

digital keying modular
interface audio
converters analogue video

DDAA172

SDI to composite monitoring encoder
with distribution amplifier

USER MANUAL



DDAA172 Encoder

USERS MANUAL

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INTRODUCTION

The DDAA172 is an 8-bit Serial Digital to Analogue Composite converter with reclocked serial and composite outputs. The composite outputs can be switched between input video and a selection of test patterns under local or remote (GPI) control. It is very compact with 6 modules fitting in a 1U frame. It accepts either 625 or 525 line input, with automatic detection. Default outputs are four reclocked serial digital and two composite PAL/NTSC. An extra composite output, and a further two serial digital outputs, are available in a FR2AV with alternative rear modules. The unit plugs into the front of the rack frame, and the universal connection system allows a mixture of Crystal Vision modules in either 1U or 2U frames.

The hinged front panel of the case reveals user control of the card, and also LED indication of status. There is an 8-way piano switch which allows selection of some user options. Further configuration is possible using movable links.

SPECIFICATION

MECHANICAL

Dimensions 100mm x 266mm module with DIN 41612 connector. User adjustments and indication at end of board to allow access from hinged front panel.

Weight 170g

ELECTRICAL

Input 270Mb/s serial digital to EBU Tech 3267-E and SMPTE-259M.
Cable equalisation >200m Belden 8281 or equivalent.
Auto or manual 525/625 selection.

Outputs 7 reclocked Serial Loop through.
Each will drive >200m Belden 8281 or equivalent.
2 composite analogue outputs, 1V into 75 Ω .

Power Consumption 5W.

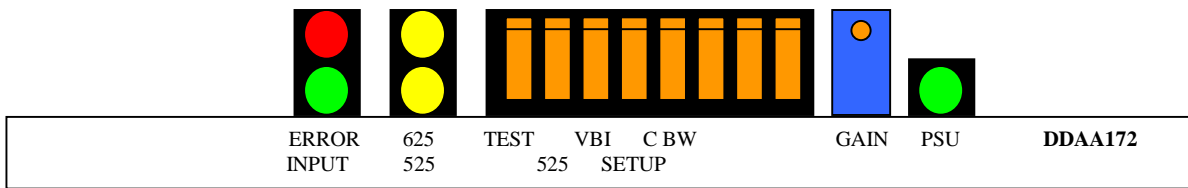
ANALOGUE OUTPUT

Frequency Response ± 0.2 dB 0 to 3.5MHz. ± 0.3 dB 0 to 5MHz.

Noise < -54dB weighted.

Blanking To PAL/NTSC specification horizontally and vertically with selectable VBI blanking - PAL lines 7-22 & 320-335 and NTSC lines 10-20 & 273-282.

OPTIONS AVAILABLE FROM FRONT PANEL



DIL SWITCH

| | | Up | Down |
|---|----------|---|--|
| 1 | TEST | Composite output is incoming SDI data. | Composite output is modulated ramp test pattern. |
| 2 | 525 | 625-line if manual standard selected on jumper PL8 | 525-line if manual standard selected on jumper PL8 |
| 3 | VBI | Blank PAL lines 7 to 22 & 320 to 335, NTSC lines 10 to 20 & 273 to 282. | Unblank PAL lines 7 to 22 & 320 to 335, NTSC lines 10 to 20 & 273 to 282. |
| 4 | SETUP | No setup | Adds 7.5 IRE of setup to Y & reduces Y gain as required. Only affects 525-line output. |
| 5 | C BW | Chroma Bandwidth 1.3MHz. | Chroma Bandwidth 650kHz. |
| 6 | Not Used | | |
| 7 | | | |
| 8 | | | |

FRONT PANEL LEDs

| | | |
|-------|-----------------|--------------------------------------|
| INPUT | Green (bottom) | Valid serial digital input detected. |
| ERROR | Red (top) | Serial digital input lock error. |
| 625 | Yellow (top) | 625-line output. |
| 525 | Yellow (bottom) | 525-line output. |
| PSU | Green (top) | Power supply voltage present. |

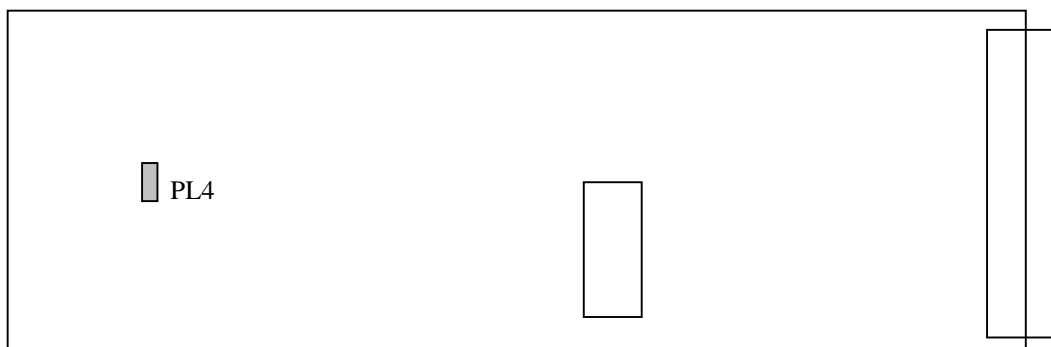
GAIN

There is a gain potentiometers on the board. This is factory set and should not need adjustment.

INSTALLATION INFORMATION

Link positions.

The positions of the standard select link is shown below.



STANDARD SELECT LINK

With PL4 in the AUTO position the board will automatically adjust to the 525- or 625-line video standard of the incoming Serial Digital data. This may slightly extend the time required to synchronise with a new signal. With PL4 in the MANUAL position the video standard used will be set by the front panel DIL switch or GPI control.

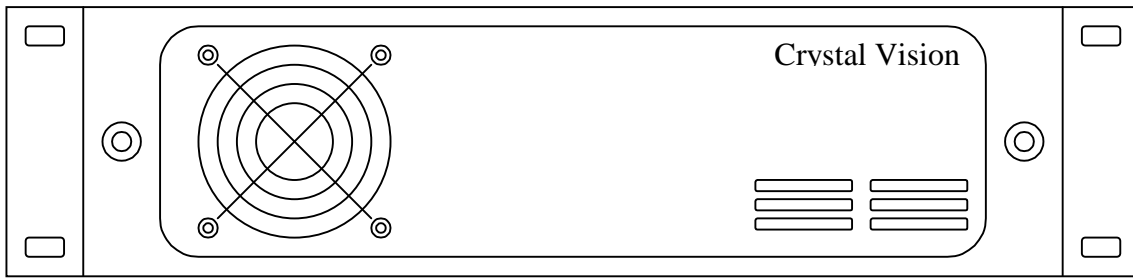
General Purpose Interface

Remote control is possible by GPI. In GPI configuration, remote switches can be used to emulate some of the front panel switches. Normally pulled up on-board to +5V via 10k Ω , will withstand up to +35V.

GPI CONNECTIONS

| | OPEN | CONNECT TO GROUND |
|-----|---|--|
| 'a' | No setup | Adds 7.5 IRE of setup to Y & reduces Y gain as required. Only affects 525-line output. |
| 'b' | 625-line if manual standard selected on jumper PL8 | 525-line if manual standard selected on jumper PL8 |
| 'c' | Blank PAL lines 7 to 22 & 320 to 335, NTSC lines 10 to 20 & 273 to 282. | Unblank PAL lines 7 to 22 & 320 to 335, NTSC lines 10 to 20 & 273 to 282. |
| 'd' | Not used | Not used |
| 'e' | | |
| 'f' | | |

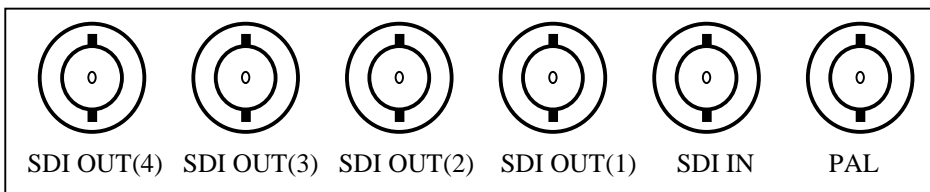
FR2AV 2U Frame for 12 Modules



The 2U FR2AV frame will house up to 12 modules and dual power supplies. A hinged front panel gives access to the PSU and all modules. The universal frame wiring system allows any of the interface range of modules to be fitted in any position with the use of removable rear modules.

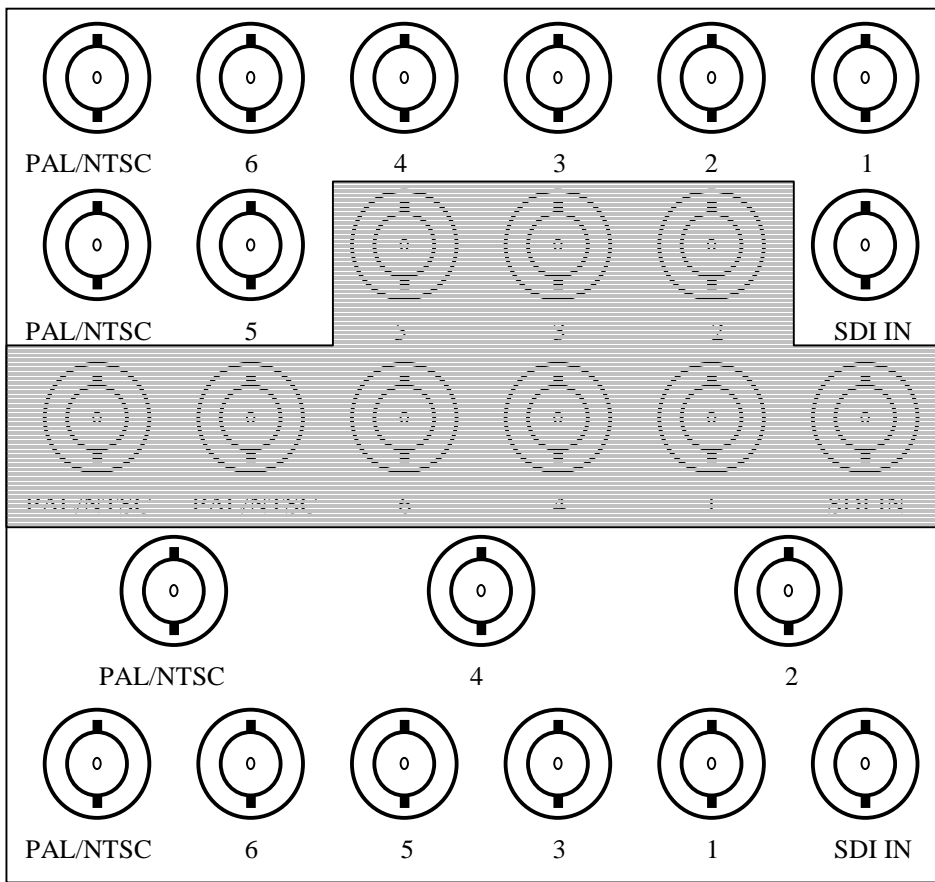
All modules can be plugged in and removed while the frame is powered without damage.

RM01 CONNECTIONS



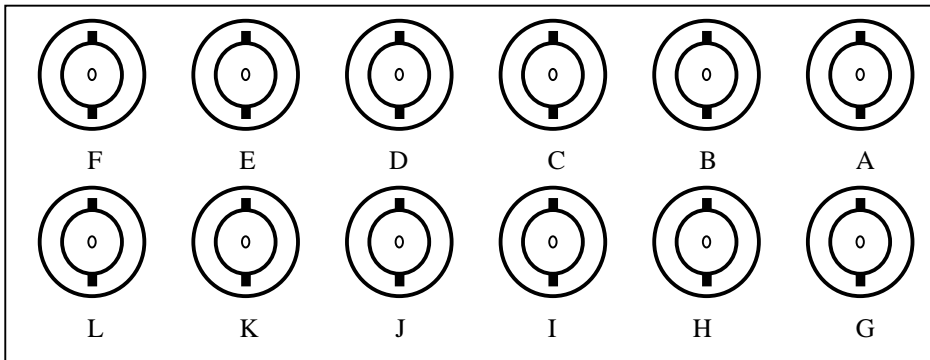
| | |
|------------|----------------------------------|
| SDI IN | Serial Digital Input |
| SDI OUT(1) | Reclocked Serial Digital Output. |
| SDI OUT(2) | Reclocked Serial Digital Output. |
| SDI OUT(3) | Reclocked Serial Digital Output. |
| SDI OUT(4) | Reclocked Serial Digital Output. |
| PAL | Composite Video |

RM02 CONNECTIONS



| | |
|------------|----------------------------------|
| SDI IN | Serial Digital Input. |
| 1 | Reclocked Serial Digital Output. |
| 2 | Reclocked Serial Digital Output. |
| 3 | Reclocked Serial Digital Output. |
| 4 | Reclocked Serial Digital Output. |
| 5 | Reclocked Serial Digital Output. |
| 6 | Reclocked Serial Digital Output. |
| PAL/NTSC/C | Composite Video. |

RM18 CONNECTIONS



| BNC | Connection |
|-----|----------------------------------|
| A | No connection. |
| B | Serial Digital Input. |
| C | Reclocked Serial Digital Output. |
| D | Reclocked Serial Digital Output. |
| E | Composite Video. |
| F | Composite Video. |
| G | No connection. |
| H | Reclocked Serial Digital Output. |
| I | Reclocked Serial Digital Output. |
| J | Reclocked Serial Digital Output. |
| K | Reclocked Serial Digital Output. |
| L | Reclocked Serial Digital Output. |

FR2AV GPI CONNECTIONS

Each slot has an associated set of connections on the frame rear-panel remote connectors. The tables below show the GPI connections described above.

Remote 1 and Remote 3: 26 way high density D-type **sockets**.

+5V @ 500mA is pin 1 in each case. Frame ground is pin 2 in each case.

Remote 2 and Remote 4: 26 way high density D-type **plugs**.

+5V @ 500mA is Remote 2 pin 15. Frame ground is pin 6 in each case.

Table shows Pin number (Remote number)

| Slot no. | 'a' pin no. | 'b' pin no. | 'c' pin no. | 'd' pin no. | 'e' pin no. | 'f' pin no. |
|----------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | 8 (1) | 9 (1) | 18 (1) | 26 (1) | 19 (2) | 20 (2) |
| 2 | 7 (1) | 16 (1) | 17 (1) | 25 (1) | 10 (2) | 11 (2) |
| 3 | 8 (3) | 9 (3) | 18 (3) | 19 (3) | 19 (4) | 20 (4) |
| 4 | 7 (3) | 16 (3) | 17 (3) | 25 (3) | 10 (4) | 11 (4) |
| 5 | 5 (1) | 6 (1) | 15 (1) | 24 (1) | 1 (2) | 2 (2) |
| 6 | 4 (1) | 14 (1) | 13 (1) | 23 (1) | 3 (2) | 4 (2) |
| 7 | 5 (3) | 6 (3) | 15 (3) | 24 (3) | 1 (4) | 2 (4) |
| 8 | 4 (3) | 14 (3) | 13 (3) | 23 (3) | 3 (4) | 4 (4) |
| 9 | 3 (1) | 12 (1) | 22 (1) | 21 (1) | 12 (2) | 13 (2) |
| 10 | 10 (1) | 11 (1) | 19 (1) | 20 (1) | 21 (2) | 22 (2) |
| 11 | 3 (3) | 12 (3) | 22 (3) | 21 (3) | 12 (4) | 13 (4) |
| 12 | 10 (3) | 11 (3) | 19 (3) | 20 (3) | 21 (4) | 22 (4) |

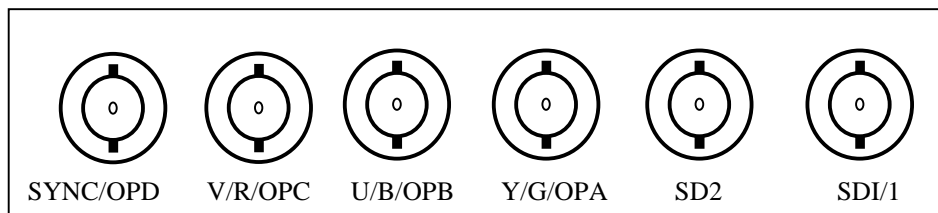
- FR1-6 1U Frame for 6 Modules.**
- FR2-12 2U Frame for 12 Modules.**
- FR2-8 2U Frame for 6 Modules.**



The 1U FR1-6 frame for 6 modules includes rear panel BNC connections and plug-in power supply. A hinged front panel gives access to the PSU and all modules. The universal frame wiring system allows any of the interface range of modules to be fitted in any position. The 2U FR2-12 frame houses up to 12 modules and dual power supplies. The 2U FR2-8 frame houses 8 modules each with extra rear panel BNC connections.

The modules can be plugged in and removed while the frame is powered without damage.

FR1-6 & FR2-12 REAR CONNECTIONS



FR1-6 & FR2-12 CONNECTIONS

| | |
|----------|----------------------------------|
| SDI/1 | Serial Digital Input. |
| SD2 | Reclocked Serial Digital Output. |
| Y/G/OPA | Reclocked Serial Digital Output. |
| U/B/OPB | Reclocked Serial Digital Output. |
| V/R/OPC | Reclocked Serial Digital Output. |
| SYNC/OPD | Composite Video. |

FR2-8 CONNECTIONS

| | |
|-------------|----------------------------------|
| SDI/1 | Serial Digital Input. |
| SD2 | Reclocked Serial Digital Output. |
| Y/G/OPA | Reclocked Serial Digital Output. |
| Y/G/OPA(2) | Reclocked Serial Digital Output. |
| U/B/OPB | Reclocked Serial Digital Output. |
| U/B/OPB(2) | No connection. |
| V/R/OPC | Reclocked Serial Digital Output. |
| V/R/OPC(2) | Reclocked Serial Digital Output. |
| SYNC/OPD | Composite Video. |
| SYNC/OPD(2) | Composite Video. |

FR1-6, FR2-12 & FR2-8 GPI CONNECTIONS

Each slot has an associated set of connections on the frame rear-panel remote connectors. The tables below show the GPI connections described above.

FR1-6 FRAME

Remote 1: 26 way high density D-type **socket**. Frame ground is pin 2.

Remote 2: 26 way high density D-type **plug**. Frame ground is pin 6.

Table shows Pin number (Remote number)

| Slot no. | 'a' pin no. | 'b' pin no. | 'c' pin no. | 'd' pin no. | 'e' pin no. | 'f' pin no. |
|----------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | 8 (1) | 9 (1) | 18 (1) | 26 (1) | 19 (2) | 20 (2) |
| 2 | 7 (1) | 16 (1) | 17 (1) | 25 (1) | 10 (2) | 11 (2) |
| 3 | 5 (1) | 6 (1) | 15 (1) | 24 (1) | 1 (2) | 2 (2) |
| 4 | 4 (1) | 14 (1) | 13 (1) | 23 (1) | 3 (2) | 4 (2) |
| 5 | 3 (1) | 12 (1) | 22 (1) | 21 (1) | 12 (2) | 13 (2) |
| 6 | 10 (1) | 11 (1) | 19 (1) | 20 (1) | 21 (2) | 22 (2) |

FR2-12 FRAME

Remote 1 and Remote 3: 26 way high density D-type **sockets**. Frame ground is pin 2.

Remote 2 and Remote 4: 26 way high density D-type **plugs**. Frame ground is pin 6.

Table shows Pin number (Remote number)

| Slot no. | 'a' pin no. | 'b' pin no. | 'c' pin no. | 'd' pin no. | 'e' pin no. | 'f' pin no. |
|----------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | 8 (1) | 9 (1) | 18 (1) | 26 (1) | 19 (2) | 20 (2) |
| 2 | 7 (1) | 16 (1) | 17 (1) | 25 (1) | 10 (2) | 11 (2) |
| 3 | 8 (3) | 9 (3) | 18 (3) | 19 (3) | 19 (4) | 20 (4) |
| 4 | 7 (3) | 16 (3) | 17 (3) | 25 (3) | 10 (4) | 11 (4) |
| 5 | 5 (1) | 6 (1) | 15 (1) | 24 (1) | 1 (2) | 2 (2) |
| 6 | 4 (1) | 14 (1) | 13 (1) | 23 (1) | 3 (2) | 4 (2) |
| 7 | 5 (3) | 6 (3) | 15 (3) | 24 (3) | 1 (4) | 2 (4) |
| 8 | 4 (3) | 14 (3) | 13 (3) | 23 (3) | 3 (4) | 4 (4) |
| 9 | 3 (1) | 12 (1) | 22 (1) | 21 (1) | 12 (2) | 13 (2) |
| 10 | 10 (1) | 11 (1) | 19 (1) | 20 (1) | 21 (2) | 22 (2) |
| 11 | 3 (3) | 12 (3) | 22 (3) | 21 (3) | 12 (4) | 13 (4) |
| 12 | 10 (3) | 11 (3) | 19 (3) | 20 (3) | 21 (4) | 22 (4) |

FR2-8 FRAME

Remote 1 and Remote 2: 26 way high density D-type **sockets**. Frame ground is pin 1.

PSU Relay connection on pin 10.

Table shows Pin number (Remote number)

| Slot no. | 'a' pin no. | 'b' pin no. | 'c' pin no. | 'd' pin no. | 'e' pin no. | 'f' pin no. |
|----------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 | 8 (1) | 9 (1) | 17 (1) | 18 (1) | 25 (1) | 26 (1) |
| 2 | 6 (1) | 7 (1) | 15 (1) | 16 (1) | 23 (1) | 24 (1) |
| 3 | 8 (2) | 9 (2) | 17 (2) | 18 (2) | 25 (2) | 26 (2) |
| 4 | 6 (2) | 7 (2) | 15 (2) | 16 (2) | 23 (2) | 24 (2) |
| 5 | 4 (1) | 5 (1) | 13 (1) | 14 (1) | 21 (1) | 22 (1) |
| 6 | 2 (1) | 3 (1) | 11 (1) | 12 (1) | 19 (1) | 20 (1) |
| 7 | 4 (2) | 5 (2) | 13 (2) | 14 (2) | 21 (2) | 22 (2) |
| 8 | 2 (2) | 3 (2) | 11 (2) | 12 (2) | 19 (2) | 20 (2) |