

Crystal  Vision

PRODUCT RANGE

2020



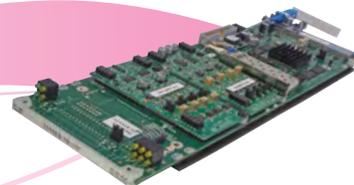
 Indigo
SYSTEM



Crystal Vision Because

Everything modular from Crystal Vision...

Crystal Vision provides project-winning interface and keying modules to those involved in the professional broadcasting industry. As a main modular supplier we are able to provide all the essential 'broadcast plumbing' for your installation, while we are also known for our more specialist products – such as the chroma keyers used by broadcasters across the world. There's a choice of two product ranges: the Indigo range for the biggest selection of boards and frame sizes, and the forward-looking Vision range for those planning IP and 4K installations or who are seeking the maximum outputs from their SDI products.

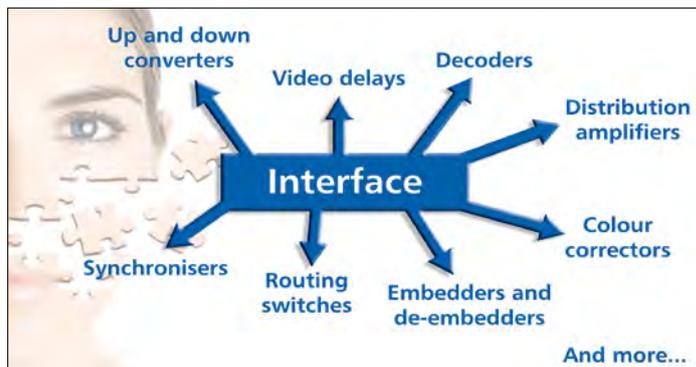


With reliable multi-functional products, responsive customer support, quick delivery and a five year warranty, Crystal Vision is a company that people like dealing with.

The Indigo product range

Interface

Crystal Vision makes the full range of interface products for 3Gb/s, HD and SD sources. These include the best glue products in their price range – products that win evaluations for the big projects. Most include multiple functionality on a single board which helps save you money and rack space – while some even feature integrated fibre input or output connectivity for even more functionality in a single frame slot. Crystal Vision will always give you features that you won't find anywhere else. Our up and down converters' ability to maintain signal quality wins them side-by-side evaluations, while our synchronisers and embedders give you real freedom when it comes to manipulating and processing multiple groups of embedded audio, and our routing switches will guarantee you a clean switch with a full framestore synchroniser on each input and loss of reference protection.



Chroma keying

Our easy-to-use and space-saving Safire real-time chroma keyers use their acclaimed digital chroma keying to create realistic 3Gb/s, HD or SD virtual images – making them ideal for any live virtual production.

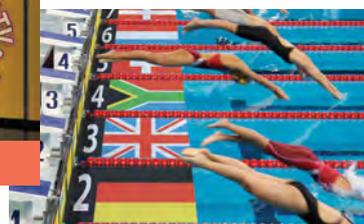
Any bluescreen or greenscreen application



Weather



Virtual studios



Sports graphics

Logo keying

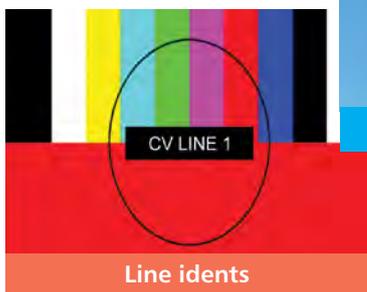
We offer both simple and sophisticated products for adding graphics to video sources. Use the LKEY 3 linear keyer for the simple keying of one graphic. The MultiLogo three-layer logo keyer is a powerful video and audio branding tool with internal storage for up to 500 graphics.



Logos



Wipes



Line idents

The Clip N Key clip store allows a special clip to be played repeatedly – ideal for providing wipes.

people like dealing with us



Why you should choose Crystal Vision

Because people like dealing with us...

- Excellent **product features** with clear technical advantages – and good enough to win the big projects.
- The feature-packed (and often multi-functional) products provide excellent **value for money**.
- Our **quick delivery** wins us orders. In fact, we aim to deliver 80% of all orders involving one or two frames within a week of that order being placed – and we usually do. We hold a large quantity of stock – and that includes stock of every product.
- The **best technical support**. Quick troubleshooting comes from the full rack of equipment we have set up to mimic any customer installations – and people say it's a refreshing experience to deal with us. Plus our **system design experts** can advise you how best to use our products to save yourself both rack space and money.
- The products are quick and **easy to set up** – with comprehensive documentation available (or the customer support team at the end of a phone or e-mail).
- It's **easy to buy** the products. We have a wide distribution network, with attentive and knowledgeable salesmen and distributors located across the world.
- A **choice of frames** to suit your application perfectly. The Indigo frames are available in three sizes (whether you need to house 12 boards or two), and our products are **space-saving modules** – with up to 12 fitting in just 2U of rack space. Alternatively you can fit up to 20 cards from the Vision product range in our 3U Vision frame.
- A **choice of control**. Select what you prefer, from board edge switches, an active front panel on the frame, various remote control panels, GPIs, SNMP or VisionWeb Control from a web browser.
- Extremely **reliable (and long-lasting) products**, with the added reassurance of a **five year back-to-base warranty**. Should there be a problem, you won't have to wait long: we'll normally fix your board or get a replacement to you within five days.
- **We listen** to the products and extra features you want.



How to find the product you need

Use the **Contents** on the right to go straight to your product area of interest. Or if you know the product name, use the **A-Z Index** on the back page. Once you're on the page you need, the symbols show at a glance which features each product offers, while the comparison charts allow you to compare the products side-by-side. With the rear module diagrams you can see the inputs and outputs you'll get with a particular rear module – and so easily select the best one for your application. If you want more detail, individual leaflets are available for each product or you can explore our website at www.crystalvision.tv where things are always up-to-date. A separate Product Range catalogue is available for the Vision system.

Contents

<i>What are you looking for?</i>	<i>On which page can you find it?</i>
AFD insertion and reading	13 – 16, 23 – 24
Aspect ratio conversion	13 – 17
Audio converters	42
Audio embedders/de-embedders	38 – 41
Audio processor	45
Chroma keys	7 – 9
Clip and sting stores	12
Colour corrector	36
Cross converters	13 – 15
CWDM (Fibre Coarse Wavelength Division Multiplexing)	37
Decoders	18 – 19
Delays: audio	45
Delays: video	31 – 33
Distribution amplifiers: analogue, digital and MADI audio	43 – 45
Distribution amplifiers: analogue, SDI, ASI, HD and 3Gb/s video	20 – 22
Distribution amplifier: stereo to mono	43 – 44
Down converters	13 – 17
Fibre optics	37, 13 – 16, 24 – 26, 28 – 29, 31 – 34, 37 – 38
Legaliser	36
Logo keyers/linear keyers	10 – 11, 7
Profanity delays	34 – 35
Routing switches	27 – 30
Squeeze back keyer	11, 7
Synchronisers	23 – 26
Synchronising up/down/cross converters	15, 13
Tracking audio delay	19, 24 – 26
Up converters	13 – 15
Video converters: analogue to digital	18 – 19

As for the rest...

Audio piggybacks	46
Control software	52
Frames	5
Output modules	46
Power supplies	5
Rear modules	48 – 50
Remote control panels	51
SNMP control and monitoring	52
Top boards	47

Dolby and Dolby E are trademarks of Dolby Laboratories.



So how does the Indigo system work, then?

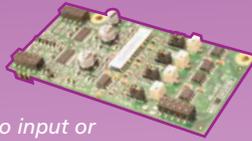
So you've looked at the Indigo and Vision product ranges, and decided that Indigo is the one for you. Here's what you do next...



1
First select the processing board

2 Add on any relevant options...

Audio input or output piggyback



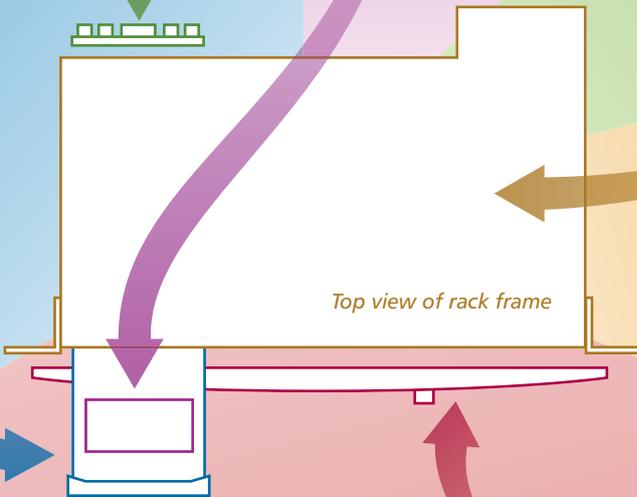
More outputs with the DA6 or more GPIs with the ML-GPI8



Fibre input or output



3 Choose an appropriate rear module that gives you the inputs and outputs you need



Top view of rack frame

4 Pick a suitably-sized rack frame to house your processing board – you can house up to 12 boards in our Indigo frames



5 Finally, decide how you are going to control the board...



Frame integrated control panel



Remote control panel



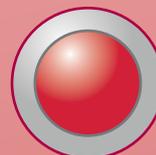
Dedicated control panel for some boards



Board edge switches



Control software



GPIs



SNMP

Everything modular: Frames

Indigo frames
Power supplies



The frames

Crystal Vision's interface and keying products from the Indigo range are individual 100mm x 266mm modules that need to be housed in rack frames and require rear modules (see pages 48 – 50) to access the various inputs and outputs.

The Indigo frames are available in three sizes. The 2U frame can take up to 12 boards and the 1U frames six boards, while the desk top boxes are ideal for non-rack mounted installations and take a maximum of two boards.

Frame features include...

- Mix any boards from the Indigo range
- Optional redundant power supplies
- Sophisticated status monitoring
- Temperature controlled cooling – with extra fans and enhanced heat distribution on the CoolFlow frame
- Choice of control, including remote control from PC or SNMP system

Indigo frames

Indigo 2SE

CoolFlow 2U frame with smart CPU which holds any mixture of up to 12 Indigo boards. Allows Ethernet connection to a PC. Requires separate power supplies and rear modules. Fit either one PSU-160i or two PSU-160i if power redundancy is required.



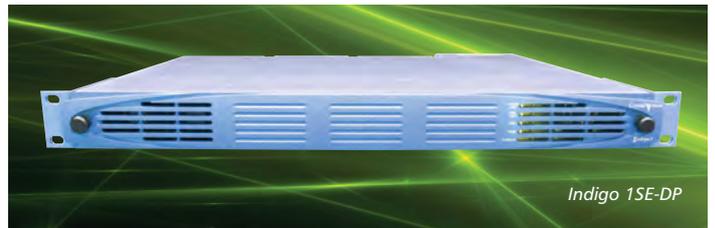
Indigo 1AE-DP

1U frame with power supply redundancy, smart CPU and integrated control panel which holds any mixture of up to six Indigo boards. Allows Ethernet connection to a PC. Includes two fixed PS-80i power supplies. Requires separate rear modules.



Indigo 1SE-DP

1U frame with power supply redundancy and smart CPU which holds any mixture of up to six Indigo boards. Allows Ethernet connection to a PC. Includes two fixed PS-80i power supplies. Requires separate rear modules.



Indigo DT

Desk top box with passive front panel which holds any mixture of up to two Indigo boards. Includes fixed 60W power supply. Requires separate rear modules. Rack mount kit available.



Indigo DTSE

Desk top box with smart CPU which holds any mixture of up to two Indigo boards. Allows Ethernet connection to a PC. Includes fixed 60W power supply. Requires separate rear modules.

Power supplies

PSU-160i

160 Watts power supply for Indigo 2U frame.

PS-80i

Spare 80 Watts power supply for Indigo 1AE-DP and Indigo 1SE-DP frames.

Q-Down Mini PSU

External universal AC power supply for the Q-Down Mini minibox down converter (see page 17), with IEC input and 9-way D-Type output.



Everything modular: **Keying**

- Chroma keyers
- Logo and linear keyers
- Squeeze back keyer
- Clip and sting stores

Keying

Keying has always been one of Crystal Vision's real strengths. Whether you need to chroma key or insert graphics on to video sources, we have a product to suit your application perfectly. An integral part of our modular system, these boards fit in the standard Indigo frames and save you rack space, with Indigo's 1U frames a popular choice for these applications. Used by broadcasters throughout the world, our acclaimed and easy-to-use Safire real-time chroma keyers are ideal for any live bluescreen or greenscreen virtual production, from weather to the most demanding virtual studio – with Safire 3 incorporating useful features such as lighting compensation, video delay and colour correction. The MultiLogo logo keyer is a powerful video and audio branding tool for adding up to three graphics to HD or SD video sources, and provides 4 GB or 8 GB of internal storage for up to 500 graphics as well as full audio processing. The affordable LKEY 3 linear keyer is designed for the simple keying of one graphic over 3Gb/s, HD or SD video streams. The unique LKEY-SQZ provides the highest quality picture squeezing and picture-in-picture effects. Ideal for providing wipes for sports or live events programming, the Clip N Key clip store allows a special clip with optional associated key signal to be played repeatedly.

Safire 3
Safire 3 Xpress
MultiLogo V432 8G
MultiLogo V132
LKEY 3
MultiLogo V132
LKEY-SQZ

COMING NEXT
Wanderworld: The secret of life on the ocean bed
10PM
French cuisine for beginners

Camera Line
Fanka Wade
SHE Photography
Pippa Moyer
TV Director
Mila Fabron
Director
Katy Westertume
Special thanks to

NEWS 24
LIVE FROM LONDON
Coming up next...

Today 08:00

Everything modular: Keying

Chroma keys
Logo and linear keys
Squeeze back keyer



Which keyer do you need?

	Safire 3	Safire 3 Xpress	LKEY 3	LKEY-SQZ	MultiLogo V132	MultiLogo V132 8G	MultiLogo V432	MultiLogo V432 8G
Main use	Chroma keyer	Chroma keyer	Linear keyer	Squeeze back keyer or picture-in-picture device	Logo keyer with internal storage for 250 graphics	Logo keyer with internal storage for 500 graphics	Logo keyer with internal storage for 250 graphics	Logo keyer with internal storage for 500 graphics
Input formats	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	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	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	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	625i, 525i, 720p50, 720p59.94, 1080i50, 1080i59.94	625i, 525i, 720p50, 720p59.94, 1080i50, 1080i59.94	625i, 525i, 720p50, 720p59.94, 1080i50, 1080i59.94	625i, 525i, 720p50, 720p59.94, 1080i50, 1080i59.94
Number of video inputs	3 (Foreground, Background, External Key)	3 (Foreground, Background, External Key)	3 (Foreground, Background, External Key)	3 (Video A, Squeeze Video, Key/Video B)	1	1	4	4
Number of video outputs	1 main and 1 auxiliary	Program and Preview	Program and Preview	Program and Preview	Program and Preview			
Chroma key (real-time)	●	●			●	●	●	●
Linear or self key internally-stored graphics over source					●	●		●
Linear or self key graphics from external graphics machine/graphics PC	●	●	●	●			●	●
DRAM internal graphics storage, backed up to Flash					4 GB	8 GB	4 GB	8 GB
Number of keyers	2 (chroma and linear/self)	2 (chroma and linear/self)	1	1	3	3	3	3
Mix between sources	●	●	●		●	●	●	●
Simple DVE with horizontal and vertical picture resizing/repositioning, able to perform sequence of operations using timeline control				●				
Internal simple wipes	Masks can be used to provide simple manual wipe	Masks can be used to provide simple manual wipe	Masks can be used to provide simple manual wipe					
Fades	●	●	●	●	●	●	●	●
Masks	●	●	●	●	●	●	●	●
Foreground colour correction (RGB lift and gain)	●							
Record sections of live feeds, with trimming					●	●	●	●
Generate simple text					●	●	●	●
Look-ahead preview					●	●	●	●
Reference timing	From Foreground, Background or Key input or from SD Black and Burst or HD tri-level syncs, with frame synchroniser on each input	From Foreground, Background or Key input or from SD Black and Burst or HD tri-level syncs, with frame synchroniser on each input	From Foreground, Background or Key input or from SD Black and Burst or HD tri-level syncs, with frame synchroniser on each input	From Video A, Squeeze Video or Key/Video B input or from SD Black and Burst or HD tri-level syncs, with line synchroniser on each input	From input 1 or from SD Black and Burst or HD tri-level syncs, with 1 line TBC	From input 1 or from SD Black and Burst or HD tri-level syncs, with 1 line TBC	From input 1 or from SD Black and Burst or HD tri-level syncs, with 1 line TBC	From input 1 or from SD Black and Burst or HD tri-level syncs, with 1 line TBC
Video delay (on each input)	Up to 10 frames additional user delay		Up to 10 frames additional user delay					
Relay bypass protection	● (RM73 option)	● (RM73 option)	● (RM73 option)	● (as standard)	● (as standard)	● (as standard)	● (as standard)	● (as standard)
Output embedded audio	From any chosen input	From video input or audio store	From video input or audio store	From selected video input (1 to 4), Program/Preview bus, audio store or external AES input	From selected video input (1 to 4), Program/Preview bus, audio store or external AES input			
Cross-fade audio between video inputs							●	●
Mix in audio clips (voiceovers/sound effects)					From audio store	From audio store	From audio store or external AES input	From audio store or external AES input
AES outputs for audio monitoring							●	●
GPI inputs and outputs	6 GPI inputs	4 GPI inputs	6 GPI inputs	6 GPI inputs	4 GPI inputs and 1 GPI output – plus additional 8 GPI inputs and 8 GPI outputs if ML-GPI8 fitted	4 GPI inputs and 1 GPI output – plus additional 8 GPI inputs and 8 GPI outputs if ML-GPI8 fitted	8 GPI inputs and 3 GPI outputs	8 GPI inputs and 3 GPI outputs
Number of presets	40	5	40	40	256, with partial presets and preset import/export	256, with partial presets and preset import/export	256, with partial presets and preset import/export	256, with partial presets and preset import/export
Frame slots used	1	1	1	1	1 (2 if ML-GPI8 fitted)	1 (2 if ML-GPI8 fitted)	2	2

Everything modular: **Keying**

Chroma keyers

Chroma keyers

SAFIRE 3

Chroma keyer

For full virtual studios or sports graphics...

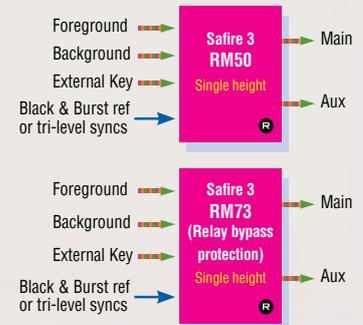
Safire 3

12 Watts



Broadcast engineers choose the Safire 3 real-time chroma keyer for its picture quality, ease-of-use and long list of features. Working with 3Gb/s, HD and SD video sources, this top-end chroma keyer is a pleasure to operate and is ideal for any live virtual production – from studio to sport. Set up an impressive chroma key automatically using multi-point sampling, or manually adjust the picture using any of the fine-tuning tools available – including lighting compensation, noise reduction filters, shadow processing and Foreground colour correction. Includes framestore synchroniser on each input for easy system timing and up to ten frames of video delay to offset the delay caused by the graphics generators. Features linear keying capability and flexible masks which make it ideal for sports graphics applications. Relay bypass protection option (with RM73 rear module).

Which rear module do you need?



Use the Safire 3 chroma keyer for any bluescreen or greenscreen application



VisionPanel

VisionWeb Control



Everything modular: Keying

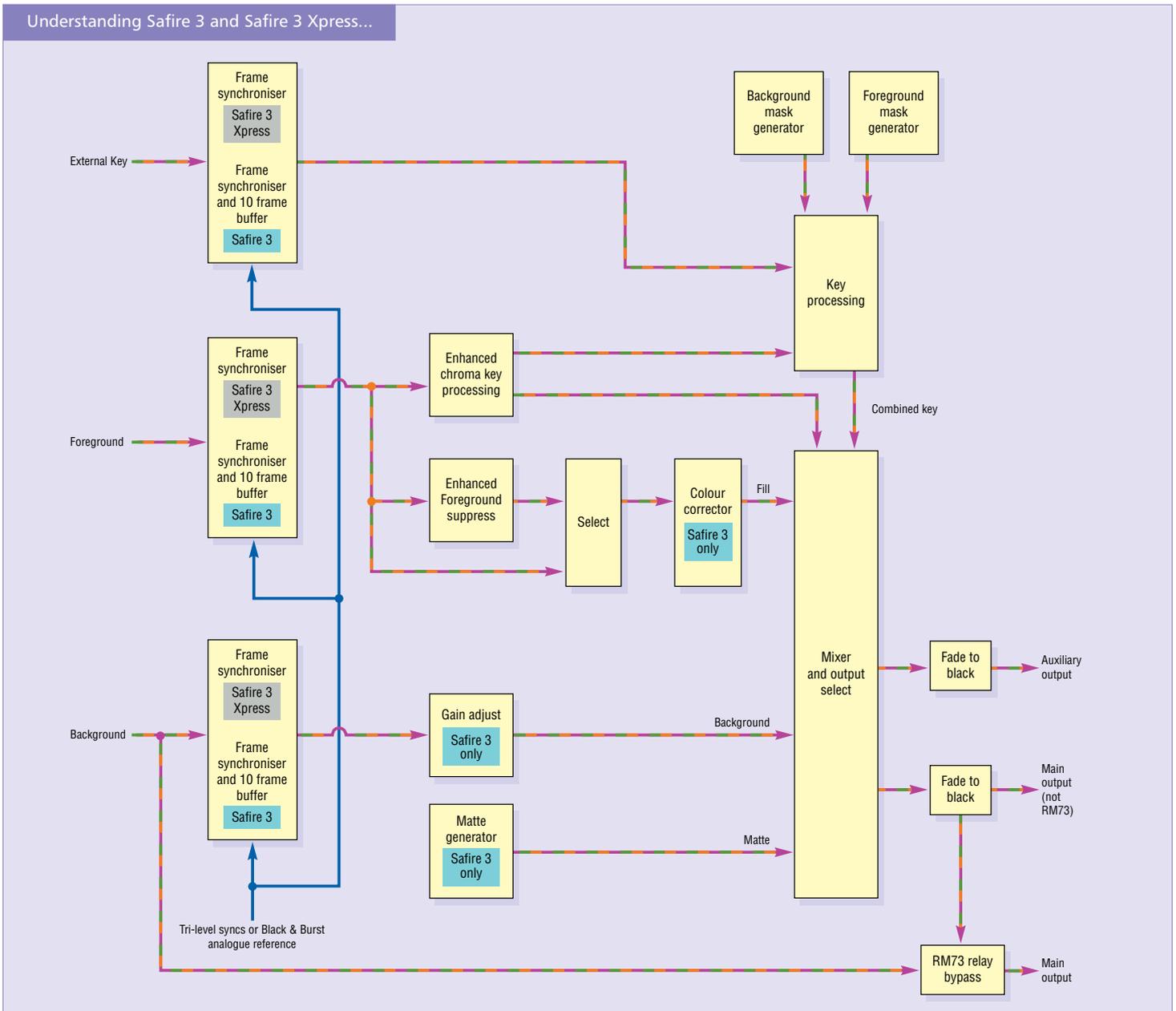
Chroma keys



KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Chroma keys continued...

Understanding Safire 3 and Safire 3 Xpress...



For weather or news bureau-type chroma keying...

Safire 3 Xpress

12.5 Watts



The Safire 3 Xpress real-time chroma keyer combines quality with simplicity and affordability – with control easy for even a less-technical operator. Working with 3Gb/s, HD and SD video sources, Safire 3 Xpress is ideal for single static camera applications such as news bureaus and weather, providing a higher quality of chroma keying and wider range of features than found in a studio mixer. Simple auto setup samples one representative point on the backdrop, while fine-tuning tools to manually adjust the picture include lighting compensation and shadow processing. Includes framestore synchroniser on each input for easy system timing

– allowing the Background to be generated using a PC-based graphics system which cannot be timed to the camera. Features linear keying capability and flexible masks. Relay bypass protection option (with RM73 rear module).

Which rear module do you need?





Everything modular: Keying

Logo and linear keyers

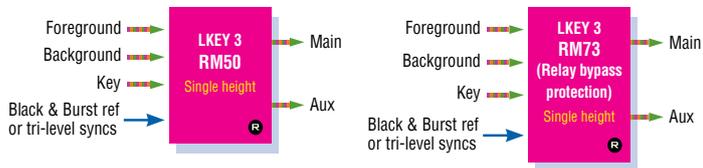
Logo and linear keyers

For the straightforward keying of one graphic...

LKEY 3 12 Watts

Affordable, feature-packed and space-saving linear keyer designed to key one graphic over 3Gb/s, HD or SD sources – with the ability to fit 12 linear keyers in 2U making it ideal for multi-channel keying applications. Includes masks with adjustable edge softness, fades and mixing between Foreground and Background. Framestore synchroniser on each input for easy system timing and up to ten frames of video delay. Relay bypass protection option (with RM73 rear module).

Which rear module do you need?



MultiLogo V432 16 Watts

MultiLogo V432 8G 16 Watts

Choose it instead of the V132... If you want to key on dynamically changing live graphics from an external graphics machine – or you need to use the external AES input and outputs.

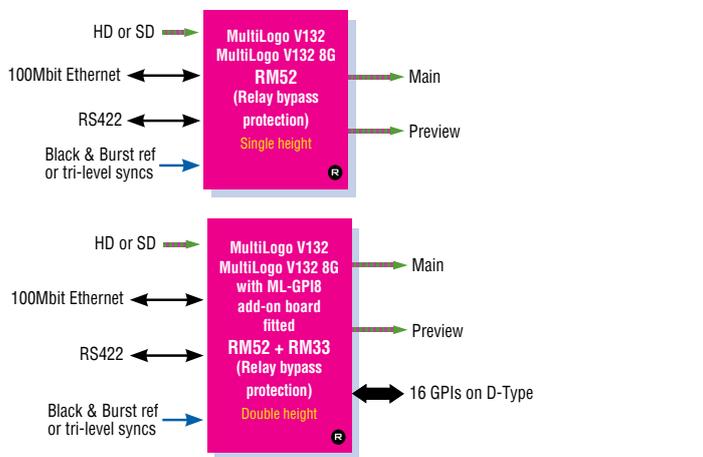
For powerful video and audio branding...

MultiLogo V132 12.5 Watts

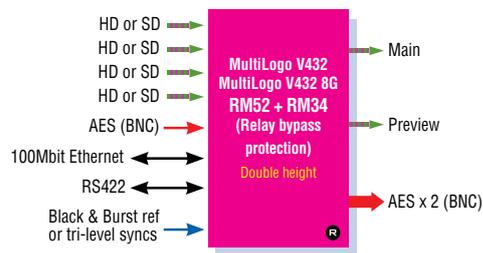
MultiLogo V132 8G 12.5 Watts

HD/SD three-layer logo keyer for putting three still or animated graphics on a screen at once. Includes internal multi-port video store with DRAM memory backed up to Flash, and one external video input for main programme. **MultiLogo V132** has a 4 GB store for up to 250 logos, while **MultiLogo V132 8G** has an 8 GB store for 500 logos. Easy transfer of graphics from a PC to the video store over 100MBit Ethernet. Features include numerous key processing controls, look-ahead preview, clip recording and trimming, simple text insertion, the ability to store and recall 256 partial presets, relay bypass protection and audio mixing with fading, dipping and level adjustments. Output can be locked to an analogue reference. Comes with MultiLogo Control Software which makes it easy to get logos on screen within a few minutes. Features flexible GPI control of each key level including one tally, while can be fitted with ML-GPI8 add-on board for additional eight GPI inputs and eight GPI outputs (see page 47).

Which rear module do you need?



Which rear module do you need?



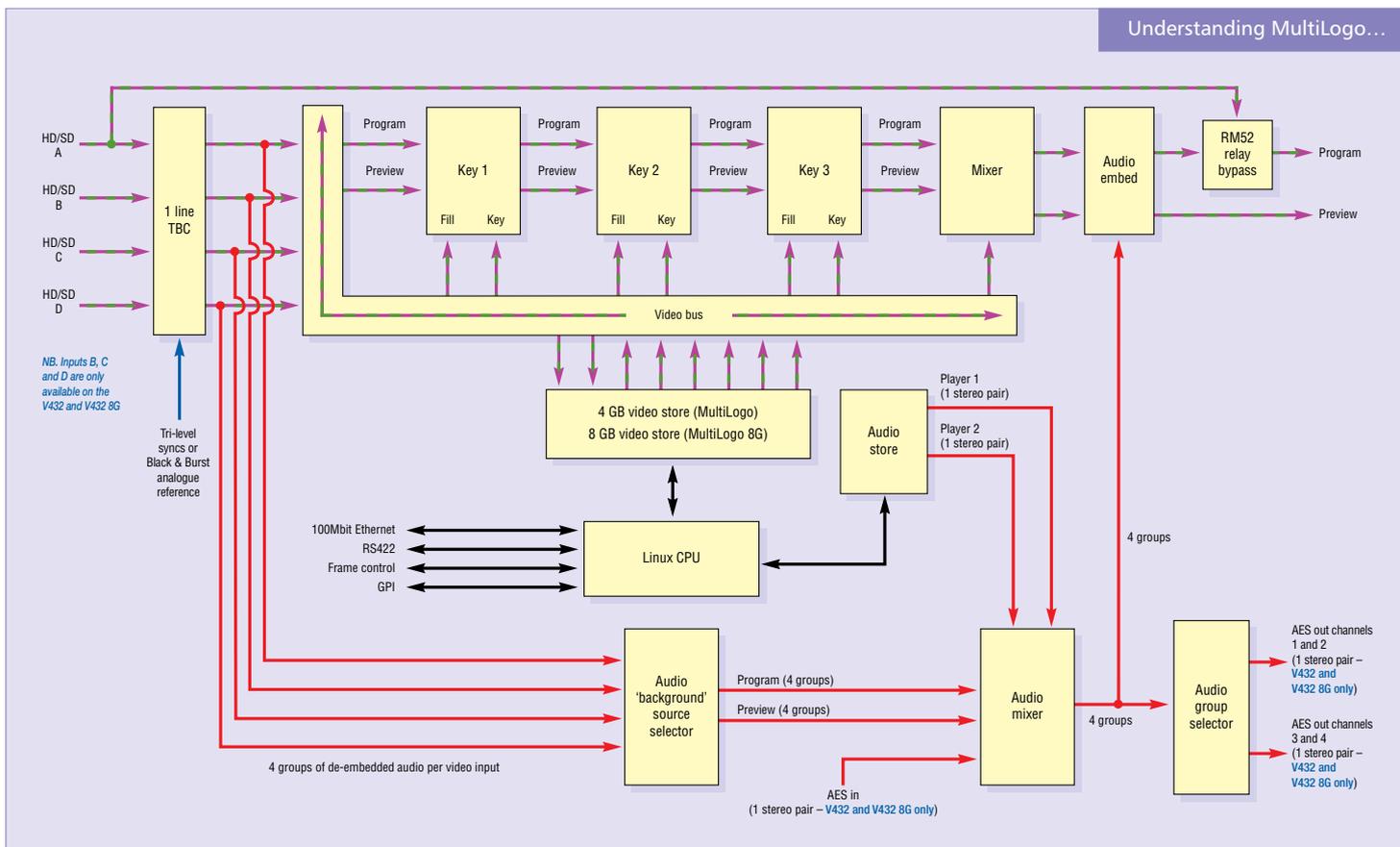
Everything modular: Keying

Logo and linear keys
Squeeze back keyer



- KEY
- Remote control
- Dual channel
- Standard Definition
- High Definition
- 3Gb/s
- Framestore synchroniser
- AFD features
- Dolby E compatible
- Processes 4 audio groups
- SDI over fibre
- Relay bypass protection

Logo and linear keys continued...

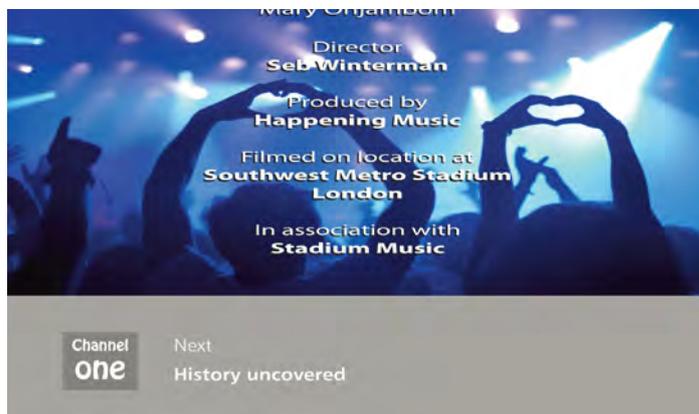
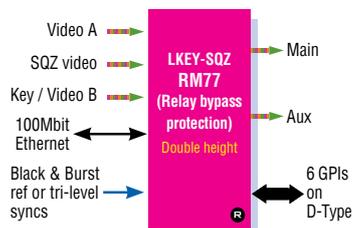


Squeeze back keyer

LKEY-SQZ 12.5 Watts

3G/HD/SD squeeze back keyer providing highest quality picture squeeze. Designed for any applications where the programme needs to be resized or repositioned horizontally and vertically for another layer of video to be displayed, such as squeezing end credits, squeezing a presenter to allow room for additional graphic material or picture-in-picture effects. Includes simple DVE, key processing, masks with adjustable edge softness, fades, line synchronisers and relay bypass protection. Can perform a sequence of operations using full timeline control of events.

Which rear module do you need?



One use of the LKEY-SQZ: squeezing the end credits

Everything modular: Keying

Clip and sting stores

Which clip store do you need?

	Clip N Key V121	Clip N Key V121 8G	Clip N Key V221	Clip N Key V221 8G
Input formats (50Hz and 59.94Hz)	720p, 1080i, 625i, 525i			
Number of external video inputs	1	1	2	2
Number of video outputs	Clip and either key or second clip			
Size of internal store (DRAM, backed up to Flash)	4 GB	8 GB	4 GB	8 GB
Length of HD video stored (no key signal)	30 seconds (50Hz); 25 seconds (59.94Hz)	60 seconds (50Hz); 50 seconds (59.94Hz)	30 seconds (50Hz); 25 seconds (59.94Hz)	60 seconds (50Hz); 50 seconds (59.94Hz)
Length of HD video stored with key signal	15 seconds (50Hz); 12 seconds (59.94Hz)	30 seconds (50Hz); 25 seconds (59.94Hz)	15 seconds (50Hz); 12 seconds (59.94Hz)	30 seconds (50Hz); 25 seconds (59.94Hz)
Length of SD video stored (no key signal)	150 seconds	300 seconds	150 seconds	300 seconds
Length of SD video stored with key signal	75 seconds	150 seconds	75 seconds	150 seconds
Maximum number of clips stored	250	500	250	500
Grab fill and separate key signal at same time for synchronised movement			●	●
Record sections of live feeds, with trimming	Fill or Key	Fill or Key	Fill or Key or Both	Fill or Key or Both
Simple text creation	●	●	●	●
Reference timing from input 1 or from SD Black and Burst or HD tri-level syncs, with one-line TBC	●	●	●	●
Relay bypass protection	●	●	●	●
Play out embedded audio	●	●	●	●
Number of presets	256 (16 recallable by GPI)	256 (16 recallable by GPI)	256 (256 recallable by GPI)	256 (256 recallable by GPI)
GPI inputs	4	4	8	8
Frame slots used	1	1	2	2

Clip and sting stores

Clip N Key V121

12.5 Watts



Clip N Key V121 8G

12.5 Watts

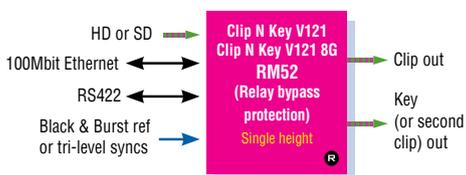


HD/SD clip and sting store for adding extra video sources to a mixer and enhancing transitions. Features one video input for live video. **Clip N Key V121's** 4 GB video store holds 30 seconds of moving HD video (15 seconds with key signal) or 150 seconds of moving SD video (75 seconds with key signal). **Clip N Key V121 8G's** 8 GB video store holds 60 seconds of moving HD video (30 seconds with key signal) or 300 seconds of moving SD video (150 seconds with key signal). Clips can have accompanying audio and are created either by recording from the video input (with easy trimming) or are downloaded to the board over 100Mbit Ethernet as a graphics file. Includes relay bypass protection and the ability to lock the video output to an analogue reference. Comes with special version of MultiLogo Control Software. Specific driver for Clip N Key provided on the FOR-A HVS-350HS video mixer, allowing specific clips to be triggered using the mixer control panel.



Wipes

Which rear module do you need?



Clip N Key V221

16 Watts



Clip N Key V221 8G

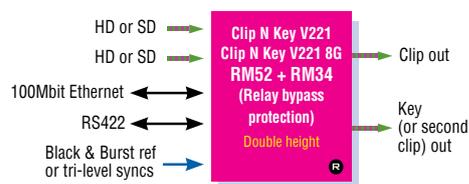
16 Watts



Choose it instead of the V121... If you want to grab a fill and separate key signal at the same time so that any movement is in synchronisation on the two channels.

HD/SD clip and sting store for adding extra video sources to a mixer and enhancing transitions. Features two video inputs for live video. **Clip N Key V221's** 4 GB video store holds 30 seconds of moving HD video (15 seconds with key signal) or 150 seconds of moving SD video (75 seconds with key signal). **Clip N Key V221 8G's** 8 GB video store holds 60 seconds of moving HD video (30 seconds with key signal) or 300 seconds of moving SD video (150 seconds with key signal). Clips can have accompanying audio and are created either by recording from the video input (with easy trimming) or are downloaded to the board over 100Mbit Ethernet as a graphics file. Includes relay bypass protection and the ability to lock the video output to an analogue reference. Comes with special version of MultiLogo Control Software. 'Double decker' module requiring two frame slots. Specific driver for Clip N Key provided on the FOR-A HVS-350HS video mixer, allowing specific clips to be triggered using the mixer control panel.

Which rear module do you need?



KEY For a Key to the Clip N Key product symbols please see page 15

Everything modular: Video interface

Up/down/cross converters
Synchronising up/down/cross converters
Down converters
Minibox down converter



Which up and down converter do you need?

	Up-Down-3G	Up-Down-A-3G	Up-Down-AFD-3G	Up-Down-AT-3G	Up-Down-ATX-3G	Up-Down-AS-3G	Up-Down-APDS-3G	Up-Down-ATS-3G	Up-Down-ATXS-3G	Q-Down-4G-3G	Q-Down-4TG-3G	Q-Down-Mini
Converter type (NB. All conversions are at 50Hz and 59.94Hz)	Up / Cross / Down	Up / Cross / Down	Up / Cross / Down	Up / Cross / Down	Down (with 1080p cross conversions)	Down (with 1080p cross conversions)	Down					
Perform two different conversions at same time	●	●	●	●	●	●	●	●	●			
Convert 1080p to 720p, 1080i or SD-SDI	●	●	●	●	●	●	●	●	●			
Convert 1080p to analogue SD (composite / Y/C / YUV / RGB)										●	●	●
Convert 720p to 1080p, 1080i or SD-SDI	●	●	●	●	●	●	●	●	●			
Convert 720p to analogue SD (composite / Y/C / YUV / RGB)										●	●	●
Convert 1080i to 1080p, 720p or SD-SDI	●	●	●	●	●	●	●	●	●			
Convert 1080i to analogue SD (composite / Y/C / YUV / RGB)										●	●	●
Convert SD-SDI to 1080p, 720p or 1080i	●	●	●	●	●	●	●	●	●			
Convert SD-SDI to analogue SD (composite / Y/C / YUV / RGB)										●	●	●
Maximum video outputs (depends on rear module)	2 feeds of Output A and 3 feeds of Output B	2 feeds of Output A and 3 feeds of Output B	2 feeds of Output A and 3 feeds of Output B	2 feeds of Output A and 3 feeds of Output B	2 feeds of Output A and 3 feeds of Output B	2 feeds of Output A and 2 feeds of Output B	2 feeds of Output A and 2 feeds of Output B	2 feeds of Output A and 2 feeds of Output B	2 feeds of Output A and 2 feeds of Output B	3	3	4 (with one fixed as SDI)
Reclocked input loop-throughs	6 with DA6 fitted	6 with DA6 fitted	6 with DA6 fitted	6 with DA6 fitted	2 - or 8 with DA6 fitted	2 - or 8 with DA6 fitted	1					
Uses motion adaptive video de-interlacing	●	●	●	●	●	●	●	●	●			
Uses sophisticated two dimensional filtering										●	●	●
Video proc-amp (RGB/YUV lift/gain)	●	●	●	●	●	●	●	●	●	●	●	●
Video proc-amp when HD input/output format identical				●	●			●	●			
Two framestore synchronisers						●	●	●	●			
Reference timing						From SDI input or from SD Black and Burst or HD tri-level syncs	From SDI input or from SD Black and Burst or HD tri-level syncs	From SDI input or from SD Black and Burst or HD tri-level syncs	From SDI input or from SD Black and Burst or HD tri-level syncs			
Short processing delay										●	●	●
Video delays	1 frame plus 16 lines additional user delay	1 frame plus 16 lines additional user delay	1 frame plus 16 lines additional user delay	1 frame plus 16 lines additional user delay	1 frame plus 16 lines additional user delay	1, 2 or 3 frames additional user delay	1, 2 or 3 frames additional user delay	1, 2 or 3 frames additional user delay	1, 2 or 3 frames additional user delay	3 fixed delays (minimum, fixed and frame) plus 1 frame additional user delay	3 fixed delays (minimum, fixed and frame) plus 1 frame additional user delay	3 fixed delays (minimum, fixed and frame)
Handles four audio groups		●	●	●	●	●	●	●	●	●	●	
Linear AES tracking audio delay						●	●	●	●			
Dolby E alignment delay						●	●	●	●			
Audio delays (on top of tracking)						Linear AES: 0-120ms; Dolby E: 1, 2 or 3 frames fixed delay	Linear AES: 0-120ms; Dolby E: 1, 2 or 3 frames fixed delay	Linear AES: 0-120ms; Dolby E: 1, 2 or 3 frames fixed delay	Linear AES: 0-120ms; Dolby E: 1, 2 or 3 frames fixed delay			
Audio routing in stereo pairs				●	●			●	●			
Audio resampling of linear AES						●	●	●	●			
Aspect ratio conversion when up converting *	●	●	●	●	●	●	●	●	●			
Aspect ratio conversion when down converting *	●	●	●	●	●	●	●	●	●	●	●	●
HD to HD aspect ratio conversion when input/output format identical *				●	●			●	●			
SD to SD aspect ratio conversion *	●	●	●	●	●	●	●	●	●			
Flexible aspect ratio adjustments (size, position and crop controls)	●	●	●	●	●	●	●	●	●	●	●	●
AFD insertion and reading			●	●	●			●	●			
Timecode handling	Passes	Passes	Passes	Passes and converts between ATC and DVITC	Passes and converts between ATC and DVITC	Passes	Passes	Passes and converts between ATC and DVITC	Passes and converts between ATC and DVITC	Passes	Passes and converts between ATC and DVITC	
Teletext handling (OP-47, SMPTE 2031)					●				●			
Closed captions transport (CEA-608 and CEA-708)					●				●			
Remote control and signal status reporting	●	●	●	●	●	●	●	●	●	●	●	●
Fibre I/O	●	●	●	●	●	●	●	●	●	●	●	●
Frame slots used	1 (2 if DA6 fitted)	1 (2 if DA6 fitted)	1 (2 if DA6 fitted)	1 (2 if DA6 fitted)	1 (2 if DA6 fitted)	1 (2 if DA6 fitted)	N/A					

* See brochures for full list of conversions



Everything modular: Video interface

Up/down/cross converters

Up and down conversion

Working with 3Gb/s, HD and SD sources, our up and down converters will give you the best quality at the best price – with extra features for that really tidy system design. No wonder, then, that they are our top-selling products. The up/down/cross converters combine the remarkable picture quality of motion adaptive video de-interlacing with four group embedded audio handling, aspect ratio conversion, signal timing, integrated fibre connectivity and AFD data insertion and reading – and can even create constant and co-timed HD and SD copies of a signal simultaneously. The Q-Down short-delay down converters offer a unique level of image quality in their price range, combining their exceptional broadcast down conversion with distribution, delay, aspect ratio conversion, on-board fibre and four group audio options – with Q-Down even available in a minibox for those with no spare rack space. These are products that undergo in-depth evaluations – and win.

Up/down/cross converters

The up/down/cross converters with the picture quality that broadcasters standardise on...

Up-Down 3G	11.9 Watts	
Up-Down-A 3G	11.9 Watts	
Up-Down-AFD 3G	11.9 Watts	
Up-Down-AT 3G	11.9 Watts	
Up-Down-ATX 3G	11.9 Watts	

Combined up/down/cross converter which works with 3Gb/s, HD and SD, can perform two different conversions simultaneously and provides the picture quality that broadcasters standardise on. Up conversions are SD to 720p, 1080i or 1080p. Down conversions are 1080p, 1080i or 720p to SD. Cross conversions are 720p to 1080i or 1080p, 1080i to 720p or 1080p, and 1080p to 1080i or 720p. All conversions available at both 50Hz and 59.94Hz. Outstanding performance with

motion adaptive video de-interlacing, Crystal Vision's proprietary down conversion, detail enhancement and noise reduction. Easy to output HD and SD at the same time with co-timed dual outputs which remain constant in format even if the input changes. Features aspect ratio converter including customised picture size, position and cropping, variable video delay, signal probe and video proc-amp, and can pass Ancillary Timecode from the input to the output. Provides six input loop-throughs if DA6 top board fitted (see page 47). Can include integrated fibre connectivity by fitting either the FIP fibre input option or the FOP fibre output option (see page 37).

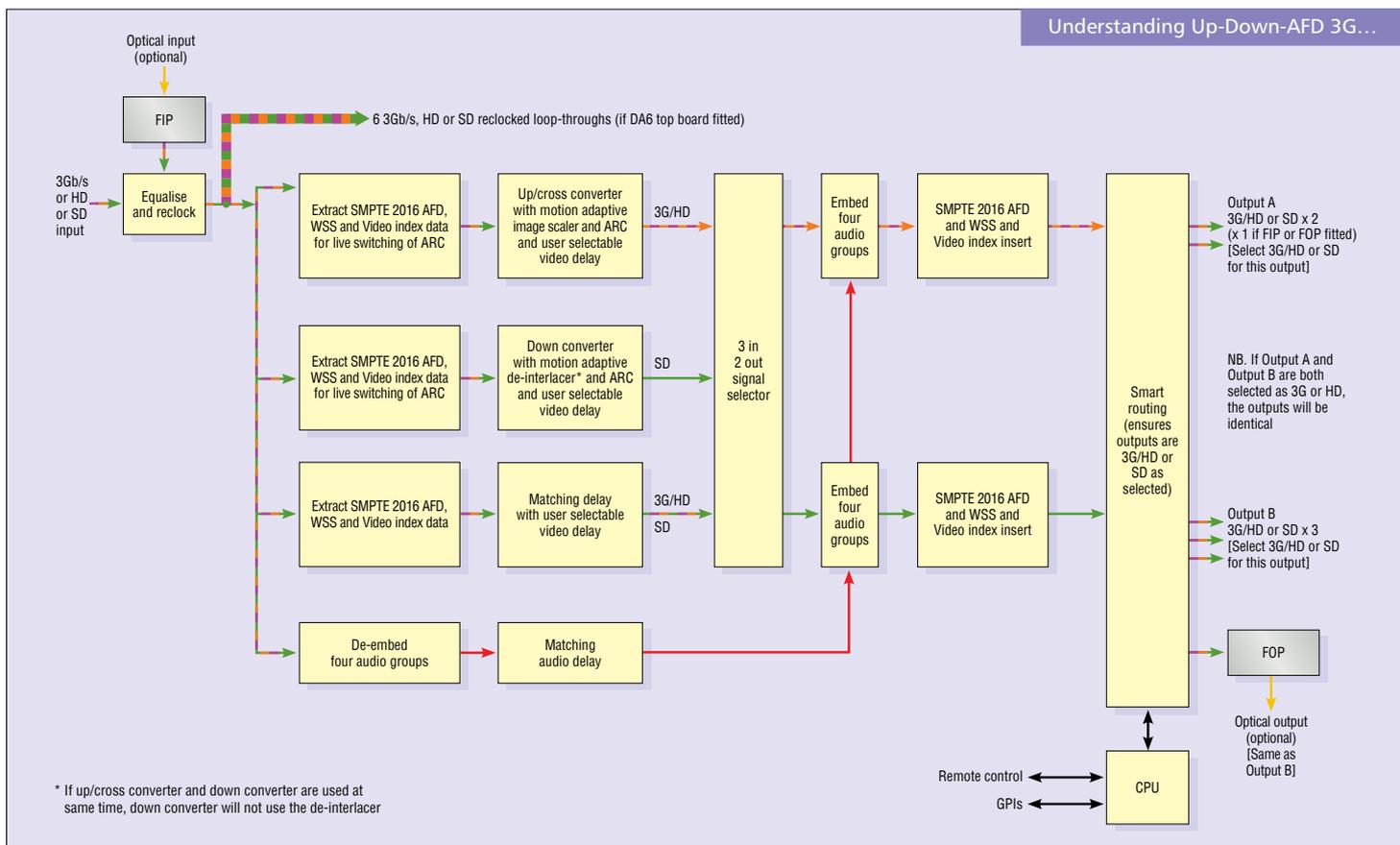
Additional features on all versions except Up-Down 3G... Can handle four groups of embedded audio and includes silence alarms.

Additional features on Up-Down-AFD 3G, Up-Down-AT 3G and Up-Down-ATX 3G... Can use SMPTE 2016 AFD data, WSS or Video index in video input to automatically select aspect ratio, and can insert it into the video output for downstream equipment.

Other features you'll get on Up-Down-AT 3G and Up-Down-ATX 3G... Audio routing by stereo channel, conversion of timecode between HD Ancillary Timecode and SD DVITC, and two features for when your input and output formats are identical: HD to HD aspect ratio conversions and an HD video proc-amp.

Features only available on Up-Down-ATX 3G... Transport of teletext, subtitles and closed captions across different definitions.

Rear modules on next page...



Everything modular: Video interface

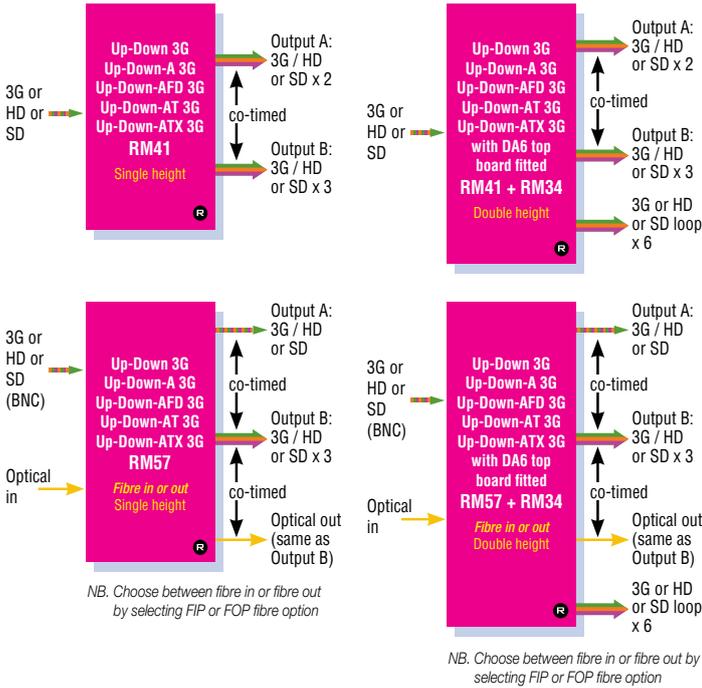
Up/down/cross converters
Synchronising up/down/cross converters



KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Up/down/cross converters continued...

Which rear module do you need?



Synchronising up/down/cross converters

Up-Down-AS 3G	11.9 Watts	
Up-Down-AFDS 3G	11.9 Watts	
Up-Down-ATS 3G	11.9 Watts	
Up-Down-ATXS 3G	11.9 Watts	

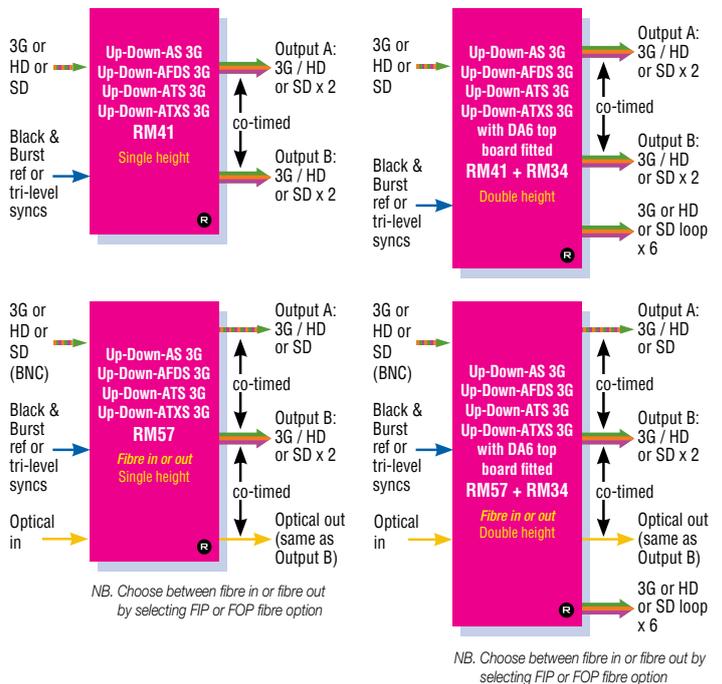
Synchronising up/down/cross converter which works with 3Gb/s, HD and SD and up to four groups of embedded audio and includes two downstream synchronisers which keep the output valid even when the input standard changes. Can perform two different conversions simultaneously and provides the picture quality that broadcasters standardise on. Up conversions are SD to 720p, 1080i or 1080p. Down conversions are 1080p, 1080i or 720p to SD. Cross conversions are 720p to 1080i or 1080p, 1080i to 720p or 1080p, and 1080p to 1080i or 720p. All conversions available at both 50Hz and 59.94Hz. Outstanding performance with motion adaptive video de-interlacing, Crystal Vision's proprietary down conversion, detail enhancement and noise reduction. Easy to output HD and SD at the same time with co-timed dual outputs which remain constant in format even if the input changes. Features horizontal and vertical timing adjustments, cross-locking, audio resampling and Dolby E alignment. Features aspect ratio converter including customised picture size, position and cropping, variable video delay, signal probe and video proc-amp, and can pass Ancillary Timecode from the input to the output. Provides six input loop-throughs if DA6 top board fitted (see page 47). Can include integrated fibre connectivity by fitting either the FIP fibre input option or the FOP fibre output option (see page 37).

Additional features on all versions except Up-Down-AS 3G... Can use SMPTE 2016 AFD data, WSS or Video index in video input to automatically select aspect ratio, and can insert it into the video output for downstream equipment.

Other features you'll get on Up-Down-ATS 3G and Up-Down-ATXS 3G... Audio routing by stereo channel, conversion of timecode between HD Ancillary Timecode and SD DVITC, and two features for when your input and output formats are identical: HD to HD aspect ratio conversions and an HD video proc-amp.

Features only available on Up-Down-ATXS 3G... Transport of teletext, subtitles and closed captions across different definitions.

Which rear module do you need?





Everything modular: Video interface

Down converters

Down converters

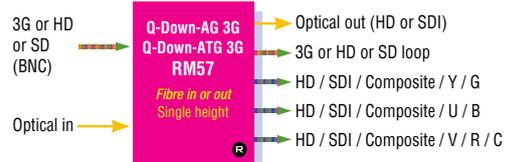
Q-Down-AG 3G	11 Watts	
Q-Down-ATG 3G	11 Watts	

Broadcast down converter and distribution amplifier with a short processing delay which works with 3Gb/s, HD and SD. Can handle four groups of embedded audio. Unique level of image quality in price range, with sophisticated two dimensional filtering which avoids aliasing while retaining picture sharpness. With a 3Gb/s input the three video outputs can be configured as either mixtures of HD digital and analogue (YUV and RGB), or as mixtures of SD digital and analogue (composite, Y/C, YUV and RGB). With an HD or SD input, the three video outputs can be configured as mixtures of SD digital and analogue (composite, Y/C, YUV and RGB). Also gives up to two reclocked input loop-throughs, or up to eight loop-throughs if a DA6 top board is fitted (see page 47). Features aspect ratio converter including customised picture size, position and cropping. Can use SMPTE 2016 AFD data in video input to automatically select aspect ratio and can insert AFD and WSS for downstream equipment. Includes three fixed delays, variable video delay of up to one frame, video proc-amp and signal reporting. Can include integrated fibre connectivity by fitting either the FIP fibre input option or the FOP fibre output option (see page 37).

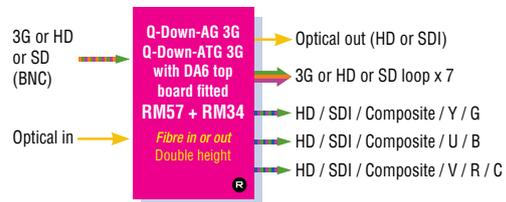
Additional features only on Q-Down-ATG 3G... Transport of timecode and closed captions across different definitions.

Which rear module do you need?

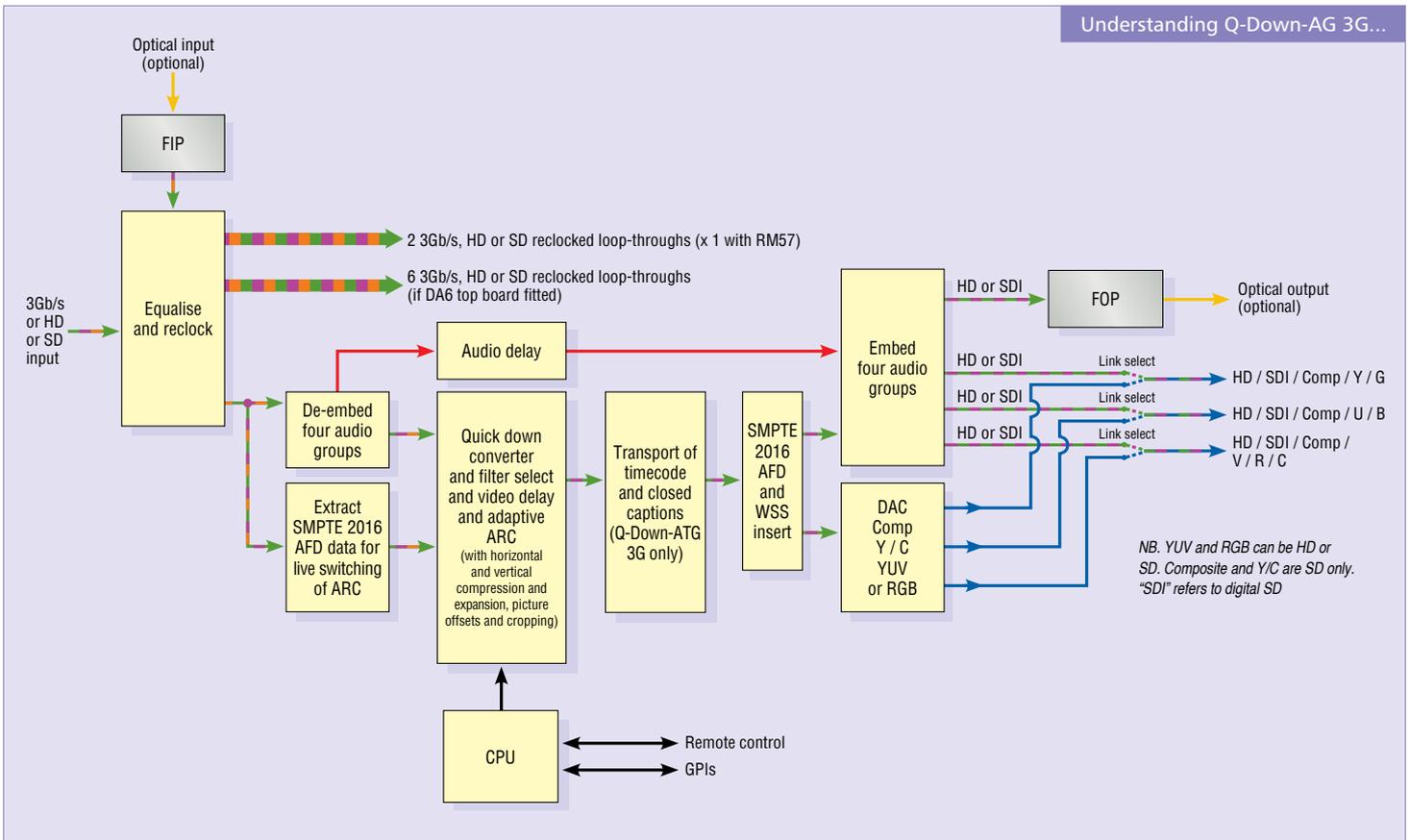
(YUV and RGB can be HD or SD. Composite and Y/C are SD only)



NB. Choose between fibre in or fibre out by selecting FIP or FOP fibre option



NB. Choose between fibre in or fibre out by selecting FIP or FOP fibre option



NB. YUV and RGB can be HD or SD. Composite and Y/C are SD only. "SDI" refers to digital SD

Everything modular: Video interface

Minibox down converter



- KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection



Minibox down converter

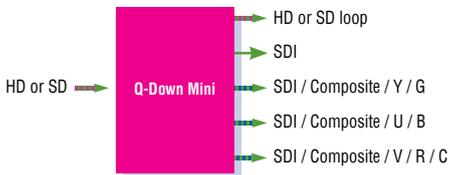
Q-Down Mini

6.5 Watts



Minibox broadcast down converter with a short processing delay which works with HD and SD. Ideal for attaching to the back of an SD monitor. Unique level of image quality in price range, with sophisticated two dimensional filtering which avoids aliasing while retaining picture sharpness. Gives one reclocked loop-through of the HD or SD input, one dedicated SDI output and three Standard Definition outputs individually selectable between analogue (composite, Y/C, YUV and RGB) and digital. Includes three fixed delays and aspect ratio converter with Anamorphic, Letterbox and Full Screen centre cut conversions. Used with external power supply: Q-Down Mini PSU (see page 5).

Use it instead of a modular Q-Down... If you need to provide down converted feeds for SD monitors and you're short of rack space.



NB. No rear module used



Q-Down Mini



Everything modular: Video interface

Analogue to digital converters and decoders

Video conversion

Crystal Vision's A to D converters continue to be popular with those working in Standard Definition environments. The decoders are perfect for bringing sources generated by cameras, tape machines, DVD players and graphics generators into a digital environment and can work with the full range of analogue signals (composite, Y/C, YUV and RGB) and cope with signals of varying qualities. Those requiring a D to A encoder should look at the Q-Down-AG 3G down converter (see page 16) which can convert SDI to composite, Y/C, YUV and RGB.



Which video converter do you need?

	ADDEC-210	EMDEC-200
Conversion	Analogue to digital	Analogue to digital
Performance	12 bit broadcast	12 bit broadcast
Input formats	PAL, NTSC, Y/C, YUV and RGB	PAL, NTSC, Y/C
Output formats	SDI	SDI
Maximum outputs	4	3
Analogue reference	● (with loop)	●
Framestore synchroniser	●	●
Tracking audio delay		●
Embed analogue audio		●
Remote control	●	●
Full board edge control		●

Everything modular: Video interface

Analogue to digital converters and decoders



KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

RM Rear module loop still available when board is removed.

Analogue to digital converters and decoders

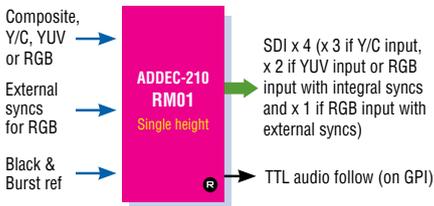
ADDEC-210

6 Watts



12 bit broadcast decoding converter designed to convert different analogue signals (PAL/NTSC, Y/C, YUV and RGB) to SDI. Excellent output quality with data sampled at 54Mbit, five line comb and 12 bit A to D. Suitable for all sources, from broadcast to VHS – copes with both stable and non-stable signals. Includes a framestore synchroniser, adjustment of output timing and gain and level adjustments.

Which rear module do you need?



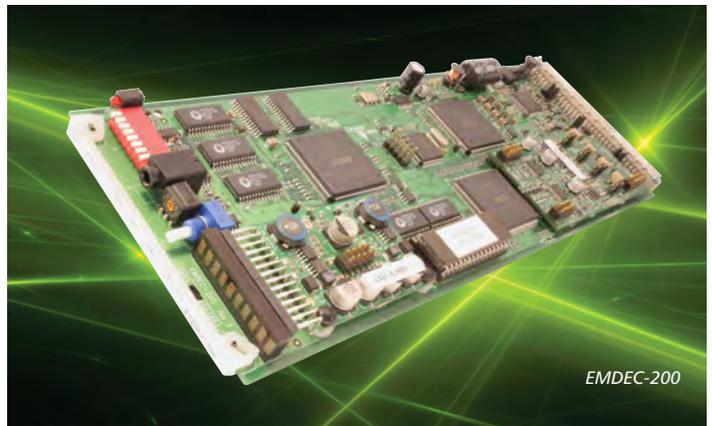
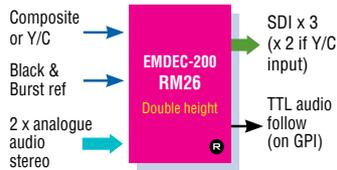
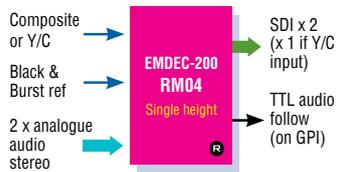
EMDEC-200

6.2 Watts



12 bit composite PAL/NTSC or Y/C to SDI broadcast embedding decoder. EMDEC-200 offers the functions of three products on one board, saving rack space and making systems 25% cheaper. It replaces a decoder with synchroniser, tracking audio delay and embedder, and is ideal for anyone who needs to bring analogue video into an embedded environment. Copes with both stable and non-stable signals. Embed analogue audio by fitting one audio piggyback module (see page 46).

Which rear module do you need?



EMDEC-200



Everything modular: Video interface

Analogue video distribution amplifiers

Digital video distribution amplifiers (SDI, ASI, HD and 3Gb/s)

Video distribution

Crystal Vision provides distribution amplifiers for the full range of video signals – whether you need to distribute analogue video, SDI, DVB-ASI, HD or 3Gb/s. Some can distribute a variety of different signals – perfect for future-proofing your installation. You can select the number of outputs you need (up to eleven), and choose from many different options including dual or single channel, signal monitoring and reporting and relay bypass protection.



Which video distribution amplifier do you need?

	VDA110M HD	VDA110R HD	VDA210M HD	3GDA105R	3GDA105C	3GDA111R	3GDA111C	3GDA204R	3GDA210R
Distributes analogue video (SD and HD)	●	●	●						
Distributes SDI				●	●	●	●	●	●
Distributes DVB-ASI				●	●	●	●	●	●
Distributes HD (720p and 1080i)				●	●	●	●	●	●
Distributes 3Gb/s (1080p)				●	●	●	●	●	●
Maximum number of outputs	11	11	5 per channel (or 10 if configured as single channel)	5	5	11	11	2 per channel	5 per channel
Loop-throughs	●	●	●						
Reclocking				●	●	●	●	●	●
Single or dual channel	Single	Single	Dual	Single	Single	Single	Single	Dual	Dual
Adjustable gain (+/-3dB)	●	●	●						
Adjustable equalisation	●	●	●						
Adjustable clamp		●							
Auto adjusts slew rate				●	●	●	●	●	●
Signal reporting		● (input standard, sync over-amplitude, dark video input, white-clip video input)		● (input present, signal type)		● (input present, signal type)		● (input present and signal type for each channel)	● (input present and signal type for each channel)
Relay bypass protection				● (RM67 option)	● (RM67 option)	● (RM67 + RM34 option)	● (RM67 + RM34 option)	● (RM76 option)	● (RM76 option)
Frame slots used	1 (for 5 outputs) or 2 (for 11 outputs)	1 (for 5 outputs) or 2 (for 11 outputs)	1 (for 2 outputs per ch) or 2 (for 5 outputs per ch)	1 (for 5 outputs)	1 (for 5 outputs)	2 (for 11 outputs)	2 (for 11 outputs)	1 (for 2 outputs per ch)	2 (for 5 outputs per ch)
Remote control and monitoring		●		●		●		●	●

Everything modular: Video interface

Analogue video distribution amplifiers
Digital video distribution amplifiers (SDI, ASI, HD and 3Gb/s)



KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

RM Rear module loop still available when board is removed.

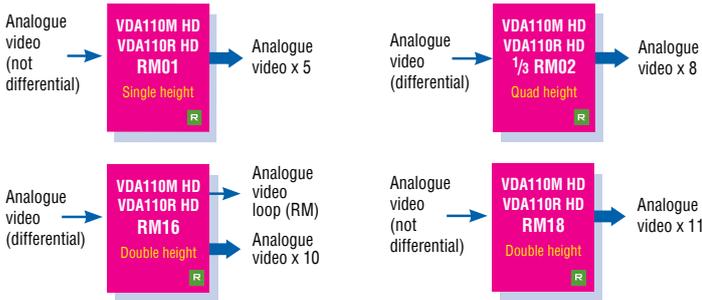
Analogue video distribution amplifiers

VDA110M HD	1.4 Watts	
VDA110R HD	4 Watts	

Broadcast analogue video distribution amplifier. Ideal for distributing SD Black and Burst or HD tri-level syncs analogue reference, or for the distribution of SD or HD analogue video. Can be used with differential or non-differential inputs. Used with four different rear modules for flexible output configurations. Maximum of ten outputs and one loop-through or eleven outputs. Adjustable gain and equalisation.

What you also get with the VDA110M HD... Manual control.
What you also get with the VDA110R HD... Adjustable clamp, remote control and comprehensive signal reporting including input standard, sync amplitude and dark and white-clip video input.

Which rear module do you need?

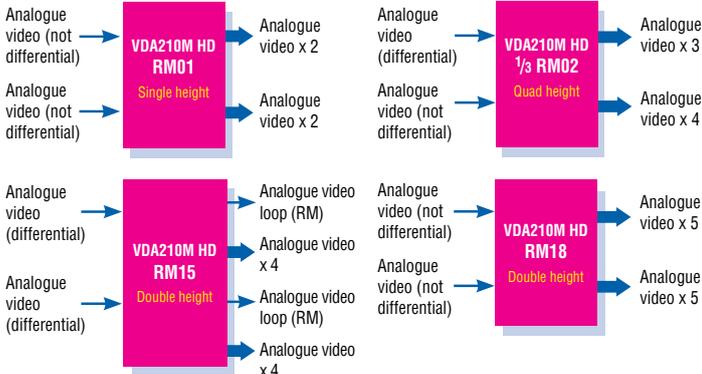


VDA210M HD	2 Watts	
------------	---------	--

Dual broadcast analogue video distribution amplifier. Ideal for distributing SD Black and Burst or HD tri-level syncs analogue reference, or for the distribution of SD or HD analogue video. Can be used with differential or non-differential inputs or a mixture of the two. Used with four different rear modules for flexible output configurations. Each channel has a maximum of four outputs and one loop-through or five outputs. Adjustable gain and equalisation.

Use it instead of the VDA110M HD... If you're working with multiple channels and need fewer outputs – while saving yourself some money.

Which rear module do you need?



Digital video distribution amplifiers (SDI, ASI, HD and 3Gb/s)

3GDA105R	5.6 Watts	
3GDA105C	3.2 Watts	

Relocking distribution amplifier for 3Gb/s, HD and SD sources which gives five reclocked outputs. All outputs are DVB-ASI compatible. Includes auto detection of input. Relay bypass protection option (with RM67 rear module).

Additional features on the 3GDA105R... Signal reporting, with remote monitoring of input present and signal type using VisionWeb Control web browser software or SNMP.

Which rear module do you need?



3GDA111R	8 Watts	
3GDA111C	5.6 Watts	

Relocking distribution amplifier for 3Gb/s, HD and SD sources which gives eleven reclocked outputs. All outputs are DVB-ASI compatible. Includes auto detection of input. 'Double decker' PCB which fits in two frame slots. Relay bypass protection option (with RM67 + RM34 rear module).

Additional features on the 3GDA111R... Signal reporting, with remote monitoring of input present and signal type using VisionWeb Control web browser software or SNMP.

Which rear module do you need?





Everything modular: Video interface

Digital video distribution amplifiers (SDI, ASI, HD and 3Gb/s)

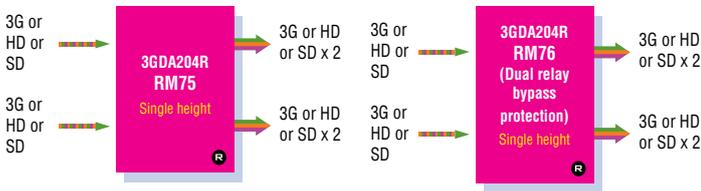
KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Digital video distribution amplifiers (SDI, ASI, HD and 3Gb/s) continued...

3GDA204R 3.5 Watts

Dual channel reclocking distribution amplifier for 3Gb/s, HD and SD sources which gives two reclocked outputs per channel. All outputs are DVB-ASI compatible. Auto detection of input. Includes signal reporting, with remote monitoring of input present and signal type using VisionWeb Control software or SNMP. Relay bypass protection option to protect both inputs (with RM76 rear module).

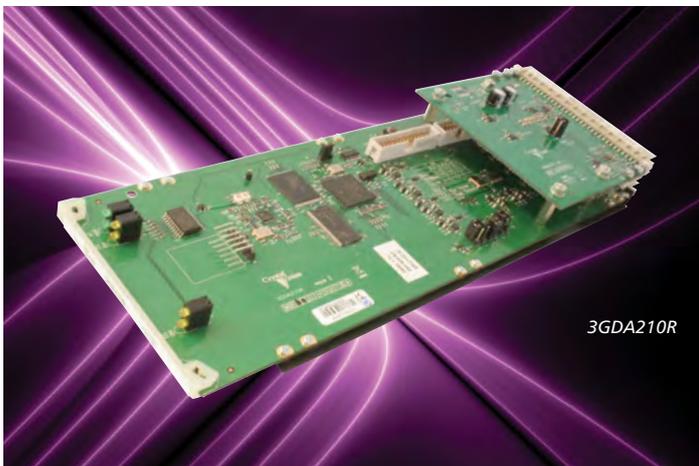
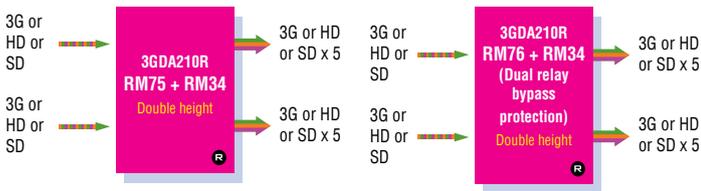
Which rear module do you need?



3GDA210R 4.5 Watts

Dual channel reclocking distribution amplifier for 3Gb/s, HD and SD sources which gives five reclocked outputs per channel. All outputs are DVB-ASI compatible. Auto detection of input. Includes signal reporting, with remote monitoring of input present and signal type using VisionWeb Control software or SNMP. 'Double decker' PCB which fits in two frame slots. Relay bypass protection option to protect both inputs (with RM76 + RM34 rear module).

Which rear module do you need?



Everything modular: Video interface

Video synchronisers



Which synchroniser do you need?

	SYN 3G	SYN-A 3G	SYNNER 310
Input formats	625i, 525i, 720p50, 720p59.94, 1080i50, 1080i59.94, 1080p50, 1080p59.94	625i, 525i, 720p50, 720p59.94, 1080i50, 1080i59.94, 1080p50, 1080p59.94	625i, 525i, 720p50, 720p59.94, 1080i50, 1080i59.94, 1080p50, 1080p59.94, 1080PsF23.98, 1080PsF24
Use as synchroniser or delay line	●	●	●
Minimum video delay	220us	220us (resampling and Dolby alignment off); 3ms (resampling on); 0.5 frames (Dolby alignment on)	1 line
Full vertical and horizontal adjustment up to one frame	●	●	●
Additional video delays	1, 2 or 3 frames additional user delay	1, 2 or 3 frames additional user delay	Up to 10 frames additional user delay in one frame steps, 0.5 frames for Dolby E align
Number of video outputs (max)	4	4	2
Reference timing	From SDI input or from SD Black and Burst or HD tri-level syncs	From SDI input or from SD Black and Burst or HD tri-level syncs	From SDI input or from SD Black and Burst or HD tri-level syncs (with reference loop on RM70)
Manual/automatic freeze	●	●	●
Use with embedded audio sources	If input/output frame rate locked together	●	●
Number of audio groups processed	4	4	4
Embed/de-embed digital audio			●
Embed/de-embed analogue audio			●
Number of external audio I/O channels available for embedding/de-embedding			AES: 8 stereo pairs Analogue audio: 8 mono
Uses piggybacks			2 (DIOP4, 3G-AIP2, 3G-AOP2)
Audio routing		8 x 8 stereo router	Mono routers auto configured according to options fitted
Synchronise mix of Dolby E and AES		●	●
Dolby E alignment		●	●
Tracking audio delay		●	●
Audio delays (on top of tracking)		Linear AES: 120ms; Dolby E: 0-3 frames	Linear AES: 1 to 10 frames fixed delay, 400ms; Dolby E: 0-1 frame, 36 samples
Audio resampling		●	●
Audio processing (gain, stereo to mono)			●
Video proc-amp (RGB and YUV lift and gain)	●	●	●
AFD insertion		●	
Comprehensive signal monitoring	●	●	●
Relay bypass protection	● (RM67 option)	● (RM67 option)	
Fibre I/O	●	●	●
Frame slots used	1	1	1 or 2, depending on rear module



Everything modular: Video interface

Video synchronisers

KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Synchronisation

Whether you need to synchronise incoming video signals not locked to your local reference or compensate for timing delays within your video system, Crystal Vision's extensive range of synchronisers will be perfect for the task. Some of the boards are designed for sources that contain embedded audio, others are perfect for video-only sources. Between them these feature-packed boards include flexible timing adjustments, freeze functionality, cross-locking, tracking audio delay, AFD insertion, audio routing, audio and video processing, integrated fibre connectivity and unique features for dealing with Dolby E. The multi-functional SYNNER 310 additionally includes the embedding and de-embedding of multiple channels of external audio.

And that's not the end to our synchronising. Our Safe Switch 3G 2 x 2 routing switch (see page 28) uses a full framestore synchroniser on each input to guarantee a clean switch. Our synchronising up/down/cross converters (page 16) use two downstream synchronisers to keep the two outputs valid at all times. Our Safire 3 and Safire 3 Xpress chroma keys (pages 9 and 10) and LKEY 3 linear keyer (page 10) all include a synchroniser on each input for easy system timing, while our video delays (pages 32 and 33) can delay and synchronise at the same time. Even our analogue to digital converters (page 19) include a synchroniser, allowing untimed inputs to be timed to the local reference.

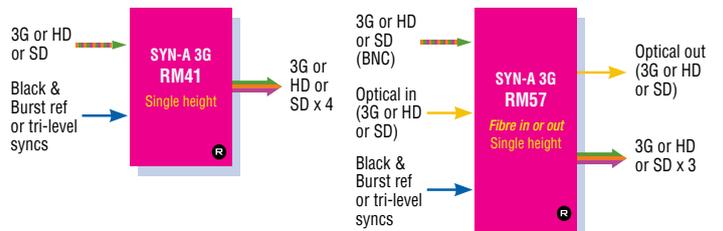


SYN-A 3G 9 Watts

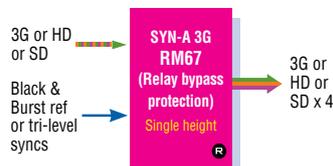
3G/HD/SD frame synchroniser designed for embedded audio sources. Can be used as a synchroniser or delay line and allows cross-locking. Works with up to four groups of embedded audio and allows mixture of Dolby E and linear AES within same audio group. Includes audio routing, tracking audio delay, audio resampling, Dolby E alignment, video processing and flexible video and audio delays. SMPTE 2016 AFD data can be added to a signal to describe the aspect ratio to downstream equipment. Relay bypass protection option (with RM67 rear module). Can include integrated fibre connectivity by fitting either the FIP fibre input option or the FOP fibre output option (see page 37).

Use SYNNER 310 instead... If you need to embed and de-embed external audio.

Which rear module do you need?



NB. Choose between fibre in or fibre out by selecting FIP or FOP fibre option

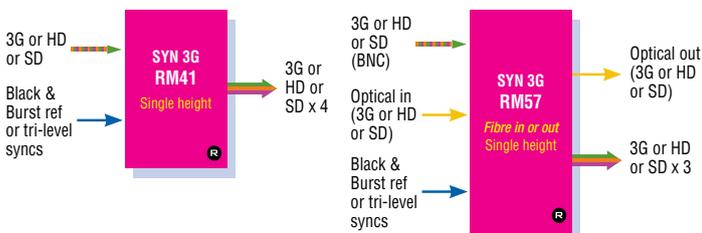


Video synchronisers

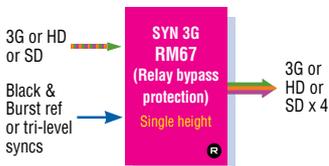
SYN 3G 9 Watts

3G/HD/SD frame synchroniser designed for video-only sources. Can be used as a synchroniser or delay line. Cross-locking allows SD or HD analogue syncs to be used as reference for any source. Includes video proc-amp. Relay bypass protection option (with RM67 rear module). Can include integrated fibre connectivity by fitting either the FIP fibre input option or the FOP fibre output option (see page 37).

Which rear module do you need?

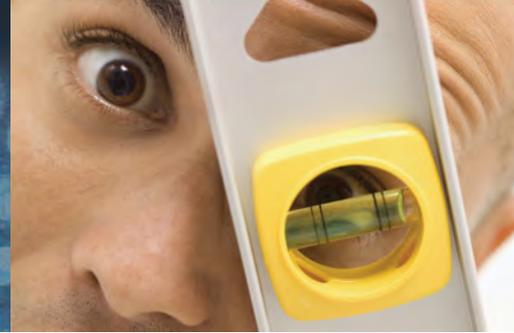


NB. Choose between fibre in or fibre out by selecting FIP or FOP fibre option



Everything modular: Video interface

Video synchronisers



Video synchronisers continued...

A video synchroniser with so much functionality on one board...

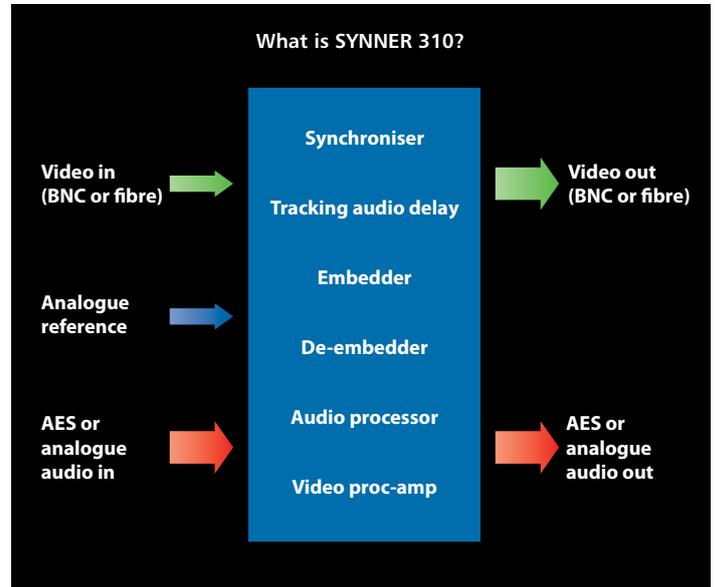
SYNNER 310

9 Watts



Combined video synchroniser, tracking audio delay and embedder/de-embedder for 3Gb/s, HD and SD video and both analogue and digital audio. Can be used as synchroniser or delay line and allows cross-locking. Flexible embedding and de-embedding of external audio: can input and output a mixture of up to eight AES stereo pairs and four analogue audio stereo pairs (or eight mono channels), depending on number of audio piggybacks fitted (see page 46). Includes sophisticated audio routing, video and audio processing and delay compensation. Can include integrated fibre connectivity by fitting either the FIP fibre input option, FOP fibre output option or FIO fibre input and output option (see page 37). Sophisticated Dolby E handling: synchronise video containing mixture of Dolby E and linear AES within same audio group and auto-correct timing errors with the guardband.

Use it... Because its combination of features make it the best solution for any embedding, de-embedding and timing requirements – whatever sources you're working with.



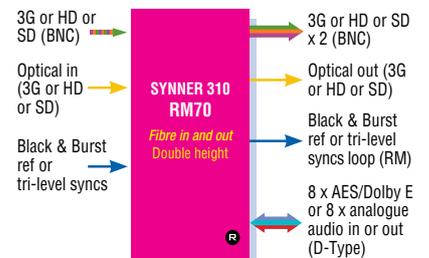
Which rear module do you need?



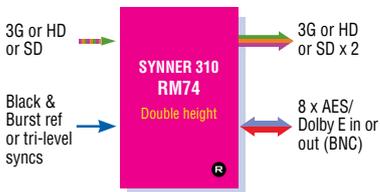
NB. Choose between fibre in or fibre out by selecting FIP or FOP option



NB. Choose between fibre in or fibre out by selecting FIP or FOP option



NB. Select FIP option for fibre in, FOP option for fibre out and FIO option for fibre in and out





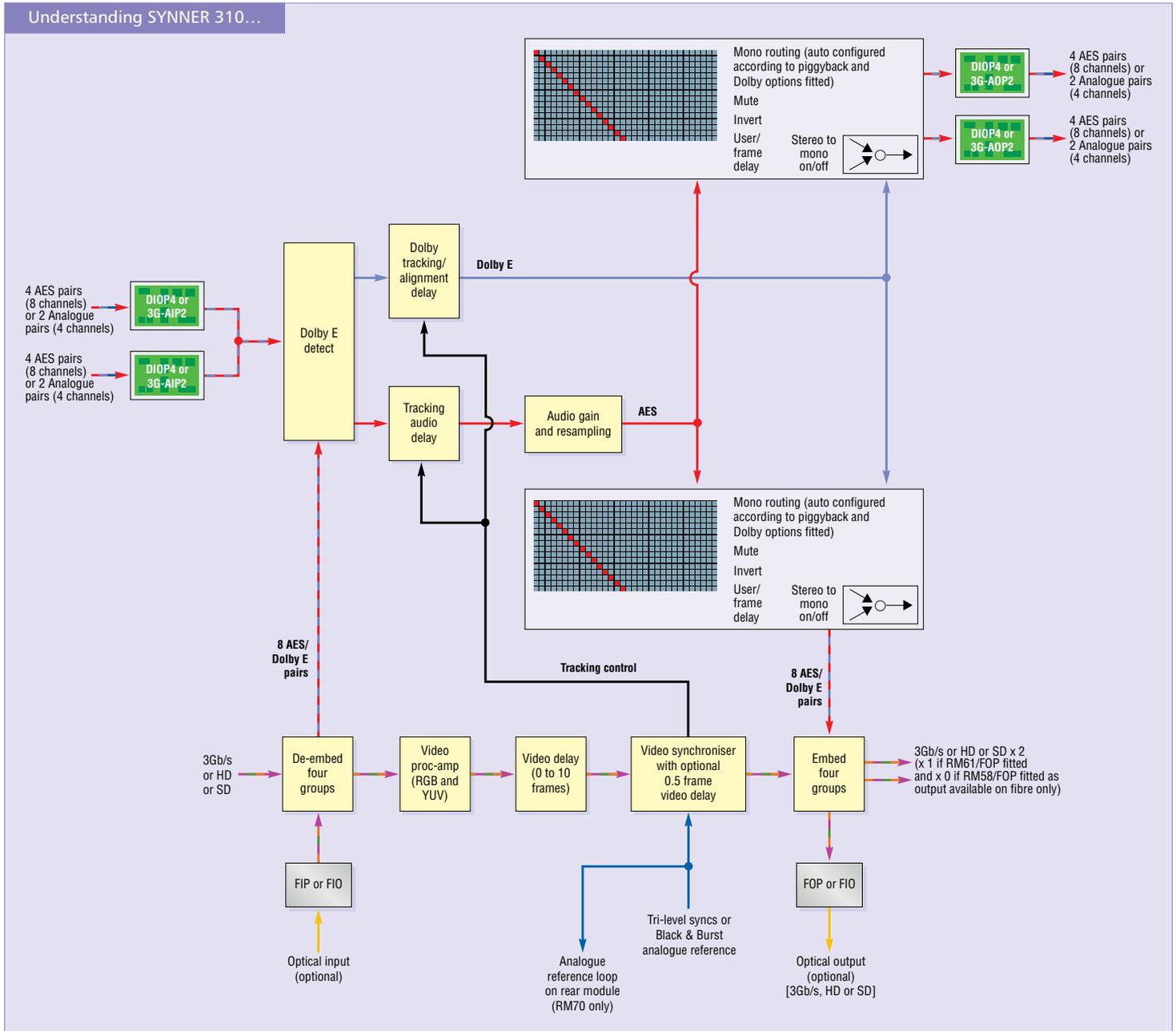
Everything modular: Video interface

Video synchronisers

- KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Video synchronisers continued...

Understanding SYNNER 310...



Everything modular: Video interface

Routing switches



Switching

Crystal Vision offers a variety of 2 x 2 switches and small routers for 3Gb/s, HD and SD sources – products that broadcasters rely on to keep them on air. Use them as your emergency transmission switch if you need to avoid broken equipment or use them to manually bypass products requiring maintenance. Guarantee yourself a clean switch with the fail-safe Safe Switch 3G which uses a full framestore synchroniser on each input (plus the ability to delay the earliest arriving input by up to 25 frames) to correct for any timing difference. Replacing a switch and two synchronisers, Safe Switch 3G gives you the functionality of three products on one board – and it can even lose the reference and not affect the output. And always get the best output by switching on even a really subtle fault – our switches will intelligently choose the better output based on the audio and video parameters that are most important to you. Alternatively you can use our small router to send eight sources to up to three destinations.



Which routing switch do you need?

	Safe Switch 3G	Safe Switch-L 3G	SW803 3G
Main use	Manual or automatic clean and intelligent switching	Manual or automatic clean and intelligent switching	Small matrix
Input formats (50Hz and 59.94Hz where unspecified)	1080p, 720p, 1080i, 625i, 525i	1080p, 720p, 1080i, 625i, 525i	1080p50/59.94/60, 720p50/59.94/60, 1080i50/59.94/60, 625i, 525i, DVB-ASI
Input/output configuration	2 x 2	2 x 2	8 x 3
Output feeds (max)	2 of Output 1 and 1 of Output 2	2 of Output 1 and 2 of Output 2	1 of each
Input loop-throughs		2	
Automatically trigger switch	18 fault conditions	18 fault conditions	
Decide what constitutes a fault separately for each input	●	●	
Two configurable fault indicators for flexible monitoring	●	●	
Full framestore synchroniser on each input for disruption-free output	●	●	
Delay earliest arriving input by up to 25 frames	●	●	
Reference	From any SDI input or from SD Black and Burst or HD tri-level syncs	From any SDI input or from SD Black and Burst or HD tri-level syncs (with reference loop)	From any of the four main board SDI inputs or from SD Black and Burst or HD tri-level syncs
Loss of reference protection	●	●	
Relay bypass protection	●	●	
Fibre output	●		
Remote control	●	●	●
GPI inputs and outputs	6 bi-directional GPIs	12 bi-directional GPIs	5 GPI inputs and 1 GPI output
Frame slots used	1	2	2



Everything modular: Video interface

Routing switches

KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Routing switches

The way to guarantee a clean switch – with a full framestore synchroniser on each input...

Safe Switch 3G	11.9 Watts	
Safe Switch-L 3G	16.4 Watts	

The way to guarantee a clean switch. Designed for both automatic and manual switching applications, this clean and intelligent 2 x 2 switch works with 3Gb/s, HD and SD. How does it prevent disruption to the output picture when a switch takes place? A full framestore synchroniser on each input, plus the ability to delay the earliest arriving input by up to 25 frames, allows it to correct for any timing difference between the two inputs. You can even lose the reference signal and not affect the output: it will change its timing smoothly between the reference and the inputs, keeping the output valid at all time. Monitor any number of 18 video and audio parameters to intelligently auto trigger a switch – it will work to the most significant feature when deciding which input to select, and you can even specify different fault conditions for each feed. Horizontal and vertical timing adjustments and cross-locking. Includes relay bypass protection. Bi-directional GPIs can be configured as either GPI inputs or GPI outputs, with six GPIs on Safe Switch 3G and 12 on Safe Switch-L 3G.

What you only get with Safe Switch 3G... Can include integrated fibre output connectivity by fitting the FOP fibre output option (see page 37). This 'single decker' PCB uses one frame slot.

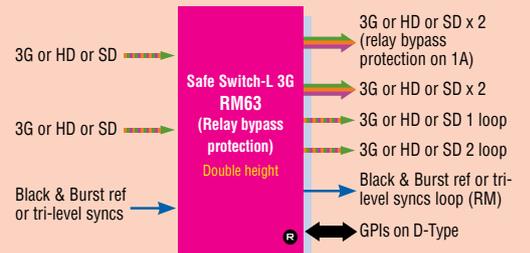
What you only get with Safe Switch-L 3G... Input and reference loop-throughs and an extra feed of output B, plus more of the bi-directional GPIs. This 'double decker' PCB fits in two frame slots.

Which rear module do you need?

For Safe Switch 3G...



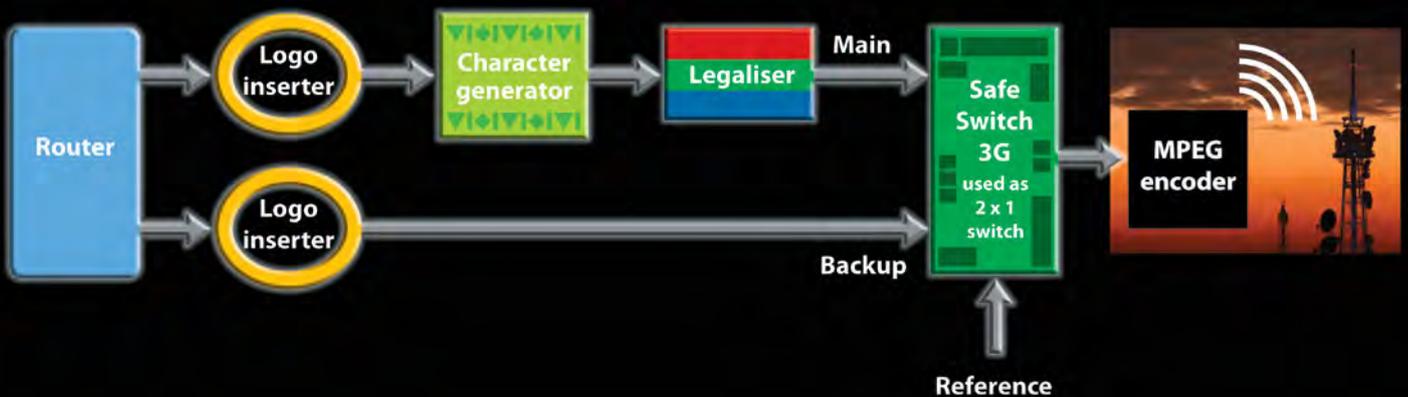
For Safe Switch-L 3G...



RM Rear module loop still available when board is removed

Here's a typical application...

Use Safe Switch 3G on the final output stage of your transmission system to balance the delays between the main and backup feeds – and keep the MPEG encoder happy

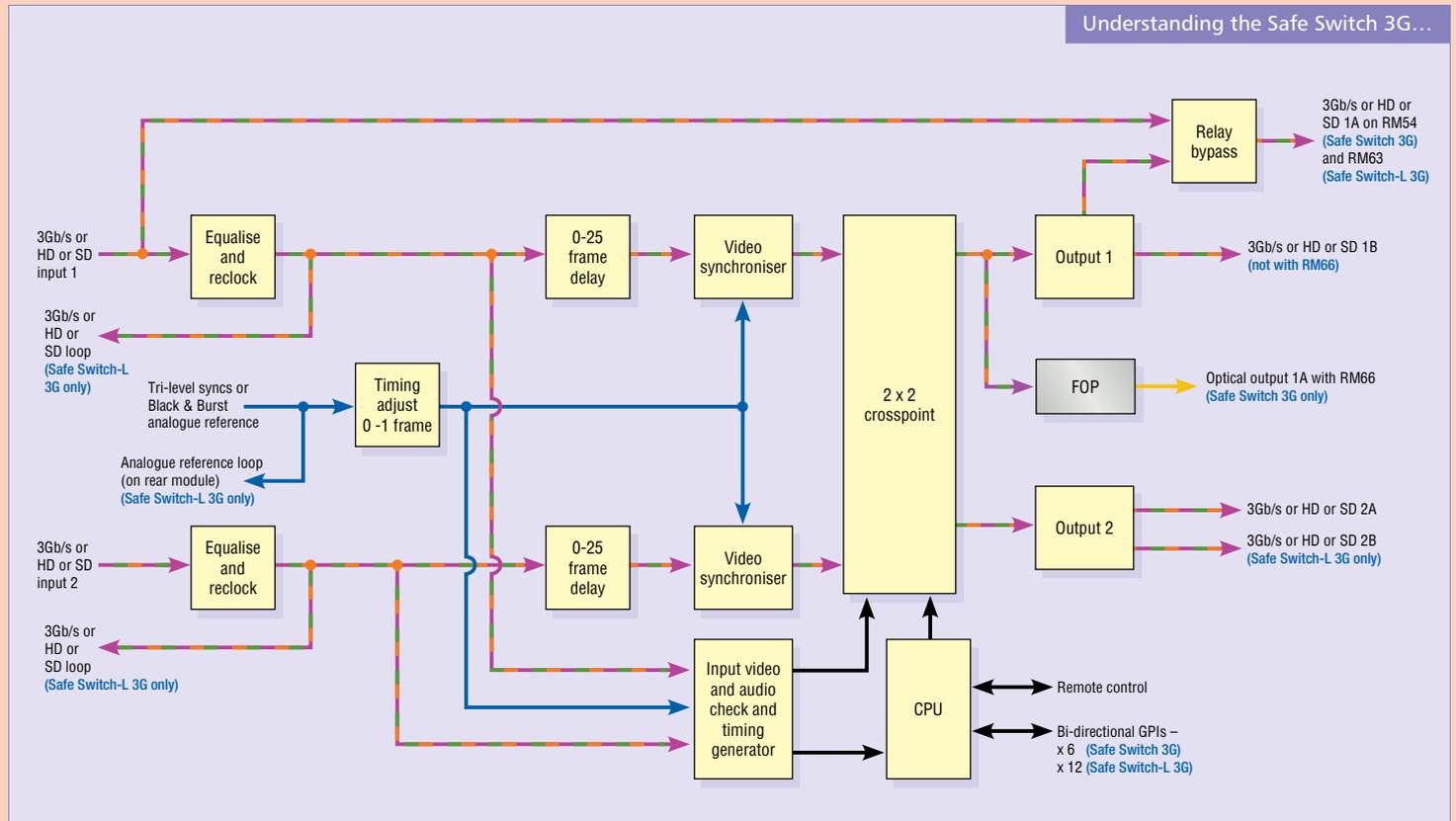


Everything modular: Video interface

Routing switches



Routing switches continued...





Everything modular: Video interface

Routing switches

KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Routing switches continued...

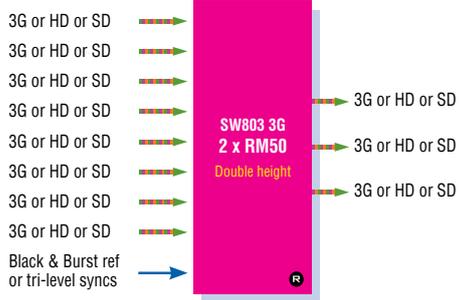
SW803 3G

14 Watts



Space-saving 8 x 3 crosspoint routing switch which works with 3Gb/s, HD and SD. Can route the eight inputs to any of the three outputs. All outputs are DVB-ASI compatible. 'Double decker' PCB which fits in two frame slots. Ideal as small or secondary matrix. Dedicated control panel available: SW808 Controller (see page 51).

Which rear module do you need?



SW803 3G

Everything modular: Video interface

Video delays



Which video delay do you need?

	ViViD 3G	ViViD 3GS	ViViD 3G-20	ViViD 3GS-20	ViViD HD-40
Works with SD	●	●	●	●	●
Works with HD	●	●	●	●	●
Works with 3Gb/s	●	●	●	●	
Maximum SD delay (in seconds)	5.5 secs (625 line) 4.5 secs (525 line)	5.5 secs (625 line) 4.5 secs (525 line)	110 secs (625 line) 91 secs (525 line)	110 secs (625 line) 91 secs (525 line)	238 secs
Maximum SD delay (in frames)	137 frames	137 frames	2750 frames	2750 frames	5950 frames (625 line) 7132 frames (525 line)
Minimum SD delay	3 lines	3 lines	3 lines	3 lines	46us
Maximum HD delay (in seconds)	1 sec (1080i50, 720p50, 1080PsF23.98 and 1080PsF24) 0.8 secs (1080i59.94 and 720p59.94)	1 sec (1080i50, 720p50, 1080PsF23.98 and 1080PsF24) 0.8 secs (1080i59.94 and 720p59.94)	20 secs (1080i50, 720p50, 1080PsF23.98 and 1080PsF24) 16 secs (1080i59.94 and 720p59.94)	20 secs (1080i50, 720p50, 1080PsF23.98 and 1080PsF24) 16 secs (1080i59.94 and 720p59.94)	43 secs
Maximum HD delay (in frames)	25 frames	25 frames	500 frames	500 frames	1075 frames (1080i50) 1280 frames (1080i59.94) 2150 frames (720p50) 2500 frames (720p59.94)
Minimum HD delay	2 lines	2 lines	2 lines	2 lines	12us
Maximum 3Gb/s delay (in seconds)	0.5 secs (1080p50) 0.4 secs (1080p59.94)	0.5 secs (1080p50) 0.4 secs (1080p59.94)	10 secs (1080p50) 8 secs (1080p59.94)	10 secs (1080p50) 8 secs (1080p59.94)	
Maximum 3Gb/s delay (in frames)	25 frames	25 frames	500 frames	500 frames	
Minimum 3Gb/s delay	2 lines	2 lines	2 lines	2 lines	
Video delay adjustable in	Seconds, frames, lines and pixels	Seconds, frames, lines and pixels	Seconds, frames, lines and pixels	Seconds, frames, lines and pixels	Seconds, frames, lines and pixels
Number of video outputs (max)	4 (3 if fibre I/O)	4 (3 if fibre I/O)	4 (3 if fibre I/O)	4 (3 if fibre I/O)	3
Video framestore synchroniser		●		●	
Reference timing		From SDI input or from SD Black and Burst or HD tri-level syncs		From SDI input or from SD Black and Burst or HD tri-level syncs	
Passes entire video stream including embedded audio	●	●	●	●	●
Audio delay	Follows video	Follows video	Follows video	Follows video	Follows video
Video proc-amp (RGB and YUV lift and gain controls)	●	●	●	●	
Signal monitoring	●	●	●	●	
Number of presets	16	16	16	16	16
Relay bypass protection	● (RM67 option)	● (RM67 option)	● (RM67 option)	● (RM67 option)	● (as standard)
Fibre I/O	●	●	●	●	
Boards in 2U	12	12	12	12	12
Rear module used	RM41, RM57 and RM67	RM41, RM57 and RM67	RM41, RM57 and RM67	RM41, RM57 and RM67	RM44



Everything modular: Video interface

Video delays

Video delay

No one else does the range of video delays that we do. Providing up to ten seconds of 3Gb/s delay, 43 seconds of HD delay and four minutes of SD delay, the ViViD variable video delay lines are ideal for use anywhere you need to match delays in your system – virtual studio graphics, MPEG encoders/decoders, satellite and HD radio links, audio processing and profanity delays. They can delay any embedded data, while the small physical size of the ViViD modules mean you can fit 12 of them in 2U – alongside any other products. You can even use the framestore synchroniser to apply a long delay to a video path and lock the signal to a station reference using a neat single board solution. If you're looking for a full profanity delay system, have a look at the Cleanit range on page 34.

Video delays

A space-saving way to get up to four minutes of video delay...

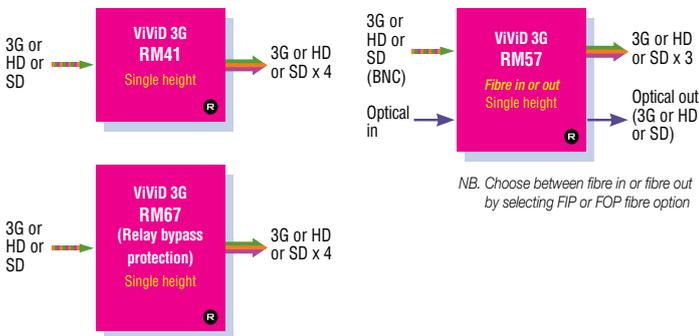
ViViD 3G

11.9 Watts



3G/HD/SD variable video delay designed to match delays elsewhere in system. Maximum 3Gb/s delay of 0.5 seconds. Maximum HD delay of 1 second. Maximum SD delay of 5.5 seconds. Easy to get just the delay you need: adjustable in seconds, frames, lines and pixels. Features video proc-amp. Relay bypass protection option (with RM67 rear module). Can include integrated fibre connectivity by fitting either the FIP fibre input option or the FOP fibre output option (see page 37).

Which rear module do you need?



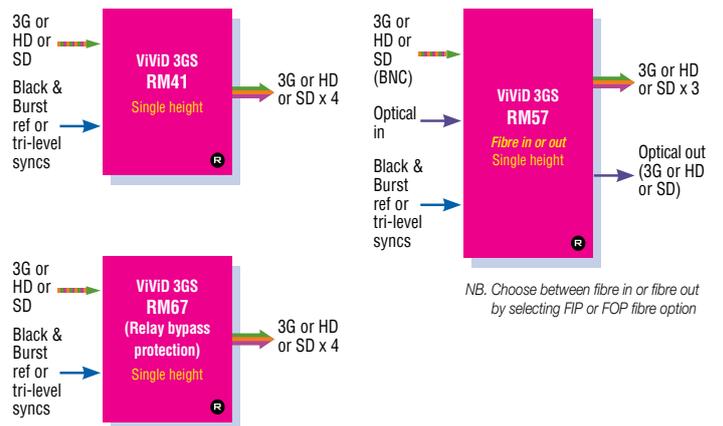
ViViD 3GS

11.9 Watts



3G/HD/SD variable video delay with framestore synchroniser, designed to match delays elsewhere in system. Maximum 3Gb/s delay of 0.5 seconds. Maximum HD delay of 1 second. Maximum SD delay of 5.5 seconds. Easy to get just the delay you need: adjustable in seconds, frames, lines and pixels. Features video proc-amp. Relay bypass protection option (with RM67 rear module). Can include integrated fibre connectivity by fitting either the FIP fibre input option or the FOP fibre output option (see page 37).

Which rear module do you need?



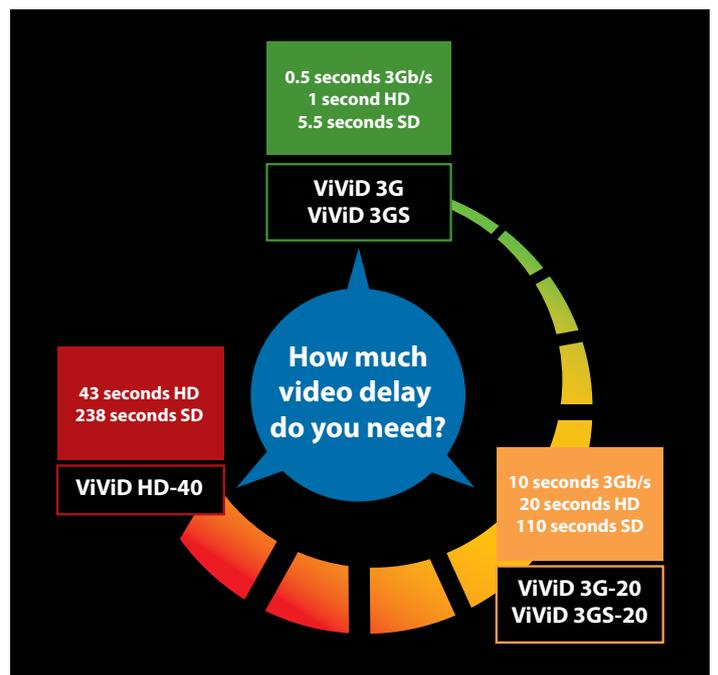
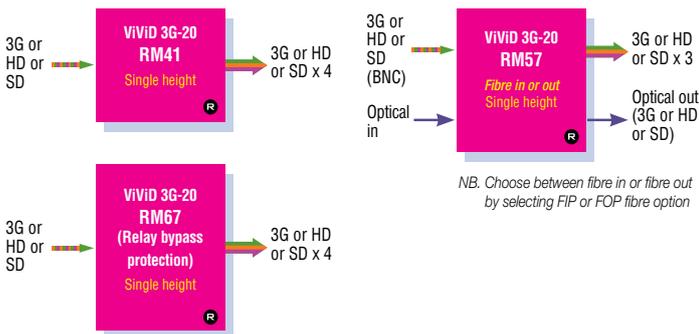
ViViD 3G-20

11.9 Watts



3G/HD/SD long variable video delay designed to match extended system delays. Maximum 3Gb/s delay of 10 seconds. Maximum HD delay of 20 seconds. Maximum SD delay of 110 seconds. Easy to get just the delay you need: adjustable in seconds, frames, lines and pixels. Features video proc-amp. Relay bypass protection option (with RM67 rear module). Can include integrated fibre connectivity by fitting either the FIP fibre input option or the FOP fibre output option (see page 37).

Which rear module do you need?



Everything modular: Video interface

Video delays



KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Video delays continued...



ViViD HD-40

12 Watts



HD/SD long variable video delay designed to match extended system delays. Maximum HD delay of 43 seconds. Maximum SD delay of 238 seconds. Easy to get just the delay you need: adjustable in seconds, frames, lines and pixels. Includes relay bypass protection.

Which rear module do you need?



ViViD HD-40

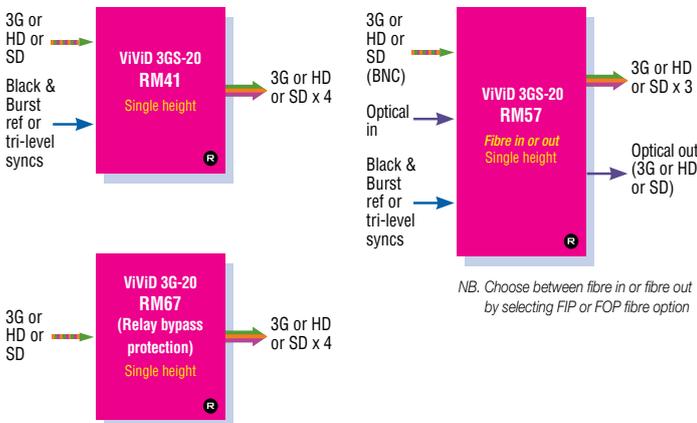
ViViD 3GS-20

11.9 Watts



3G/HD/SD long variable video delay with framestore synchroniser, designed to match extended system delays. Maximum 3Gb/s delay of 10 seconds. Maximum HD delay of 20 seconds. Maximum SD delay of 110 seconds. Easy to get just the delay you need: adjustable in seconds, frames, lines and pixels. Features video proc-amp. Relay bypass protection option (with RM67 rear module). Can include integrated fibre connectivity by fitting either the FIP fibre input option or the FOP fibre output option (see page 37).

Which rear module do you need?



Everything modular: Video interface

Profanity delays

Which profanity delay do you need?

The table shows just *some* examples of Cleanit Custom features – many possibilities are available!

	Cleanit 1	Cleanit 2	Cleanit 3	Cleanit Custom
Input formats (50Hz and 59.94Hz where unspecified)	625, 525, 720p50, 720p59.94, 1080i50, 1080i59.94, 1080PsF23.98, 1080PsF24, 1080p50 and 1080p59.94	625, 525, 720p50, 720p59.94, 1080i50, 1080i59.94, 1080PsF23.98, 1080PsF24, 1080p50 and 1080p59.94	625, 525, 720p50, 720p59.94, 1080i50, 1080i59.94, 1080PsF23.98, 1080PsF24, 1080p50 and 1080p59.94	Depends on chosen configuration
Maximum SD delay: 110 secs (625 line) or 91 secs (525 line) / 2750 frames	●	●	●	Depends on chosen configuration (more delay or less delay is available depending on application and budget)
Maximum HD delay: 20 secs (1080i50, 720p50, 1080PsF23.98 and 1080PsF24) or 16 secs (1080i59.94 and 720p59.94) / 500 frames	●	●	●	Depends on chosen configuration (more delay or less delay is available depending on application and budget)
Maximum 3Gb/s delay: 10 secs (1080p50) or 8 secs (1080p59.94) / 500 frames	●	●	●	Depends on chosen configuration (more delay or less delay is available depending on application and budget)
Programme video delay adjustable in seconds	●	●	●	●
Number of protected delayed video outputs	2	1 (NB. Video is delayed but not protected; audio protection is in discrete AES/analogue output)	2	Depends on chosen configuration (a custom solution could have additional outputs if needed, as well as different formats of those protected outputs)
Fibre I/O				Available as Cleanit Custom option
Video framestore synchroniser			●	Cleanit Custom could include synchronisation of the protected programme
Analogue reference			SD Black and Burst or HD tri-level syncs	If using synchronisation in chosen configuration
Use with embedded audio	●		●	Depends on chosen configuration
Use with discrete 110 ohm AES		●		Depends on chosen configuration
Use with discrete 75 ohm AES				Available as Cleanit Custom option
Number of audio channels delayed and protected	16	AES input: 8 Analogue input: 4	16	A custom solution could be designed to meet any requirement regarding the number of audio channels protected
Number of external I/O channels available for embedding/de-embedding		AES input: 8 (using two DIOP4) Analogue input: 4 (using one 3G-AIP2 and one 3G-AOP2)		A custom solution could be designed to meet any requirement regarding the number of audio channels protected
Audio mute or shuffle	●	●	●	Depends on chosen configuration
Use external audio as source of replacement audio for shuffling				Available as Cleanit Custom option
Video freeze or black			●	Depends on chosen configuration (in addition, a custom solution could be used to switch to an alternative video source for cover)
Insert stored graphic				Available as Cleanit Custom option
Cleanly switch to another source				Available as Cleanit Custom option
Manual activation of delayed cover and delayed uncover	●	●	●	●
Auto activation of delayed cover/uncover	●	●	●	●
Manual activation of instant cover and instant uncover for missed profanities	●	●	●	●
Number of Cleanit systems fitting in frame	1 in desk top box, 3 in 1U and six in 2U	1 in desk top box, 3 in 1U and six in 2U	1 in desk top box, 3 in 1U and six in 2U	Depends on chosen configuration
Power redundancy available	● (Use Indigo 1SE-DP or Indigo 2SE)	● (Use Indigo 1SE-DP or Indigo 2SE)	● (Use Indigo 1SE-DP or Indigo 2SE)	● (Use Indigo 1SE-DP or Indigo 2SE)
VisionWeb and SBB-4 smart button box control options	●	●	●	●

Everything modular: Video interface

Profanity delays



KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Profanity delay

Do you need to prevent expletives, obscene gestures, wardrobe malfunctions, bloopers, competitor mentions, coughing fits or technical problems from making it to air? Our flexible and budget-friendly video and audio profanity delays will help you control what you broadcast. The Cleanit range allows a live content stream to be delayed by up to 20 seconds (in HD), giving your operator time to react and prevent the broadcast of unwanted or offensive video or audio material. With our profanity delays available in different versions to suit both simple and more elaborate requirements, you can get the perfect level of protection needed for your production – with simple and intuitive control.



Cleanit 2

23 Watts (AES audio)
24.3 Watts (analogue audio)



3G/HD/SD profanity delay system for video and discrete AES or analogue audio. Main programme can be delayed by ten seconds in 3Gb/s, 20 seconds in HD and 110 seconds in SD. The audio cover allows for audio mute of up to eight channels of 110 ohm AES or four channels of analogue audio; alternatively Cleanit 2 can easily be modified to perform audio shuffle instead. Control using VisionWeb or SBB-4 smart button box (see page 51), with both manual and automatic control of the cover/uncover functions.

Which rear module do you need?



Cleanit 3

20.9 Watts



3G/HD/SD profanity delay system for video containing embedded audio. Main programme can be delayed by ten seconds in 3Gb/s, 20 seconds in HD and 110 seconds in SD. The audio and video cover allows for audio mute of up to 16 channels of embedded audio as well as video freeze; alternatively Cleanit 3 can easily be modified to perform audio shuffle and/or video black instead. Control using VisionWeb or SBB-4 smart button box (see page 51), with both manual and automatic control of the cover/uncover functions.

Which rear module do you need?



Cleanit Custom

Any profanity delay system for video/embedded or discrete audio that does not fall into the standard packages above. A custom solution designed specifically for the customer – see the comparison chart on page 34 for examples of custom functionality.

Profanity delays

Cleanit 1

20.9 Watts



3G/HD/SD profanity delay system for video containing embedded audio. Main programme can be delayed by ten seconds in 3Gb/s, 20 seconds in HD and 110 seconds in SD. The audio cover allows for audio mute of up to 16 channels of embedded audio; alternatively Cleanit 1 can easily be modified to perform audio shuffle instead. Control using VisionWeb or SBB-4 smart button box (see page 51), with both manual and automatic control of the cover/uncover functions.

Which rear module do you need?





Everything modular: Video interface

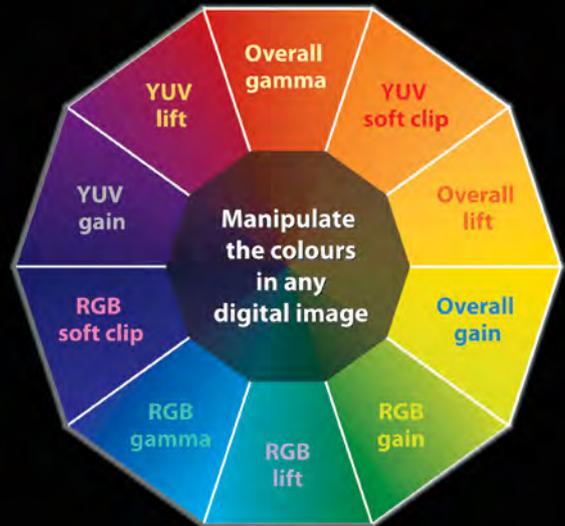
Colour corrector and legaliser

Colour correction

Whether you need to adjust the colours on in-shot plasma displays, set the range of colours for an encoder to transmit or correct computer-generated and post-production outputs, Crystal Vision provides a cost-effective and space-saving solution – with clever features not usually available at this price level. Designed for whole picture colour correction and legalising, our 100mm x 266mm board provides numerous RGB and YUV adjustments including gamma, advanced correction for gamut errors and control options to suit all preferences (including a hands-on control panel). It also gives you preview mode with illegal signal value highlighting, relay bypass protection and integrated fibre connectivity – as well as support for 25 different video standards.



CoCo 3G's wide range of tools to adjust the picture



Colour corrector and legaliser

CoCo 3G

11 Watts

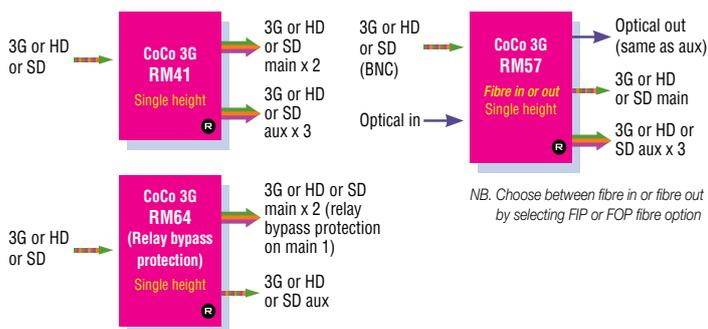


Space-saving modular colour corrector and legaliser which works with 3Gb/s, HD and SD. Ideal for manipulating the colours in a digital image, allowing whole picture adjustments in both the YUV and RGB colour spaces. Supports 25 different video standards, including the 23.98, 24 and 25 frames per second progressive video standards for film to HD video transfers. Wide range of tools to adjust level, gain and gamma – including individual red, blue and green gamma controls. Changes YUV colours illegal in RGB to be valid in RGB, with advanced correction for gamut errors in which the colour is legalised by desaturating it without changing its hue. Includes relay bypass protection option (with RM64 rear module). Can include integrated fibre connectivity by fitting either the FIP fibre input option or the FOP fibre output option (see page 37). Dedicated control panel available: CoCo 3G Controller (see page 51).



CoCo 3G

Which rear module do you need?



Everything modular: Video interface

Fibre optic transmitters and receivers
Fibre input and output options



KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Fibre optics

Crystal Vision provides a dedicated fibre optic transmitter and receiver for transporting 3Gb/s, HD and SD sources over large distances, which can be easily used in conjunction with our products. Alternatively, some boards (see the chart on the right) feature the option of integrated fibre connectivity in a single slot by fitting either the FIP fibre input option, FOP fibre output option or FIO fibre input and output option directly to the motherboard. All the fibre boards use a Class I laser and are designed for SMPTE 297-2006 short-haul applications. Crystal Vision can additionally provide CWDM lasers for the FTX-L 3G transmitter and FOP fibre output option – allowing you to get multiple signals through one fibre and saving you money and rack space.



Fibre input and output options

		FIP	FOP	FIO
Up-Down 3G range	(Pages 14 – 15)	●	●	
Up-Down-AS 3G range	(Page 15)	●	●	
Q-Down-AG 3G range	(Page 16)	●	●	
SYN 3G	(Page 24)	●	●	
SYN-A 3G	(Page 24)	●	●	
SYNNER 310	(Page 25)	●	●	●
Safe Switch 3G	(Page 28)		●	
ViViD 3G range	(Pages 32 – 33)	●	●	
CoCo 3G	(Page 36)	●	●	
TANDEM 310	(Page 39)	●	●	●

FIP 0.6 Watts

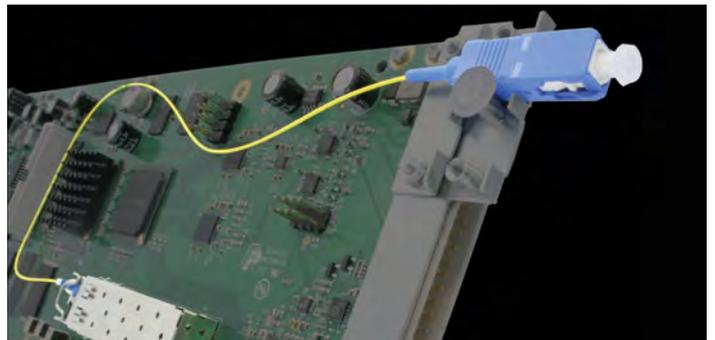
Fibre input option.

FOP 0.6 Watts

Fibre output option. CWDM option available: please order the FOP-CWDM and inform Crystal Vision the laser wavelength you require.

FIO 1 Watt

Fibre input and output option.



Fibre optic transmitters and receivers

FTX-L 3G 3 Watts

Dual channel 3Gb/s, HD or SD to fibre optic transmitter. Works with both multi-mode and single-mode fibre and provides robust transport medium for transmitting 3Gb/s, HD or SD over large distances. DVB-ASI compatible. Includes two input loop-throughs ideal for system checking or distributing input video. Fits in standard frames allowing it to be easily used with any of the interface or keying modules. Ideal companion product to FRX 3G receiver. CWDM option available: please order the FTX-L-CWDM 3G and inform Crystal Vision the two laser wavelengths you require.

Which rear module do you need?



FRX 3G 3.5 Watts

Dual channel fibre optic to 3Gb/s, HD or SD receiver. Works with both multi-mode and single-mode fibre and provides robust transport medium for transmitting 3Gb/s, HD or SD over large distances. DVB-ASI compatible. Fits in standard frames allowing it to be easily used with any of the interface or keying modules. Ideal companion product to FTX-L 3G transmitter.

Which rear module do you need?



Everything modular: Audio interface

Embedders/de-embedders

Which audio embedder do you need?

	TANDEM 310	TANDEM 320
Input formats	625i, 525i, 720p50, 720p59.94, 1080i50, 1080i59.94, 1080p50, 1080p59.94, 1080PsF23.98, 1080PsF24	625i, 525i, 720p50, 720p59.94, 1080i50, 1080i59.94, 1080p50, 1080p59.94, 1080PsF23.98, 1080PsF24
Single or dual channel	Single	Dual
Embed and de-embed at same time	●	●
Embed/de-embed digital audio	●	●
Embed/de-embed analogue audio	●	●
Embed/de-embed synchronous Dolby E	●	●
Number of internal audio groups processed	4	4 per channel
Number of external I/O channels available for embedding/de-embedding	AES: 8 stereo pairs Analogue audio: 8 mono	AES: 4 stereo pairs per video channel Analogue audio: 4 mono per video channel
Number of piggybacks used	2 (DIOP4, 3G-AIP2, 3G-AOP2)	1 per channel (DIOP4, 3G-AIP2, 3G-AOP2)
Audio routing	Mono routers auto configured according to options fitted	Mono routers auto configured according to options fitted
Minimum embedding audio delay	<200us	<200us
Additional audio delay	400ms	400ms
Minimum video delay	1 line	2 lines
Additional video delay	Up to 10 frames additional user delay in one frame steps	
Number of video outputs (max)	2	1 per channel
Audio resampling	●	●
Audio processing (gain, stereo to mono)	●	●
Video proc-amp (RGB and YUV lift and gain)	●	
Comprehensive signal monitoring (video and audio alarms)	●	●
Fibre I/O	●	
Max channels in 2U (depends on rear module)	12	24
Min frame slots used (depends on rear module)	1	1

Everything modular: Audio interface

Embedders/de-embedders



KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Audio embedding and de-embedding

Whether you're dealing with analogue or digital audio, the TANDEM range can provide the answer for every embedded audio application, from the most basic to the most sophisticated. In addition to the embedding and de-embedding of up to four groups of audio, our feature-packed modules allow you to shuffle, replace, delay, process and monitor your audio – and can even include integrated fibre input or output connectivity, allowing you to embed or de-embed signals from beyond your local equipment bay. Use the dual channel TANDEM 320 for those price-sensitive or space-sensitive applications, or use TANDEM 310 for when you need the most powerful functionality.



NB. Choose between fibre in or fibre out by selecting FIP or FOP option



NB. Select FIP option for fibre in, FOP option for fibre out and FIO option for fibre in and out



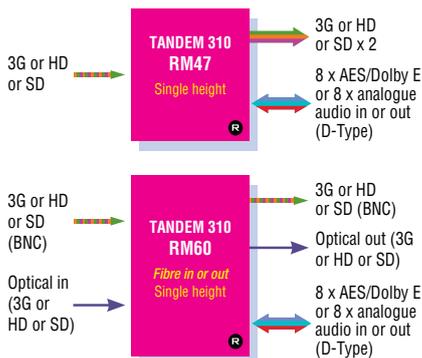
Embedders/de-embedders

Powerful embedding and de-embedding of multiple channels of both AES and analogue audio at the same time...

TANDEM 310 9 Watts

Combined audio embedder and de-embedder for 3Gb/s, HD and SD video and both analogue and digital audio. Flexible embedding and de-embedding of external audio: can input and output a mixture of up to eight AES stereo pairs and four analogue audio stereo pairs (or eight mono channels), depending on number of audio piggybacks fitted (see page 46). Includes sophisticated audio routing, video and audio processing, Dolby E handling and delay compensation with 400ms of audio delay and ten frames of video delay. Can include integrated fibre connectivity by fitting either the FIP fibre input option, FOP fibre output option or FIO fibre input and output option (see page 37).

Which rear module do you need?



NB. Choose between fibre in or fibre out by selecting FIP or FOP option



TANDEM 310

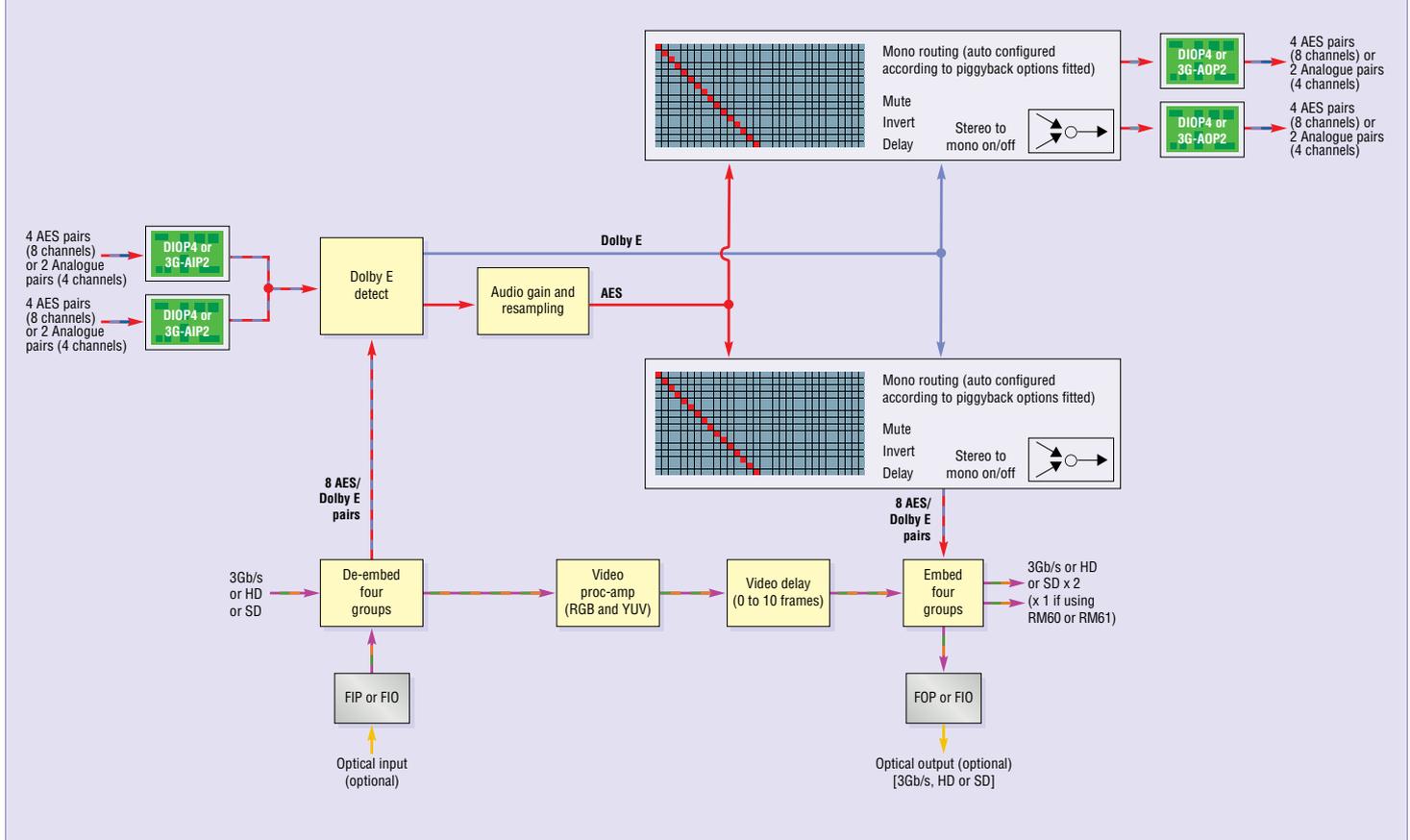


Everything modular: Audio interface

Embedders/de-embedders

Embedders/de-embedders continued...

Understanding TANDEM 310...



Everything modular: Audio interface

Embedders/de-embedders



KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

RM Rear module loop still available when board is removed.

Embedders/de-embedders continued...

The dual channel way to fit 24 channels of embedding and de-embedding in 2U...

TANDEM 320

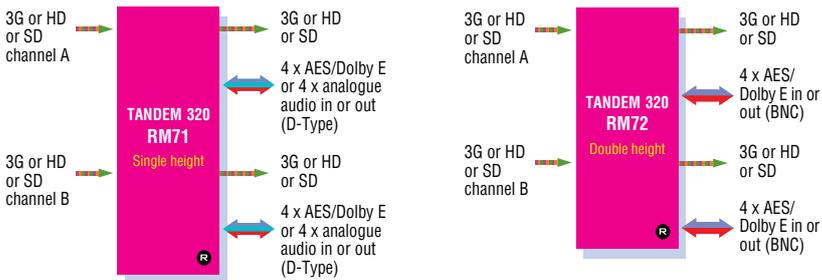
9.3 Watts



Dual channel audio embedder and de-embedder for 3Gb/s, HD and SD video and both analogue and digital audio. Ideal for price-sensitive or space-sensitive applications. Flexible embedding and de-embedding of external audio: can input and output a mixture of up to four AES stereo pairs and two analogue audio stereo pairs (or four mono channels) per video channel, by fitting one audio piggyback per channel (see page 46). Will pass through and route four groups of internal audio. Includes sophisticated audio routing, audio processing, Dolby E handling and delay compensation with 400ms of audio delay.

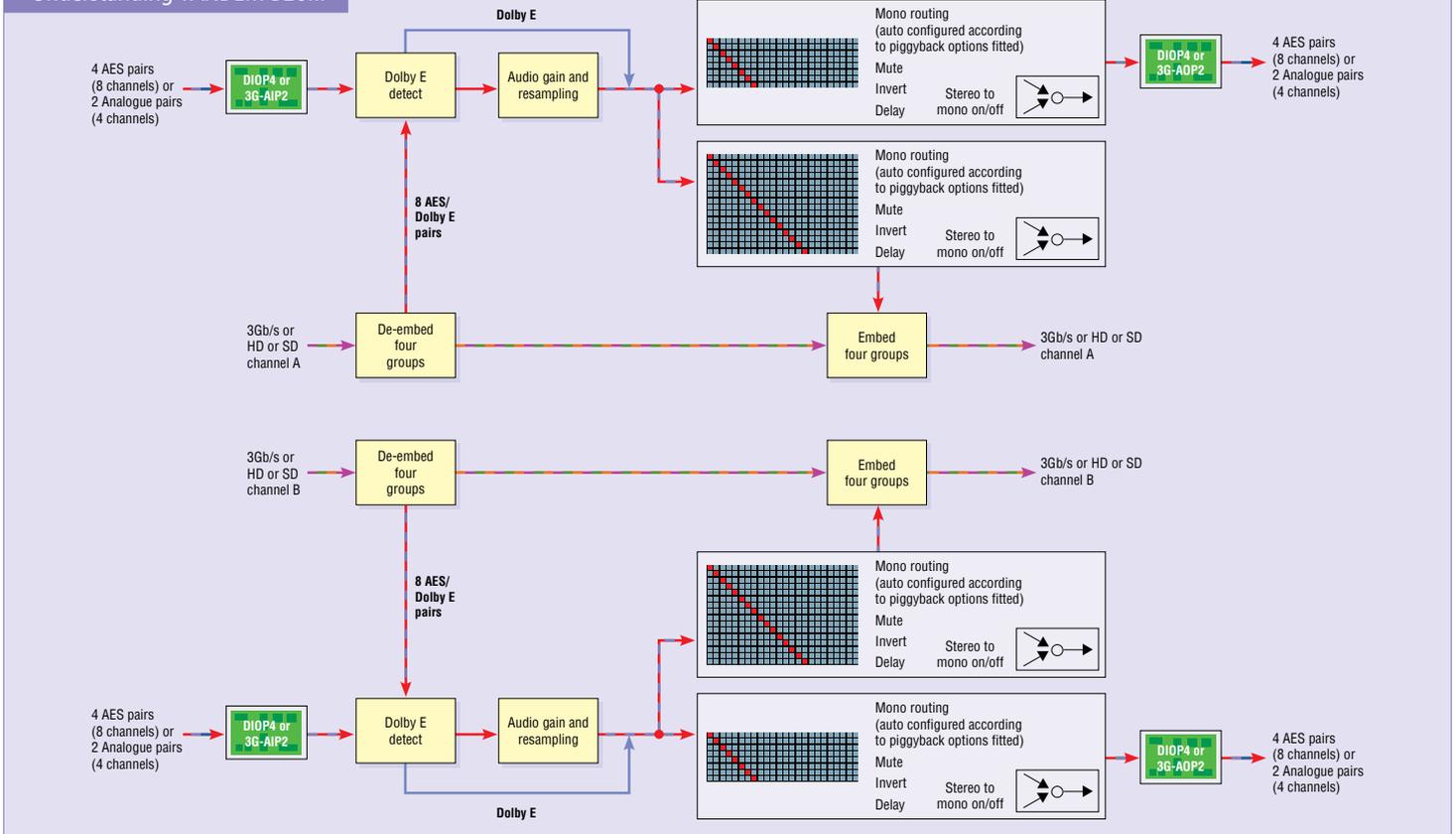
Use it instead of TANDEM 310... If you're working with multiple video channels of straightforward embedding and de-embedding which don't require TANDEM 310's advanced features. (See audio embedder comparison chart on page 38 to help you decide.)

Which rear module do you need?



TANDEM 320

Understanding TANDEM 320...





Everything modular: Audio interface

Audio converters

KEY Remote control Dual channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Audio conversion, distribution and delay

Crystal Vision provides a range of Indigo products for converting, distributing, delaying and processing your separate audio – both analogue and digital, with the AES configurable as either 110 ohm or 75 ohm. All the products are at least dual channel, with some even quad channel! Get excellent 24 bit performance when converting between analogue and digital audio. Configure our analogue audio distribution amplifiers in five different ways with varying numbers of inputs and outputs. Select the options you need on the digital audio DAs, with the choice of relocked and non-relocked outputs, BNC, D-Type and DIN connectors and even impedance conversion. Or transport a large amount of audio as a block with our MADI DAs. You can also delay your audio – with the DADA208D doubling as both DA and delay and the ADP 310 able to delay analogue or digital audio.

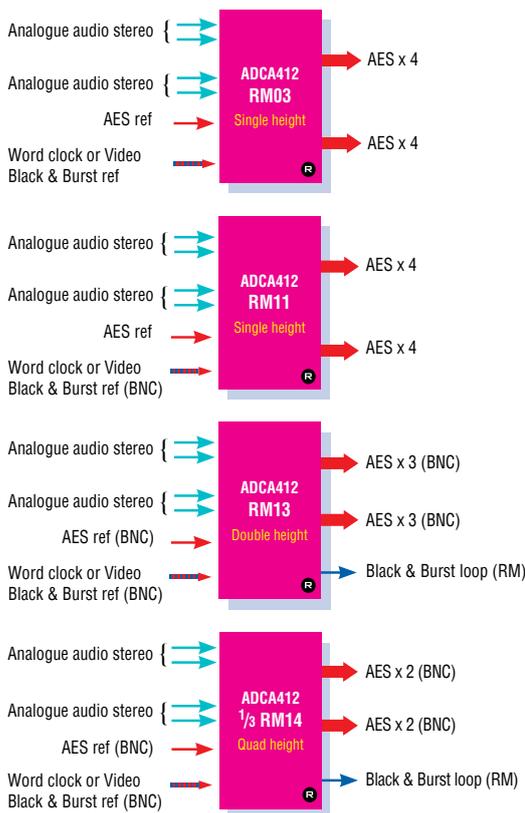


Audio converters

ADCA412 6.25 Watts

24 bit dual analogue to AES digital audio converter with excellent noise and distortion figures. Allows 24 audio converters in 2U. Available in two versions, with the AES outputs configured as either 110 ohm balanced or 75 ohm unbalanced depending on which OPAES output module is fitted (see page 46).

Which rear module do you need?



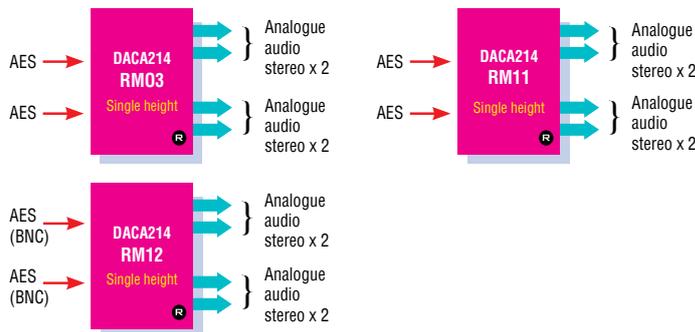
NB. References shared between 3 ADCA412s

DACA214 6.25 Watts

24 bit dual AES digital to analogue audio converter with excellent noise and distortion figures. Allows 24 audio converters in 2U.

Which rear module do you need?

NB. Can be configured so all outputs come from single input



Everything modular: **Audio interface**

Analogue audio distribution amplifiers
Stereo to mono distribution amplifier
Digital audio distribution amplifiers
MADI audio distribution amplifiers



Which audio distribution amplifier do you need?

	AADA416FM	AADA416FR	AADA-STM-1	DADA208	DADA208N	DADA208D	MADDA105	MADDA111
Distributes analogue audio	●	●	●					
Distributes AES audio				●	●	●		
Distributes Dolby E				●	●	●		
Distributes MADI (AES10)							●	●
Distributes Word Clock reference					●			
Mono or stereo inputs	Mono or stereo	Mono or stereo	Stereo	Stereo	Stereo	Stereo	MADI multi channel	MADI multi channel
Mono or stereo outputs	Mono or stereo	Mono or stereo	Mono	Stereo	Stereo	Stereo	MADI multi channel	MADI multi channel
Stereo to mono conversion			●					
Configurable as single, dual, triple or quad channel amplifier	Single, dual, triple or quad	Single, dual, triple or quad	Single or dual	Single or dual	Single or dual	Single or dual	Single	Single
Maximum number of DAs in 2U	48 (when quad DA)	48 (when quad DA)	24 (when dual DA)	24 (when dual DA)	24 (when dual DA)	24 (when dual DA)	12	6
Max outputs with single amplifier	16	16	16	8	8	8	5	11
Max outputs with dual amplifier	8 per channel, or 4 outputs of channel 1 and 12 of channel 2	8 per channel, or 4 outputs of channel 1 and 12 of channel 2	8 per channel, or 4 outputs of channel 1 and 12 of channel 2	4 per channel	4 per channel	4 per channel		
Max outputs with triple amplifier	4 outputs of channel 1, 4 of channel 2 and 8 of channel 3	4 outputs of channel 1, 4 of channel 2 and 8 of channel 3						
Max outputs with quad amplifier	4 per channel	4 per channel						
Reclocking				●		●		
Non-reclocking					●		●	●
Uses OPAES sub-module (to select 75 ohm or 110 ohm output)				●	●	●		
Audio gain adjustment	Manual adjustment	Manual or remote adjustment	Manual adjustment					
Audio silence detectors	Manual adjustment	Manual or remote adjustment	Manual adjustment					
Overvoltage detectors	Manual adjustment	Manual or remote adjustment	Manual adjustment					
Two audio jacks for local monitoring	●	●	●					
Selectable delay of up to one second						●		
Impedance conversion				Use RM12, RM13 or RM21	Use RM12, RM13 or RM21	Use RM12, RM13 or RM21		
Relay bypass protection							● (RM67 option)	● (RM67 + RM34 option)
GPI indications	Audio silence and overvoltage status	Audio silence and overvoltage status	Audio silence and overvoltage status	AES signal presence	AES signal presence	AES signal presence	MADI signal presence and power supplies fault	MADI signal presence and power supplies fault
Remote control		●						



Everything modular: Audio interface

Analogue audio distribution amplifiers
Stereo to mono distribution amplifier
Digital audio distribution amplifiers

KEY Remote control Dual channel Quad channel Standard Definition High Definition 3Gb/s Framestore synchroniser AFD features Dolby E compatible Processes 4 audio groups SDI over fibre Relay bypass protection

Analogue audio distribution amplifiers

AADA416FM	12 Watts	
AADA416FR	12 Watts	

Quad analogue audio distribution amplifier with flexible inputs and outputs, allowing five different combinations. Outputs are fully floating. Includes gain settings, audio silence detectors and overvoltage detectors. Gives up to 48 DAs in 2U.

What you also get with the AADA416FM... Manual control.
What you also get with the AADA416FR... Both manual and remote control.

Which rear module do you need?



Stereo to mono distribution amplifier

AADA-STM-1	8 Watts	
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Dual stereo to mono audio distribution amplifier with flexible configuration of inputs and outputs. Outputs are fully floating. Includes gain settings, audio silence detectors and overvoltage detectors. Manual control.

Which rear module do you need?



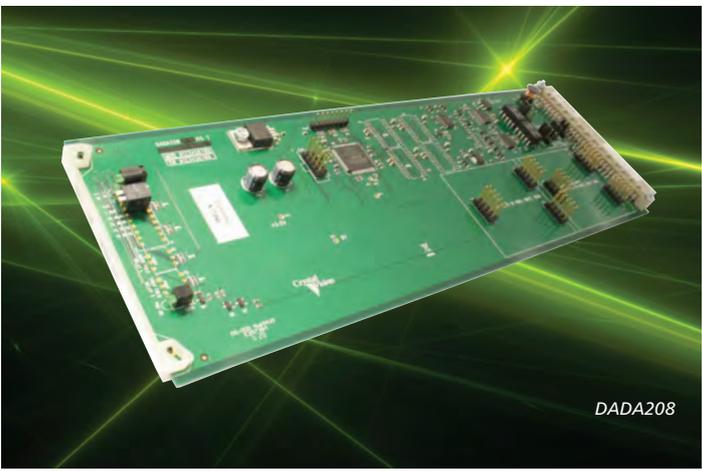
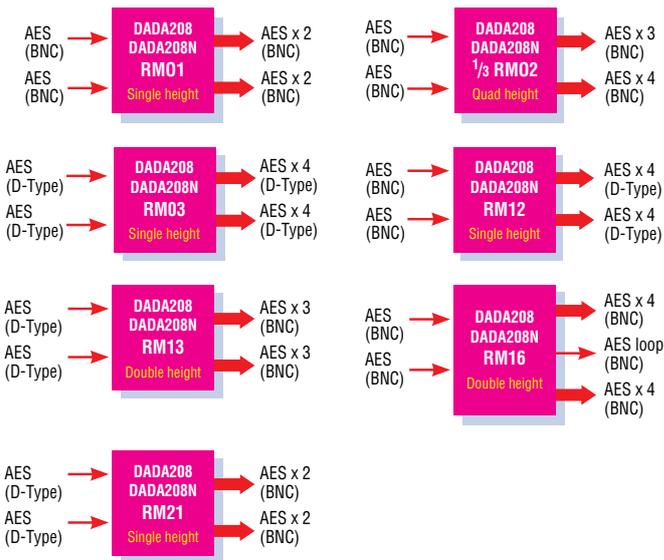
Digital audio distribution amplifiers

DADA208	0.6 Watts	
DADA208N	0.8 Watts	

Dual digital audio distribution amplifier offering a maximum of four outputs per channel. Use the relocking **DADA208** for high protection requirements with its ability to correct unstable AES inputs, or use the **DADA208N** for non-relocked outputs or if you want to distribute Word Clock reference (see the OP-WCLK output module on page 46). Available in two versions, with the AES outputs configured as either 110 ohm balanced or 75 ohm unbalanced depending on which OPAES output module is fitted (see page 46). Also allows impedance conversion.

Which rear module do you need?

NB. Can be configured so all outputs come from single input



DADA208

Everything modular: Audio interface

MADI audio distribution amplifiers
Audio delays



MADI audio distribution amplifiers

MADDA105

2.8 Watts



MADI (AES10) audio distribution amplifier offering a maximum of five outputs. Ideal for transporting large amount of audio as a block, with different sampling rates supported. Relay bypass protection option (with RM67 rear module).

Which rear module do you need?



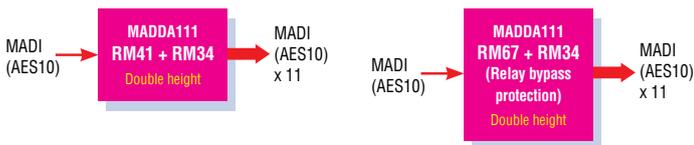
MADDA111

5.2 Watts



MADI (AES10) audio distribution amplifier offering a maximum of eleven outputs. Ideal for transporting large amount of audio as a block, with different sampling rates supported. 'Double decker' PCB which fits in two frame slots. Relay bypass protection option (with RM67 + RM34 rear module).

Which rear module do you need?



Audio delays

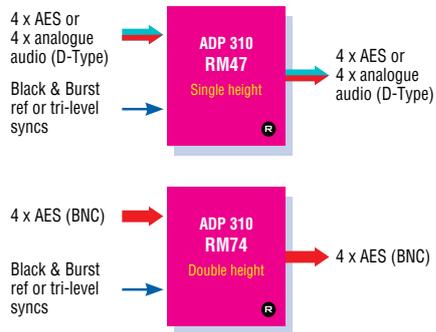
ADP 310

9 Watts



Audio delay line and processor for either four stereo pairs of AES or two stereo pairs (four mono channels) of analogue audio. To configure the system as either digital or analogue, fit one audio input piggyback and one audio output piggyback (see page 46). Provides up 400ms of user adjustable delay. Extensive audio processing includes independent gain adjustments, stereo to mono conversion and channel muting and inversion. Allows audio shuffling.

Which rear module do you need?



DADA208D

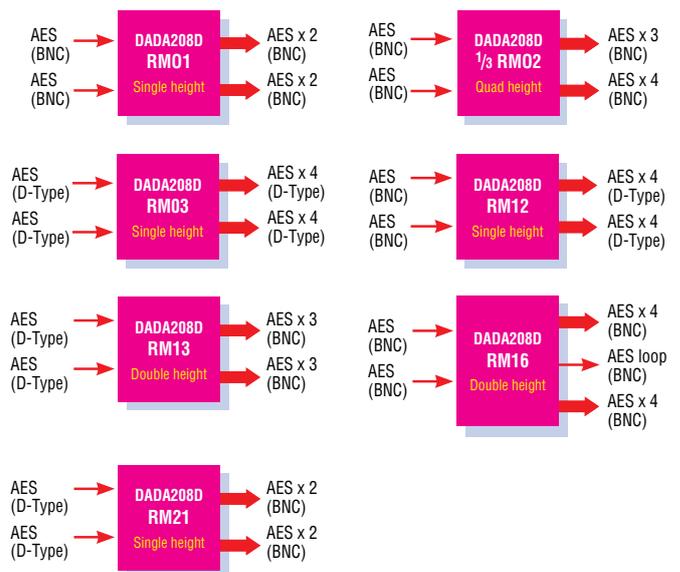
2.1 Watts



Combined dual digital audio distribution amplifier and delay line. Gives a maximum of four relocked outputs per channel. Independent delay adjust on each channel of up to one second at 48kHz makes it ideal for matching delays in video processing equipment unable to process embedded audio. Available in two versions, with the AES outputs configured as either 110 ohm balanced or 75 ohm unbalanced depending on which OPAES output module is fitted (see page 46). Also allows impedance conversion.

Which rear module do you need?

NB. Can be configured so all outputs come from single input



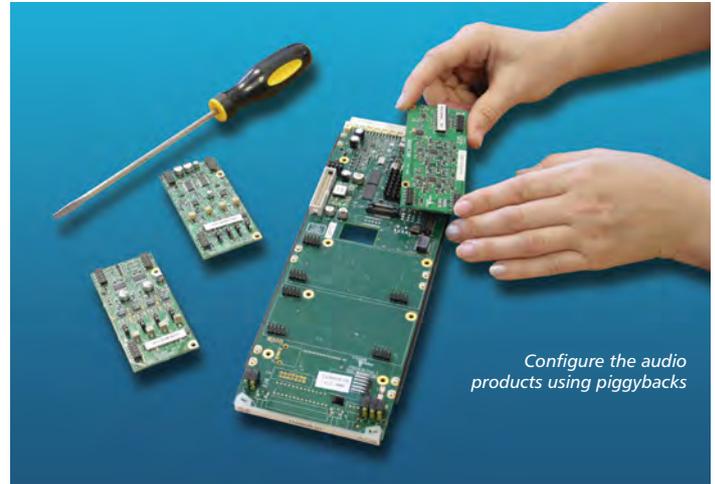
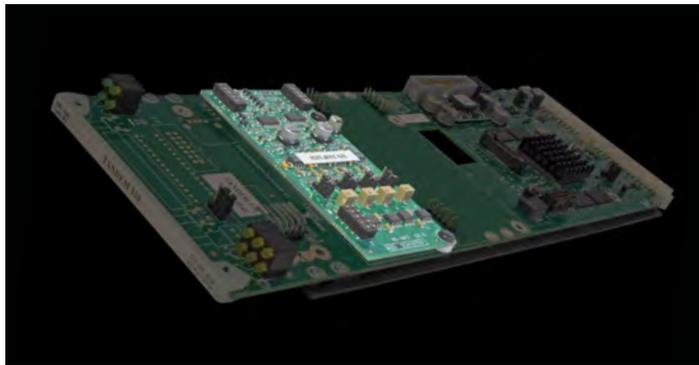


Everything modular: **Add-ons**

Audio piggybacks
Output modules

Audio piggybacks

Audio piggybacks are small sub-PCBs that fit on to the main motherboard of many of our embedded audio products and allow you to input or output audio. You can easily remove the piggyback and swap it for another, giving increased versatility to our audio products and allowing you to configure them to be exactly what you need on that day. Up to two piggybacks can be fitted to most boards – and you can even mix analogue piggybacks with digital to create a hybrid system.



Configure the audio products using piggybacks

Output modules

If you're using our digital audio distribution amplifiers or analogue to digital audio converter, then you'll need to specify whether you want 110 ohm balanced or 75 ohm unbalanced outputs – and it's easy to do this just by fitting one of our OPAES modules. Or distribute Word Clock by fitting the OP-WDCLK.

	What is it?	Audio channels	Watts	Used for...
3G-AIP2	Analogue audio input piggyback for inputting external analogue audio	2 stereo pairs or 4 mono	1.6	ADP 310, Cleanit 2, EMDEC-200, SYNNER 310, TANDEM 310 and TANDEM 320
3G-AOP2	Analogue audio output piggyback for outputting analogue audio externally	2 stereo pairs or 4 mono	1.5	ADP 310, Cleanit 2, SYNNER 310, TANDEM 310 and TANDEM 320
DIOP4	Digital audio input or output piggyback for inputting or outputting external AES audio	4 stereo pairs	0.9	ADP 310, Cleanit 2, SYNNER 310, TANDEM 310 and TANDEM 320
HD-DCDCV18	PSU which must be fitted if using the 3G-AIP2 piggyback with EMDEC-200 (only)		0.6	EMDEC-200

Output modules

OPAES-110

110 ohm AES output module. One of the OPAES modules must be fitted to the boards listed below.

Used for: ADCA412, DADA208, DADA208D and DADA208N.

OPAES-75

75 ohm AES output module. One of the OPAES modules must be fitted to the boards listed below.

Used for: ADCA412, DADA208, DADA208D and DADA208N.

OP-WDCLK

Output module for TTL level Word Clock distribution.

Used for: DADA208N.

Everything modular: Add-ons

Top boards



Top boards

Top boards are sub-boards which can be added to the main board to provide additional signals. If a top board is fitted, the main board will require two frame slots.

Top boards

DA6

3 Watts

Top board which fits on to the motherboard and provides an additional six relocked input loop-throughs for the up and down converters and aspect ratio converters.

Used for: Q-Down-AG 3G, Q-Down-ATG 3G, Up-Down 3G, Up-Down-A 3G, Up-Down-AFD 3G, Up-Down-AT 3G, Up-Down-ATX 3G, Up-Down-AS 3G, Up-Down-AFDS 3G, Up-Down-ATS 3G and Up-Down-ATXS 3G.

ML-GPI8

0.6 Watts

Top board for logo keys providing additional eight GPI inputs for recalling eight presets, along with additional eight GPI outputs which show which of the eight presets was recalled most recently via the GPI input.

Used for: MultiLogo V132 and MultiLogo V132 8G.



*MultiLogo V132
with ML-GPI8 fitted*

Everything modular: Rear modules

Frame rear modules

Indigo frame rear modules



Crystal Vision offers a wide choice of rear modules which slot on to the back of the Indigo frames. Designed to provide the answer to customers' individual needs they offer varying numbers of inputs, outputs and loop-through options along with the choice of BNC, D-Type, RJ45 and optical connectors. The single and double slot rear modules can be used with all three Indigo frame sizes, while the quad slot just fit the 2U frames. Each rear module has a selection of labels suitable for different products. The Vision system uses different rear modules.

Frame rear modules

Board positioning rules

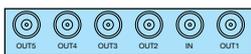
Two slot high rear modules: The board is always placed in the upper of the two slots, with the exception of the RM74 where the board is placed in the lower slot. These rear modules must occupy either the upper or lower pair of frame slots.

Quad slot 'video' rear modules (RM02 and RM25): The boards should be placed in the top slot, the next slot down and the bottom slot.

Quad slot 'audio' rear module (RM14): The boards are placed in the top three slots.

Fibre boards: A fibre board (or a board fitted with a FIP, FOP or FIO fibre option) can be housed in any frame slot position but due to its extra height it is not possible to place most Standard Definition or audio boards directly above it when the fibre board is in even numbered slot positions.

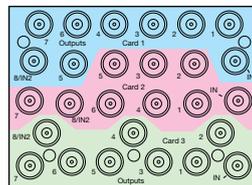
RM01



RM01

Used for: ADDEC-210, DADA208, DADA208D, DADA208N, VDA110M HD, VDA110R HD and VDA210M HD
Connectors: 6 BNCs
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

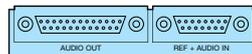
RM02



RM02

Used for: DADA208, DADA208D, DADA208N, VDA110M HD, VDA110R HD and VDA210M HD
Connectors: 27 BNCs
Frame slots used: 4 (for 3 boards)
Boards in 2U: 9

RM03



RM03

Used for: ADCA412, DACA214, DADA208, DADA208D and DADA208N
Connectors: 25-way standard density D-Type and 15-way standard density D-Type
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

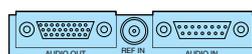
RM04



RM04

Used for: EMDEC-200
Connectors: 4 BNCs and 26-way high density D-Type
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

RM11



RM11

Used for: ADCA412 and DACA214
Connectors: 26-way high density D-Type, 15-way standard density D-Type and BNC for A/D ref
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

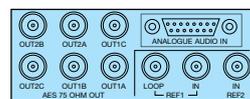
RM12



RM12

Used for: DACA214, DADA208, DADA208D and DADA208N
Connectors: 2 BNCs (for 75 ohm AES) and 25-way standard density D-Type
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

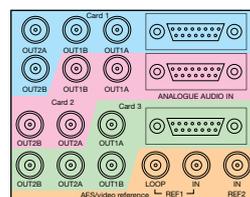
RM13



RM13

Used for: ADCA412, DADA208, DADA208D and DADA208N
Connectors: 9 BNCs (for 75 ohm AES) and 15-way standard density D-Type
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1

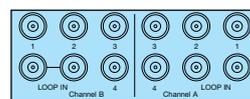
RM14



RM14

Used for: ADCA412
Connectors: 15 BNCs (for 75 ohm AES) and 3 15-way standard density D-Types
Frame slots used: 4 (for 3 boards)
Boards in 2U: 9

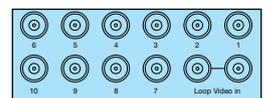
RM15



RM15

Used for: VDA210M HD
Connectors: 12 BNCs
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1

RM16



RM16

Used for: DADA208, DADA208D, DADA208N, VDA110M HD and VDA110R HD
Connectors: 12 BNCs (for 75 ohm AES on DADAs)
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1

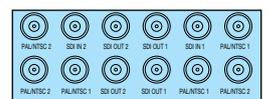
RM17



RM17

Used for: AADA416FM, AADA416FR and AADA-STM-1
Connectors: 44-way high density D-Type and 15-way standard density D-Type
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

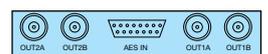
RM18



RM18

Used for: VDA110M HD, VDA110R HD and VDA210M HD
Connectors: 12 BNCs
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1

RM21



RM21

Used for: ADCA412, DADA208, DADA208D and DADA208N
Connectors: 4 BNCs (for 75 ohm AES) and 15-way standard density D-Type
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

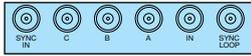
Everything modular: Rear modules

Frame rear modules



Frame rear modules continued...

RM23



RM23

Used for: ADDEC-120
Connectors: 6 BNCs
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

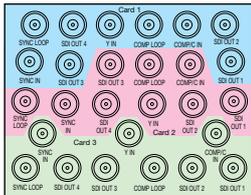
RM24



RM24

Used for: ADDEC-210
Connectors: 6 BNCs
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

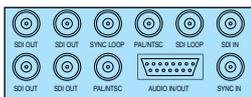
RM25



RM25

Used for: ADDEC-210
Connectors: 27 BNCs
Frame slots used: 4 (for 3 boards)
Boards in 2U: 9

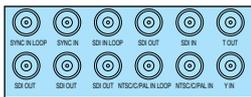
RM26



RM26

Used for: EMDEC-200
Connectors: 10 BNCs and 15-way standard density D-Type
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1

RM27



RM27

Used for: ADDEC-120
Connectors: 12 BNCs
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1

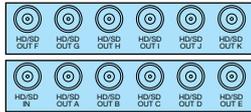
RM41



RM41

Used for: 3GDA105C, 3GDA105R, Cleanit 1, Cleanit 2, Cleanit 3, CoCo 3G, MADDA105, Q-Down-AG 3G, Q-Down-ATG 3G, SYN 3G, SYN-A 3G, Up-Down 3G, Up-Down-A 3G, Up-Down-AFD 3G, Up-Down-AT 3G, Up-Down-ATX 3G, Up-Down-AS 3G, Up-Down-AFDS 3G, Up-Down-ATS 3G, Up-Down-ATXS 3G, ViViD 3G, ViViD 3G-20, ViViD 3GS and ViViD 3GS-20
Connectors: 6 BNCs
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

RM41 + RM34



RM41 + RM34

Used for: 3GDA111C, 3GDA111R, MADDA111 and the following boards when fitted with a DA6 top board: Q-Down-AG 3G, Q-Down-ATG 3G, Up-Down 3G, Up-Down-A 3G, Up-Down-AFD 3G, Up-Down-AT 3G, Up-Down-ATX 3G, Up-Down-AS 3G, Up-Down-AFDS 3G, Up-Down-ATS 3G and Up-Down-ATXS 3G
Connectors: 12 BNCs
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1

RM44



RM44

Used for: ViViD HD-40
Connectors: 4 BNCs and 1 RJ45 connector (with relay bypass)
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

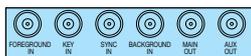
RM47



RM47

Used for: ADP 310, Cleanit 1, Cleanit 3, SYNNER 310 and TANDEM 310
Connectors: 4 BNCs and 1 26-way high density D-Type
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

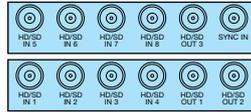
RM50



RM50

Used for: LKEY 3, Safire 3 and Safire 3 Xpress
Connectors: 6 BNCs
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

2 x RM50



2 x RM50

Used for: SW803 3G
Connectors: 12 BNCs
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1

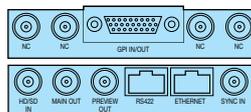
RM52



RM52

Used for: Clip N Key V121, Clip N Key V121 8G, MultiLogo V132 and MultiLogo V132 8G
Connectors: 4 BNCs and 2 RJ45 connectors (with relay bypass)
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2
NB. The RM52 changed in layout with the introduction of screw-in rear modules

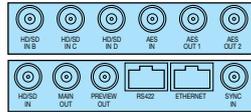
RM52 + RM33



RM52 + RM33

Used for: MultiLogo V132 and MultiLogo V132 8G (when fitted with ML-GPI8 add-on board)
Connectors: 8 BNCs, 26-way high density D-Type and 2 RJ45 connectors (with relay bypass)
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1
NB. The RM52 changed in layout with the introduction of screw-in rear modules

RM52 + RM34



RM52 + RM34

Used for: Clip N Key V221, Clip N Key V221 8G, MultiLogo V432 and MultiLogo V432 8G
Connectors: 10 BNCs and 2 RJ45 connectors (with relay bypass)
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1
NB. The RM52 changed in layout with the introduction of screw-in rear modules

RM54



RM54

Used for: Safe Switch 3G
Connectors: 6 BNCs (with relay bypass)
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

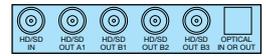
RM55



RM55

Used for: FRX 3G and FTX-L 3G
Connectors: 4 BNCs and 2 optical input/output connectors
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

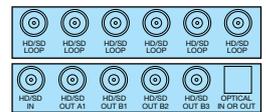
RM57



RM57

Used for: CoCo 3G, Q-Down-AG 3G, Q-Down-ATG 3G, SYN 3G, SYN-A 3G, Up-Down 3G, Up-Down-A 3G, Up-Down-AFD 3G, Up-Down-AT 3G, Up-Down-ATX 3G, Up-Down-AS 3G, Up-Down-AFDS 3G, Up-Down-ATS 3G, Up-Down-ATXS 3G, ViViD 3G, ViViD 3G-20, ViViD 3GS and ViViD 3GS-20
Connectors: 5 BNCs and 1 optical input/output connector
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

RM57 + RM34



RM57 + RM34

Used for: The following boards when fitted with a DA6 top board: Q-Down-AG 3G, Q-Down-ATG 3G, Up-Down 3G, Up-Down-A 3G, Up-Down-AFD 3G, Up-Down-AT 3G, Up-Down-ATX 3G, Up-Down-AS 3G, Up-Down-AFDS 3G, Up-Down-ATS 3G and Up-Down-ATXS 3G
Connectors: 11 BNCs and 1 optical input/output connector
Frame slots used: 2
Boards in 2U: 6 1U: 3 DTB: 1

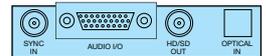
RM58



RM58

Used for: SYNNER 310
Connectors: 2 BNCs, 26-way high density D-Type and 1 optical output connector
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

RM59



RM59

Used for: SYNNER 310
Connectors: 2 BNCs, 26-way high density D-Type and 1 optical input connector
Frame slots used: 1
Boards in 2U: 12 1U: 6 DTB: 2

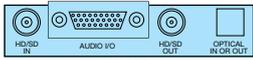


Everything modular: Rear modules

Frame rear modules

Frame rear modules continued...

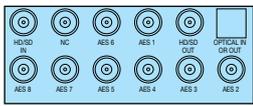
RM60



RM60

Used for: TANDEM 310
 Connectors: 2 BNCs, 26-way high density D-Type and 1 optical input/output connector
 Frame slots used: 1
 Boards in 2U: 12 1U: 6 DTB: 2

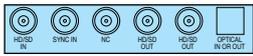
RM61



RM61

Used for: SYNNER 310 and TANDEM 310
 Connectors: 11 BNCs (for 75 ohm AES as well as video) and 1 optical input/output connector
 Frame slots used: 2
 Boards in 2U: 6 1U: 3 DTB: 1

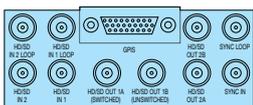
RM62



RM62

Used for: SYNNER 310
 Connectors: 5 BNCs and 1 optical input/output connector
 Frame slots used: 1
 Boards in 2U: 12 1U: 6 DTB: 2

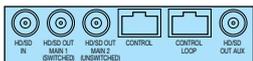
RM63



RM63

Used for: Safe Switch-L 3G
 Connectors: 10 BNCs and 26-way high density D-Type for bi-directional GPI connections (with relay bypass)
 Frame slots used: 2
 Boards in 2U: 6 1U: 3 DTB: 1

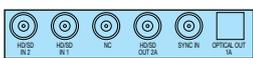
RM64



RM64

Used for: CoCo 3G
 Connectors: 4 BNCs and 2 RJ45 connectors (with relay bypass)
 Frame slots used: 1
 Boards in 2U: 12 1U: 6 DTB: 2

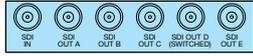
RM66



RM66

Used for: Safe Switch 3G
 Connectors: 5 BNCs and 1 optical output connector
 Frame slots used: 1
 Boards in 2U: 12 1U: 6 DTB: 2

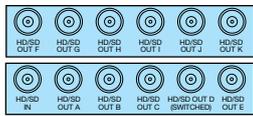
RM67



RM67

Used for: 3GDA105C, 3GDA105R, MADDA105, SYN 3G, SYN-A 3G, VIVID 3G, VIVID 3G-20, VIVID 3GS and VIVID 3GS-20
 Connectors: 6 BNCs (with relay bypass)
 Frame slots used: 1
 Boards in 2U: 12 1U: 6 DTB: 2

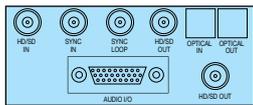
RM67 + RM34



RM67 + RM34

Used for: 3GDA111C, 3GDA111R, MADDA111
 Connectors: 12 BNCs (with relay bypass)
 Frame slots used: 2
 Boards in 2U: 6 1U: 3 DTB: 1

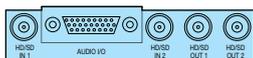
RM70



RM70

Used for: SYNNER 310 and TANDEM 310
 Connectors: 5 BNCs, 26-way high density D-Type, 1 optical input connector and 1 optical output connector
 Frame slots used: 2
 Boards in 2U: 6 1U: 3 DTB: 1

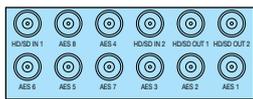
RM71



RM71

Used for: Cleanit 2 and TANDEM 320
 Connectors: 4 BNCs and 26-way high density D-Type
 Frame slots used: 1
 Boards in 2U: 12 1U: 6 DTB: 2

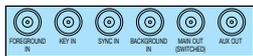
RM72



RM72

Used for: TANDEM 320
 Connectors: 12 BNCs (for 75 ohm AES as well as video)
 Frame slots used: 2
 Boards in 2U: 6 1U: 3 DTB: 1

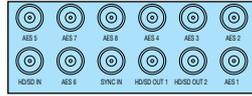
RM73



RM73

Used for: LKEY 3, Safire 3 and Safire 3 Xpress
 Connectors: 6 BNCs (with relay bypass)
 Frame slots used: 1
 Boards in 2U: 12 1U: 6 DTB: 2

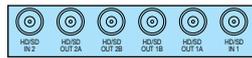
RM74



RM74

Used for: ADP 310, SYNNER 310 and TANDEM 310 (NB. SYNNER 310 and TANDEM 310 can either be fitted or not fitted with a Dolby decoder option)
 Connectors: 12 BNCs (for 75 ohm AES as well as video)
 Frame slots used: 2
 Boards in 2U: 6 1U: 3 DTB: 1
 NB. With the RM74 the board is placed in the lower of the two slots – unlike the other two slot high rear modules

RM75



RM75

Used for: 3GDA204R
 Connectors: 6 BNCs
 Frame slots used: 1
 Boards in 2U: 12 1U: 6 DTB: 2

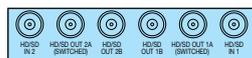
RM75 + RM34



RM75 + RM34

Used for: 3GDA210R
 Connectors: 12 BNCs
 Frame slots used: 2
 Boards in 2U: 6 1U: 3 DTB: 1

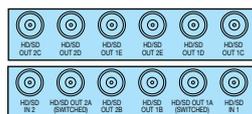
RM76



RM76

Used for: 3GDA204R
 Connectors: 6 BNCs (with relay bypass)
 Frame slots used: 1
 Boards in 2U: 12 1U: 6 DTB: 2

RM76 + RM34



RM76 + RM34

Used for: 3GDA210R
 Connectors: 12 BNCs (with relay bypass)
 Frame slots used: 2
 Boards in 2U: 6 1U: 3 DTB: 1

Everything modular: Control

Remote control panels



Control

You won't believe how flexible control can be with the Indigo system. Take your pick from board edge operation on the module itself, an active front panel fitted to the front of the Indigo frame, a remote control panel placed in any convenient studio location of your choice or a dedicated control panel for the more 'hands-on products'. Plus our GPIs are getting more and more flexible, allowing you to configure them to do just what you need. Alternatively use a web browser running on any device connected to your Ethernet network, or integrate the products into your wider control system using SNMP or Crystal Vision's ASCII and JSON protocols.

Remote control panels

VisionPanel

3U general remote control panel. Ideal for products requiring regular adjustment, with intuitive eight inch touch screen and physical controls. Can operate up to 16 frames containing any of the remote-enabled boards from the current Indigo and Vision ranges over an Ethernet network. Replaces both REMIND-E and the Sfire 3 Controller.



VisionPanel

SBB-4

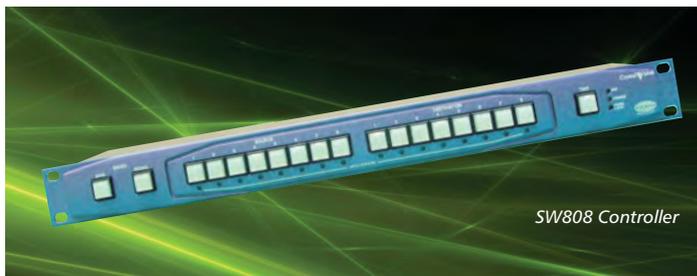
Smart button box perfect for live operation. Four big buttons featuring LCD graphics and colour indication of function/status, which will be programmed to the customer's individual requirements. Easy to combine controls from multiple boards. Can operate multiple frames containing suitable remote-enabled boards from the current Indigo and Vision ranges over an Ethernet network, and ideal for the Cleanit profanity delays. Can also be used to add GPI control or status indication to the frames. Powered by PoE (Power over Ethernet) and therefore needs to be connected to a PoE enabled switch.



SBB-4

SW808 Controller

Dedicated 1U panel for simple control of one SW803 3G routing switch. Dedicated buttons for each of the sources and destinations. Allows programming and recall of salvos. Fits easily in a control desk and is ideal for live operation and when the routing switch has regular adjustment.



SW808 Controller

CoCo 3G Controller

Dedicated 1U control panel for up to 12 CoCo 3G colour correctors and legalisers. Separate shaft encoders for the main adjustments (video gain, chroma gain, black level, RGB gain and gamma) with a display showing the value. Also allows easy adjustment of many other parameters.



CoCo 3G Controller





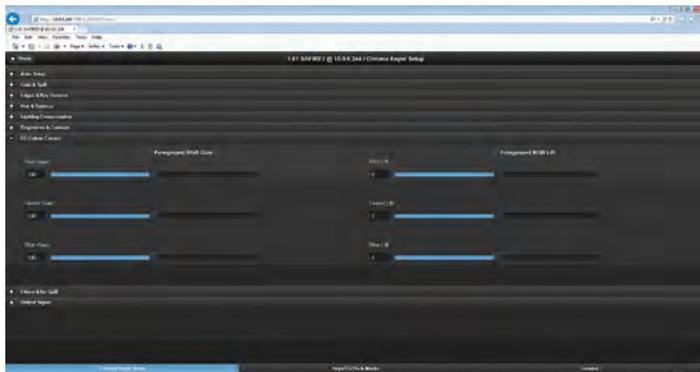
Everything modular: Control

Control software

Control software

VisionWeb Control

The free VisionWeb Control provides web browser operation for all remote-enabled products from the current Indigo and Vision ranges, using an attractive and intuitive user interface. Use any device on an Ethernet network that can run a web browser – from PC to tablet. Easy to arrange racks and boards using the browser's favourites or bookmarks.



Statesman Lite

The Statesman Lite PC control software is now frozen, but for existing users is still available for download via the website. Can only be used with products from the Indigo range.

SNMP

SNMP monitoring and control is available for Crystal Vision frames and remote-enabled boards. Able to work with any SNMP manager. For SNMP monitoring, the agent can either report the status or generate traps on a status change of any board in the frame. For control, the manager can read and change the value of control settings on any board in the frame. SNMP traps can be used to trigger alarms on both status changes and control value changes, with trap filtering available. Using SNMP requires the purchase of the front panel SNMP agent and appropriate MIBs.

ASCII Protocol

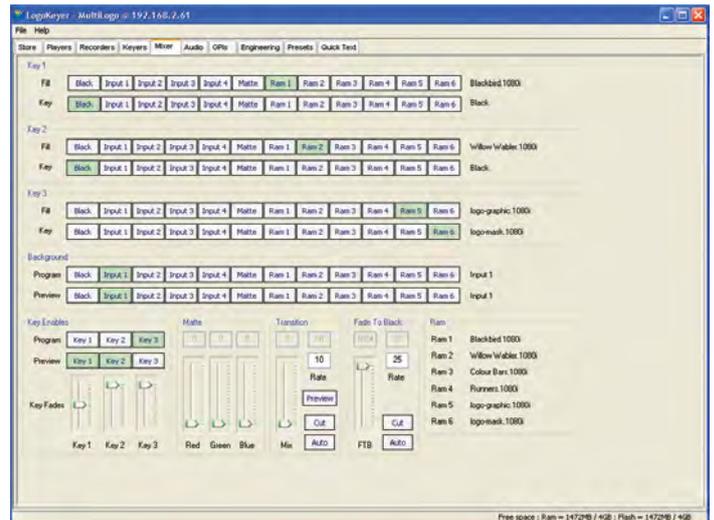
ASCII allows straightforward control from external control systems with limited programmability, such as automation systems and button boxes. Crystal Vision's own ASCII control protocol is designed to be easy to implement – offering a short, simple message structure with no handshaking or error recovery. It provides a method to get and set the value of controls on cards within a frame, using the product XML files (available for download from the website) to provide information on the controls for each board.

JSON Protocol

HTTP/JSON is a standard protocol and is aimed at those who want to implement their own web-based control. Software developers will find it easy to use JSON as an interface to interrogate and control Crystal Vision products by extracting the required data from the product XML files (available for download from the website).

MultiLogo Control Software

Free software shipped with the MultiLogo logo keyer which runs on the graphics computer and allows easy board control and files conversion. Perfect for setting up keying applications in advance and very easy to use. Includes Image Converter program for conversion of different graphic formats to MultiLogo's native file format. A simpler, cut-down version of the software is shipped with the Clip N Key clip and sting store.



Product A-Z Index

3G-AIP2	46	FIP	37	Safire 3 Xpress	9
3G-AOP2	46	FOP	37	SBB-4	51
3GDA105C	21	FRX 3G	37	SNMP	52
3GDA105R	21	FTX-L 3G	37	Statesman Lite	52
3GDA111C	21	HD-DCDCV18	46	SW803 3G	30
3GDA111R	21	Indigo 1AE-DP	5	SW808 Controller	51
3GDA204R	22	Indigo 1SE-DP	5	SYN 3G	24
3GDA210R	22	Indigo 2SE CoolFlow	5	SYN-A 3G	24
AADA416FM	44	Indigo DT	5	SYNNER 310	25
AADA416FR	44	Indigo DTSE	5	TANDEM 310	39
AADA-STM-1	44	LKEY 3	10	TANDEM 320	41
ADCA412	42	LKEY-SQZ	11	Up-Down 3G	14
ADDEC-210	19	MADDA105	45	Up-Down-A 3G	14
ADP 310	45	MADDA111	45	Up-Down-AFD 3G	14
Cleanit 1	35	ML-GPI8	47	Up-Down-AT 3G	14
Cleanit 2	35	MultiLogo Control Software	52	Up-Down-ATX 3G	14
Cleanit 3	35	MultiLogo V132	10	Up-Down-AS 3G	15
Cleanit Custom	35	MultiLogo V132 8G	10	Up-Down-AFDS 3G	15
Clip N Key V121	12	MultiLogo V432	10	Up-Down-ATS 3G	15
Clip N Key V121 8G	12	MultiLogo V432 8G	10	Up-Down-ATXS 3G	15
Clip N Key V221	12	OPAES-110	46	VDA110M HD	21
Clip N Key V221 8G	12	OPAES-75	46	VDA110R HD	21
CoCo 3G	36	OP-WDCLK	46	VDA210M HD	21
CoCo 3G Controller	51	PS-80i	5	VisionPanel	51
Control protocols	52	PSU-160i	5	VisionWeb Control	52
DA6	47	Q-Down-AG 3G	16	ViViD 3G	32
DACA214	42	Q-Down-ATG 3G	16	ViViD 3G-20	32
DADA208	44	Q-Down Mini	17	ViViD 3GS	32
DADA208D	45	Q-Down Mini PSU	5	ViViD 3GS-20	33
DADA208N	44	RMxx rear modules	48 – 50	ViViD HD-40	33
DIOP4	46	Safe Switch 3G	28		
EMDEC-200	19	Safe Switch-L 3G	28		
FIO	37	Safire 3	8		



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