DATASHEET

IQFDA31

Dual-channel 3G/HD/SD-SDI Reclocking Distribution Amplifier with Fiber I/O

Extremely space-efficient hybrid distribution amplifier for mixed fiber and copper workflows, with dual 3G/HD/SD-SD inputs with both SDI and fiber optic outputs.

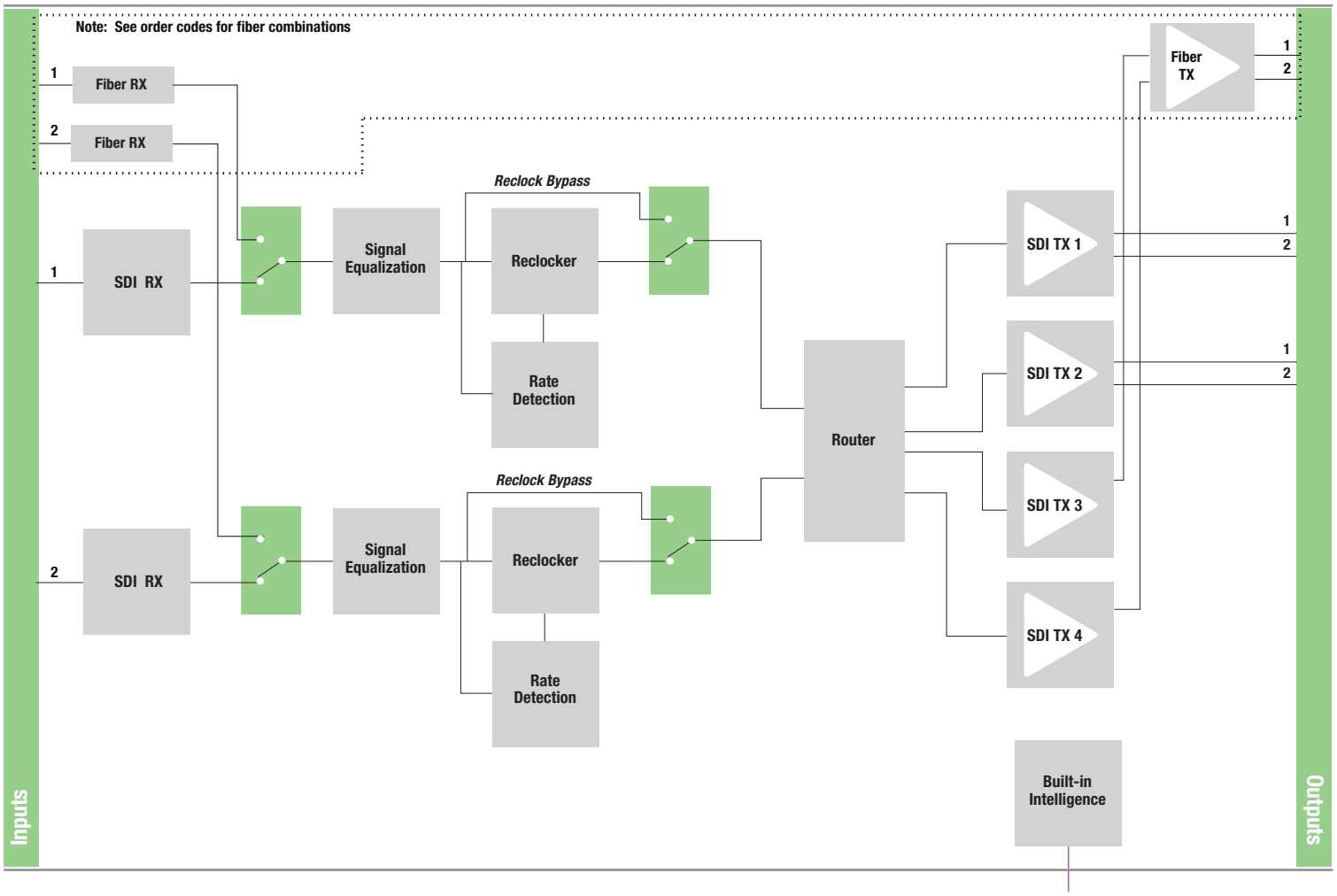
The IQFDA31 from Grass Valley provides dual HD-SDI 3 Gb/s, 1.5 Gb/s or 270 Mb/s SD-SDI inputs with both SDI and fiber optic outputs in a single-width package. Flexible routing of inputs to outputs allows the module to operate as single- or dual-channel mixing fiber and copper I/O. Input signal loss detection enables switching from a main to back-up feed automatically, providing emergency changeover functionality. Its 80m 3G, 170m HD input equalization performance and non-reclocking distribution of wideband signals make it ideal for all distribution applications.

Why should you choose this module?

- The IQFDA31 is an extremely space-efficient hybrid distribution amplifier for mixed fiber and copper workflows
- Useful for critical installation thanks to outstanding input equalization capability
- Can be used for current HD/SD systems that will later upgrade to 1080p50/60 (3G) operations

KEY FEATURES

- Dual-channel intelligent 3G/HD/SD-SDI reclocking distribution amplifier
- Flexible selection of inputs allows single- or dual-channel operation
- Input signal monitoring allows auto-changeover functionality to provide emergency switching
- Will distribute DVB-ASI and other wideband signals
- Equalizes up to 80m at 3 Gb/s, 170m at 1.5 Gb/s and 300m at 270 Mb/s when using Belden 1694A cable
- Standards supported:
  - 3G-SDI to SMPTE ST 424/425
  - HD-SDI to SMPTE ST 292
  - SD-SDI to SMPTE ST 259-C
  - DVB-ASI
  - SMPTE ST 297-2006
- 1310 nm, 1550 nm and CWDM output wavelengths available
- RollCall monitoring allows all signal paths to be managed
- Extremely compact — up to 32 channels in 3 RU — for use where space is at a premium



Block Diagram for IQFDA3100-1B3

SPECIFICATIONS

Inputs and Outputs

Signal Input

SDI inputs: 2x

Input cable length:

- Up to 80m Belden 1694A @ 3 Gb/s
- Up to 170m Belden 1694A @ 1.5 Gb/s
- Up to 300m Belden 1694A @ 270 Mb/s

Note: When using mixed HD and SD inputs it is recommended that cable lengths do not exceed the HD specification of 140m.

Fiber Signal Input

Inputs: Up to 2

Optical: 3 Gb/s HD-SDI, 1.485 Gb/s HD-SDI or 270 Mb/s SD-SDI

Connector/format: LC singlemode

Conforms to:

- SMPTE ST 297-2006
- SMPTE ST 424/425 (HD level A/B)
- SMPTE ST 292 (HD)
- SMPTE ST 259-C (SD)

Signal Outputs

SDI outputs: Up to 4

Fiber Signal Output

Outputs: Up to 2, selectable per channel

Optical: 3 Gb/s HD-SDI, 1.485 Gb/s HD-SDI or 270 Mb/s SD-SDI

Connector/format: LC singlemode

Conforms to:

- SMPTE ST 297-2006
- SMPTE ST 424/425 (HD level A/B)
- SMPTE ST 292 (HD)
- SMPTE ST 259-C (SD)

Controls

Indicators

Power: OK (Green)

CPU: OK (Green flashing)

Input 1: OK (Green), Bypass (Orange), Loss (Red)

Input 2: OK (Green), Bypass (Orange), Loss (Red)

SFP A: Selected (Green)

SFP B: Selected (Green)

RollCall Functions

Video Controls

Input 1 format select: SDI, Rx

Input 2 format select: SDI, Rx

Output 1 select: Serial 1, Serial 2

Output 2 select: Serial 1, Serial 2

Output 3 select: Serial 1, Serial 2

Output 4 select: Serial 1, Serial 2

Laser disable: On/Off

Input 1 (2) select: Auto, 3G, HD, SD, DVB-ASI, Bypass (reclocking off), Output

Input status: Present, Loss/Unknown, Data Rate

Other Controls

User memories: Name, save and recall 16 user memories

Memory naming: User configurable naming of memories 1 – 16

Information window: Video Input Status

Logging:

- Input 1 (2) Type
- Input 1 (2) Data Rate
- Input 1 (2) Present
- Input 1 (2) Error
- Input 1 (2) Loss

SPECIFICATIONS (CONT.)

Optical logging*:

- Tx Laser Bias High Warning
- Tx Power Low Warning
- Tx Power High Warning

Laser wavelength:

- Input 1 (2) Rx Power High Warning
- Input 1 (2) Rx Power Low Warning
- Input 1 (2) Rx Power Measurement

RollTrack index: Up to 16 RollTrack destinations

RollTrack controls: On/Off, Index, Source, Address, Command, Status, Sending

RollTrack sources: Unused, Input Present (1&2, Fiber 1 & 2), Input Loss (1&2, Fiber 1 & 2), Output Rate/Std (1&2), Out 1 Selects (In1 & 2 & Rx1 & Rx2), Out 2 Selects (In1 & 2 & Rx1 & Rx2), Fiber Rx Power OK (1&2), Fiber Rx Power Fail (1&2), Fiber Tx Bias OK (1&2), Fiber Tx Bias High (1&2), Fiber Tx Bias Low (1&2)

Factory default: Resets all module settings to factory specified default values and clears memories

Default settings: Resets all module settings to factory specified defaults but does not clear memories

Restart: Software restart of the module

Module information:

- Reports following module information: Software version, Serial number, Build number, KOS version, Firmware version, PCB version

General Specifications

Electrical:

- 3 Gb/s SDI, SMPTE ST 424/425
- 1.5 Gb/s HD-SDI, SMPTE ST 292
- 270 Mb/s SDI, SMPTE ST 259-C / DVB-ASI

Connector/format: BNC/75Ω panel jack on standard Grass Valley connector panel

Return loss:

- >-15 dB (270 Mb/s, 1.5 Gb/s)
- >-10 dB (3 Gb/s)

Output jitter:

- SD-SDI 0.2 UI (10 Hz) / 0.2 UI (1 kHz)
- 3G/HD-SDI 1.0 UI (10 Hz) / 0.2 UI (100 kHz)

Optical 1310 nm Tx

Wavelength: 1310 nm

Spectral width (FWHM): >1.5 nm (typ)

Output power: 0 to -5 dBm typical (-2 dBm typical)

Rise and fall time:

- 135 ps @ 3 Gb/s
- 270 ps @ 1.5 Gb/s
- 1.5 ns @ 270 Mb/s

Extinction ratio: >7.5:1 (typ.)

Optical return loss: -27 dB

Link distance:

- Up to 30 km @ 270 Mb/s
- Up to 21 km @ 1.5 Gb/s
- Up to 10 km @ 3 Gb/s

Optical Rx

Input wavelength range: Min. 1260 nm, Max. 1620 nm

Input sensitivity: -21 dBm

Optical power input range: > -0 dBm, < -20 dBm

Link distance:

- Up to 30 km @ 270 Mb/s
- Up to 21 km @ 1.5 Gb/s
- Up to 10 km @ 3 Gb/s

Power Consumption

Module power consumption: 4.5 PR Max (B Frames)

* Dependent upon the SFP variant inserted.

ORDERING

IQFDA3100-1B3

Dual-channel 3G/HD/SD-SDI reclocking distribution amplifier with fiber I/O. 2 SDI inputs, 2 optical input/outputs, 4 SDI outputs selectable per input.

Fiber SFP Options

FC1-13T1 — with single fiber transmitter (1310 nm)

FC1-13T2 — with dual fiber transmitter (1310 nm)

FC1-15T1 — with single fiber transmitter (1550 nm)

FC1-15T2 — with dual fiber transmitter (1550 nm)

FC1-R1 — with single fiber receiver

FC1-R2 — with dual fiber receiver

FC1-13TR — with single fiber transceiver (1310 nm)

Note: Fiber SFP type must be ordered in addition to the module.

For more details on enclosure types please refer to the IQ Modular Enclosures datasheet.