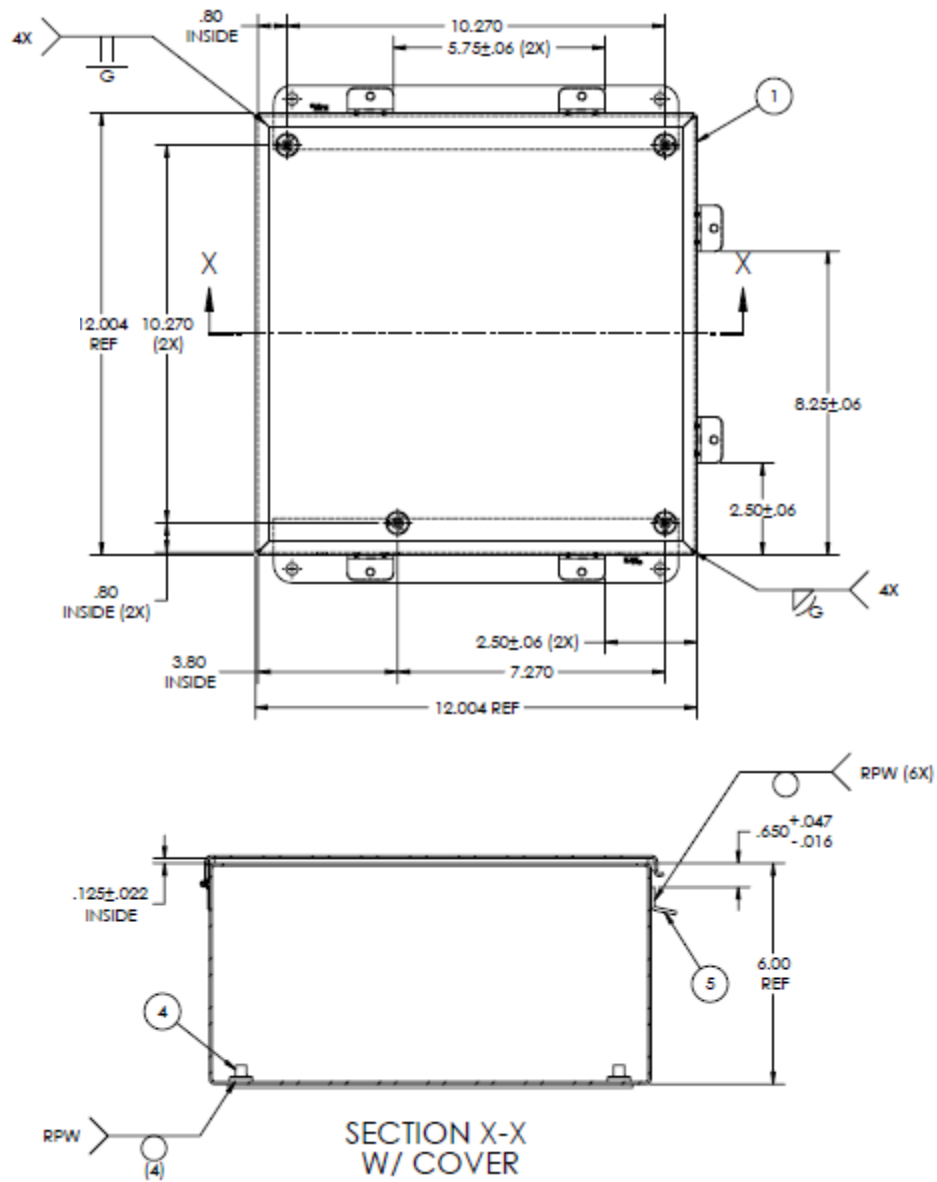


Figure 3. EZLink Outside Dimensions

Card/Cabling Installation

The following steps are required to make proper signal connections to the EZLink enclosure.

1. Properly insert Optiva fiberoptic transmitters and/or receiver cards.
2. Choose appropriate RF cable and optical fiber lengths to have inside the enclosure.
3. Insert RF and fiberoptic cabling through the ROXTEC penetration module.
4. Make RF and optical connections to the Optiva insert cards.

Optiva Insert Cards

The EZLink enclosure accommodates up to two Optiva insert cards. These are inserted into the 2-slot card housing within the EZLink as is shown in Figure 4. The bottom of the cards are oriented toward the bottom of the EZLink box. The bottom of the EZLink is defined as the side which has the panel mount connectors shown in Figure 2. Optiva cards may be secured into the OT-DTCR-2 with screws included at the top and bottom of the card face.

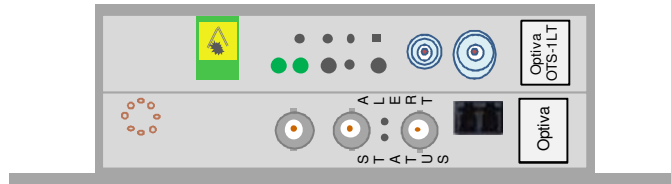


Figure 4. Optiva Insert Card Orientation

RF and Optical Cable Lengths Within Enclosure

RF and optical fiber will be secured within the ROXTEC via which will provide a weatherproof seal for cable entry. Cabling will not slip within the ROXTEC via after it is installed, therefore it is important to select the proper RF cable and fiberoptic cable lengths that will be present within the EZLink.

The primary criteria for choosing cable lengths within the EZLink enclosure, is to maximize cable bend radii. Like many types of RF cables, when an optical fiber is bent tighter than a roughly 1 inch (25 mm) radius, the light may escape, thus decreasing the RF gain of the link. Bends much tighter than 1 inch also may permanently damage some fibers. An example of cable routing within the EZLink is shown in Figure 5. Note also that cabling may be coiled within the EZLink.



When RF and optical cables are connected to Optiva cards, the path of the cabling will extend slightly above the plane of the top surface of the open enclosure. The depth of the door is sufficient such that upon closing, the door may touch the cabling, but should not cause excessive bending of cabling connected to Optiva cards.



Figure 5. RF & Optical Cable Routing Within EZLink

Securing Cabling in ROXTEC Penetration Module

Use the hex key provided to loosen the assembly that holds the ROXTEC penetration modules within the ROXTEC frame. Once loose, the modules can be removed from the frame. Follow the steps listed in Figure 6 to fit cabling into the individual ROXTEC modules, and assemble back into the ROXTEC frame. Again, once assembled, the cabling will not slide through the ROXTEC assembly so cable lengths within the EZLink must be adjusted accordingly prior to sealing.

To simplify the insertion of the last module, angle module halves and press them into the frame simultaneously as shown in Figure 7. For model EzEntry4, the recommended torque for the compression screw is 3 – 5 Nm. The reverse procedure is performed to disassemble.

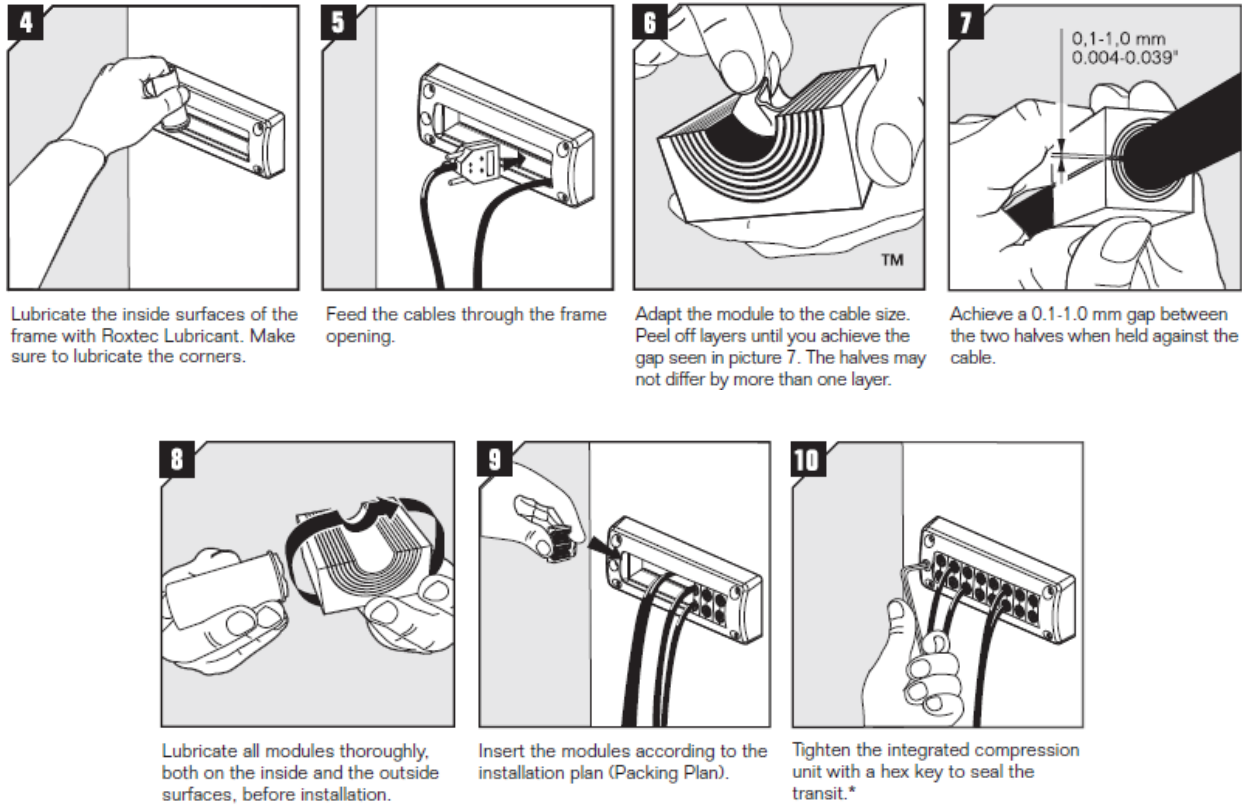


Figure 6. Procedure for Securing Cabling Within the ROXTEC Assembly

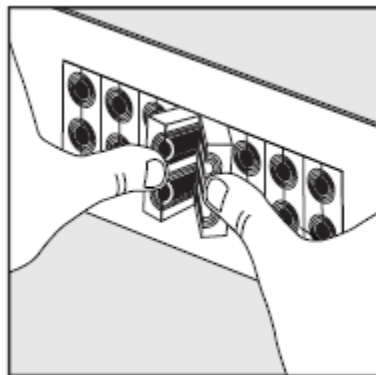


Figure 7. ROXTEC Assembly Last Module Insertion

Optical Fiber Connections

Optical Fiber Connector Types

Optical fiber connectors may be of type SC/APC (analog L-band cards) or either FC/UPC, ST/UPC, LC/UPC (baseband digital video/audio/data cards). Care must be taken to assure that the optical connectors on fiber and Optiva insert cards are consistent. The basic optical connector types are shown in Figure 8.

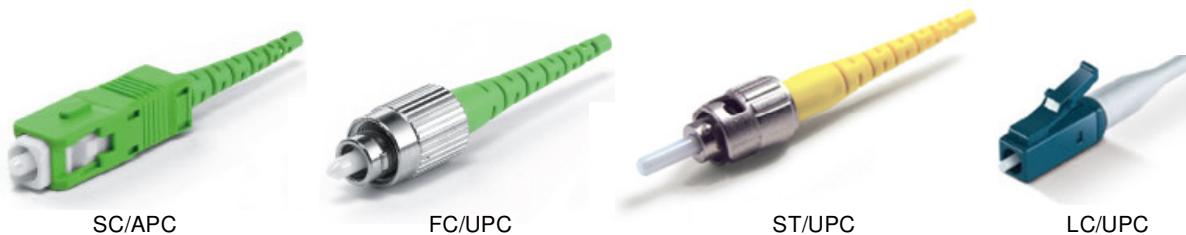


Figure 8. Basic Optical Connector Types

SC connectors are snap-in keyed connectors with 2.5 mm ferrules that latch with a simple push-pull motion. SC connectors are available in both single mode and multimode. Single mode SC connectors are available as SC/APC (which is common for analog RF and microwave signal transmission) and SC/UPC. SC/UPC connectors are available for multimode fiber.

FC connectors are screw on keyed connectors with 2.5 mm ferrules. It screws on firmly, but care must be taken to assure that the key is aligned properly prior to tightening. Single mode FC connectors are available as FC/APC (which is common for analog RF and microwave signal transmission) and FC/UPC. FC/UPC connectors are available for multimode fiber.

ST connectors have twist-lock bayonet mounts and long cylindrical 2.5 mm ferrules. ST connectors are spring-loaded, and care must be taken to assure that the key is aligned properly. Single mode ST connectors are available as ST/APC and ST/UPC. ST/UPC connectors are available for multimode fiber.

LC connectors are snap-in keyed connectors with 1.25 mm ferrules that latch with a push-pull motion while depressing the notched lever at the top of the connector. Single mode LC connectors are available as LC/APC and LC/UPC. LC/UPC connectors are available for multimode fiber.

Care must be taken to assure that the fiber ferrule tip is not scratched when inserting into the Optiva signal card. Cleanliness and care of the bare fiber at the ends of optical cabling is critical.



CAUTION: Take care when working with fiber that may be carrying light. Looking directly into the connector or fiber may damage your eye.

Fiberoptic connectors on cable that come pre-terminated should have been cleaned and capped, so usually the installer can simply remove the cap and make the connection without cleaning. If in doubt, one may wish to clean the connector before installation. Once the connection is made, there is no need to periodically clean the connector as long as it remains connected. The optical connectors on the Optiva cards are recessed and generally remain clean with no manual cleaning required. It is recommended to keep them covered when not in use. When handling connectors, remember that the light comes from an aperture only 9 microns in diameter, so grease from fingers or small scratches can easily create loss and reflections. To clean, moisten a cotton swap with approved alcohol and gently wipe the tip of the connector several times. Allow to air dry.

Electrical Signal Connections

Electrical Connector Types

Optiva RF signal cards accept either SMA or BNC RF connections. Optiva baseband video cards accept BNC connections. The basic electrical signal connector types are shown in Figure 9.



Figure 9. Basic Electrical Signal Connector Types

Optiva cards may also accept other cabling to accommodate Ethernet, audio, and serial data.

EZLink Powering & Status

The location of the EZLink AC power and status panel mount connectors is shown in Figure 2.

AC Power

AC power is supplied to a 3 pin male receptacle panel mount connector, shown in Figure 10. A power cord with the mating connector integrated is supplied with the EZLink enclosure. The mating connector as well as the AC power cord may be ordered separately (see Accessories).

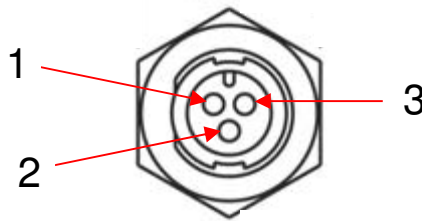


Figure 10. AC Power Panel Mount Connector

AC input voltage rating is single phase 100 VAC - 240 VAC. AC current is rated at 4.4 A. Input circuit breaker is rated at 10 amperes.

Status

EZLink status is accessed via a 9 pin female receptacle panel mount connector, shown in Figure 11. The mating connector is supplied with EZLink and may also be ordered separately (see Accessories).

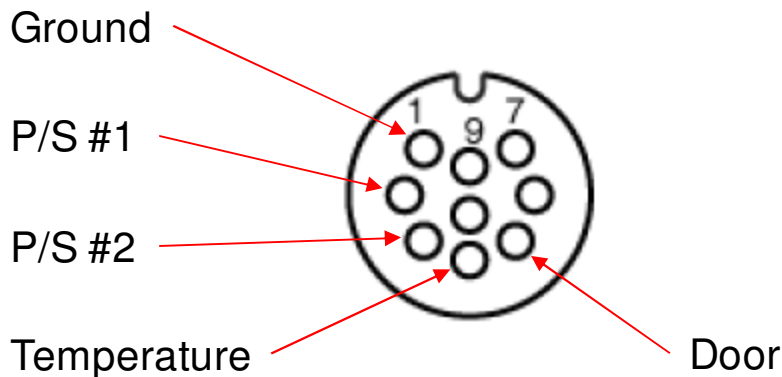


Figure 11. Status Panel Mount Connector

Pins 2 and 3 supply status for power supplies 1 and 2 respectively. $V_2 > 11V$ indicates power supply #1 OK. $V_3 > 11V$ indicates power supply #2 OK. $V_2 < 1V$ indicates power supply #1 failure. $V_3 < 1V$ indicates power supply #2 failure. Power supply status is also provided by LEDs on the DC bias circuit board as shown in Figure 1. GREEN LED indicates power supply OK. LED RED indicates power supply failure.

Pin 4 provides an indication of the temperature within the EZLink enclosure. An analog voltage is present on pin 4, and the mapping to internal temperature is shown in Figure 12.



Figure 12. Status Temperature Characteristic

Pin 5 provides status of the door alarm. $V_5 > 11V$ indicates door closed. $V_5 < 1V$ indicates door open.

EZLink Grounding

External Earth Ground

The EZLink may be configured with an external ground stud.

Internal Earth Ground

All internal grounds are connected to the common ground point as indicated in Figure 1.

Maintenance

Replacing a Power Supply

Removing one screw is required to remove a power supply from the EZLink mounting plate. Figure 13 shows the bottom surface of the power supply. When viewing the inside of the EZLink enclosure as shown in Figure 1, this screw to be removed is located on the top right corner of the power supply. Once this screw is removed, the power supply may slide toward the top of the EZLink enclosure to separate from a second screw that is positioned within the slot shown in Figure 13. This second screw is adjusted to the proper depth at the factory and secured with a thread lock. No adjustments to the second screw are necessary.

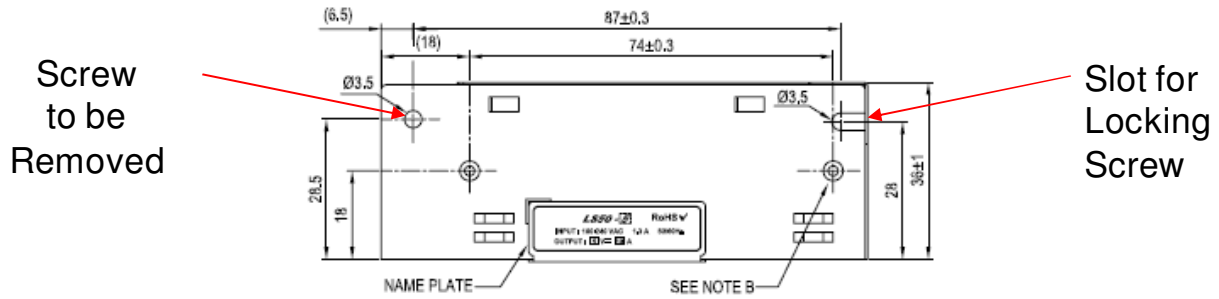


Figure 13. Power Supply Bottom Surface

Once the power supply is removed from the EZLink mounting plate, the power supply cabling may be removed from the power supply terminals. The power supply cabling harness connection to power supply terminals is shown in Figure 14.

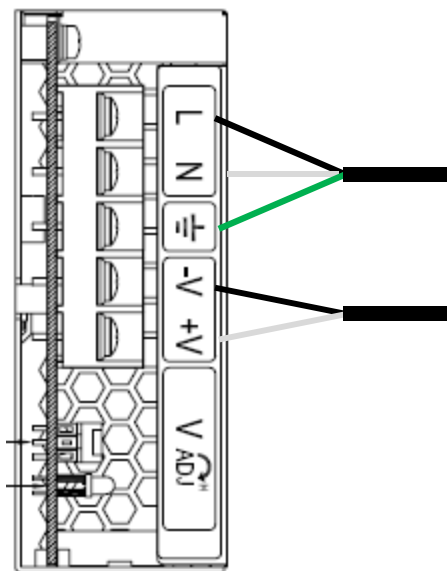


Figure 14. Power Supply Cabling Connections

Remove terminal cabling from old power supply, and attach to replacement power supply. After cabling is reconnected, slide the power supply slot onto the locking screw, and replace screw on top right corner. The recommended torque for mounting screw is 0.49 Nm (5.0 kgfcm).

Replacement power supplies may be ordered from Jenco (see Accessories).