DX-4400 – SD/HD/2K/4K-SDI
Text & Graphic Overlay Inserter

Overview

The Microtronix **DX-4400** is a low latency dual channel - SDI Text and Graphic Inserter supporting PIP, alpha blended text, image and graphic overlay / on-screen display (OSD) on progressive, progressive segmented frame (PsF) and interlaced video. The unit operates from SD video up to 2K video and optionally to Cinema 4K via Dual-Link SDI.

Up to 1,000 independent text or graphic fields can be displayed and positioned as required. The text can be independently controlled for: color, size, font and background color. Enhanced on-screen display (OSD) capabilities include: alpha blending, multi-layering and dynamic positioning of text, image and graphic fields/components.

With support of embedded audio and VBI metadata, the DX-4400 is designed for use in broadcast, professional video recording studio and high-end video surveillance applications. Secondary SDI outputs provide a clean loop-thru output of each input.

The product is optionally available to OEM's as an open printed circuit board for incorporation into embedded video systems.

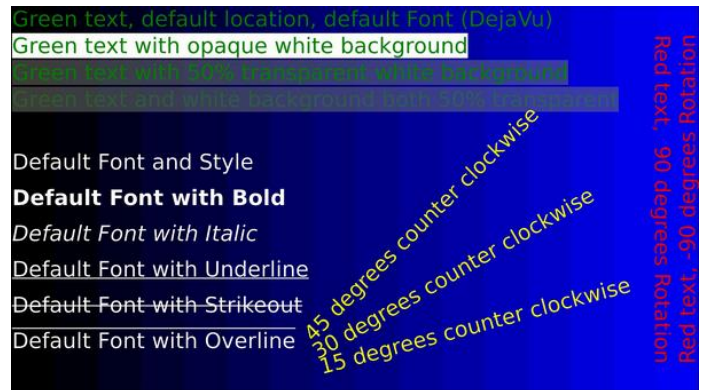*Note: not all features are supported across all video formats.*

Text & Graphic Overlay Features

- ➢ Display of text, images and graphic fields
- ➢ Alpha blending of the text & graphic elements
- ➢ Independent color selection of text fields & background
- ➢ Dynamic positioning and rotation of text and graphic overlay components
- ➢ Opacity control

- ➢ Independent ON/OFF control of text & graphics
- ➢ X-Y-Z position control
- ➢ Fully scalable text sizes
- ➢ Software drawing of lines, rectangles, circles & ellipses
- ➢ User control via RS-232 serial or Ethernet ports
- ➢ Retention of text, image & graphic settings

Sample Displays

Graticule Overlay

Sample of available text styles for OSD

Technical Specifications

Description

An integrated ARM SoC supports enhanced text, image and graphics overlay, line/circle drawing and rotations. Up to 1,000 independent text fields, images and graphic elements can be overlaid (inserted) onto the video stream. An extensive command set allows for full control of size, font type, color, position, background color and full transparency control. The overlay data and user commands are delivered to the unit through the RS-232 (DB9 or USB) serial ports or via Ethernet.

The unit is designed for use in broadcast, professional video recording, information displays, surveillance, security and embedded applications requiring live text insertion with no degradation of the video content. The product passes all video content* (on the primary video input) including audio channels and embedded metadata. Either SDI input can be used for PIP and for a scaled dual (side-by-side) display. The modes of operation include:

1) Dual Text & Graphics Overlay Inserter

In this mode the product provides 2 video channels with separate text and graphics overlays for each channel. Each channel supports the SD, HD, and 3G video resolutions (listed below) complete with ancillary data pass through.

2) Text & Graphics Overlay Inserter with PiP

This mode provides a single text inserter with a main input and a secondary input. Both inputs have scaling capabilities to allow for use as Picture in Picture (PiP), split screen or side by side configurations. The unit has a single text and graphics overlay and supports the SD, HD, and 3G modes listed in the product specifications. Ancillary data from input 1 passes through the unit to the output.

3) 4K Dual Link Text & Graphics Overlay Inserter

The unit provides a text and graphics overlay inserter for one channel of 4K video transported in the SMPTE dual-link mode of operation. Ancillary data pass through is not supported. 4K video support is an optional upgrade.

Hardware Features

- Two 75Ω SD – 3G SDI inputs
- Two 75Ω SD – 3G SDI overlay outputs
- Two 75Ω SD – 3G SDI Loop / pass-thru outputs
- Ports: RS-232 & USB Serial, Ethernet, USB OTG
- micro SD Card slot

- Voltage: 9-14VDC (12Vdc 120/240VAC adapter supplied)
- Current / Power: 1.5A / 18 Watts
- Dimensions: (D x W x H) 6.75" x 5.75" x 1.5"
- Operating Temperature: 0C to 40C

Software Features

SD, HD, 2K Video Formats

- 480i 29.97 NTSC & 576i25 PAL
- 720p @ 25 / 29.97 / 30 / 50 / 59.94 / 60 frames per second
- 1080i & 1080PsF @ 23.98 / 24 / 25 / 29.97 / 30 fps
- 1080p @ 23.98 / 24 / 25 / 29.97 / 30 / 50 / 60 fps
- 2048x1080p @ 23.98 / 24 / 25 / 29.97 / 30 / 50 fps
- Configurable frame delay from 1-20 frames

4K Video Formats (Dual Link Video)

- 3840x2160p @ 23.97 / 24 / 25 / 29.97 / 30 fps
- 4096x2160p @ 23.97 / 24 / 25 / 29.97 / 30 fps

(4K supported using Dual Link, 3 Gb/s SDI, Quad or 2SI mapping)

Other Features

- Passes* audio and embedded metadata
- Micro SD card storage of user configuration, text fields, images (PNG, JPG, JPEG, BMP etc.) and graphic elements

Notes: * Feature not supported in 2K & 4K video modes or from the secondary input in PIP-TI mode.

Ordering Information

Part Number	Description
DX-4400-2K	SD/HD/2K-SDI Text & Graphics Overlay Inserter with PIP OSD and SDI loop outputs
DX-4400-4K	SD/HD/4K-SDI Text & Graphics Overlay Inserter with PIP OSD and SDI loop outputs and 4K support