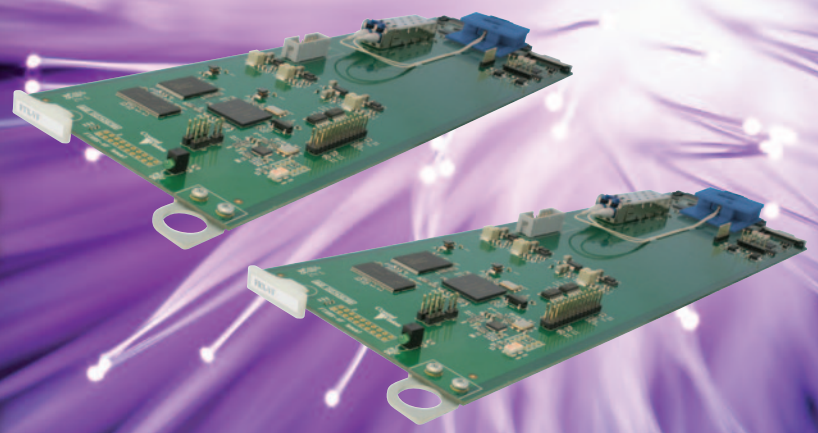
Crystal Vision

Vision SYSTEM

FTX-VF and FRX-VF

3G/HD/SD fibre transmitter and receiver



The FTX-VF fibre optic transmitter and FRX-VF fibre optic receiver have been designed to transmit and receive 3Gb/s, HD and SD signals over large distances.

Meeting the SMPTE 297-2006 short-haul specification, they can be used with single-mode or multi-mode fibre and are perfect for moving signals around in big installations. The useful features include full DVB-ASI compatibility and the ability to fit CWDM lasers – plus multiple outputs and loop-throughs which reduce the need for additional distribution amplifiers.

With up to 20 cards (40 channels) fitting in the Vision 3 frame, the dual channel FTX-VF and FRX-VF save you rack space and can be housed alongside any other interface or IP cards from the Vision range.

- **Dual channel fibre optic transmitter (FTX-VF) and dual channel fibre optic receiver (FRX-VF)**
- **Send 3Gb/s, HD or SD signals over long distances – ideal for use within a large building or for passing signals between OB vehicles**
- **Use them with single-mode and multi-mode fibre: meet the SMPTE 297-2006 short-haul specification**
- **Reduce the need for additional distribution amplifiers: with two input loop-throughs per channel on FTX-VF and two outputs per channel on FRX-VF**
- **FTX-VF uses non-hazardous Class 1 laser, with useful features including auto and manual disable and monitoring of laser level and bias**
- **Transmit multiple signals down one fibre: FTX-VF can be provided with CWDM lasers, with ten different wavelength pairs available**
- **Flexible remote control and monitoring using frame integrated control panel, VisionPanel remote control panel, ASCII and JSON protocols, SNMP and the web browser-based VisionWeb Control**
- **Save rack space: 96mm x 325mm card allows up to 20 FTX-VF or FRX-VF in 3U**

TRANSPORT YOUR SIGNALS RELIABLY

The FTX-VF and FRX-VF are ideal for use together, but can be used with alternative transmitters and receivers.

The reclocking FTX-VF has two independent 3Gb/s, HD or SD inputs, each with one optical output. It can transmit a serial digital signal down a fibre optic cable to the FRX-VF receiver, which offers two optical inputs and two reclocked 3Gb/s, HD or SD outputs per channel – meaning it doubles as a DA and reduces the need, rack space and cost of having distribution amplifiers after the receiver. The FRX-VF recognises whether the standard is 3G/HD or SD and switches the slew rate automatically.

Specially modified laser modules allow the FTX-VF to cope successfully with pathological signals – with this challenging test pattern useful for testing your serial link. All outputs on the FRX-VF are DVB-ASI compatible and non-inverted.

USE THEM WITH SINGLE-MODE AND MULTI-MODE FIBRE

Both cards meet the SMPTE 297-2006 short-haul specification, allowing operation with both single-mode and multi-mode fibre.

This makes them suitable for a wide range of applications – from moving signals around in large installations to passing signals between Outside Broadcast vehicles.

LASER FEATURES

The FTX-VF features a non-hazardous Class 1 laser that will automatically switch off if there is no video input – facilitating system debugging and prolonging laser life. The laser can also be shut down manually.

Warnings are given when the laser bias current is above the threshold indicating imminent failure, and also when the laser is producing low output power and should be replaced immediately.

DISTRIBUTE YOUR INPUT VIDEO – OR CHECK YOUR SYSTEM

The FTX-VF includes two input loop-throughs per channel.

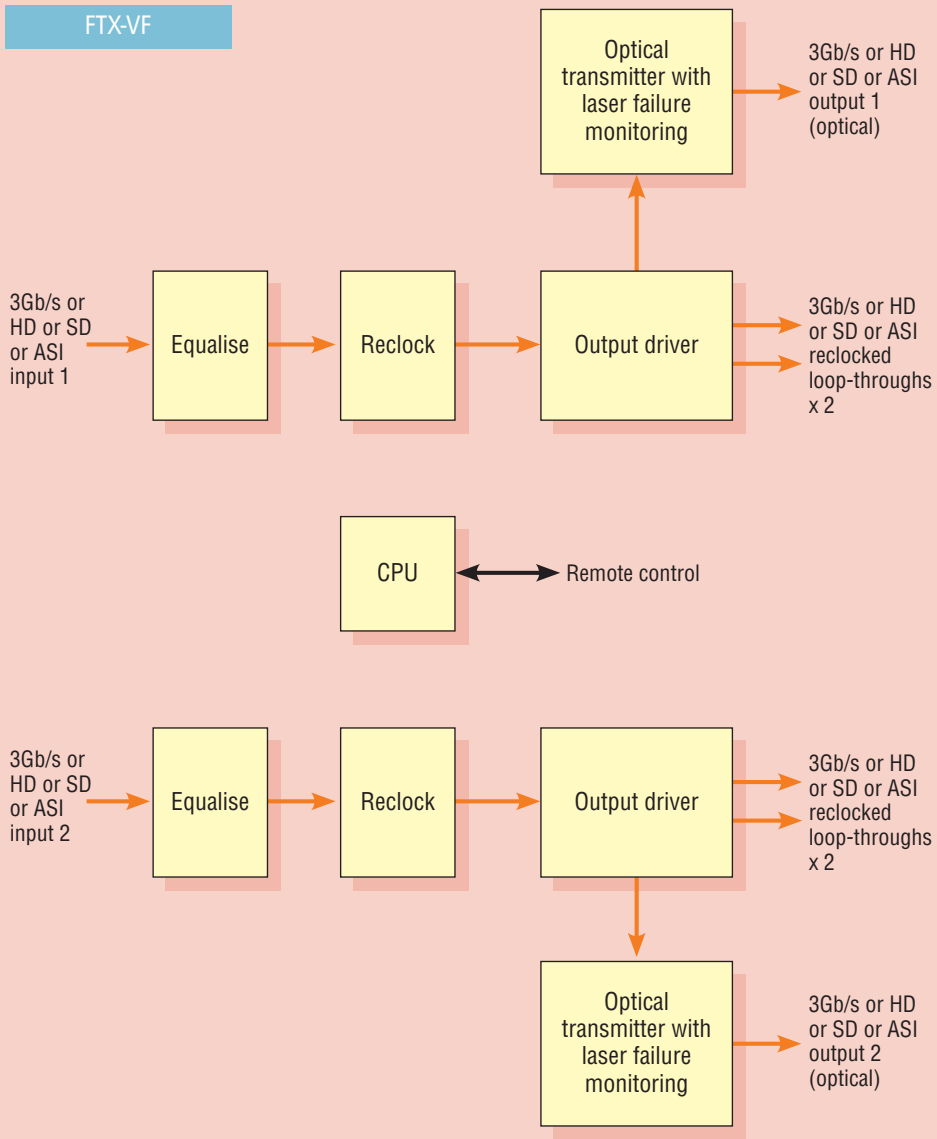
These loop-throughs can be used to distribute the input video to equipment such as a picture monitor, or alternatively for system checking: if a signal path has a good input and a faulty output, you can use the spare outputs to check each stage of the system without breaking any of the connections, and so work out which equipment or cable is broken.

GET MULTIPLE SIGNALS THROUGH ONE FIBRE – WITH CWDM

The standard FTX-VF uses a wideband 1310nm laser, but Crystal Vision can alternatively provide narrowband CWDM lasers on request.

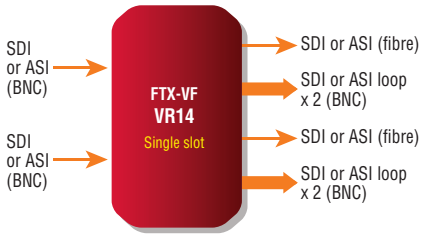
CWDM (coarse wavelength division multiplexing) allows many signals to be transmitted down a single fibre link by using a different

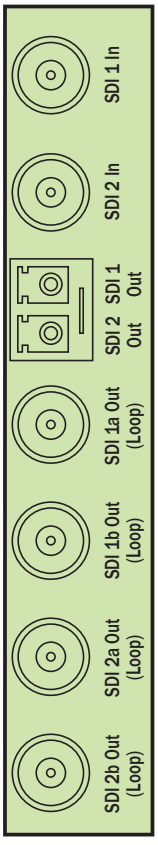
THE INPUTS AND OUTPUTS – FTX-VF



REAR MODULE CONNECTIONS

For all FTX-VF applications:





VR14

wavelength of light for each signal – saving you money and rack space. By fitting the appropriate CWDM laser and using an external combiner, you can take the output signal from the FTX-VF and combine it with signals from other sources down one fibre.

The output wavelengths are defined by the ITU and are available in the following ten combinations: 1271nm and 1291nm, 1311nm and 1331nm, 1351nm and 1371nm, 1391nm and 1411nm, 1431nm and 1451nm, 1471nm and 1491nm, 1511nm and 1531nm, 1551nm and 1571nm, 1591nm and 1611nm or 1310nm and 1550nm.

For CWDM, please order the FTX-CWDM-VF version and specify the laser wavelength pair required.

FLEXIBLE CONTROL

All control is done remotely. The control and monitoring options for the FTX-VF and FRX-VF include an integrated control panel on the Vision 3 frame, the VisionPanel remote control panel, our ASCII and JSON protocols, SNMP and the VisionWeb web browser control.

On the FTX-VF there is remote control of output enable/disable for channels 1 and 2, as well as remote monitoring of input present, signal type and laser level and bias for both channels.

The FRX-VF has remote monitoring of input present, received power (-25dBm to 0dBm in 1dBm steps) and optical input power level (Overload, High, Good, Low or Too Low) for each channel – allowing you to check that light is being passed effectively. 'Overload' or 'High' readings may result in a poor video output and can be helped by using an optical attenuator or longer fibre cable. 'Low' or 'Too Low' readings may be the result of dirty optical connectors or excessive fibre cable runs.

The interactive VisionWeb GUIs for the FTX-VF and FRX-VF are available at www.crystalvision.tv and allow you to explore the full functionality of the products.

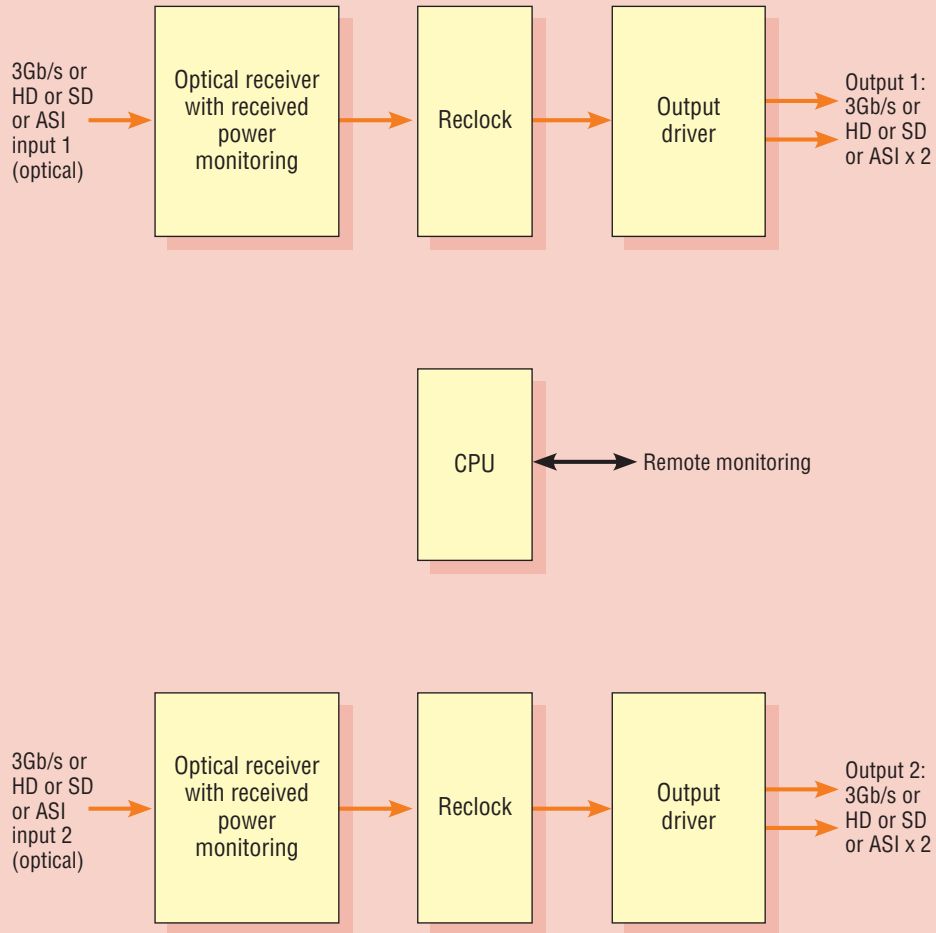
SAVE RACK SPACE

Housed in the Vision frames, the FTX-VF and FRX-VF are space-saving 96mm x 325mm cards that sit in one frame slot – allowing up to 20 fibre transmitters and receivers (40 channels) in 3U. Sharing a frame makes it easy to transport or receive signals from the other products in the company's Vision range.

On both products the inputs and outputs are accessing by using the VR14 frame rear module.

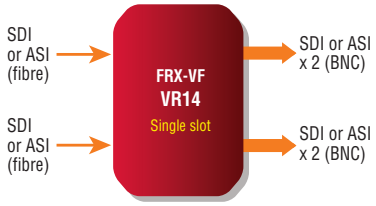
THE INPUTS AND OUTPUTS – FRX-VF

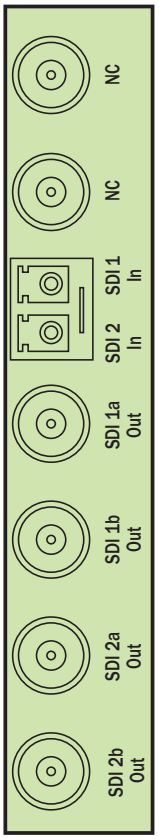
FRX-VF



REAR MODULE CONNECTIONS

For all FRX-VF applications:





VR14

SPECIFICATION

FTX-VF

MECHANICAL

Standard Vision card 96mm x 303mm (96mm x 325mm including finger pull)

Weight: 200g

Power consumption: 4 Watts

VIDEO INPUTS

Two 3Gb/s, HD or SD inputs with reclocking

DVB-ASI compatible

270Mb/s or 1.5Gb/s or 3Gb/s serial compliant to SMPTE 259 or ASI data, SMPTE 292-1 and SMPTE 424/425-A

Works with the following video standards: 625i, 525i, 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60, 1080PsF23.98, 1080PsF24, 1080PsF25, 1080PsF29.97, 1080PsF30, 2048x1080p23.98*, 2048x1080p24*, 2048x1080p25*, 2048x1080p29.97*, 2048x1080p30*, 2048x1080PsF23.98*, 2048x1080PsF24*, 2048x1080PsF25*, 2048x1080PsF29.97*, 2048x1080PsF30* (*= YUV 4:2:2 10 bit)

3Gb/s cable equalisation up to 100m using Belden 1694A

HD cable equalisation up to 140m with Belden 1694 or equivalent (approx. 100m with Belden 8281)

SD cable equalisation >250m Belden 8281 or equivalent

Auto 50/59.94/60Hz and video format selection

Passes all 3Gb/s, HD and SD signals transparently, including pathological signals

VIDEO OUTPUTS

One optical output per channel using VR14 frame rear module

Loss of input will automatically disable the laser outputs. The outputs can also be manually enabled and disabled, with independent adjustments for each channel

Two reclocked 3Gb/s, HD or SD input loop-throughs per channel. Slew rate is set automatically

Meets the SMPTE 297-2006 short-haul specification. This allows operation with single-mode and multi-mode fibre

Laser safety classification: Class 1 FDA and IEC60825-1 Laser Safety compliant

Optical power: Max 0.0dBm, min -5.0dBm

Fibre pigtail: Single-mode 9/125uM

Optical wavelength: 1290-1330nm (1310 typical)

Extinction ratio: 7.5dB

Connector type: LC

CWDM

The FTX-VF can be supplied with CWDM (coarse wavelength division multiplexing) lasers. The output wavelengths are defined by the ITU and are available in specific combinations

For CWDM, order the FTX-CWDM-VF and specify which of the following laser pairs you require:

1271nm and 1291nm

1311nm and 1331nm

1351nm and 1371nm

1391nm and 1411nm

1431nm and 1451nm

1471nm and 1491nm

1511nm and 1531nm

1551nm and 1571nm

1591nm and 1611nm

1310nm and 1550nm

DELAY THROUGH BOARD

Less than 100ns

LED INDICATION OF:

Power okay

REMOTE CONTROL

Control from integrated control panel on Vision 3 frame and remote panel

VisionWeb Control is available via the web server on the frame and allows monitoring using a standard web browser on a PC or tablet

SNMP control and monitoring available as standard

Control using ASCII and JSON protocols

Remote control of output enable/disable for channels 1 and 2

Remote monitoring for channels 1 and 2 of input present, 3G/HD or SD or unknown signal, level (laser is producing low output power and should be replaced) and bias (laser bias current above threshold indicating imminent failure)

FRX-VF

MECHANICAL

Standard Vision card 96mm x 303mm (96mm x 325mm including finger pull)

Weight: 200g

Power consumption: 4 Watts

VIDEO INPUTS

Two optical inputs

Meets the SMPTE 297-2006 specification. This allows operation with single-mode and multi-mode fibre

Works with the following video standards: 625i, 525i, 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60, 1080PsF23.98, 1080PsF24, 1080PsF25, 1080PsF29.97, 1080PsF30, 2048x1080p23.98*, 2048x1080p24*, 2048x1080p25*, 2048x1080p29.97*, 2048x1080p30*, 2048x1080PsF23.98*, 2048x1080PsF24*, 2048x1080PsF25*, 2048x1080PsF29.97*, 2048x1080PsF30* (*= YUV 4:2:2 10 bit)

Optical wavelength: 1260-1620nm

Input level maximum: -1dBm

Input level minimum: Typical -20dBm (-18dBm 3Gb/s pathological)

Connector type: LC

VIDEO OUTPUTS

Two reclocked 3Gb/s, HD or SD outputs per channel using VR14 frame rear module

Will drive 270Mb/s or 1.5Gb/s or 3Gb/s serial compliant to SMPTE 259 or ASI data, SMPTE 292-1 and SMPTE 424/425-A

Passes all 3Gb/s, HD and SD signals transparently, including pathological signals

Outputs are DVB-ASI compatible, with all outputs non-inverted

Recognises whether the standard is 3G/HD or SD and switches the slew rate automatically

DELAY THROUGH BOARD

Less than 100ns

LED INDICATION OF:

Power okay

REMOTE MONITORING

Monitoring from integrated control panel on Vision 3 frame and remote panel

VisionWeb Control is available via the web server on the frame and allows monitoring using a standard web browser on a computer, tablet or phone

SNMP monitoring available as standard

Monitor using ASCII and JSON protocols

Remote monitoring for channels 1 and 2 of input present, received power (-25dBm to 0dBm in 1dBm steps) and optical input power level (Overload, High, Good, Low or Too Low)

ORDERING INFORMATION

FTX-VF	Dual channel 3Gb/s, HD or SD to fibre optic transmitter (For CWDM, order the FTX-CWDM-VF and inform Crystal Vision the laser wavelength pair you require)
FRX-VF	Dual channel fibre optic to 3Gb/s, HD or SD receiver
Vision 3	3U frame with active front panel featuring smart CPU and integrated control panel for up to 20 Crystal Vision cards from the Vision range
VR14	Single slot frame rear module. Allows 20 FTX-VF or FRX-VF in 3U. On the FTX-VF gives access to two 3Gb/s, HD or SD inputs, two input loop-throughs per channel and one optical output per channel. On the FRX-VF gives access to two optical inputs and two 3Gb/s, HD or SD outputs per channel
VisionPanel	3U Ethernet remote control panel with touch screen
VisionWeb Control	VisionWeb web browser control included within frame software
SNMP	SNMP monitoring and control included in frame

Crystal Vision

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