



INSTRUCTION MANUAL

RGB-5000 Series

**DIGITAL VIDEO FIBER OPTIC
TRANSPORT SYSTEM FOR
RGB/VGA/SVGA/XGA/WUXGA/HDTV**

MultiDyne
Video & Fiber Optic Systems

1-(877)-MULTIDYNE, 1-(800)-488-8378

191 Forest Avenue
Locust Valley, NY 11560-2132 USA
(516)-671-7278 FAX (516)-671-3362

MULTIDYNE, the Multidyne logo, RGB5000-FTX, RGB5000-FRX are registered trademarks of MULTIDYNE Electronics, Inc.

Copyright 2005 MULTIDYNE Electronics, Inc., Locust Valley, New York. Printed in the United States of America. All Rights Reserved. Contents of this publication may not be reproduced in any form without the written permission of MULTIDYNE Electronics, Inc.

This product was designed and manufactured in the
UNITED STATES of AMERICA

TABLE OF CONTENTS

INTRODUCTION	4
FEATURES AND OPERATION	4
TRANSMITTER, RGB5000-FTX-2/50/52	4
RECEIVER, RGB5000-FRX-2/50/52	5
POWER REQUIREMENTS	5
PHOTOS, RGB-5000	6
SPECIFICATIONS	7

INTRODUCTION

The RGB5000-FTX/FRX Digital Video Fiber Optic Transport System for RGB is a single-fiber solution. It has been designed to increase the transmission distance limitations of high resolution RGB and VGA video and computer graphics. The system will transport virtually any VGA or VESA-compliant RGB signal from 640x480 VGA up to and including 1920x1200 WUXGA as well as HDTV formats from 480I up to and including 1080P with full clarity over a single fiber. Higher resolution formats above 1600 x 1200 (1920 x 1200 maximum) can be transported with a minor loss in sharpness. The FTX transmitter unit can accept separate H and V sync as well as separate composite sync, in any combination of polarities, as well as sync-on-green. At the FRX receiver unit, the video output connector reproduces an exact replica of the sync. A loop through port on the FTX allows connecting a local display monitor. The RGB5000-FTX/FRX also supports the optional transport of 2 audio channels (one stereo pair). No additional fibers are required for the audio option.

The RGB5000-FTX/FRX supports HDTV and non-RGB video formats such as YUV, YCrCb or YPrPb. The RGB5000-FTX/FRX audio path is intended for line-level audio such as might be obtained from a computer sound card. For professional 600 ohm balanced audio applications, an external adapter or attenuator is recommended.

Applications include commodity and stock exchanges, medical and MRI displays, advertising, digital signage, air traffic control and military tactical displays, scoreboards and much more...

FEATURES and OPERATION

!!!!!! DANGER !!!!!

INVISIBLE LASER RADIATION

AVOID DIRECT EXPOSURE TO BEAM

OUTPUT POWER MAX: 2 mW. WAVELENGTH: 1300/1550 NM. CLASS III b LASER

The optical laser transmitter may harm the human eye. Proper eye protection should be used at all times when working with laser. Please read the entire manual before operating the Fiber Optic devices.

WARNING

HIGH VOLTAGES INSIDE

**The unit should be only serviced or opened by qualified personnel.
There are no user serviceable parts or adjustments inside.**

TRANSMITTER, RGB5000-FTX-2/50/52

The transmitter module is designated by model number RGB5000-FTX. The suffix –2 designates Multimode operation. The suffixes –50 and –52 designate singlemode operation for

short or long distance, respectively. The transmitter includes an **OPTICAL OUTPUT** ST connector and **RGB IN** and **RGB LOOPTHRU** HD-15 VGA-type connectors for the RGB input and local display monitor output, respectively, and a 3.5mm line-level **AUDIO INPUT** stereo audio input jack. When there is no local monitor plugged in, the **RGB IN** port is automatically terminated in 75 ohms. When a monitor is plugged into the **RGB LOOPTHRU** port, these terminations are automatically removed. The front panel of the unit includes a **SYSTEM OK** LED which indicates normal operation when illuminated green, and 3 LEDs for **RED**, **GREEN** and **BLUE**, which, when illuminated green, show the presence of the RGB input video. The intensity of these will vary with scene content. The RGB5000 normally accepts RGB type video, but can also accept component (YUV or YPrPb) video, such as from a DVD or Blu Ray player. When there is no separate TTL sync present at the FTX input, the unit automatically changes from RGB to YUV/YPrPb mode, as this is the most common format that does not have separate syncs. Thus, HDTV or SDTV signals in either RGBHV or YPbPr mode can be transported. With RGBHV signals, up to 1080P can be transported. However with YPrPb signals, only up to 1080i can be transported. Some YPbPr equipment puts out simultaneous TTL sync. This will confuse the RGB5000, and it will remain in RGB mode. When used with such equipment in YPrPb mode, the user must block the separate H and V syncs with an adapter cable. While the units normally default to YPrPb mode when separate TTL sync is not present, they can be set to remain in RGB mode by setting an internal jumper. This jumper is labeled "RGB/DVD" and would need to be changed to the RGB position. The jumpers are inside both the FTX and FRX.

RECEIVER, RGB5000-FRX-2/50/52

The receiver module is designated by model number RGB5000-FRX. The suffixes designate the operation mode as above. The receiver includes an **OPTICAL INPUT** ST connector and **RGB OUTPUT** HD-15 VGA and **AUDIO OUTPUT** 3.5mm connectors for the RGB display output video and stereo line-level output audio, respectively. The front panel has a **SYSTEM OK** LED that indicates the detection and lock of an input signal when illuminated green. If the link is broken, it will be extinguished. On a marginal link, it may glow at less than full brilliance, but such a link may not be able to support video transmission. There are also 3 LEDs for **RED**, **GREEN** and **BLUE**, which, when illuminated green, show the presence of the RGB output video. The intensity of these will vary with scene content. If the link is broken these will be extinguished. The FRX also has an internal DVD/RGB jumper as described above. If other than YPrPb type video is to be transported when separate TTL syncs are not present, this internal jumper must be moved from the DVD to the RGB position.

POWER REQUIREMENTS

The RGB5000-FTX requires 5VDC @ 1.6A and the RGB5000-FRX requires 5VDC @ 800ma. These are provided by 100-240 VAC input power supply modules, included.

PHOTOS, RGB-5000



Image 1

Front view of RGB-5000-FTX on the top and rear view of RGB-5000-FRX on the bottom. (The front view of RGB-5000-FRX is identical to the front of RGB5000-FTX.)



Image 2

Rear view of RGB-5000-FTX on top and rear view of RGB-5000-FRX on the bottom

SPECIFICATIONS

General:

Video Scan Rates:	15KHz -127KHz horizontal, 40Hz -130Hz vertical
Video Standards supported:	RGBHV, RGBS, RGsB, VGA, SVGA, XGA, SXGA, WXGA, WUXGA with TTL H and V syncs; Sun or Apple with TTL composite sync; Silicon Graphics with Sync-on Green; RGB HDTV 480i, 480p, 720p, 1080i or 1080p with TTL sync, YPrPb HDTV 480I, 480P, 720P or 1080i with sync on Y including 3-level sync.
Video Resolutions Supported:	1920x1200 @ 60 Higher resolutions and/or refreshes supported with some loss of sharpness
Video Signal to Noise Ratio:	>60dB
Audio Signal to Noise Ratio:	TBD
Fibers:	1 fiber, 62.5/125um Multimode (-2); 8.3/125um Singlemode (-50/52)
Fiber Connector Type:	ST
Wavelengths:	1310 and 850nm (-2); 1310 and 1550nm (-50/52)
Optical Budget:	6 dB (-2), 8 dB (-50), 13 dB (-52)
Maximum Transmission Distance:	200m (-2), 2km (-50) 15km (-52)
Operating Environment:	0 – 50 degrees C

Transmitter, RGB5000-FTX-2/50/52:

Video Input/Output Connectors:	1 HD-15 VGA plus 1 HD-15 VGA loop thru for local monitor.
Video Input Impedance:	75 ohms (internal termination automatically removed when Local Monitor is plugged in)
Video Input Level:	700mv p-p not including sync, if present on green
Audio Input Connector :	1, 3.5mm Stereo jack
Audio Input Level:	Line level, not to exceed +4dB
Audio Input Impedance:	>10k
Optical Output Power:	-9 dBm (-2), -10 dBm (-50) or -5 dBm (-52)
Power Requirement:	5 VDC @ 1.6A

Receiver, RGB5000-FRX-2/50/52:

Optical Input Sensitivity:	-15 dBm (-2) or -18 dBm (-50/52).
Video Output Connector:	1 HD-15 VGA.
Video Output Impedance:	75 ohms
Video Output Level:	700mv p-p not including sync, if present on green
Audio Output Connector:	1 3.5mm Stereo Jack
Audio Output Level:	Unity Gain with respect to FTX
Audio Output Impedance:	< 100 Ohms
Power Requirement:	5 VDC @ 800mAmps

. Specifications subject to change without notice.