Audio-to-Video Delay Corrector

AVDC100

Features & Benefits

Automatic Correction and Detection of Audio-to-Video Delay Errors Eliminates Time-consuming Subjective Testing

Watermarked Source ID Feature Allows Identification of Program Origination, Ownership or Proof of Content Play-out

In-service Operation with Live Programming Allows Uninterrupted Testing

Ethernet Interface Provides Remote Monitoring

Fast, Objective Measurements

Applications

Monitoring and Correction of Variable Lip-sync Errors in Program Feeds Caused by Variable Program Path Timing

Monitoring and Correction of Lip-sync Errors Within a Broadcast Facility Caused by Excessive Video Processing

Watermarking Valuable Program Source Material for Proof of Content Play-out or Determining Program Origination

Localizing Lip-sync Error "Trouble Spots" Within a Television Distribution Network

Lip-sync Error Quality Control of Incoming Program Feeds

The AVDC100 solves the complex problem of monitoring and correcting lip-sync errors in today's professional broadcast plant. Based on patented Tektronix digital video watermarking technology, the AVDC100 is designed to install directly into the live audio and video program paths for automatic and continuous monitoring and correction of annoying static or variable lip-sync errors.

Digital Video Watermarking is the Enabling Technology

The AVDC100 uses digital video watermarking technology to create a subliminal data channel within the live video signal. This data channel is then embedded with a compressed version of the live audio waveform envelope, effectively creating an audio-to-video time reference within the video signal itself. At any point "downstream" in the program distribution path, the watermarked video can be sampled by a second AVDC100 which detects the watermarked signal and decodes the previously embedded audio "time reference." The second AVDC100 continuously monitors timing variations between the decoded audio time reference and the original audio program, the result of which is an indication of lip-sync error. The AVDC100 can correct for lip-sync errors automatically or manually. In automatic mode, the user configures the AVDC100 to use the measured lip-sync error to control an internal audio delay line to dynamically re-time the audio and video. In manual mode, the user can monitor the measured lip-sync error remotely or from the instrument front panel and manually set the AVDC100 internal audio delay line to compensate for lip-sync errors.

Fast and Objective Results

Existing means for measuring lip-sync errors rely on either subjective assessment or interfering test signals and audio tone bursts. However, the AVDC100 removes the need for skilled operators and out-of-service testing, relying instead on the actual audio and watermarked video program content itself to provide consistent in-service objective results. Lip-sync measurements are constantly updated and displayed on the built-in LCD panel or accessed via the 10Base-T Ethernet port for remote monitoring and instrument configuration.

Tektronix

Embedded Source ID

In addition to an audio timing reference, the AVDC100 allows embedding of a user configurable source ID into the video channel. The source ID is permanent, surviving MPEG and JPEG compression, archiving, cropping, ADC and DAC conversions and many other types of video processing steps. The source ID can then be later decoded by another AVDC100 for the purpose of identifying program origination, ownership or providing proof of content play-out by logging when the Source ID was detected.

▶ Characteristics

Front Panel

LCD Panel, 2 Rows x 20 Characters. Selection Buttons with LED Indicators. Menu Navigation Keys.

Measurement and Correction Range

2 Seconds Total Lip-sync Measurement Range.
Up to 30 Video Fields of Correction (audio advanced relative to video).

Inputs/Outputs

One 525/625 270 Mb/s Serial Component Video Input.
One 525/625 270 Mb/s Serial Component Video Output.
AES Coax Stereo Input, 48 kHz, 24-Bit (BNC).
AES Coax Stereo Output, 48 kHz, 24-Bit (BNC).

Remote Interfaces

10Base-T Ethernet (RJ-45).
RS-232 Connector, DB-9.
SMPTE Longitudinal Time Code Input (female XLR).

Environmental

Source Voltage – 100/240 V, 50/100 Hz.

Temperature – +5 to +40°C.

Relative Humidity – 80% up to 31°C.

Altitude – 2000 meters.

Regulatory

Safety – UL 3111-1 CAN/CSA C22.1 No. 1010.1.
Low Voltage – EN 61010-1:–1/A2 Under the Low Voltage Directive 73/23/EEC.

EMC

EC Declaration of Conformity – Meets EN 55103-1/2:1996; Electromagnetic Environment E2 under the EMC Directive 89/336/EEC.

Australia Declaration of Conformity – Meets AS/NZS 3548.

FCC Compliance – Meets FCC CFR Title 47, Part 15, Subpart B, Class A.

▶ Ordering Information

AVDC100

Audio-to-Video Delay Corrector.

Standard Accessories

Operator's manual.

Single unit rackmount kit.

AVDC100 user reference card.

Optional Accessories

TVF16 – Dual AVDC rackmount kit.

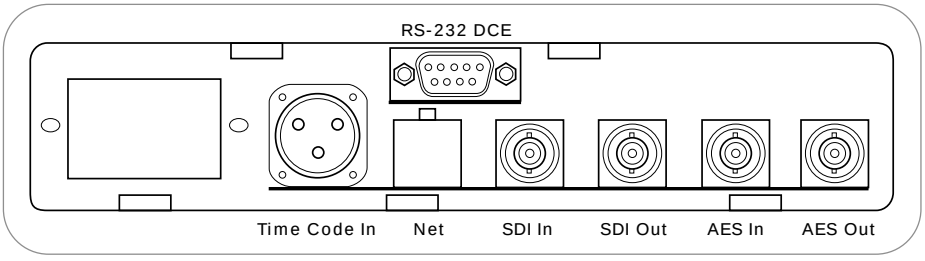
International Power Plug Options

Opt. A1 – 220 V, Euro plug.

Opt. A2 – 240 V, UK plug.

Opt. A3 – 240 V, Australia plug.

Opt. A5 – 220 V, Swiss plug.



Contact Tektronix:

ASEAN Countries (65) 356-3900

Australia & New Zealand 61 (2) 9888-0100

Austria, Central Eastern Europe, Greece, Turkey, Malta & Cyprus +43 2236 8092 0

Belgium +32 (2) 715 89 70

Brazil and South America 55 (11) 3741-8360

Canada 1 (800) 661-5625

Denmark +45 (44) 850 700

Finland +358 (9) 4783 400

France & North Africa +33 1 69 86 81 81

Germany +49 (221) 94 77 400

Hong Kong (852) 2585-6688

India (91) 80-2275577

Italy +39 (2) 25086 501

Japan (Sony/Tektronix Corporation) 81 (3) 3448-3111

Mexico, Central America, & Caribbean 52 (5) 666-6333

The Netherlands +31 23 56 95555

Norway +47 22 07 07 00

People's Republic of China 86 (10) 6235 1230

Poland (48) 22 521 5340

Republic of Korea 82 (2) 528-5299

South Africa (27 11) 651-5222

Spain & Portugal +34 91 372 6000

Sweden +46 8 477 65 00

Switzerland +41 (41) 729 36 40

Taiwan 886 (2) 2722-9622

United Kingdom & Eire +44 (0)1344 392000

USA 1 (800) 426-2200

For other areas, contact: Tektronix, Inc.
Export Sales, P.O. Box 500, M/S 50-255,
Beaverton, Oregon 97077-0001, USA 1 (503) 627-1916

For the most up-to-date product information visit our web site at www.tektronix.com

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