WARRANTY

MicroImage Video Systems warrants that each Color Bar Generator is free from defects due to faulty materials or improper workmanship for a period of one (1) year. MicroImage Video Systems further warrants that any part which proves defective in materials or workmanship within one (1) year , will be replaced or repaired at no cost to the user. Labor to replace defective parts will be done without charge, provided the equipment is returned to MicroImage Video Systems prepaid, insured and properly packaged. Prior return authorization must be obtained from MicroImage Video Systems.

NOTE

This warranty covers the MicroImage Color Bar Generator only.

CONDITIONS

This warranty is void if the warranted part has been altered or subjected to abuse or misuse. Defective parts must be returned to MicroImage Video Systems.

SOLE WARRANTY

This Warranty is in lieu of all other warranties expressed or implied including, without limitation, any implied warranty or any implied warranty of fitness for a particular purpose. MicroImage Video Systems shall have the final right to determination as to the existence and cause of any defect and its appropriate adjustment in accordance with the terms of this warranty. In no event shall MicroImage Video Systems be liable for any consequential or collateral damages.

RETURNS

All returns MUST have an RMA number. Please call, fax or email for an RMA form. The RMA form will have the proper shipping address for returns.

Phone	610-754-6800
Fax	610-754-9766
Email	techsupport@mivs.com

Color Bar Generator
Operation Manual

NTSC/RS170/PAL/CCIR

Model CBG350 (Composite/S-Video)
Model CBG450 (RGB)
Model CBG450Y (YUV)

MicroImage Video Systems
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SPECIFICATIONS

Bar Type	selectable SMPTE style split field or full field
Full field bar order	75% - White, Yellow, Cyan, Green, Magenta, Red, Blue, Black
SMPTE Top bar order	75% - Gray, Yellow, Cyan, Green, Magenta, Red, Blue
SMPTE Reverse bar order	75% - Blue, Black, Magenta, Black, Cyan, Black, Gray
SMPTE Bottom row order	-I, White, Q, Black, Pluge (-4, 0, +4), Black
Generation Method	Digital, ITU-BT656 source, 4:2:2, MicroImage Logic
D/A conversion	10 bit, 2X over-sampled (27MHz)
Modulation	Digital
Filtering	Anti-Aliasing filters on all output signals
Sync system	NTSC RS170A, PAL/CCIR
Chroma freq (CBG310 only)	NTSC/RS170 - 3.579545MHz, PAL/CCIR - 4.43MHz
Horizontal frequency	NTSC/RS170 - 15.73426KHz, PAL/CCIR - 15.625KHz
Vertical frequency	NTSC/RS170 - 59.94Hz, PAL/CCIR - 50Hz
Scan lines	NTSC/RS170 - 525 total, PAL/CCIR - 625 total
Output levels	
Composite (CBG350 only)	1.00Vpp into 75 Ω
S-video Y (CBG350 only)	1.00Vpp into 75 Ω
S-video C (CBG350 only)	286mV burst into 75 Ω
RGB (CBG450 only)	1.0Vpp composite RGB signals (with sync)
YUV (CBG450Y only)	referenced to 1.0Vpp Luminance
Connectors	
Composite (CBG350 only)	BNC Female
S-Video (CBG350 only)	4 pin mini-DIN Female (Std. S-Video conn.)
RGB/YUV (CBG450 only)	9 pin D-sub Female
Power	1.3mm female coaxial barrel connector, tip positive
Temperature	
Operating	0° ~ 50° C (32° ~ 122° F)
Storage	-40° ~ 60° C (-40° ~ 140° F)
Humidity	
Operating	10% ~ 90% (non-condensing)
Storage	5% ~ 95% (non-condensing)
Power	5VDC (4.75 to 5.25VDC), approx 130mA, 200mA max
Size	3.9" (100 mm) x 2.8" (70 mm) x 1.2" (29 mm)
Weight	5 oz. (145 g)
Manufactured in Bechtelsville, PA USA by MicroImage Video Systems	

Standard Power Unit - 5VDC Wall Plug

Input	100-240VAC, 50-60Hz, 9W
Output	5VDC, 1.5A regulated
Type	switching
Size	small form factor, approximately 1"(25mm) thick
Weight	4 oz. (160g)

Specifications are subject to change without notice.

Version CBG350 Rev 0 07-18-2013 JWS, Reviewed 07-06-2015

PATTERN TYPES

The CBG350/CBG450 produces two types of color bar signals, full field and split field. The full field signal generates 8 vertical full field 100/75 digitally generated and encoded Color Bars. The split field (SMPTE style) generates ITU-BT656 digitally generated and encoded split field color bars.

IN CASE OF DIFFICULTY

If you are experiencing problems with any MicroImage product, you can contact MicroImage Support using the following methods:

Phone	610-754-6800
Fax	610-754-9766
Email	techsupport@mivs.com
Web	www.mivs.com

UNPACKING

The Color Bar Generator package includes the following items:

CBG350/CBG450 Color Bar Generator Unit
5VDC Regulated Universal Power Supply
This operation manual

Please inspect all items carefully and report damaged or missing items to your dealer or MicroImage Video Systems.

CONNECTIONS

Power

The Color Bar Generator uses a 5VDC wall plug power supply. Connect the power supply to a suitable power outlet. This product will also operate from an external source of 5 (+/-0.25V), negative ground.

Note: Some included power supplies have an adapter to allow compatibility with power systems from many countries. Please choose the appropriate adapter for your power system.

Composite & S-Video Connections
(CBG350 only)

The MicroImage Color Bar Generator will produce both composite and S-video outputs. Connect a suitable length video cable from the industry standard BNC or S-Video Mini-DIN output connector on the color bar generator to a 75 ohm terminated input of a video monitor or other video equipment. See the manuals provided with other equipment for information on 75 ohm termination.
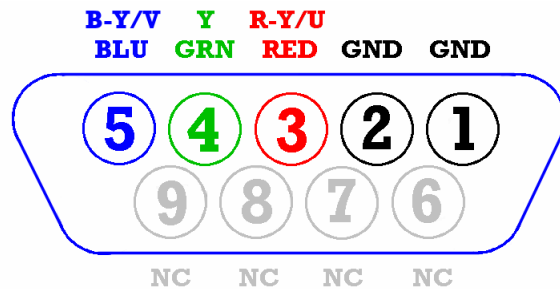
RGB & YUV Connections
(CBG450)

The MicroImage Color Bar Generator will produce either RGB or YUV video depending on the model number. Connect a suitable length multi-conductor video cable from the 9 pin D-sub female

connector on the color bar generator to a 75 ohm terminated RGB or YUV input of a video monitor or other video equipment. For RGB, the unit produces sync on all three channels. See the manuals provided with your other equipment for information on 75 ohm termination.

RGB/YUV CONNECTIONS

The following diagram shows the pin connections for the RGB and YUV connections.

MODE SELECTION

The CBG350/CBG450 is designed to be easy to operate while also providing maximum flexibility, producing either NTSC or PAL compatible color bars.

An internal DIP switch block allows the CBG350/CBG450 to select between NTSC and PAL, full or split field, color or B&W, composite, RGB and YUV color bars. To access the switch block, disconnect power, then remove the two Phillips screws holding rear panel of the unit. Follow proper anti-static handling precautions. Once the two screws are removed, the circuit board should slide out of the housing.

The switches are numbered 1 through 8 and can be activated by a small screwdriver or pen tip. The default position will depend on the product ordered since this switch is used to select the proper product from the internal set of signals that can be generated.

Switch 1 - PAL Select: Selects NTSC (RS170) or PAL (CCIR). In the off position, the unit will generate NTSC/RS170 video timing with a 60Hz field rate. In the on position, it will produce PAL/CCIR video with a 50Hz field rate.

Switch 2 - B&W: Selects B&W mode. In the off position, the unit will generate color video, in the on position, the output will be monochromatic or B&W.

Switch 3 - Full Field: In the off position, the unit will produce a SMPTE style split field video signal. In the on position, it will produce the full field color bar signal.

Switch 4 - RGB: When both switches 4 and 5 are in the off position, the unit will produce NTSC or PAL encoded video (for the BNC/S-Video connections). If this switch is moved to the on position, the unit will generate RGB video with sync on all three channels.

Switch 5 - YUV: When both switches 4 and 5 are in the off position, the unit will produce NTSC or PAL encoded video (for the BNC/S-Video connections). If this switch is moved to the on position, the unit will generate YUV video.

Note, if both switches four and five are enabled, the unit will enter an undefined test mode which is not recommended in normal operation.

Switches 6, 7, and 8: These are not used at the present time and should be left in the off position for proper operation.

Reassembly: When re-assembling the unit, the board should slide into the second lowest slot in the housing. Reinsert the two Phillips screws and tighten until snug. Do not apply excessive torque, or either the plastic end bezel or the housing threads may be damaged.