Option Board SDI I/O v2

Option Board SDI I/O (O_DAP_SDI_b)

Standards

- Video complies with SMPTE 424/425M (3G, Level A and B), SMPTE 292M (HD), or SMPTE 259M (SD)
- Automatic format detection
- Audio embedding and de-embedding complies with SMPTE 299M (3G, HD) or SMPTE 272M -AC (SD)
- Metadata embedding and de-embedding complies with SMPTE 2020-2

Video Data Rate

- 2970/296Mbps (3G), 1485/1483.5Mbps (HD), 270Mbps (SD

Video Formats

- 1080p - 23.975, 24, 25, 29.97, 30, 50, 59.94, 60
- 1080i - 50, 59.94, 60
- 720p - 23.975, 24, 25, 29.97, 30, 50, 59.94, 60
- 625i - 50
- 525i - 59.94

Video Delay

- User selectable 0 ... 50 frames, can be disabled

Audio

- 24-bit, transparent forwarding of PCM and compressed audio
- Sample rate = 48kHz (SDI compliant)
- Channels = 16 inputs and 16 outputs (4 groups of 4 channels each)
- Delay = Embedder audio delay selectable 0 ... 2000ms per channel

Metadata (RDD6)

- 1 channel input, 1 channel output, SDID selectable

BNC Input

- Impedance = 75Ohm
- Return loss = >15dB 5 ... 1485MHz; >10dB 1485 ... 2970MHz
- Maximum cable length = 250m (SD), 230m (HD), 140m (3G) using Belden 1694A cable
- Jitter tolerance = >0.7UI (alignment)

BNC Output

- Impedance = 75Ohm
- Output voltage = 0.8Vpp (typical)
- Return loss = >15dB 5 ... 1485MHz; >10dB 1485 - 2970MHz
- Output jitter = <0.2UI (alignment), <0.5UI (timing)

Latency

- Video latency input to output = 120 ... 200 pixel, depending on video standard
- Audio latency input to output, embedder and de-embedder combined = <0.6ms (HD, 3G), <2ms (SD)

General Features

- Power fail relay bypass (may be enabled/disabled via GUI)
- Lip-sync compensation for processed and non-processed audio signals
- Dedicated routing for non-processed channels; all channels (maximum 16) can be routed to/from the device or looped through
- Test pattern generator (no genlock)
- Master-sync capable
- ITU-R BT.1685 / ARIB STD-B39 metadata support

SDI Card Self-Test

The SDI card provides a built-in self-test for verifying the SDI signal path in all three supported physical signal formats: **SD**, **HD**, and **3G**.

The exact video resolution or frame rate is not important for this test. One valid signal format from each of the three categories is sufficient.

Test Setup

1. Connect the SDI output back to the SDI input using a suitable cable to create a loop-through connection.
2. Enable the SDI generator.
3. Set the generator output to **Black**.
4. Enable **Delay** and set to a value greater than 0.

Running the Test

Perform the test once for each of the following signal formats:

1. **SD**
2. **HD**
3. **3G**

For each format:

1. Select any valid video format within the required SDI category.
2. Wait while the self-test runs.
3. Observe the status LED.
4. Wait until the test has completed successfully before changing to the next signal format.

Each individual test takes approximately **30 seconds**.

> **Note -** The exact video resolution or frame rate does not matter. The self-test only requires one successful test in each physical SDI format: SD, HD, and 3G.

If a test does not complete successfully, it is automatically restarted and continues to run until the test passes.

LED Indication

> **Note -** The self-test status LED is located on the SDI card between the two BNC connectors. The LED is not visible from outside the unit and can only be observed with the device cover removed.

> **Warning -** Opening the device enclosure is at the user's own risk. Take appropriate precautions when operating the unit with the cover removed and avoid contact with internal components.

LED Status	Meaning
Fast flashing blue	A self-test is currently running.
Slow flashing blue	The self-test sequence is incomplete. At least one of the SD, HD, or 3G tests has not yet been completed successfully.
Solid blue	All three tests — SD, HD, and 3G — have completed successfully.

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> **Important -** Do not proceed to the next signal format until the current test has completed successfully and the LED indication has stabilized.

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