Crystal Vision

Dual 3G-DL
Dual DL-3G

Dual link to single link converters

Crystal Vision's dual link to single link converters are the most space-saving solution for interfacing between 3Gb/s dual link and single link equipment and for providing convenient transport of 3D signals on a single wire.

The Dual 3G-DL is a single link to dual link converter. It takes a single 3Gb/s signal and separates it into two 1.5Gb/s signals which can either be a dual link 1080p signal, or alternatively two separate co-timed HD streams. The Dual DL-3G is a dual link to single link converter which takes either two 1.5Gb/s dual link signals or two separate co-timed HD streams and combines them into a single 3Gb/s signal. Both products are optimised for use with Level B 3Gb/s signals and offer independent dual channels meaning two conversions can be performed on each board, while the outputs are all equalised and reclocked.

The Dual 3G-DL and Dual DL-3G are perfect for interfacing between 1080p dual link and 3Gb/s equipment, allowing integration of new single link 3Gb/s equipment into existing dual link areas without taking up two ports on jackfields and routers. Or you can extend the life of a big capital investment by surrounding it with low-cost dual link converters – such as future-proofing an HD mixer by ganging pairs of HD inputs and outputs and running the internal processing at 3Gb/s.

The Dual 3G-DL and Dual DL-3G are ideal for transporting 3D programmes on a single wire using Level B processing. The Dual DL-3G can be used to combine the left and right eye pictures generated by a pair of cameras looking at the same scene to create a High Definition 3D image and can put these combined pictures down the same wire so they stay together. The Dual 3G-DL would then be used to separate them for individual video processing, such as editing. Not only does having 3D as a single signal make it easier to keep track of it and remove the need to lock the two pictures together, it also requires less cabling and will save you valuable ports on your router: you'll only need one input or output, rather than two.

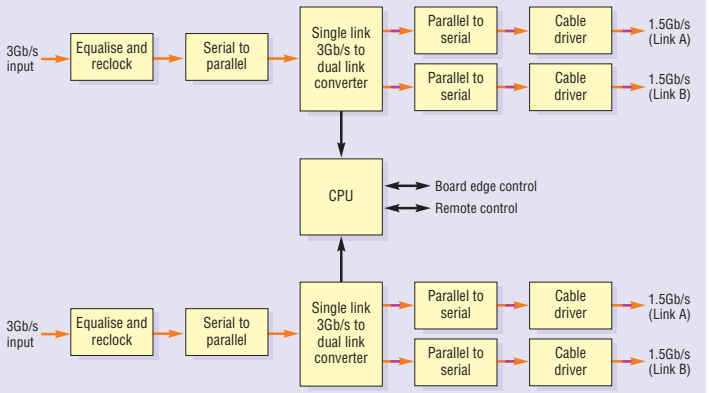
When converting Level B signals both products can pass ancillary data including embedded audio.

Not only are the Dual 3G-DL and Dual DL-3G both dual channel, they are also compact 100mm x 266mm modules which fit in the standard rack frames (available in a choice of four sizes) alongside the rest of the Crystal Vision products. The inputs and outputs are accessed by using the RM53 frame rear module with the Dual 3G-DL and the RM50 rear module with the Dual DL-3G.

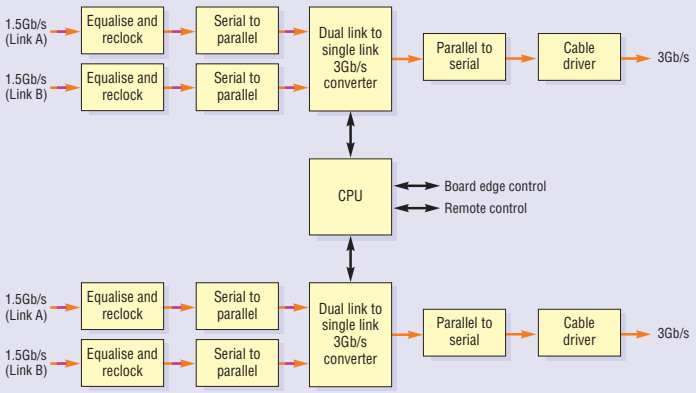
The choice of control options includes board edge switches, an active front panel on the frame, a remote control panel, SNMP or the Statesman PC software.

- Two dual link to single link converters
- Ideal for interfacing between 1080p dual link and 3Gb/s equipment
- Convenient way to transport HD 3D signals on a single wire
- The Dual 3G-DL separates a single 3Gb/s signal into two 1.5Gb/s signals (either a dual link 1080p signal or two separate co-timed HD streams)
- The Dual DL-3G takes two 1.5Gb/s dual link signals or two separate co-timed HD streams and combines them into a single 3Gb/s signal
- Two independent channels allow two conversions to be performed on each board
- Optimised for use with Level B 3Gb/s signals
- Short processing delay
- Space-saving: 100mm x 266mm module allows 12 dual link converters (that's 24 channels) in 2U (24 boards in 4U, six in 1U and two in desk top box)
- Flexible control, including board edge, front and remote panels, SNMP and PC software

Dual 3G-DL



Dual DL-3G



SPECIFICATION

DUAL 3G-DL

MECHANICAL
Standard Crystal Vision module 266mm x 100mm
Weight: 155g
Power consumption: 11 Watts

VIDEO INPUTS
Two 3Gb/s inputs, each on a single 3Gb/s link
3Gb/s serial compliant to SMPTE 424M
The video formats supported are 1080p50, 1080p59.94, or two co-timed 1080i50 or 1080i59.94 video streams combined into an SMPTE 425 Level B signal
3Gb/s cable equalisation up to 80m using Belden 1694A
Input return loss: -15dB for 50Mz to 1.5GHz and -10dB for 1.5GHz to 3GHz
Auto 50/59.94Hz and video format selection

VIDEO OUTPUTS
One pair of reclocked outputs per channel of either 1080p on dual 1.5Gb/s links or two co-timed HD streams using RM53 frame rear module
1.5Gb/s or 3Gb/s serial compliant to SMPTE 292M and SMPTE 424M
The video formats supported are 1080p50, 1080p59.94, or two co-timed 1080i50 or 1080i59.94 video streams
Output follows the input format

SIGNAL CONVERSIONS AND 3D APPLICATIONS
The Dual 3G-DL is a 3G to dual link converter. It takes a single 3Gb/s signal and separates it into two 1.5Gb/s signals which can either be a dual link 3Gb/s signal, or alternatively two separate but co-timed HD streams
The two co-timed HD streams could be the left and right eye pictures from an HD 3D programme. These left and right pictures could be passed on a single 3Gb/s line, with the Dual 3G-DL then used to separate them for video processing such as editing
There are two independent channels on the board meaning two conversions can be performed

LEVELS SUPPORTED
The Dual 3G-DL is designed mainly for use with Level B 3Gb/s signals
It will work with Level A signals which do not contain audio or other embedded data
The Dual 3G-DL automatically detects level A or B and adjusts accordingly

DELAY THROUGH BOARD
300 input pixels (Level B)
One video line plus 300 input pixels (Level A)

ANCILLARY DATA (LEVEL B ONLY)
Will pass embedded audio and other ancillary data

LED INDICATION OF:
Power supplies okay
Input 1 valid
Input 2 valid
Output 1 Link A valid
Output 1 Link B valid
Output 2 Link A valid
Output 2 Link B valid

LOCAL CONTROL
Intuitive board edge interface with two select buttons, shaft encoder and ten character alphanumeric display

REMOTE CONTROL
RS422/485
19200 baud, 8 bits, 1 stop no parity
Control from frame active front panel and remote panel
Statesman allows control and status monitoring from any PC on a network
SNMP monitoring and control available as a frame option

DUAL DL-3G

MECHANICAL
Standard Crystal Vision module 266mm x 100mm
Weight: 155g
Power consumption: 11 Watts

VIDEO INPUTS
Two inputs of either 1080p on dual 1.5Gb/s links or two co-timed (to within 12 samples) HD streams 1.5Gb/s or 3Gb/s serial compliant to SMPTE 292M and SMPTE 424M
The video formats supported are 1080p50, 1080p59.94, or two co-timed 1080i50 or 1080i59.94 video streams
3Gb/s cable equalisation up to 80m using Belden 1694A. HD cable equalisation up to 140m with Belden 1694A or equivalent (approx. 100m with Belden 8281)
Input return loss: -15dB for 50MHz to 1.5GHz and -10dB for 1.5GHz to 3GHz
Auto 50/59.94Hz and video format selection

VIDEO OUTPUTS
One reclocked 3Gb/s output per channel on a single 3Gb/s link using RM50 frame rear module
3Gb/s serial compliant to SMPTE 424M
The video formats supported are 1080p50, 1080p59.94, or two co-timed 1080i50 or 1080i59.94 video streams combined into an SMPTE 425 Level B signal
Output follows the input format

SIGNAL CONVERSIONS AND 3D APPLICATIONS
The Dual DL-3G is a dual link to 3G converter. It takes two 1.5Gb/s dual link signals or two separate co-timed HD streams and combines them into a single 3Gb/s signal
The two co-timed HD streams could be the left and right eye pictures from an HD 3D programme which come from a pair of cameras looking at the same scene. The Dual DL-3G allows two 3D images to be combined and put down the same wire so they go the same route and stay together
The Dual DL-3G can cope with a 12 sample timing difference between the links
There are two independent channels on the board meaning two conversions can be performed

LEVELS SUPPORTED
The Dual DL-3G is designed mainly for use with Level B 3Gb/s signals
It will work with Level A signals which do not contain audio or other embedded data
The Dual DL-3G has user controllable selection of level A or B for its outputs

DELAY THROUGH BOARD
700 input pixels (Level B)
One video line plus 700 input pixels (Level A)

ANCILLARY DATA (LEVEL B ONLY)
Will pass embedded audio and other ancillary data

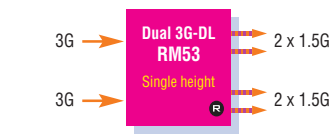
LED INDICATION OF:
Power supplies okay
Input 1 Link A valid
Input 1 Link B valid
Input 2 Link A valid
Input 2 Link B valid
Output 1 is encoded as Level A
Output 1 is encoded as Level B
Output 2 is encoded as Level A
Output 2 is encoded as Level B

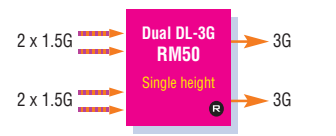
LOCAL CONTROL
Intuitive board edge interface with two select buttons, shaft encoder and ten character alphanumeric display

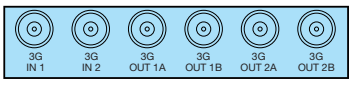
REMOTE CONTROL
RS422/485
19200 baud, 8 bits, 1 stop no parity
Control from frame active front panel and remote panel
Statesman allows control and status monitoring from any PC on a network
SNMP monitoring and control available as a frame option

ORDERING INFORMATION

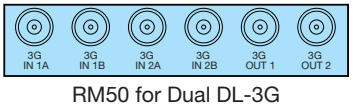
Dual 3G-DL	Dual channel single link to dual link converter
Dual DL-3G	Dual channel dual link to single link converter
Indigo 4	4U frame with passive front panel for up to 24 Crystal Vision modules
Indigo 4SE	4U frame with passive front panel fitted with Statesman CPU for up to 24 Crystal Vision modules
Indigo 2	2U frame with passive front panel for up to 12 Crystal Vision modules
Indigo 2AE	2U frame with active front panel for up to 12 Crystal Vision modules
Indigo 2SE	2U frame with passive front panel fitted with Statesman CPU for up to 12 Crystal Vision modules
Indigo 1	1U frame with passive front panel for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1-DP
Indigo 1AE	1U frame with active front panel for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1AE-DP
Indigo 1SE	1U frame with passive front panel fitted with Statesman CPU for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1SE-DP
Indigo DT	Desk top box with passive front panel for up to two Crystal Vision modules
Indigo DTAE	Desk top box with active front panel for up to two Crystal Vision modules
Indigo DTSE	Desk top box with passive front panel fitted with Statesman CPU for up to two Crystal Vision modules
RM53	Single slot frame rear module used for Dual 3G-DL. Allows maximum number of boards in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Gives access to two 3Gb/s inputs each on a single 3Gb/s link, and provides one pair of reclocked outputs per channel of either 1080p on dual 1.5Gb/s links or two co-timed HD streams
RM50	Single slot frame rear module used for Dual DL-3G. Allows maximum number of boards in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Gives access to two inputs of either 1080p on dual 1.5Gb/s links or two co-timed HD streams and provides one reclocked 3Gb/s output per channel on a single 3Gb/s link
REMIND	19" remote control panel
REMIND-E	19" Ethernet remote control panel
Statesman	PC Control System
SNMP	SNMP monitoring and control







RM53 for Dual 3G-DL



RM50 for Dual DL-3G

Performance and features are subject to change. Figures given are typical measured values. DUALLINK1010

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