FSR

USER MANUAL

RGB – 144 Distribution Amplifier

LIT1002

Operators Safety Summary

The general safety information in this summary is for operating personnel.

Do Not Remove Covers or Panels There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.

Power Source This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.

Grounding the Product This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Use the Proper Power Cord Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

Use the Proper Fuse To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Atmospheres To avoid explosion, do not operate this product in an explosive atmosphere.

Terms In This Manual

WARNING   *Highlights an operating procedure, practice, condition, statement, etc., which, if not strictly observed, could result in injury to or death of personnel.*   **NOTE** *Highlights an essential operating procedure, condition or statement.*

CAUTION *The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literatureaccompanying the appliance.*

AVERTISSEMENT! *Le point d´exclamation dans un triangle equilatéral signale à alerter l´utilisateur qu´il y a des instructions d´operation et d´entretien tres importantes dans la litérature qui accompagne l´appareil.*

VORSICHT *ein Ausrufungszeichen innerhalb eines gleichwinkeligen Dreiecks dient dazu,den Benutzer auf wichtige Bedienungs-und Wartungsanweisungen in der Dem Great beiliegenden Literatur aufmerksam zu machen.*

WARNING *The rear panel ON/OFF switch does not disconnect the unit from input AC power. To facilitate disconnection of AC power, the power cord must be connected to an accessible outlet near the unit. Building Branch Circuit Protection: For 115 V use 20 A, for 230 V use 8 A.*

WARNING *When the RGB-144 is used in the 230-volt mode, a UL listed line cord rated for 250 volts at 15 amps must be used and must conform to IEC-227 and IEC-245 standards. This cord will be fitted with a tandem prong-type plug.*

TERMS AS MARKED ON EQUIPMENT

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NOTE *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 energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the users own expense.*

INTRODUCTION

The RGB - 144 is the world's first configurable Distribution Amplifier (D/A). Four independent 1 x 4 D/A's are integrated within the 3RU chassis. What makes the RGB-144 unique is the ability to bridge adjacent 1x4 blocks to make a larger D/A.

In it's default configuration, the RGB-144's four 1x4 D/A's operate independently. By simply flipping the bridge switches, adjacent 1x4 D/A's are bridged together and the input of the first block is sent to all of the bridged outputs allowing many different configurations to suit your signal distribution needs.

Possible configurations include: four 1x4 D/A's; one 1x8, and two 1 x 4 D/A's; two 1x8 D/A's; one 1x12, and one 1x4 D/A's; and one 1x16 D/A. To insure the highest possible signal quality, all outputs are fully buffered, and the measured bandwidth, from input to any output, is greater than 350MHz with a flat signal response.

The RGB-144's universal sync inputs support both analog and TTL level sync of either polarity. Advanced sync detection circuitry accurately slices the input sync signal independent of amplitude and offset to provide a stable, jitter-free output even in noisy environments.

The RGB-144's extended bandwidth makes it compatible with all computer video resolutions from workstations, PC's, notebooks, or Mac's as well as scalers and line doublers. In addition, each of the RGB inputs may be used independently or in concert to distribute composite, component, and S-video. A universal power supply extends the RGB-144 s compatibility to the world.

FEATURES

400 MHz video bandwidth　　　　　　　　*All metal enclosure*
Four bridgeable 1x4 D/A Blocks　　　　　*Blocks Rack mount ears included*
All outputs are fully buffered　　　　　　*Universal worldwide power supply*

APPLICATIONS

Boardrooms
Live Event Productions
Education
Conferences Centers
Rental Companies
Video Conferencing,
and other complex Integration Systems not requiring a matrix switcher

TECHNICAL SPECIFICATIONS

400 MHz video bandwidth   *All metal enclosure*
Four bridgeable 1x4 D/A Blocks   *Blocks Rack mount ears included*
All outputs are fully buffered   *Universal worldwide power supply*

Video
Gain: *Unity (into 75 ohm load)*
Bandwidth: *>400MHz (+0.1db/-3db) measured from input connector to output connector within a block, all outputs connected.*
+0.1db/-0.5db 175MHz measured from input connector to output connector within a block, all outputs connected.
>350MHz (+0.1db /-3db) measured from input to any output connector when fully bridged , all outputs connected.
+0.1db/-0.5db 150MHz measured from input connector to output connector when fully bridged, all outputs connected.
Differential Phase Error: 0.04 degrees (NTSC)
Differential Gain Error: 0.04 % (NTSC)

Video Input *– Each Block (4 blocks total)*
Number/Signal Type: 1 RGBHV, RGBS, RGsB, RsBsGs, component video, composite video, S-video
Connectors: 5 BNC Female
Video Level: ±1.0Vp-p (nominal); 2.0Vp-p (maximum)
Impedance: 75 ohm
Maximum DC offset: ±1.2V (with 0.7Vp-p signal)

Video Output *– Each Block (4 blocks total)*
Number/Signal Type: 4 Matching input type
Connectors: 5 BNC per output (20 total)
Video Level: ±1.0Vp-p (nominal); 2.0Vp-p (maximum)
Impedance: 75 ohm
Maximum DC offset: ±20MV max

H&V Sync Inputs:
Type: TTL or Analog sync positive or negative polarity (universal sync input)
Level: 0.7 - 5Vp-p; Sync on green 0.3V
Frequency: 50 Hz - 150 KHz on either sync channel
Impedance: 75 ohm
*Max Rise/Fall Time: No limit on input rise/fall time due to advanced sync detection circuitry*

H&V Sync Outputs:
Level: TTL sync, 2.0Vp-p into 75 ohm load
Rise/Fall Time: 900ps into 75 ohm load
Max propagation delay: 15 ns (each block)
Output Impedance: 75 ohm

GENERAL

Power AC input: 110/220 VAC, 50/60 Hz
Mounting: Table top or rack mount, rack ears included
Enclosure Type/Size: Metal, 3 RU high,19" wide

CONNECTING THE UNIT
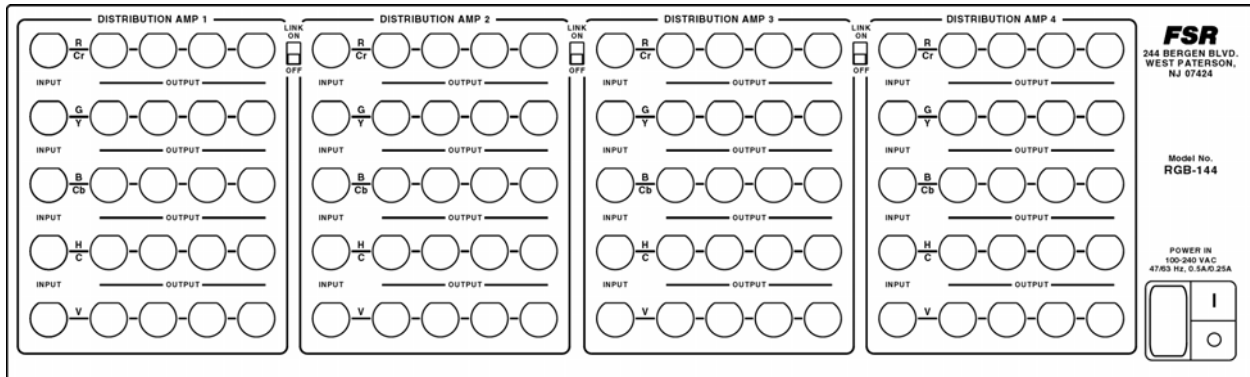
DESCRIPTION OF INPUTS AND OUTPUTS

All video input and output connections are BNC female chassis mount connectors. They will accept a variety of video input types. The power cord entry accepts the supplied IEC power cordset at 110/220 VAC 50/60 Hz. Typical configuration options are illustrated on the following pages.

Video Input Connections

The video input section on the RGB-144 rear panel provides up to four universal inputs. Each input can accept composite (NTSC/PAL), s-video, component (RGB, Betacam (Y, Pb, Pr)), and computer video signals. The connections for each input channel are made via five BNC connectors. Connection points for each type of video signal are specified below.

Format – RGB *(Typical Devices: Computers)*		Format – YUV or Y Pr Pb (Betacam) *(Typical Devices: DVD Player or Betacam Deck)*	
Source	RGB-144	Source	RGB-144
R	R/CR	Y	G/Y
G	G/Y	Pr	R/CR
B	B/CB	Pb	B/CB
H	H/C	or	
V	V	Y	G/Y
Format – S-Video (Y/C) *(Typical Devices: S-Video VCR)*		U	R/CR
		V	B/CB
Source	RGB-144	Format – Composite/PAL *(Typical Devices: NTSC/PAL VCR, VIDEO CAMERA)*	
Y	ANY R, G, or B INPUT	Source	RGB-144
C	ANY R, G, or B INPUT	NTSC/PAL	ANY R, G, or B INPUT

CONFIGURATION CHART
(Matrix showing quantity of input x output combinations for 16 maximum outputs)

QTY	INPUT	OUTPUT
4	1	4
1	1	8
2	1	4
2	1	8
1	1	12
1	1	4
1	1	16

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TYPICAL INSTALLATION

TYPICAL RGB-144 SYSTEM INSTALLATION
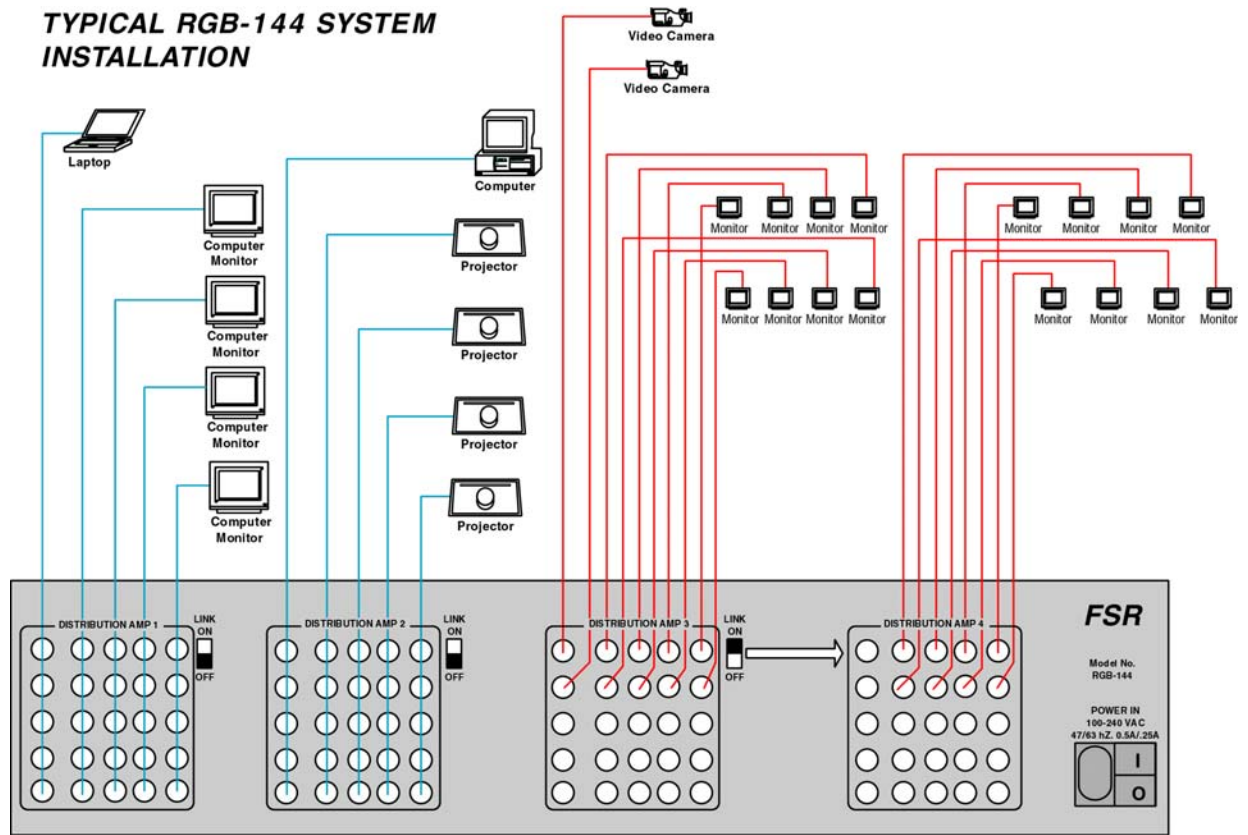
REGULATORY COMPLIACE

UL, cUL, FCC, and CE approvals applied for.

LIMITED WARRANTY

The RGB – 144 Distribution Amplifier is warranted against failures due to defective parts or faulty workmanship for a period of three years after delivery to the original owner. During this period, FSR will make any necessary repairs or replace the unit without charge for parts or labor. Shipping charges to the factory or repair station must be prepaid by the owner, return-shipping charges (via UPS Ground) will be paid by FSR.

This warranty applies only to the original owner and is not transferable. In addition, it does not apply to repairs done by other than the FSR factory or Authorized Repair Stations.

This warranty shall be cancelable by FSR at its sole discretion if the unit has been subjected to physical abuse or has been modified in any way without written authorization from FSR. FSR's liability under this warranty is limited to repair or replacement of the defective unit.

FSR will not be responsible for incidental or consequential damages resulting from the use or misuse of its products. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Warranty claims should be accompanied by a copy of the original purchase invoice showing the purchase date (if a Warranty Registration Card was mailed in at the time of purchase, this is not necessary). Before returning any equipment for repair, please read the important information on service below.

SERVICE

Before returning any equipment for repair, please be sure that it is adequately packed and cushioned against damage in shipment, and that it is insured. We suggest that you save the original packaging and use it to ship the product for servicing. Also, please enclose a note giving your name, address, phone number and a description of the problem.

NOTE: all equipment being returned for repair must have a Return authorization (RMA) Number. To get a RMA Number, please call the FSR Service Department (1-800-332-FSR1). Please display your RMA Number prominently on the front of all packages.

CONTACT INFORMATION

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