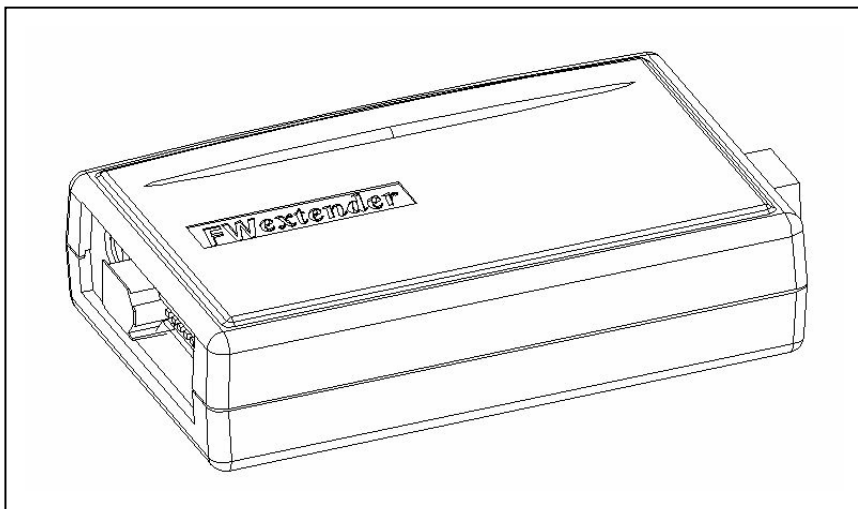


IEEE1394 Optical Interface Adapter

**FWA100 Series
IEEE1394 Fiber Optic Repeater
USER'S Manual**

P/N : OPI -D04004RA

Jan 2, 2004



Picture of FWA100 Series Model

FCC NOTICE

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES.
OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITION:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED,
INCLUDING INTERFERENCE THAT MAY CAUSE UNDERSIRED
OPERATION.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE : The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

Table of Contents

Chapter 1: Introduction

1.1 About This Manual 7

1.2 Features 7

1.3 Introduction 8

Chapter 2: FWextender Connector Descriptions

2.1 Port Definition Summary 10

2.2 Optical Connector Definition Summary 10

Chapter 3: Functional and Interfacing Descriptions

3.1 Cable Installation 11

Chapter 4: Electrical and Physical Data

4.1 FWextender Physical Dimensions 12

4.2 Electrical Characteristics 13

4.3 AC/DC Adapter Power Requirements 14

4.4 Trouble Shooting 15



Precautions

WARNING

DO not dismantle the housing or modify the module

Dismantling the case or modifying the module may result in electrical shock or burn.

Refer all servicing to qualified service personnel

Do not attempt to service this product yourself as opening or removing case may expose you to dangerous voltage or other hazards.

Keep the away from liquids

Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls/spills into the housing, unplug the module immediately. Have the module checked by a qualified service engineer before using it again.

Do not touch the powered Camera side and Grabber side at the same time.

This module is designed for long distance connection, so the Tx and Rx is isolated electrically. Touching the powered transmitter and powered receiver at the same time may result in electrical shock.

Do not touch the module with wet hands

Touching the housing and plug with wet hands is dangerous and can cause electrical shock.

Safety and EMI

This product should not have power applied to the repeater side modules while they are dies-assembled or otherwise open. Before power is applied to these modules the fiber-optic cable should be inserted into the modules connector. In no case should the camera side module be powered while the fiber-optic cable is disconnected from the repeater module. This presents an eye safety hazard due to the use of Class III optical components in the module for transmitting light signals to the frame grabber module.



Warranty 1(One) Year Warranty

Warranty Limitation and Exclusion

OptiPlus shall have no further obligation under the foregoing limited warranty if the product has been damaged due to abuse, misuse, neglect, accident, unusual physical or electrical stress, unauthorized modifications, tampering, alterations, or service other than by OptiPlus or its authorized agents, causes other than from ordinary use or failure to properly use the product in the application for which said product is intended,

FWA100 Series Overview



FWA100 Repeater



AC/DC power adapter



Manual

Optional Connections



6-6 or 6-4pin 1394 Copper



LC Type Optical Cable

Chapter 1 Introduction

1.1 About This Manual

This manual is part of basic Model guide reference documents that provides information necessary to incorporate the FWextender™ FWA100 series optical Firewire Repeater for high speed data transmission interface into a IEEE1394a 2.0 and IEEE1394b support. And this document covers spec of the FWextender.

The manual will be updated periodically to include latest component revisions and respective specification changes. Please contact OptiPlus to obtain information on how to support all of OPI's optical display interface.

1.2 Features

- Compatible with 1394a (DS Port) and 1394b(Beta port) configuration
- Cable lengths to 800m
 - 50/125μm : 500m
 - 62.5/125μm : 250m
- Data rate up to 400Mbps
 - Data Rates : 98.304, 196.608, 393.216Mbps
- Simple DC power requirement
- Compact, low-power translation electronics
- Use Flexible multimode grass fiber
- Tow electrical DS port and LC type optical port

1.3 Introduction

The FWextender™ IEEE1394 is an optical IEEE1394 communication interface for IEEE1394 device applications. The interface extends the base technology of Firewire to provide a specification more useful for applications.

For years, the scientific and industrial digital video market has lacked a standard method of communication. FWextender in use of apair of two, each at both ends interface thru optical fibers provides a long distance IEEE1394 interconnection over the limits of copper cable extension, 4.5m(15feet) without any distribution amplifiers or repeaters.

The IEEE1394 devices at each end in general interface to the FWextender by copper cable and FWextender to FWextender by optical fibers

The IEEE1394 optical interface will reduce support time, as well as the cost of that support. The optical cable will be able to handle the increased signal speeds, and a longer distance.

The FWextender™ is a direct plug replacement for the IEEE1394 cable in applications. It consists of a cable of multimode glass fibers terminated at each end with a small interface box from which a IEEE1394cable extends. The interface boxes are used to convert IEEE1394 signals to optical and back to IEEE1394 at each end of the cable. Each interface box must be powered by an external 12V DC regulated power source. There are no modifications the user must make to either cameras or frame grabbers that support the IEEE1394 specification.

The FWextender™ may be used where an application requires a longer distance than that supported by the IEEE1394 standard cable. The exact maximum distance depends on the camera data bandwidth. It is the distance solution for base configuration uses of a IEEE1394 cable.

Chapter 2 FWextender Connector Descriptions

2.1 Port Definition Summary

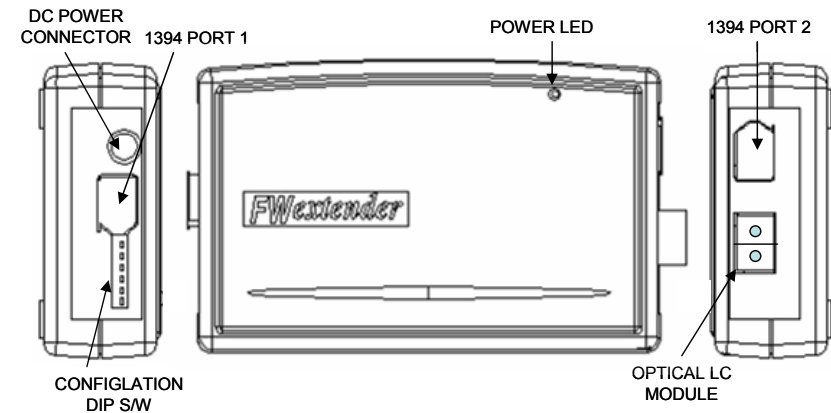


Figure 2.1 Connector Define

This adapter uses an 850nm VCSEL and PD Gbit transceiver. Port is defined as LC type port. Cable length is max 500m when use 50.0μm/120MMF multi mode glass fiber. Laser Class is 1 Eye Safety compliant (850nm VCSEL).

2.2 Optical Connector Definition Summary



Figure 2.2 Optical LC Connector Define

Chapter 3 Functional and Interfacing Descriptions

3.1 Cable Installation

The FWextender™ cable incorporates in-line boxes to convert electric-to-optical and optical-to-electric signals. The boxes contain electronic components and circuitry that may be damaged if the cable is incorrectly plugged into either a FWextender Optical Repeater.

Installation Procedure

- Connect the IEEE1394 cable from PC IEEE1394 port to FWextender port. PC side FWextender does not required the AC/DC power adapter.
- Connect LC type optical cable between device side FWextender optical port and PC side FWextender optical port.
- Connect the IEEE1394 copper cable between device side port and FWextender device side port.
- Plug the AC/DC power adapter to FWextender device side.
- Check the SYSTEM REGISTER INFORMATION in Windows control panel. IEEE1394 peripheral device and specified information should be visible.

There are no modifications the user must make to IEEE1394 that support the IEEE1394 specification. The FWextender may be used where an application requires a distance longer than the 4.5 meters supported by the IEEE1394 standard.

Chapter 4 Electrical and Physical Data

4.1 FWextender Physical Dimensions

The FWextender conversion box contains printed circuit boards mounted with electronic components and OptiPlus electric-to-optic and optic-to-electric modules. The physical dimensions are shown in the diagram below and depict the expected final dimensions for the conversion box.

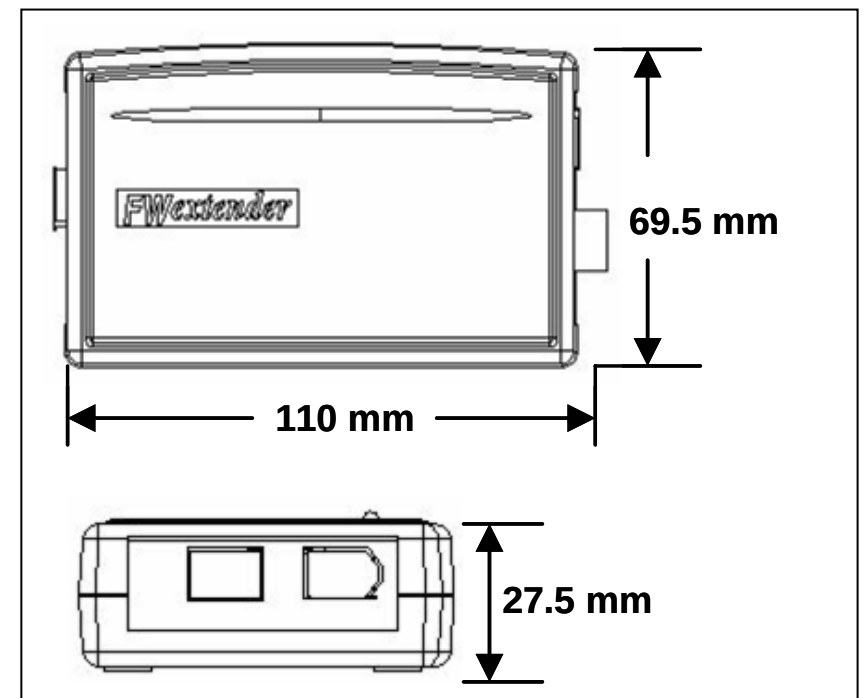


Figure 4-1 . FWA100 Series Physical Dimension

4.2 Electrical Characteristics

Absolute Maximum Ratings

Parameter	Min.	Typ.	Max.	Unit
Input Supply Voltage		+12.0		V
Power Dissipation				
Storage Temperature	-20		+70	°C
Operating Temperature	0		+60	°C
Humidity	10		80	%
Support Distance	10		700	m

Recommend Operating Conditions

Parameter	Min.	Typ.	Max.	Unit
Ambient operating Temperature	0		+50	°C
Data Output Load		50		Ω
Power Supply Rejection		50		mV _{p-p}
Operating Temperature	0		+60	°C
Supply Voltage		+12.0		V

4.3 AC/DC Adapter Power Requirements

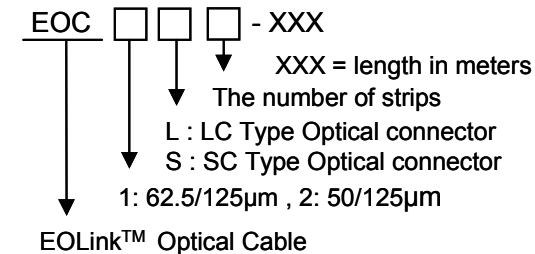
Current range of cameras use a variety of Supplies; 12V and or 15V. There is no single standard supply level.

FWextender boxes therefore will have a DC power input plug, and assume supply from either a wall mount supply or some other user defined supply.



EOLink™ Optical Cable

All model numbers are in the form :



EOLink Optical cables are sold in standard lengths from 20m to 1Km in 10 m increments.

4.4 Trouble Shooting

No	Problem List	Check Point
1	LED is not On	Check the AC/DC power adapter
2	Device does not operate	Check the device driver
3	Others	System reset -Check the electric 1394 cable and plug - Re-plug the power adapter Check the LC optical cable connector

Support

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