Crystal Vision

# FRAMES AND CONTROL

Crystal Vision offers a range of frames and control options to suit all applications. Frames, which can house any mixture of video and audio products, are the state-of-the-art 2U FR2AV, the space-saving 1U FR1AV and the compact DTB-AV desk top box - ideal for just one or two modules. Control options are flexible: take your pick from board edge operation on the module itself, active panels fitted to the front of the frames, remote control panels placed at any convenient studio location of your choice - or alternatively use any PC running on your network.

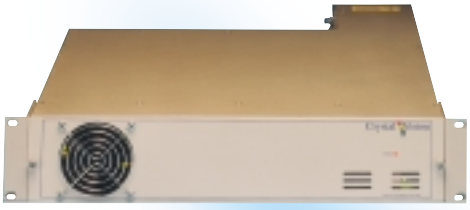
## THE FRAMES AND LOCAL CONTROL

### FR2AV

The FR2AV is Crystal Vision's versatile 2U frame. It allows the mixing of video and audio boards requiring different rear connectors in the same frame in any combination. This is achieved thanks to the wide range of removable rear modules - purchased separately from the frame - which are selected depending on how many inputs and outputs are required and whether the customer needs BNC or D-Type connectors. The FR2AV can take any of the quad, double and single slot rear modules. The rear module retaining brackets have captive screws which hold them securely in place.

The FR2AV has an extremely high-packing density and can house up to 12 boards from the company's full interface and digital keying ranges, depending on the rear module fitted.

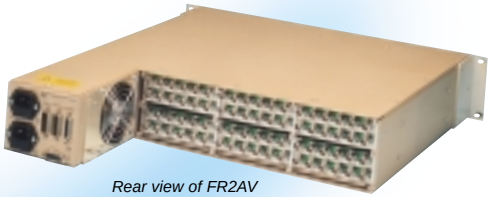
The frame features dual redundant power supplies which can be either 75 or 150 Watts. Boards, power supplies and fan can all be removed while the unit is still powered, with the deliberate positioning of the main fan at the rear of the frame making it extremely straightforward to change. The power supplies are carefully monitored and feature a temperature sensor, with a second fan activating should a fault condition cause the temperature to go above a defined limit. This sophisticated cooling system means any boards can be combined in one frame.



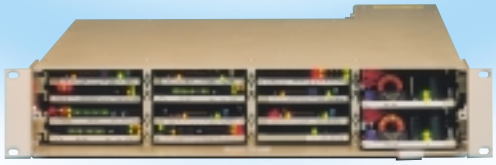
*FR2AV with passive front panel*

The passive frame front panel which comes as standard can be replaced with the FP2-LF active front panel to allow easy menu-driven control of all products with RS422 capability inside any two frames. Boards are automatically found by the FP2-LF and therefore do not require individual configuration, while the active front panel can control cards with different versions of software as the operational software exists on the boards themselves. The FP2-LF is deliberately low cost to encourage its use in most applications.

*FR2AV with FP2-LF active front panel*



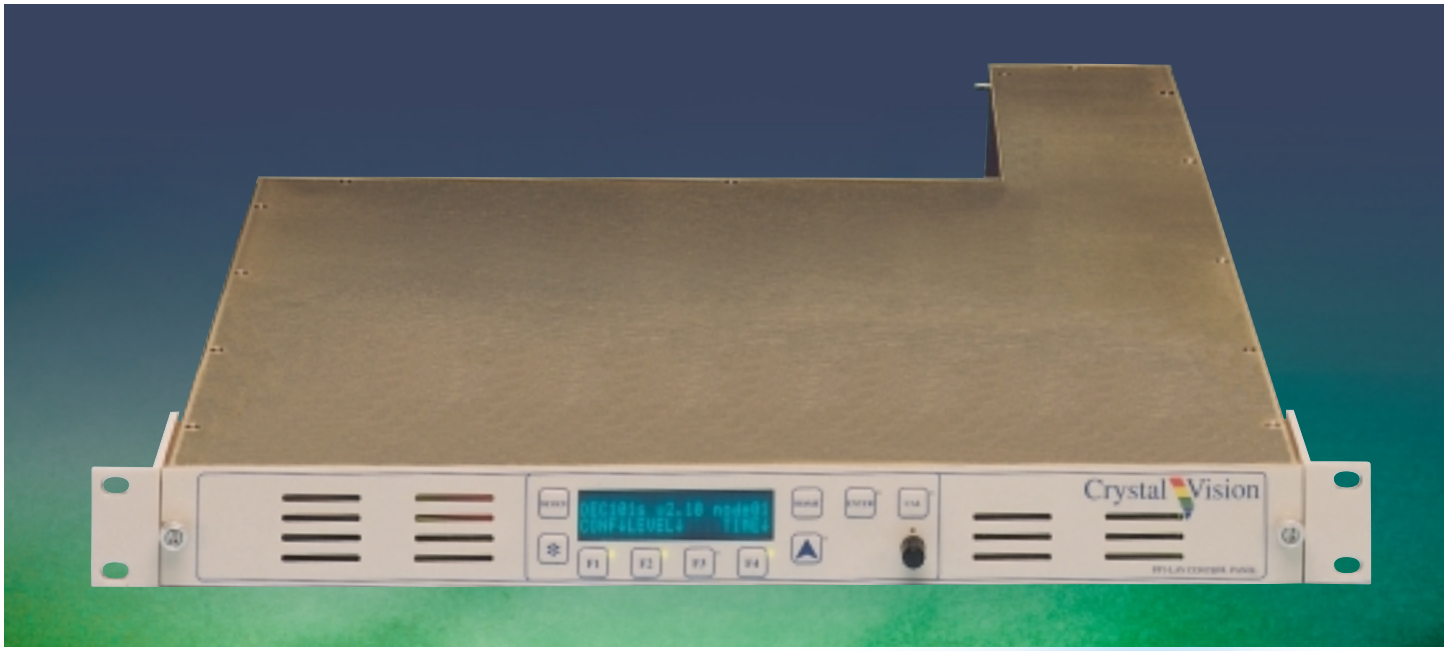
*Rear view of FR2AV*



*Internal view of FR2AV*

Six individual connections are available at the frame remote sockets, normally for GPI but they may also be used for secondary serial control by dedicated remote control panels such as the PAN-SKEY.

# FR1AV




*FR1AV with FP1-LAV active front panel*

Where space and cost are at a premium the FR1AV is ideal, taking up a mere 1U of rack space for up to six boards.

Used with any of the single and double slot frame rear modules, it can house any video or audio product in the Crystal Vision range. Optimal cooling is ensured by two fans on the rear section, which can be easily removed and replaced if necessary without disturbing wiring in most cases. Boards are hot swappable, while the 75 Watts PSU is sufficient to power any combination of six boards. The standard passive front panel can be replaced with the FP1-LAV active front panel, which can control all boards with RS422 in up to two frames.

*Rear view of FR1AV*

*FR1AV passive front panel*

*Internal view of FR1AV*

This compact desk top box is suitable for non-rack mounted installations which require a maximum of two modules - such as non-linear editing PCs.

The best value solution when buying only one or two boards, the DTB-AV can house any of the video and audio products and can be used with the single and double slot rear modules. Fitted with a 30 Watts fixed power supply to allow it to handle any two boards, it has a fan to assist card cooling and hot swappable modules. IU ears can be fitted to facilitate mounting in a desk. The standard passive front can be replaced with the FP1-SAV active front panel to control all boards with RS422 in up to two desk top boxes.

*Rear view of DTB-AV*


*DTB-AV with FP1-SAV active front panel*

*DTB-AV passive front panel*

*Internal view of DTB-AV*

# REMOTE CONTROL PANELS

Crystal Vision offers the choice of two remote control panels which can be used when a requirement exists for the panels and equipment to be located in different rooms.

## REM1U

The REM1U is a 1U remote control panel. 482mm (19 inches) and 85mm deep, it plugs into the frame remote control sockets and can control up to two frames at once.

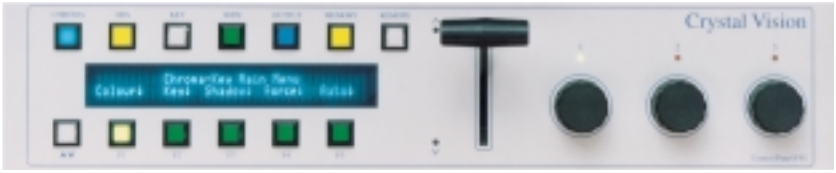
## REM1US

The REM1US is a 1U remote control panel. A slimline version of the REM1U at 231mm wide, it is ideal for inserting in a control desk. It plugs into the frame remote control sockets and can control up to two frames at once.

# DIGITAL KEYERS CONTROL PANEL

## PAN-SKEY

The PAN-SKEY operates Crystal Vision's digital keying products, and allows tactile operation of up to 12 Safire or LKEY211 modules. High quality buttons, T-bar and shaft encoders allow live control of keyers. The PAN-SKEY plugs into the remote control sockets on a frame.




*PAN-SKEY remote control panel*

# PC CONTROL SOFTWARE

Statesman is Crystal Vision's Windows-based 'networked' PC Control System. It allows control and status monitoring of all products with RS422 capability by any PC on a network running the appropriate software, without the need for the PC to be connected directly to the frame. Virtually any number of boards and frames can be linked to any number of PCs. The system allows different operator levels to be established and has been designed to provide rapid indication of changes in board and signal status, boasting very fast response times.

STATESMAN
PC CONTROL SYSTEM

# SPECIFICATION

**POWER REQUIREMENTS OF ALL FRAMES:**
85 to 264 volts, 47 to 400Hz

**OPERATING CONDITIONS**
0 to 40ºC non-condensing
Ventilation front to rear, without air filters

**REMOTE CONTROL**
6 control lines per module. Assigned on module (eg. GPI or RS422/RS232)
Contact closure for any power supply or overheat fault on frames using PSU-75 and PSU-150
RS485 loop system for front panel to all modules and rear connection
Board address set by position in frame. Frame address 0 or 1 by link for shared control
2nd serial port from active front panel
Control system allows one panel to control one or two frames
FR1AV and FR2AV can be controlled by panel on one of the frames or by remote panel (REM1U or REM1US)

**MECHANICAL DIMENSIONS**

**FR2AV**
482mm wide (19 inches), 89mm high (2U), 504mm deep. Weight 4.7 kg

**FR1AV**
482mm wide (19 inches), 44.5mm high (1U), 504mm deep. Weight 4.2 kg

**DTB-AV**
182mm wide, 44.5mm high (1U), 400mm deep. Weight 2.7 kg

**REM1U**
482mm wide (19 inches), 44.5mm high (1U), 85mm deep. Weight 750 g

**REM1US**
231mm wide, 44.5mm high (1U), 85mm deep. Weight 440 g

**PAN-SKEY**
482mm wide (19 inches), 89mm high (2U), 85mm deep. Weight 1.4 kg

**POWER SUPPLIES**
Rack mounted frames have plug in power supplies fitted which are ordered separately
DTB-AV has internal power supply included
REM1U and REM1US have mains power adapter included but can also take power from FR1AV and FR2AV if control cable is 5 metres or less
75 or 150 Watts power supply for FR2AV
75 Watts is adequate for FR1AV with any board combination
Output: 5.4V +2%, -5% / -6.3V +2%, -10% (indicated as +5V and -5V on PSU front label)
Board edge indication of +5V, -5V and PSU too hot (possible fan failure)
Changeover relay indication of output rail within limits and within temperature
Drives frame front panel LED, active control panel and frame remote connector
Temperature indication drives an auxiliary fan in FR2AV to keep the unit working correctly in the case of main fan failure
Weight of PSU-150: 960 g
Weight of PSU-75: 760 g

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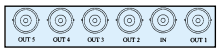
# REAR MODULES

Crystal Vision offers the choice of 21 rear modules which slot onto the back of the frames. Designed to provide the answer to customers' exacting needs, they offer varying numbers of inputs, outputs and loop-through options along with the choice of BNCs or D-Types. The single and double slot rear modules can be used with all three frames, while the quad slot just fit the FR2AV.

**Each rear module has a selection of labels suitable for different products.**

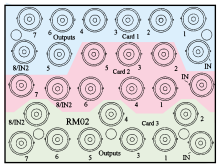
## RM01

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


RM01

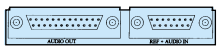
## RM02

Used for: Video products
Connectors: 27 BNCs
Frame slots used: 4 (for 3 boards)
Boards in 2U: 9


RM02

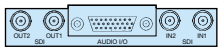
## RM03

Used for: Audio converters and AES DAs
Connectors: 15-way standard density D-Type and 26-way high density D-Type
Frame slots used: 1
Boards in 2U: 12
Boards in 1U: 6
Boards in DTB: 2


RM03

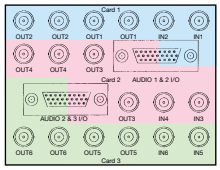
## RM04

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


RM04

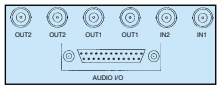
## RM05

Used for: TANDEM
Connectors: 18 BNCs and 2 26-way high density D-Types
Frame slots used: 4 (for 3 boards)
Boards in 2U: 9


RM05

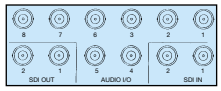
## RM06

Used for: TANDEM
Connectors: 6 BNCs and 25-way standard density D-Type
Frame slots used: 2
Boards in 2U: 6
Boards in 1U: 3
Boards in DTB: 1


RM06

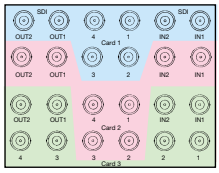
## RM07

Used for: TANDEM
Connectors: 12 BNCs (for both SDI and 75ohm digital audio)
Frame slots used: 2
Boards in 2U: 6
Boards in 1U: 3
Boards in DTB: 1


RM07

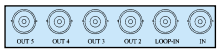
## RM08

Used for: TANDEM
Connectors: 24 BNCs (for both SDI and 75ohm digital audio)
Frame slots used: 4 (for 3 boards)
Boards in 2U: 9


RM08

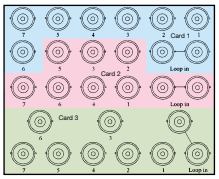
## RM09

Used for: Single analogue video DAs
Connectors: 6 BNCs
Frame slots used: 1
Boards in 2U: 12
Boards in 1U: 6
Boards in DTB: 2


RM09

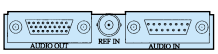
## RM10

Used for: Single analogue video DAs
Connectors: 27 BNCs
Frame slots used: 4 (for 3 boards)
Boards in 2U: 9


RM10

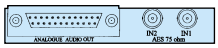
## RM11

Used for: Audio converters and AES DAs
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
Boards in 1U: 6
Boards in DTB: 2


RM11

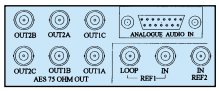
## RM12

Used for: Audio converters and AES DAs
Connectors: 2 BNCs and 25-way standard density D-Type (75ohm digital audio on BNCs)
Frame slots used: 1
Boards in 2U: 12
Boards in 1U: 6
Boards in DTB: 2


RM12

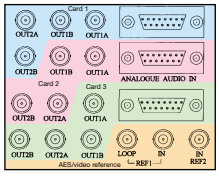
## RM13

Used for: Audio converters and AES DAs
Connectors: 9 BNCs and 15-way standard density D-Type (75ohm digital audio on BNCs)
Frame slots used: 2
Boards in 2U: 6
Boards in 1U: 3
Boards in DTB: 1


RM13

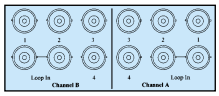
## RM14

Used for: A to D audio converter
Connectors: 15 BNCs and 3 15-way standard density D-Types (75ohm digital audio on BNCs)
Frame slots used: 4 (for 3 boards)
Boards in 2U: 9


RM14

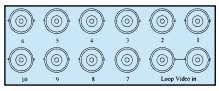
## RM15

Used for: Dual analogue video DAs
Connectors: 12 BNCs
Frame slots used: 2
Boards in 2U: 6
Boards in 1U: 3
Boards in DTB: 1


RM15

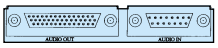
## RM16

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


RM16

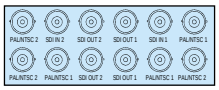
## RM17

Used for: Analogue audio DAs
Connectors: 44-way high density D-Type and 15-way standard density D-Type
Frame slots used: 1
Boards in 2U: 12
Boards in 1U: 6
Boards in DTB: 3


RM17

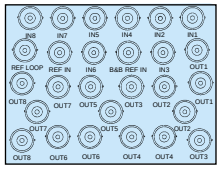
## RM18

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


RM18

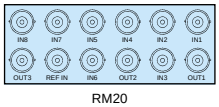
## RM19

Used for: SW808 switch
Connectors: 27 BNCs
Frame slots used: 4 (for 1 board only)
Boards in 2U: 3


RM19

## RM20

Used for: SW808 switch
Connectors: 12 BNCs
Frame slots used: 2
Boards in 2U: 6
Boards in 1U: 3
Boards in DTB: 1


RM20

## RM21

Used for: AES DAs and A to D audio converter
Connectors: 4 BNCs and 15-way standard density D-Type
Frame slots used: 1
Boards in 2U: 12
Boards in 1U: 6
Boards in DTB: 2


RM21

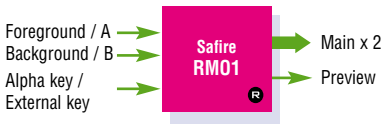
## PHYSICAL POSITIONING OF BOARDS

In the two slot rear modules (RM06, RM07, RM13, RM15, RM16, RM18 and RM20) the board is always placed in the upper of the two slots. These rear modules must occupy either the upper or lower pair of frame slots. In the quad slot 'video' rear modules (RM02 and RM10) the boards should be placed in the top slot, the next slot down and the bottom slot. In the quad slot 'switch' rear module (RM19) the board should be placed in the top slot. In the quad slot 'audio' rear modules (RM05, RM08 and RM14) the boards are placed in the top three slots.

# VIDEO

## Digital Keyers

Safire
*9.5 Watts*





LKEY211
*10 Watts*



## Component To SDI Converters

ADC104F
ADC104N
*6.25 Watts*




ADC104FK
ADC104NK
*6.25 Watts*




## SDI To Component Converters

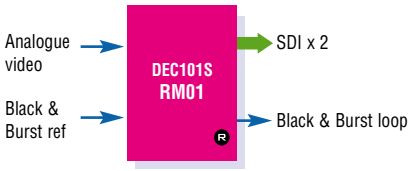
DAC102F
DAC102N
*6 Watts*



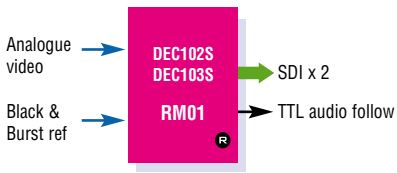
DAC102FK
*6 Watts*

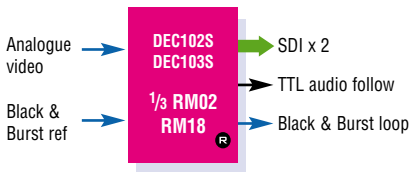


DEC101S
*6.25 Watts*

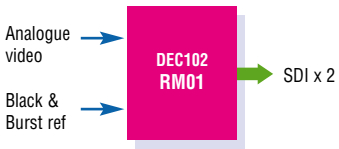



DEC102S
DEC103S
*8 Watts*

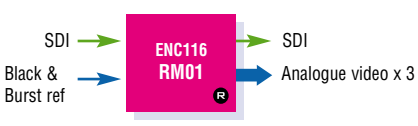


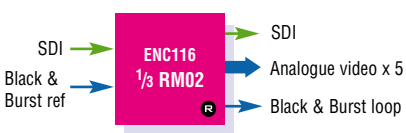




DEC102
*6.25 Watts*




ENC116
*7.4 Watts*

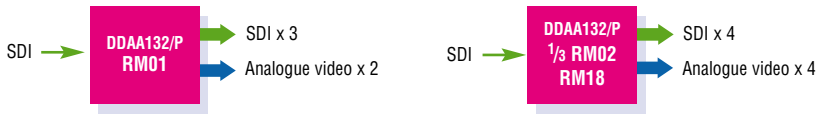


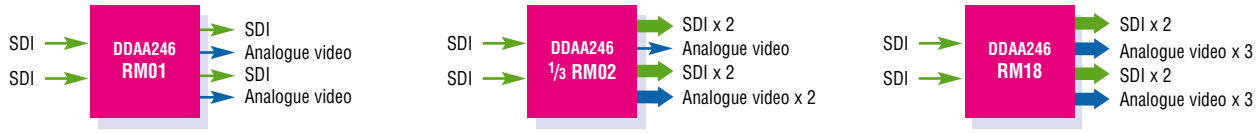

## Monitoring Encoders

MON210
*7 Watts*


DDAA132
DDAA132P
*5 Watts*

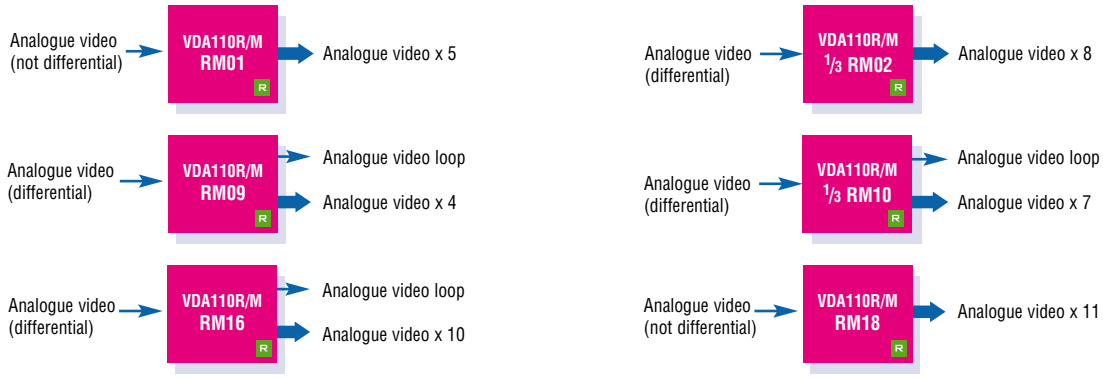



DDAA246
*8 Watts*




## Analogue Video Distribution Amplifiers

VDA110R
VDA110M
*4 Watts*




VDA210R
VDA210M
*4 Watts*


DDA108
DDA108A
*4 Watts*

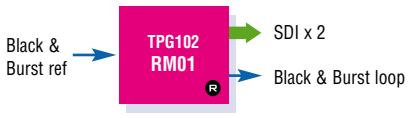

ARC102
*8.3 Watts*


ShARC102
*8 Watts*

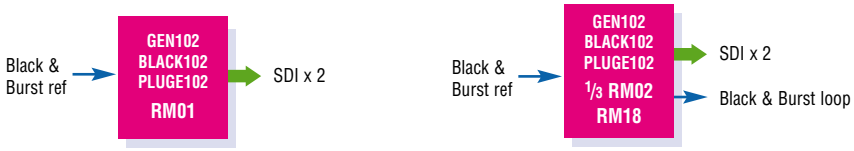

ShARC204
*8.4 Watts*

## Test Pattern Generators

TPG102
*6.25 Watts*

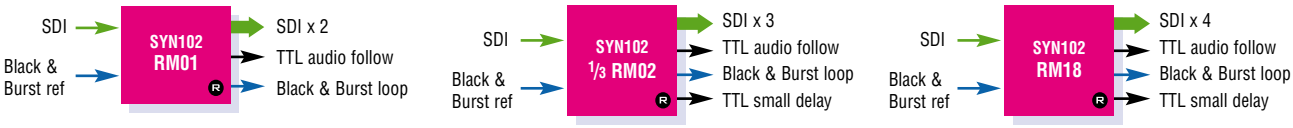



GEN102
BLACK102
PLUGE102
*5 Watts*




## Synchroniser

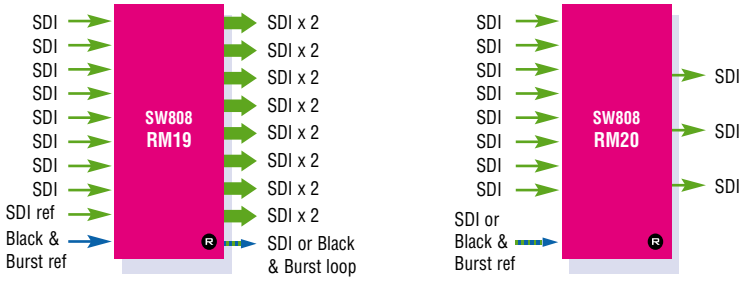
SYN102
*6 Watts*



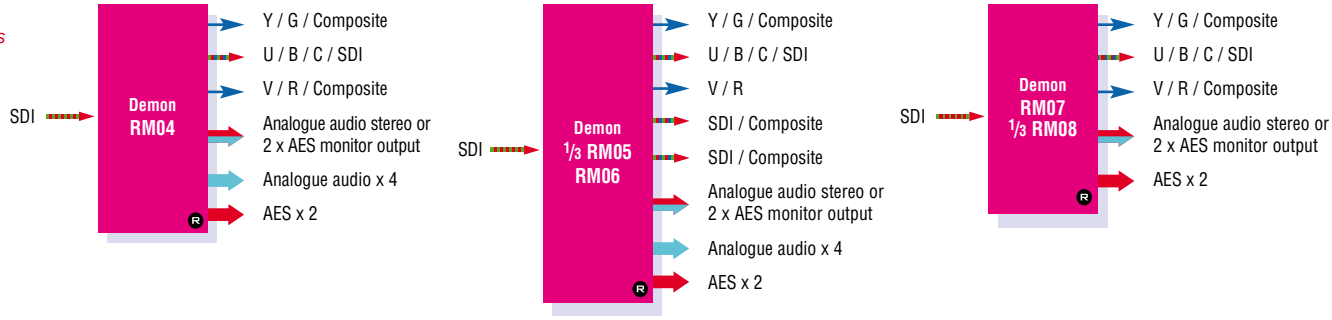

## Switches

SW222
*5 Watts*


SW808
*10.5 Watts*

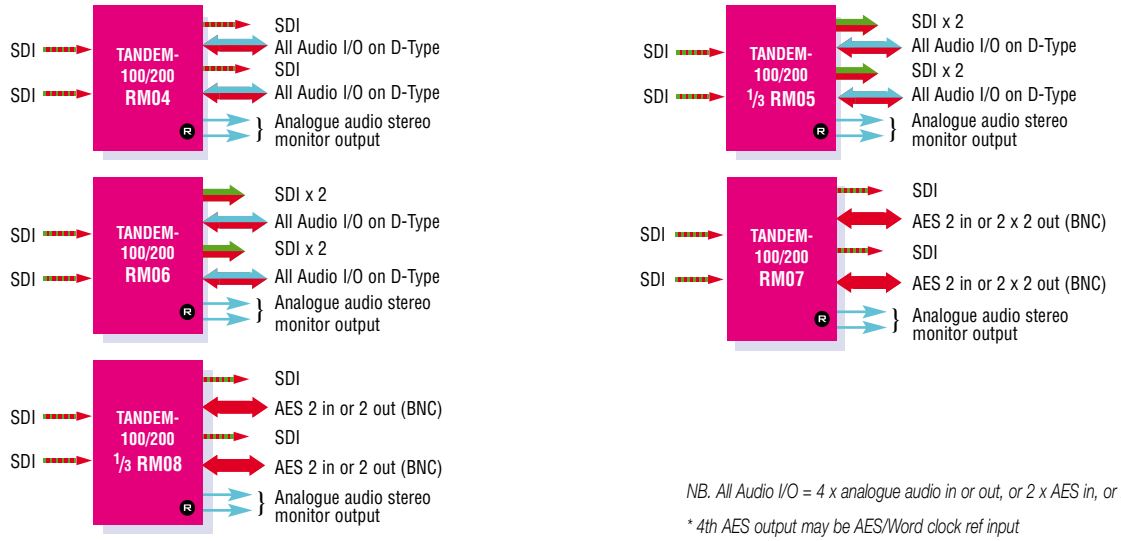



Demon
*11 Watts*




# AUDIO

TANDEM
*11 Watts*

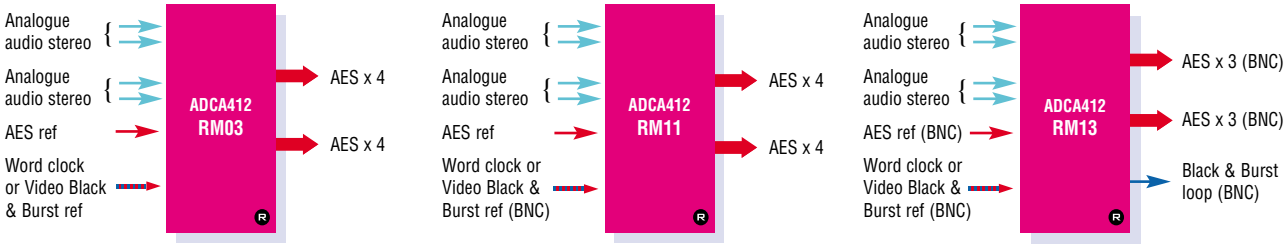


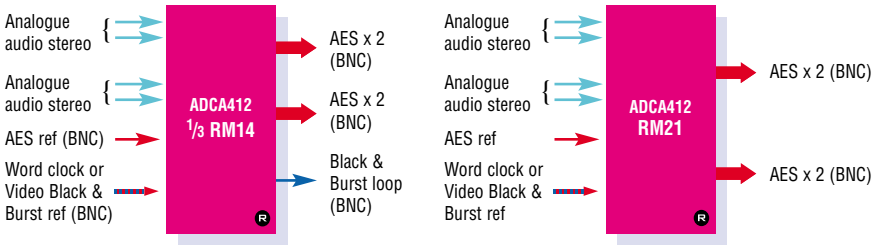

*NB. All Audio I/O = 4 x analogue audio in or out, or 2 x AES in, or 2 x 2 AES out**

** 4th AES output may be AES/Word clock ref input*

## Audio Converters

ADCA412
*6.25 Watts*



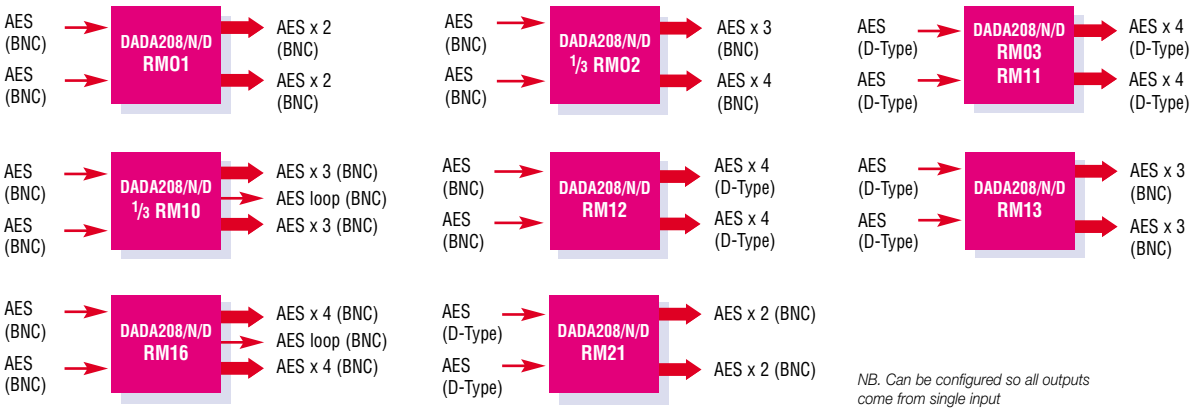




*NB. References shared between 3 ADCA412s*

DACA214
*6.25 Watts*

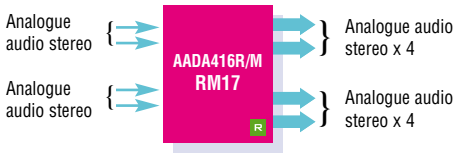

## Digital Audio Distribution Amplifiers

DADA208
*0.6 Watts*
DADA208N
*0.8 Watts*
DADA208D
*2.1 Watts*



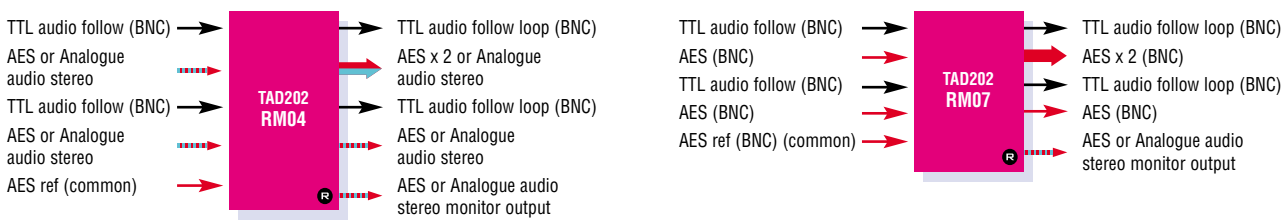

*NB. Can be configured so all outputs come from single input*

AADA416R
AADA416M
*3.8 Watts*




*NB. Can have 8 outputs of 1 stereo pair or 16 outputs of 1 mono*

TAD202
*12 Watts*




**KEY**

Remote control — Remote control available on R versions of product only