

The TDS3SDI Video Module Creates A Fast, Tell-All Tool For ITU-R BT.601 Video Troubleshooting



Features:

- Converts ITU-R BT.601 format digital video to analog video
- Compact in size; portable and battery-capable
- Provides video picture with on-screen line select
- Incorporates vectorscope with 100% and 75% color bars

Benefits:

- Converts the otherwise indecipherable digital stream of bits into familiar analog signals for quick problem diagnosis
- Ideal for field work or behind-the-rack troubleshooting
- See what the originating camera or source sees and quickly navigate between lines
- With built-in graticules, it is easy to measure chroma levels and check white balance

Tektronix[®]

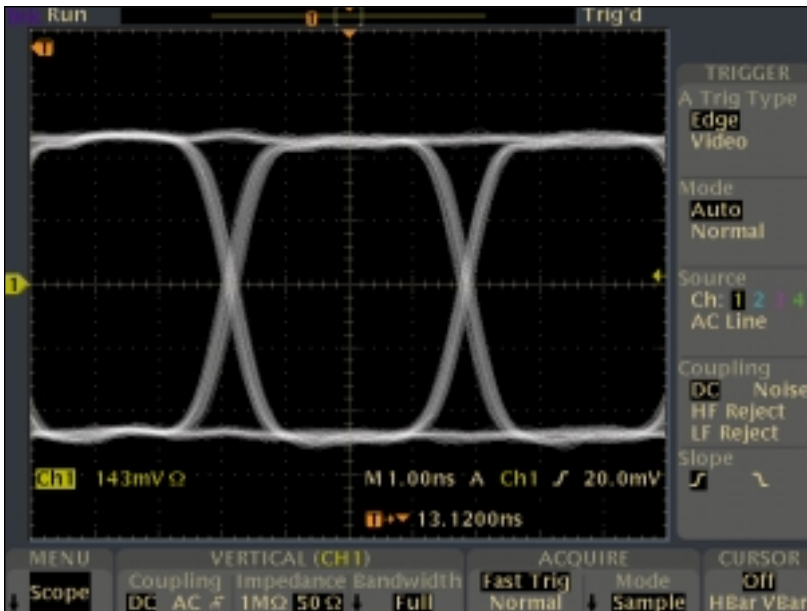


Figure 1: Eye diagram of incoming 601 bit stream.



Figure 2: TDS3SDI component Output (YPbPr).

Until Now, SDI Video Was Only an Eye Diagram to Your Oscilloscope

Installing, operating, or maintaining video facilities has never been easy, and SDI just adds to the fun. Take a peek at the signal and all you see is an eye diagram of scrambled bits – standard SMPTE 259M digital video at 270 Mb/s. But is what you're seeing the weather guy, a satellite feed, color bars, or that nature special on mountain gorillas? Only your digital waveform monitor knows for sure, and it's back on your bench. Not much help when you're tracing cabling behind a rack.

You Need Help That's Good, Fast And, Well, Ingenious...

Enter Tektronix, the measurement and video experts. We understand your problem, and the solution – something highly portable and very convenient that lets you see, measure, and diagnose SDI. That's why we developed an ingenious tool, the TDS3SDI Video Module. The module plugs into a four-channel TDS3000 Series Digital Processing Oscilloscopes (DPO) such as the versatile TDS3054. Together they create a compact, battery-capable, 3.2 kg unit that allows you to carry the capabilities of an SDI-to-analog video converter, vectorscope, picture monitor, and a powerful DPO oscilloscope – the award-winning TDS3000 Series (Test & Measurement World's 1999 Product of the Year) – wherever you go.

Complete Digital Video Troubleshooting In A Single, Portable Instrument

This one-tool solution allows you to trace and identify ITU-R BT.601 video signals, examine their representative analog component and composite waveforms, and analyze the bitstream. The module even auto-equalizes for long cable lengths.

Built-in SDI-to-Analog

The TDS3SDI plugs into the back of a TDS3000 Series oscilloscope. Attach a standard 75 Ω BNC cable and the module's built-in SDI-to-analog converter transforms the 601 signal into familiar analog output (see Figures 1 and 2). Four separate cables carry composite and component signals (RGB, YPbPr, or YC) to the inputs of the TDS3000. These familiar signals and the module/oscilloscope combination enable you to make many standard video measurements on the spot.

Video Picture Mode

The TDS3SDI gives you fast access to the analog video behind the digital video stream (see Figure 3). Check out a monochrome image of the originating camera or other source. Then use the on-screen line select to move quickly to any line in the picture. Or use the composite video output to hook up a color monitor.

Built-in Vectorscope Capabilities

Enabled by the TDS3SDI module, a TDS3000 Series oscilloscope can function as a vectorscope with built in graticules for 100% and 75% color bars. It's easy to measure chroma levels. The TDS3000's digital phosphor display makes it easy to see your white balance problem so you can adjust the camera to solve it (see Figure 4).

Analog HDTV Features

The TDS3SDI also lets you work with emerging analog HDTV standards. Trigger on a range of HDTV formats – 1080i, 1080p, 720p, and 480p. Use the vectorscope on analog HDTV with graticules for both 100% and 75% color bars.

A Perfect Pairing

The TDS3054's four inputs, 5 GS/s sample rate, and 500 MHz bandwidth make it an ideal host for the TDS3SDI. The module enables the oscilloscope's full range of video capabilities. The video QuickMenu (see Figure 5) features TV graticules and video triggering. The Video Autoset function automatically adjusts vertical, horizontal, and trigger settings to bring up your video waveform. The video trigger capability makes it easy to trigger on All Fields, All Lines or individual lines, whether you're viewing NTSC, PAL, SECAM, or component video. Video cursors provide fast and accurate measurements.



Figure 3: Video picture mode with on-screen line select.

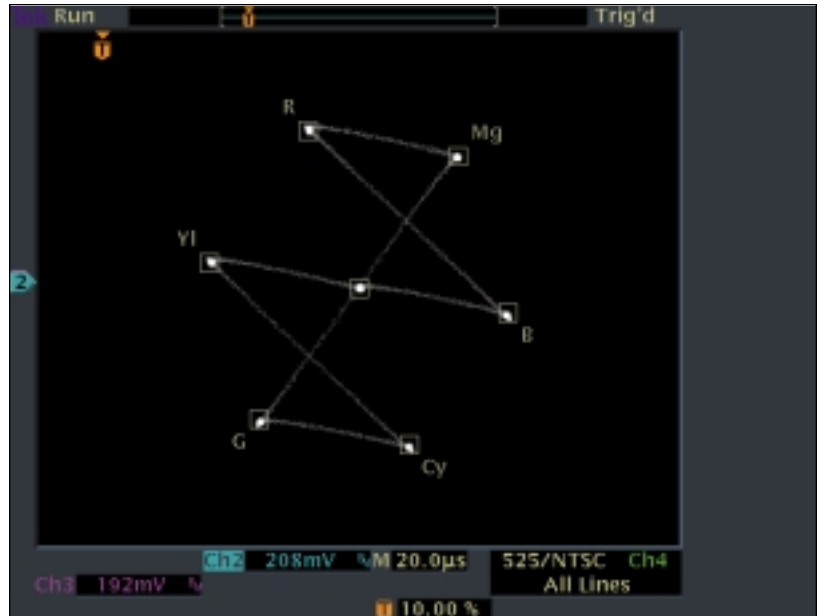


Figure 4: TDS3SDI vectorscope display.



Built-in Convenience

The TDS3SDI and your Tektronix TDS3054 oscilloscope create a versatile “tell-all” tool that is compact in size, light in weight, and battery capable. It’s easy to take to the field or behind the rack to find the problem. It converts 601 data streams into familiar analog video signals for quick diagnosis. Its auto equalization ensures proper signal levels for testing, even if you’re far from the source. It provides video picture identification, TV waveform graticules, and vectorscope mode. And it ably performs standard eye-diagram checks of the SMPTE 259M digital transport stream. Easy to learn and use, the TDS3SDI and TDS3054 comprise one of the smartest (and lightest) video tools you’ve ever carried.

Figure 5: Video QuickMenu.

TDS3SDI Characteristics		
<p>Input</p> <p>Input Type – 75 Ω, single-ended, terminated.</p> <p>Signal Format – 270 Mb/s; complies with ITU-R BT.601-5 and SMPTE 259M.</p> <p>Cable Equalization Range (typical) – Up to 250 m of Belden 8281 cable.</p> <p>Video Error Detection – EDH (Error Detection and Handling) per SMPTE RP165. An icon is displayed when the incoming signal contains EDH coding. Error count is displayed on screen.</p> <p>Output</p> <p>Signal Connections To Oscilloscope –</p> <p>Ch 1: Composite.</p> <p>Ch 2: Pb (or Blue).</p>	<p>Ch 3: Pr (or Red).</p> <p>Ch 4: Y (or Green, with sync).</p> <p>Cable Equalization Indicator – Four-level display.</p> <p>Display</p> <p>Video Picture Mode – Displays a picture of the incoming video in monochrome with standard 4:3 ratio. Line-select cursor highlights individual video line for triggering.</p> <p>Data Carrier Detect – Indicates presence of input signal.</p>	<p>Included with the TDS3SDI Module</p> <p>Special Output Cable – Connects module outputs to four front-panel oscilloscope inputs.</p> <p>75 Ω Terminators – For oscilloscope input channels.</p> <p>Firmware Upgrade Disks.</p> <p>User Manual.</p> <p>Compatible Instruments</p> <p>Recommended – Fully compatible with TDS3054 DPO. (Operates at reduced performance with other TDS3000 models.)</p>

For further information, contact Tektronix:

 Worldwide Web: for the most up-to-date product information visit our web site at: www.tektronix.com/scopes/

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