Telecast Fiber Solutions

Using Fiber Optics User Guide

M4058-9900-102

24 April 2015

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Warranty information is available in the Support section of the Grass Valley Web site (www.miranda.com).

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About Fiber Optics

This chapter provides an overview of Fiber Optics and includes the safety and warranty information about it.

Fiber Cable Overview

Fiber Optics and Fiber Optic Cable are the core technologies at the heart of the equipment. The Telecast device features the ability to multiplex and de-multiplex a variety of video, audio and data signals so that they can be carried over a thin strand of Fiber Optic cable for long distances. The specific theory and operation of Fiber Optics is beyond the scope of this document.
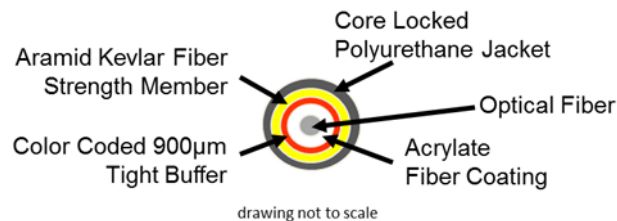

Fig. 1-1: Single Mode Fiber Optic Cable Cross-Section

Product Returns

In the unlikely event of damage to your Fiber Optics during shipping or delivery,take note of any damage with the delivery or shipping service. If any component does not work correctly out of the box, contact Grass Valley Support (Contact Us on page 7).

If the problem cannot be remedied through a service telephone call,you will receive an RMA number (Return of Merchandise Authorization). Please note this RMA number inside and outside of all shipping boxes and on all documentation provided with the items to be returned.

Safety and Fiber Optic Systems

Optical Fiber Safety

Never look directly into the end of the optic fiber while either end of the system is operating.

These devices contain CDRH Class 1 laser devices. To prevent damaging your eyes, always avoid looking directly at, or staring into, the laser light located on an optical connector or on the end of a fiber.

Infrared radiation is produced at the fiber connection port on the rear of the TX units and at the end of any un-terminated optical fibers that are attached to this port. Avoid any direct exposure to the light that comes from these sources.

Do not power up the unit when no fiber is attached to the fiber port.

There are no manual adjustments to be made in these devices. Do not attempt any manual type of service to this instrument, other than any as instructed this Guide. Refer all servicing to Grass Valley (see Contact Us on page 7).

Always use cable connector caps when the cables are not connected. This protects the connector from damage and the unlikely event of exposure to an operating optical link. Keeping the caps in place when the connectors are not in use will prevent dirt and dust from entering the connector and degrading the performance of the optical link.

FCC Part A Manual Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency (RF) energy and, if not installed and used in accordance with this User Guide, may cause harmful interference to radio communications.

2 Using Fiber Optic Cable

This chapter covers useful information regarding the deployment and use of Fiber Optical cable

Managing the Fiber Optic Cable

The deployment of Fiber Optic Cables will vary greatly among users. Where the Fiber Optic cable is permanently installed between units, such as between a campus performance venue and a central media center, the management of the fiber optic cable will be a one-time occurrence. For those users who deploy the equipment in variable and outside locations the considerations discussed below are important every time the Fiber Optic Deployment system is used.

To prevent damaging your eyes, never look directly into the end of the optic fiber while either end of the system is operating.

Always protect the ST Fiber Optic connectors when the cables are not connected. This protects the connector from damage and the unlikely event of exposure to an operating optical link. Keeping protection in place when the connectors are not in use will prevent dirt and dust from entering the connector and degrading the performance of the optical link.

It is important that you do an initial setup and test your system as soon as you receive it to confirm proper operation and to provide training for you and your team prior to an actual production.

It is highly recommended that you do not attempt to power up the system until all connections are made. In particular, the Fiber Optic Cable must be connected at both ends. If you need to power up the Fiber Optic Deployment unit, make sure that the Fiber Connectors are protected. This will protect theconnector from damage or dirt and protects you from damaging your eyes.

Deploying the Fiber Cable

Successful connection and management of the Fiber Cable requires you to perform four tasks:

- Plan the route the Fiber Cable will take to the units
- Run the Fiber Cable along the planned route
- Connect the Fiber Cable Connectors at each end
- Power up the device and check the Fiber Optic Cable Links by means of the LED display (where applicable).

Planning the Fiber Cable Route

Obviously the longer the planned cable run, the more planning required. When planning your cable route, consider the following:

- Be aware of any possible obstacles that might cause you to run short of cable. You may need to take a more indirect, but achievable route.
- Be aware of any possible hazards to the cable.

  While tactical fiber is extremely durable, it is not immune to damage. For example, you would not want to run the cable across a lawn scheduled to be cut during your live production. Make sure the empty roadway at 6am will not be filled with heavy equipment when it comes time to retrieve your cable.
- Be aware of any possible physical interference with the cable that might cause it to bend or kink to an extent causes unacceptable signal loss to occur.
- Be aware of any safety hazards.Make sure that the cable will not cause a tripping or tangling hazard with people, animals, or vehicles.
- Decide whether the Fiber Cable is to be unspooled from the Signal Source of the device location.

  If one end of the cable needs to be moved during the production, it makes sense to place the spool at that location. Make sure there is enough free cable coming out of the stationary end of the cable reel to accommodate a well-managed connection to the first connection.

Running the Fiber Cable

Do the following when running your Fiber Cable:

1 Make sure that both ends of the Fiber Cable are securely capped to prevent dirt and damage. ANY dirt in the connector can adversely affect Fiber Optical performance and potentially cause you to lose the use of your camera while the problem is being diagnosed and remedied.

2 If the cable run is long, or if you lose sight of the spooling-out cable reel, make sure you have appropriate assistance in running out the cable. When retrieving the cable, it is critical that you receive assistance to prevent the cable end from being caught or tangled up. Don't start reeling in the cable on your own and assume the Connector end will make it back to home base safely.

3 When unspooling the cable, ALWAYS make sure the stationary end is securely contained within the reel (a loose connector can bang around and be damaged). NEVER connect the stationary end of the Fiber Cable to the local equipment and then start unspooling the Fiber Cable. Severe damage to the cable could occur due to extreme spiraling of the connected portion of the cable.

Place the stationary cable connector inside the center of the reel prior to unspooling the cable.
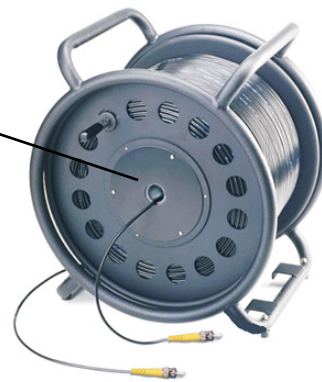

Fig. 2-1: Fiber Cable Reel

4 Prior to connecting the Fiber Connectors to the equipment, inspect both the Input and Output Connectors.

If required, clean with dry compressed air or with technical wipes that have been moistened with isopropyl alcohol. Fingerprints or other dirt on the optical connector end surfaces will reduce the optical signal level on the fiber. If the connectors have been properly capped during storage and movement, you will not likely have a problem. However, if a connector has been dropped or dragged through dirt or exposed to dust, you should cleanthe connector immediately.

5 Once the Fiber Cable has been connected, it is time to secure the Fiber Cable run. Make sure there are no cable hazards in the run. Secure the cable with Cable Guards and/or Gaffers tape to insure safety.

6 Now the system can be powered on. Plugging in Fiber Cable connectors with the power on will not damage the system, but is not recommended because of the chance of possible damaging your eyes.

7 When re-spooling the Fiber Cable, guide it across the entire width of the spool so that it winds evenly,reducing the possibility of cinching or kinks.

Grass Valley Technical Support

For technical assistance, contact our international support center, at
1-800-547-8949 (US and Canada) or +1 514 333 1772.

To obtain a local phone number for the support center nearest you, please consult the
Contact Us section of Grass Valley's Web site (www.grassvalley.com).

An online form for e-mail contact is also available from the Web site.

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