

7721DE4-HD

HD/SD-SDI Quad Data Embedder & SCTE104 Message Injector



The 7721DE4-HD is designed to provide a flexible solution for inserting AFD, GPI triggering information and/or serial RS-232/RS-422 data streams into HD/SD-SDI signals. It plays an important part in SCTE104 DPI message applications. When equipped with the +SCTE104 option, up to six different SCTE104 messages may be configured and individually inserted by automation systems triggering the corresponding GPI. Messages may also be inserted using SNMP SET commands. The 7721DE4-HD is ideal for SCTE104 message insertion at the point of emission from the broadcaster for local ad insertion by affiliates and re-broadcasters, or for re-insertion of SCTE104 messages that have been stripped out in the equipment chain and are required for OTT applications.

This device is the complement processing module to the widely used 7721DD4-HD module which can be used for de-embedding serial, GPI and SCTE104 messages.

The 7721DE4-HD is VistaLINK® capable, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP) giving the flexibility to manage operations, including signal monitoring and module configuration from SNMP capable control systems (Manager or NMS).

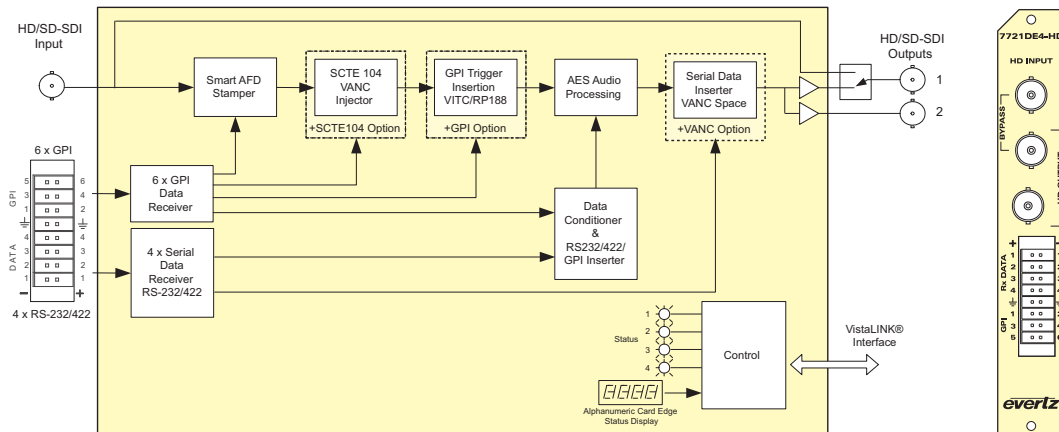
This device can:

- Smartly insert AFD Flags as per SMPTE ST 2016 triggered via SNMP or GPI
- Inserts GPI trigger data into unused audio channels as per SMPTE ST 337
- Inserts GPI trigger data into user bits of VITC or RP188 Timecode (+GPI option)
- Inserts SCTE104 DPI messages as per SMPTE ST 2010 (+SCTE104 option)
- Inserts up to four serial RS-232/422 data streams into VANC (+VANC option)
- Inserts up to four serial RS-232/422 data streams into unused audio channels

The 7721DE4-HD occupies 1 card slot and can be housed in the 3RU 7800FR frame which has a 15 slot capacity, the 7801FR which has a 4 slot capacity or the portable 3RU 350FR frame which has a 7 slot capacity. This device requires the 7800FC or 7801FC Frame Controller for configuration.

Features & Benefits

- HD/SD-SDI input and two HD/SD-SDI outputs
- Bypass relay protected input
- Automatic smart AFD insertion via SNMP or GPI
- GPI and Serial RS-232/422 data insertion into AES audio channels
- SCTE 104 digital program insertion messaging
- Insertion of serial RS-232/RS-422 data into vertical ancillary space (VANC)
- High density approach offers 14 modules within 3RU
- VistaLINK® Monitoring and Control



Specifications

Serial Video Input:

Standard: SMPTE ST 259 C, ST 292-1
 Connector: BNC per IEC 61169-8 Annex A
 Equalization: Automatic 300m @ 270Mb/s, 100m @ 1.5Gb/s with Belden 1694A or equivalent cable
 Return Loss: > 15dB up to 1.5Gb/s

Serial Video Outputs with Embedded Data:

Number of Outputs: 2 outputs (1 with bypass relay protected)
 Standard: Same as input
 Connectors: BNC per IEC 61169-8 Annex A
 Signal Level: 800mV nominal
 DC Offset: 0V ±0.5V
 Rise and Fall Time:
 SD-SDI: 600ps nominal
 HD-SDI: 200ps nominal
 Overshoot: < 10% of amplitude
 Return Loss: > 15dB up to 1.5Gb/s (Relay Protected)
 > 10dB up to 1.5Gb/s
 Wide Band Jitter: < 0.2 UI

Data Input:

Standard: 4 x RS-232 or RS-422
 Connector: Terminal Block
 Baud Rate: 110, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, or 115200
 Format: 8 data bits, parity (none, even or odd), 1 or 2 stop bits

General Purpose Inputs:

Number of Inputs: 6
 Type: Normally open relay contact
 Connector: Terminal Block
 Signal Level: Internal pull-up to +5V or +12V nominal (jumper selectable)

Time Code (+GPI OPTION ONLY):

Ancillary Time Code Generator/Reader (ATC) - HD Video Standards only:
 Standard: SMPTE ST 12-2
 Generator Lines: VITC packets - Line 9, 571; LTC packets - Line 10 as per 12M-2
 Reader Line: Autodetect

Vertical Interval Time Code Generator/Reader (VITC) - SD Video Standards only:

Standard: SMPTE ST 12-1, SMPTE ST 266 D-VITC
 Line Range:
 525i/59.94: 10 to 21
 625i/50: 6 to 22
 Generator Lines: Follows input VITC or user selectable when no input VITC
 Reader Line: Autodetect or user-selectable

Delay For Data Embedding - GPI Signals:

Average latency: 20ms ±10%

Electrical:

Voltage: +12V DC
 Power: 12W
 EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical (number of slots):

350FR: 1
 7700FR-C: 1
 7800FR: 1
 7800FR-QT: 1





► Ordering Information

7721DE4-HD HD/SD-SDI Quad Data Embedder
(requires 7700FC for configuration)

**Note: The companion 7721DD4-HD will need to be ordered with equivalent options to extract the data*

Ordering Options Rear Plate must be specified at time of order
(Eg: Model +3RU)

+GPI GPI Triggering Option into VITC/RP188 Timecode
+SCTE104 SCTE104 Digital Program Insertion Messaging
+VANC Serial RS-232/RS-422 Insertion into Vertical Ancillary Space (VANC)

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C, 7800FR, 7800FR-QT or 7801FR Multiframe

Accessories
7721DD4-HD HD/SD-SDI Quad Serial Data De-embedder
7700FC VistaLINK® Frame Controller
CP-2116E-H Remote Control Panel
CP-2232E Remote Control Panel

Enclosures
350FR 3RU Multiframe which holds up to 7 single slot modules
7700FR-C 3RU Multiframe which holds up to 15 single slot modules
7800FR 3RU Multiframe which holds up to 15 single slot modules
7800FR-QT 3RU Multiframe which holds up to 15 single slot modules
7801FR 1RU Multiframe which holds up to 4 single or 2 dual slot modules