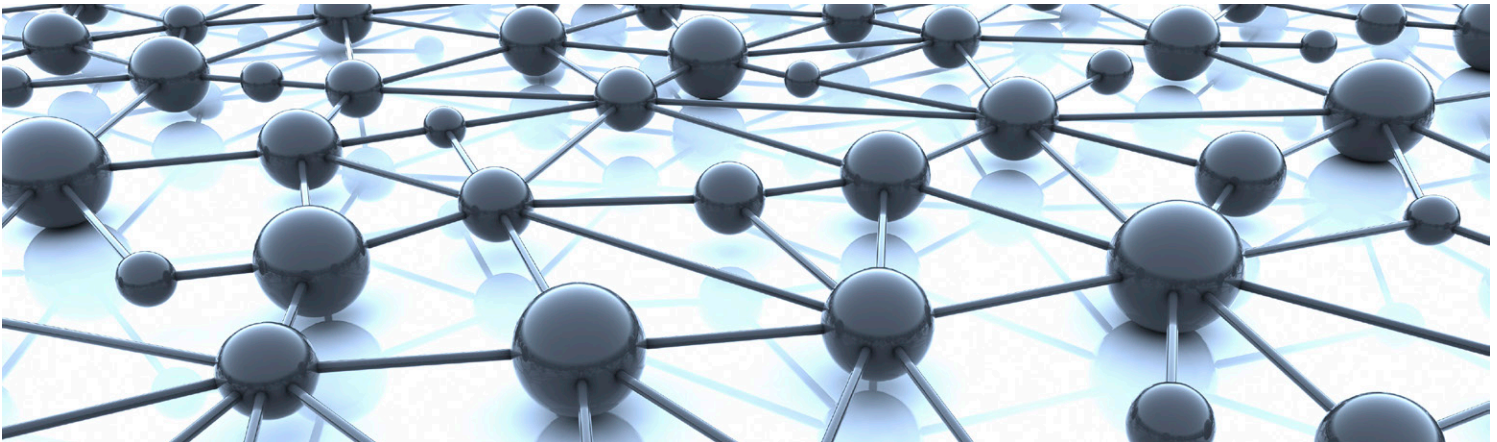


IQMIX40

3G/HD/SD-SDI Multichannel IP Transceiver



Multichannel video-over-IP transceiver developed for use within low-latency and high-bandwidth Ethernet IP networks.

The IQMIX40 from Grass Valley, a Belden Brand, is a multichannel video-over-IP transceiver developed for use within low-latency and high-bandwidth Ethernet IP networks. Using RTP VSF TR-03 (SMPTE ST 2110), TR-04 and SMPTE ST 2022-6 encoding and encapsulation schemes enables the IQMIX40 to encode or decode up to 16 SDI signals and transport them over two 10 GbE or 40 GbE links (SMPTE ST 2022-7).

IQMIX40 provides frame-synchronized SDI outputs and both compressed and uncompressed modes of IP operation. Using SMPTE ST 2042 (VC2) lightweight compression allows for high-quality signal carriage while optimizing bandwidth requirements, and sending signals uncompressed provides best quality transport, although at the expense of bandwidth. Encapsulation of signals in a SMPTE ST 2022-6 transport stream provides full compatibility with other video-over-IP solutions.

IQMIX40 fully integrates with remote control and monitoring systems to provide easy setup and

real-time information on signal presence and status for each channel. It's also fully compatible with Grass Valley's new broadcast-centric IP routing and network management solution designed to migrate broadcasters from a traditional baseband routing and control environment to new hybrid SDI and IP workflows.

Why should you choose this module?

- Generate signal transport efficiency by running multiple SDI signals over a single Ethernet link and provide the link between existing SDI equipment and future IP network architectures
- Using IGMPv3 source-specific multicast allows fast configuration of network routes and provides the basis for clean switching at the destination unit
- Full RollCall and SNMP compatibility allows easy integration with Grass Valley's, or third-party, network management systems providing an all-inclusive monitoring and control solution

IQMIX40 3G/HD/SD-SDI Multichannel IP Transceiver

KEY FEATURES

- Handles up to 16 SDI signals over dual 10 GbE or dual 40 GbE IP links (dependent on Ethernet rate, SDI signal format and compressed or uncompressed transport mode)
- Supports configuration of Ethernet links for maximum signal transport using both SFPs or for dual link mode to provide link redundancy as per SMPTE ST 2022-7, and when operating as a receiver will dynamically adapt to any stream presented to it
- Multiple transport types available for each SDI input including:
 - Compressed IP transport using SMPTE ST 2042 (VC2) low-latency high-quality encoding profile
 - Uncompressed video transport using either VSF TR-03 (SMPTE ST 2110) and TR-04 RTP, or SMPTE ST 2022-6 encapsulation
 - PCM audio using TR-03 & AES67
 - SMPTE ST 2110-40 metadata support via IETF standard “RTP Payload for Ancillary Data”
- Supports frame-synchronized SDI inputs and outputs referenced to either IEEE-1588v2 (PTP) network timing (compliant with SMPTE ST 2059-2) or via the IQH3B or IQH4B frame’s analog reference bus for blackburst/tri-level syncs
- Includes 4K UHD quad link mode for 3G SQD or 2SI signal transport
- Low delay mode and independent H & V offset available for each channel along with up to 2 frames of video delay, and up to 255 ms of audio delay
- Supports unicast as well as IGMPv3 source specific multicast, allowing point to point operation or transmission in multicast groups
- Standards supported:
 - 3G-SDI to SMPTE ST 424/SMPTE ST 425 level A compatible
 - HD-SDI to SMPTE ST 292/SMPTE ST 274/SMPTE ST 296
 - SD-SDI to SMPTE ST 259-C
 - 10G & 40G Ethernet to IEEE 802.3
- RollCall control and monitoring compatible with standard logging and reporting features

SPECIFICATIONS

Inputs and Outputs

Signal Inputs/Outputs

IQMIX4010-2B3 (SFP+)

SDI: 16 x bidirectional, see configuration table

IQMIX4000-2B3 (QSFP)

SDI: 4 inputs, 4 outputs, 8 x bidirectional; see configuration table

Electrical:

3 Gb/s SDI, SMPTE ST 424

1.5 Gb/s HD-SDI, SMPTE ST 292

270 Mb/s SDI, SMPTE ST 259-C

Connector/format: HD-BNC/75Ω panel jack on standard connector panel

Input cable length: TBC

Ethernet Signal

SFP+ Optical: 2x 10G Ethernet

Conforms to IEEE 802.3ae — 10 Gigabit Ethernet over fiber

SFP+ Optical: 2x 40G Ethernet

Conforms to IEEE 802.3ba — 40 Gigabit Ethernet over fiber

SFP+ connected cable: 2x 10G Ethernet

Conforms to IEEE 802.3ak — 10 Gigabit Ethernet over twinaxial cables

SFP+ connected cable: 2x 40G Ethernet

Conforms to IEEE 802.3 — 40 Gigabit Ethernet over twinaxial cables

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

Controls

Indicators

Power: OK (Green)

CPU: OK (Flashing)

Content Status

Summary

OK (Green)

Warning (Yellow)

Error (Red)

Functions

General Specifications

Electrical

Standards supported

Module Power Consumption

37.5 PR (B Frames)

SDI to IP Configurations

IQMIX40 – 40 GbE	Config 1	Config 2	Config 3	Config 4	Config 5	Config 6	Config 7
SDI In <> Out	12 > 4	8 <> 8	4 > 12	8 > 0	4 <> 4	0 > 8	8 > 0
Codec Support	SMPTE ST 2022-6 TR-03 (2110) TR-04	SMPTE ST 2022-6 TR-03 (2110) TR-04	SMPTE ST 2022-6 TR-03 (2110) TR-04	VC2	VC2	VC2	SMPTE ST 2022-6 TR-03 (2110) TR-04 Frame Sync I/Ps
IQMIX40 – 10 GbE	Config 1	Config 2	Config 3	Config 4	Config 5	Config 6	Config 7
SDI In <> Out	12 > 0	8 <> 8	0 > 12	8 > 0	4 <> 4	0 > 8	8 > 0
Codec Support	SMPTE ST 2022-6 TR-03 (2110) TR-04	SMPTE ST 2022-6 TR-03 (2110) TR-04	SMPTE ST 2022-6 TR-03 (2110) TR-04	VC2	VC2	VC2	SMPTE ST 2022-6 TR-03 (2110) TR-04 Frame Sync I/Ps

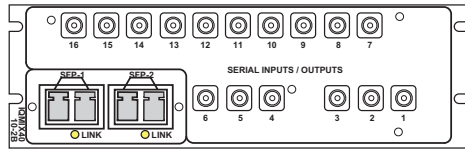
IQMIX40 3G/HD/SD-SDI Multichannel IP Transceiver

ORDERING

IQH Enclosures

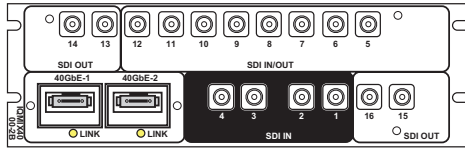
IQMIX4010-2B3

3G/HD/SD-SDI Multichannel IP Transceiver. 16 SDI I/O, 2x 10 GbE I/O on SFP+ connectors. Suitable for IQH1A and IQH4B frames



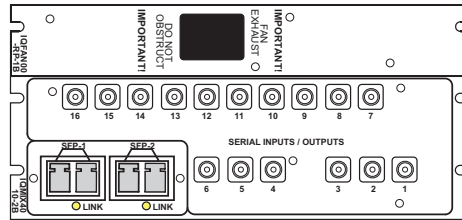
IQMIX4000-2B3

3G/HD/SD-SDI Multichannel IP Transceiver. 8 SDI I/O, 4 SDI inputs, 4 SDI outputs, 2x 40 GbE I/O on QSFP connectors. Suitable for IQH1A and IQH4B frames



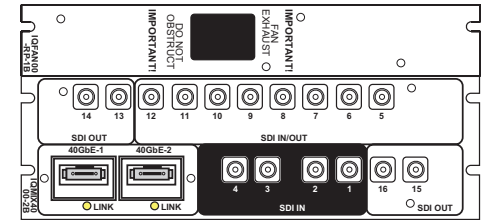
IQMIX4011-3B3

3G/HD/SD-SDI Multichannel IP Transceiver. 16 SDI I/O, 2x 10 GbE I/O on SFP+ connectors. Includes IQFAN rear panel for additional cooling in IQH3B frame



IQMIX4001-3B3

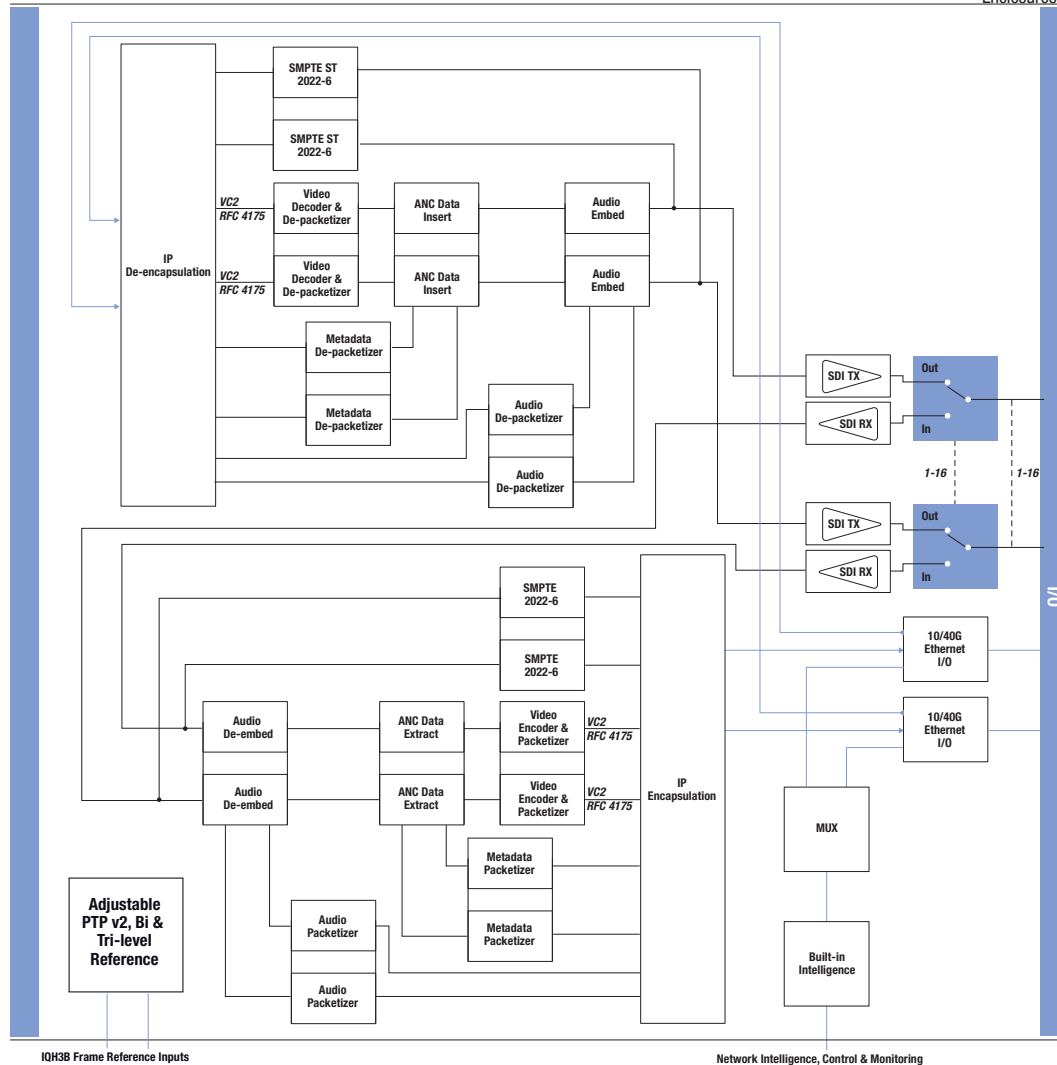
3G/HD/SD-SDI Multichannel IP Transceiver. 8 SDI I/O, 4 SDI inputs, 4 SDI outputs, 2x 40 GbE I/O on QSFP connectors. Includes IQFAN rear panel for additional cooling in IQH3B frame



SFP Options

- FCS-10GE-SR** 10GBASE-SR short range SFP for MMF
- FCS-10GE-LR** 10GBASE-LR long range SFP for SMF
- FCQ-40GE-SR** 40GBASE-SR short range QSFP for MMF
- FCQ-40GE-LR** 40GBASE-LR long range QSFP for SMF
- FCQ-40GE-LR4** 40GBASE-LR4 long range QSFP for SMF

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.



Block Diagram for IQMIX40

IQH3B Frame Reference Inputs

Network Intelligence, Control & Monitoring



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