
PXS31 1 PX/2 DSP Operation Manual

Advanced DSP Single Input Video Split Screen and Fade Controller

Models

PXS311E
PXS311C

MicroImage Video Systems division of World Video Sales Co., Inc

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Description

The MicroImage PIX/2 DSP family of controllers is designed to combine the images from two video cameras into one image. The PXS311 controller is designed to provide all of the major functions of this family using only a single camera.

Using the PXS311, the image on one channel will be live from the camera, while the other channel may display either a stored image or the live image. Images can either be split on the screen showing a portion of each image, or the two images may be mixed or faded together as an overlay. The images can be split in either the horizontal or vertical direction. The live camera is normally displayed on the left or top and the saved image on the right or bottom. These positions may be interchanged at the touch of the EXCHANGE button. The split position can typically be adjusted over 100% of the screen area with the front panel rotary control.

The Fade and Difference modes allow the two images to be added together or subtracted. The mix can be adjusted over the entire range from a full channel A image to a full channel B image.

The PXS311 will operate with either an NTSC or PAL video source, and may be configured via a rear panel switch.

PXS DSP Variations

PXS311E Designed to work with a B&W, composite, or S-Video input signal. Both channels may be operated from a single composite video or S-Video source, or one input may be composite while the other is S-Video. Both composite and S-Video outputs are provided, regardless of input type. This unit can be set to either the NTSC or PAL standard. The PXD310E will not provide power to the video camera.

PXS311C This unit has all the features of the PXS311E but also provides power for the video camera. This product has a non-standard input connector and requires special cabling for the camera connection.

Board Level and OEM products are also available. Please contact your dealer or MicroImage Video Systems for additional information.

Unpacking

The PXS311 package includes the following items:

PXS311E or PXS311C1 PIX/2 DSP control unit
DTS120200-P5 Universal Power Module
This operation manual

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

Initial Setup

Before the unit can be used, it must be set up for the proper video standard and input signal selections. These two functions (and the center split mode enable) are set with four DIP switches located on the rear of the unit. Each switch is numbered, and OFF is in the UP position while ON is in the DOWN position. The following sections describe how to set these switches properly. With all switches in the UP (default) position, the unit is configured to accept an NTSC composite or B&W video signal via the Input BNC connector.

Signal Standard Selection

This PX/2 DSP product MUST be set to the proper video standard to work correctly. The choices are NTSC (RS170/60Hz) or PAL (CCIR/50Hz). NTSC is the common video standard for North America while PAL is common in Europe and other parts of the world. The factory default setting is NTSC (DIP switch number 1 off).

To set the unit for PAL operation, place the number 1 DIP switch in the LOWER (ON) position. The RAISED (OFF) position is for the NTSC standard.

The unit must be set to the same standard as both the video source (camera, VCR, etc) and the monitor.

Input Signal Selection

Setting the PX/2 to accept the correct input signal is important for proper operation. A set of DIP switches on the rear panel is used to select either a composite video signal or an S-Video signal for each channel.

Switches 3 and 4 should be in the RAISED position (OFF) for either a B&W or color composite signal (BNC connector) on channel A. These switches should be set to the LOWER (ON) position for an S-Video signal on the channel A mini-DIN connector.

Switches 3 and 4 should both be set to the same position for proper operation.

Camera Center Split Mode

Camera Center Split mode can be enabled via DIP Switch 2. In this mode, the unit will show the CENTER of each camera image when the horizontal or vertical split modes are enabled. This mode allows the display to be switched from Channel A or Channel B to either H Split or V Split without having to re-center the images on their respective halves of the display.

With this mode disabled, the unit will show either the left side of one image and the right side of the other, or the top of one and the bottom of the other.

When in the Centered Camera Split Modes, the MIX control does not have any effect, the split position is always set to 50% of each camera image. The left and right, or top and bottom, 25% of each image will not be visible.

To use Center Camera Split Mode, place DIP Switch number 2 on the rear panel to the LOWER (ON) position. To return to the standard split modes, place DIP Switch number 2 in the RAISED (OFF) position.

Connections

Power

Plug the small round connector on the end of the power module cord into the power input connector on the PIX/2 DSP controller. Plug the power module into an appropriate power receptacle using either the supplied electrical equipment cord for US power, or a similar cord designed for the power outlets in your country which fall into the range of 100-240VAC at 47-63Hz.

Inputs

Connect the video output from the camera to the Channel A input on the PX/2 DSP controller using either a BNC or an S-Video cable. See 'Input Signal Selection'.

For PXS311C units, a single camera connector is provided for the camera, which can provide power to the camera in addition to routing video signals from the camera. Cables may need to be custom designed to interface with the specific model of camera.

Outputs

Connect a video cable from the PX/2 DSP to the video monitor or other display or recording device using either the composite Video output BNC connector or the S-Video output mini-DIN connector. Both output connections may be used simultaneously.

Operation

Once connected properly, the PX/2 DSP is easy to use. Following is a description of each switch and control. When first testing the PX/2 DSP, place the MIX control near the center of its range.

Power Pressing the power switch will turn the power on or off. The green indicator next to the power switch will light to indicate power is on.

Cam A Pressing the Cam A switch will change the display to

show 100% of the channel A image. A Red indicator to the right of the switch will indicate that this mode is selected.

Cam B Pressing the Cam B switch will change the display to show 100% of the channel B image. This image may be either live or stored. A Red indicator to the right of the switch will indicate that this mode is selected.

H Split Pressing this key will cause the screen to be split, adjusted by the MIX control. Channel A will normally be displayed on the left side and channel B on the right side. A Green indicator to the right of the switch will indicate that this mode is selected. Note that the MIX control does not have any effect if the Centered Camera Split Mode is enabled via DIP switch number 2.

V Split Pressing this key will cause the screen to be split, adjusted by the MIX control. Channel A will normally be displayed on the top and channel B on the bottom. A Green indicator to the right of the switch will indicate that this mode is selected. Note that the MIX control does not have any effect if the Centered Camera Split Mode is enabled via DIP switch number 2.

Fade Pressing this key will cause the camera images to be added together. The MIX control will adjust the amount of each image to be mixed, and can fade completely from the channel A to the channel B image. A Yellow indicator to the right of the switch will indicate that this mode is selected.

Difference Pressing this key will cause the image from channel B to be subtracted from channel A. The MIX control will allow the images from A and B to be nulled, highlighting any differences. A Red indicator to the right of the switch will indicate that this mode is selected.

Freeze Pressing this key will freeze the image on channel B

until the button is pressed again or power is removed. This stored image may then be compared against the live image on the A channel. This image will be lost when the unit is switched off or power is removed. A Blue indicator to the right of the switch will indicate that an image has been stored.

Exchange Pressing this key will exchange the A and B channels when the unit is in split screen mode. This will cause the image from channel A to appear on the right or bottom, rather than the top or left as normal. A Green indicator to the right of the switch will indicate that this mode is selected.

Mix The MIX rotary control is used to adjust the position of the split or the ratio of the fade. This control has no effect when the A or B switches are pressed.

Note that the MIX control does not have any effect if the unit is set to H split or V Split and the Camera Center Split Mode is enabled via DIP switch number 2.

In case of difficulty

The PX/2 DSP unit will display a blue screen if no incoming video is detected. If this condition occurs, please check the settings of the rear panel DIP switches, or the input signal and connections.

If you are experiencing problems with your MicroImage product, you can contact us in one of the following ways:

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Web www.mivs.com

Specifications

Input levels

Composite/B&W	1Vpp composite 75 Ω
S-Video	Y (Luminance) 1Vpp 75 Ω, C (Chroma) 286mVpp Burst 75 Ω

Output levels

Composite Video	1Vpp into 75 Ω
S-Video (Y, C)	1Vpp Y, 286mV C (burst) into 75 Ω

Camera Power

PXS311E	N/A
PXS311C	Camera Power +12VDC @ 250mA max.

Connectors

Composite	BNC female
S-Video	4 pin mini-DIN female
Power	2.1mm female coaxial power jack

Split Range

Horizontal	0 to 53.3uS from start of active video >98% of screen width typical
Vertical	NTSC/RS-170 - 0 to 485 lines, fully variable 100% screen height typical PAL/CCIR - 0 to 586 lines, fully variable in, 100% screen height typical

Fade Range

A: B ratio from 100%/0% to 0%/100%, 256 steps

Difference Range

A: B ratio from 100%/-0% to 0%/-100%, 256 steps

Memory

10 megabit/channel (full frame X1 each input)

Timebase Correction

digital memory, frame aligned

Decoding

9 bit multi-standard digital decoding

Processing

8 bit, 4:2:2, ITU-R601 and ITU-R656 standards

Encoding

Full Digital Modulation

Oversampling

4x (54MHz) output over-sampling

Output DACs

10 bit Digital to Analog converters

Input Filters

3 stage analog anti-aliasing filters

Output Filters

Digital plus 4 stage analog anti-aliasing filters

Horizontal Freq.

RS-170/NTSC	15.734KHz typical
CCIR/PAL	15.625KHz typical

Vertical Frequency

RS-170/NTSC	59.94Hz typical
CCIR/PAL	50Hz typical

Bandwidth

6 Mhz typical

Crosstalk

Greater than 48dB

Gain Match A to B

Typically within 1%

Temperature

Operating	0° ~ 40° C (32° ~ 104° F)
Storage	-40° ~ 60° C (-40° ~ 140° F)

Humidity

Operating	10% ~ 90% (non-condensing)
Storage	5% ~ 95% (non-condensing)

Power

Voltage	+10 to +20VDC (+12VDC typical), neg ground
Consumption	230mA typical (2.8W)
Protection	Automatic electronic fuse, internal, self resetting

Size

7.60" x 7.25" x 1.60" (193 x 184 x 40 mm)

Weight

1lb. 9 oz. (709g)

Power Module

Part Number	DTS120150U/AC-1-P5
Type	Switching power supply, UL, CSA, CE, TUV, DVE approved
Output	12 VDC, 1500mA, Regulated (no minimum load)
Voltage In	100 ~ 240 VAC, 47 - 63 Hz
Input Cable	Standard IEC-320 3 wire input connector, Standard 6ft. Power cord for US use included
Output Cable	6ft. 2 wire, 2.1mm female coaxial barrel conn.
Consumption	0.4A max
Size	3.9" x 1.9" x 1.4" (99mm x 48mm x 36mm) without cable
Weight	7 oz. (198g)

Manufactured in the USA by MicroImage Video Systems

Warranty

MicroImage Video Systems warrants that each PXS311E or PXS311C 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 PXS311E or PXS311C 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
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