Crystal Vision

ANALOGUE AUDIO DISTRIBUTION AMPLIFIERS

The AADA416M and AADA416R quad amplifiers allow the distribution of analogue audio in any broadcast environment while offering the choice of remote or manual control and flexible inputs and outputs. Crystal Vision fits four channels with four outputs of each on one space-saving 100mm x 266mm board, giving up to 48 DAs in a single 2U frame.

Both AADAs allow a versatile configuration of inputs and outputs, with a choice of five different combinations to suit all requirements. If you require more outputs, for example, you can make your quad AADA a dual or single amplifier instead. The most commonly used combinations are configuring the board as a quad amplifier (four mono - or two stereo - inputs and four outputs of each), dual amplifier (two mono - or one stereo - inputs and eight outputs of each) or single amplifier (one mono input and sixteen outputs). Crystal Vision also offers customers the opportunity to have a mixture of outputs. A mixed triple amplifier gives three mono - or one stereo and one mono - inputs with four outputs of the first two channels and eight of the third, while a mixed dual amplifier gives two mono - or one stereo - inputs with four outputs of the first and twelve of the second.

The AADAs have low noise and distortion, with electronically balanced inputs and outputs on all channels. Audio links set the gain to -6dB, 0dB or +6dB, with a further continuous adjustment of +/-6dB on the AADA416M and +/-12dB on the AADA416R, making total ranges of +/-12dB and +/-18dB.

Each channel has an audio silence detector featuring 16 different user adjustable time settings, with the silence duration limit selectable from one to 120 seconds in 15 eight seconds steps. The level for silence is factory set to -30dBu and can be adjusted from -18dBu to -42dBu.

An overvoltage detector is provided for each audio channel. The level for overvoltage is factory set to +28dBu and can be adjusted from +6dBu to +28dBu. The AADAs feature LED and GPI indication of audio silence and overvoltage status for each channel. Two 3.5mm jacks are provided for local audio monitoring using a headphone set.

The manual AADA416M is operated by on-board pots and jumper links. The remotely-controlled AADA416R can work in either manual or remote modes. In remote mode it allows active front panel or remote panel adjustment of audio gain, the audio silence duration limit and the overvoltage detection level.

The AADAs should be used with the RM17 frame rear module which was developed specifically to access their maximum number of audio outputs. This flexible single slot rear module can be used in the company's 2U frame, 1U frame and desk top box.
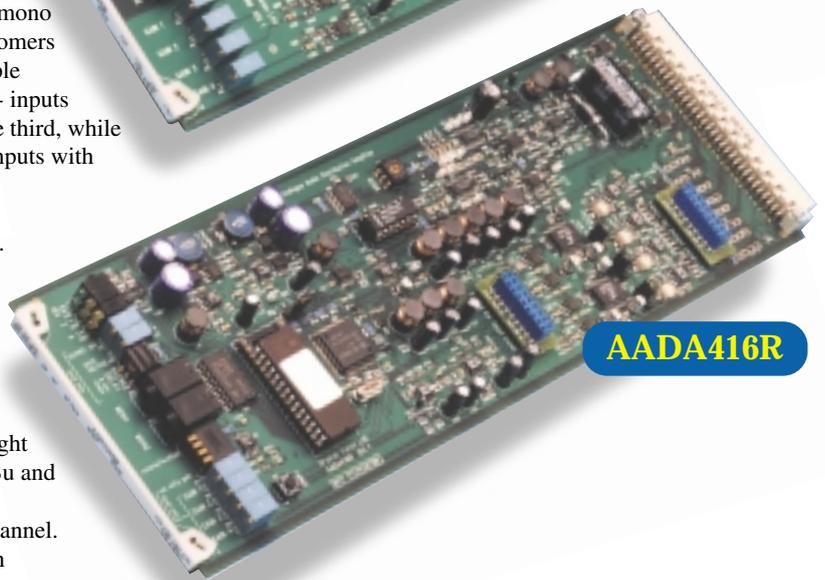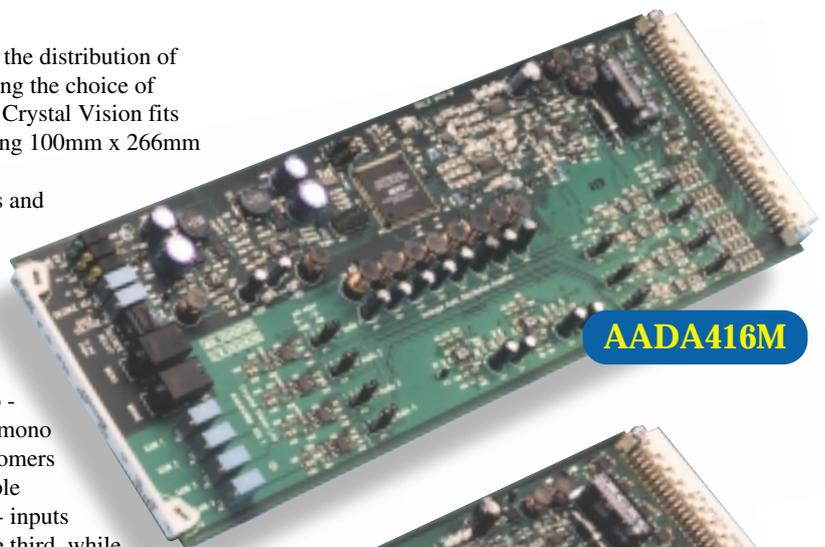
AADA416M

AADA416R

▶ **Analogue audio distribution amplifiers**

▶ **100mm x 266mm modules allow 12 AADA416s (48 DAs) in 2U**

▶ **Two versions: manual AADA416M and remotely-controlled AADA416R**

▶ **Flexible inputs and outputs - five different combinations**

▶ **Low noise and distortion**

▶ **Electronically balanced inputs and outputs**

▶ **Audio gain adjustment from +12dB to -12dB on AADA416M and +18dB to -18dB on AADA416R**

▶ **Audio silence detector for each channel**

▶ **Overvoltage detector for each channel**

▶ **LED and GPI indication of audio silence and overvoltage status**

AADA416M/AADA416R

Block diagram:

Audio in → (+/−) → Jumper settable gain 0dB / -6dB → Variable gain +/-12dB (+/-6dB on M) → Configuration links → Jumper settable gain 0dB / +6dB → 4 audio outputs (×4 channels)

CPU → Remote control (AADA416R only)

Silence & overvoltage detectors ← Board edge controls
GPI ↓   LEDs ↓
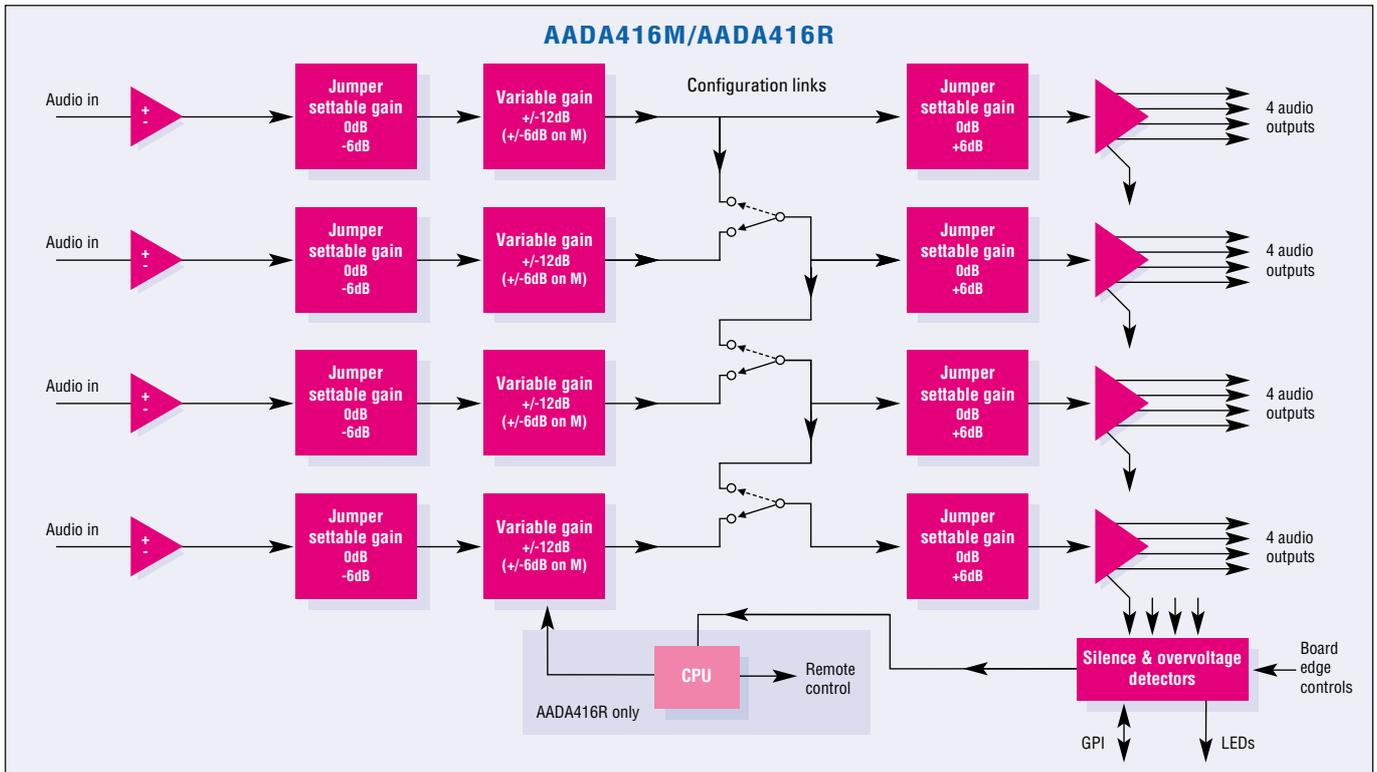
S P E C I F I C A T I O N

BOTH MODULES

MECHANICAL
Standard Crystal Vision modules 266mm x 100mm
Weight: 175g
Power consumption: 3.8 Watts

AUDIO INPUTS
4 mono, electronically balanced
High impedance input (>20kohm)
Maximum level: +28dBu
Factory set default: 0dBFS = +18dBu or +24dBu by
on-board link (0dB or -6dB gain)
Common mode rejection ratio: >74dB (20Hz to 20kHz)

AUDIO OUTPUTS
16 (4 per channel), electronically balanced
Low impedance outputs (66ohm)
Maximum level: +28dBu
Factory set default: 0dBFS = +18dBu or +24dBu by
on-board link (0dB or +6dB gain)
Frequency response: +/-0.05dB (20Hz to 20kHz)
Total Harmonic Distortion (THD): <0.003% at 1kHz,
+18dBu/+24dBu
Interchannel crosstalk: <-100dB

SILENCE DETECTORS
4 (1 per channel)
Set period of silence before indication from 1 to 120 seconds
in 8 second increments
Set silence threshold between -18dBu and -42dBu (factory
default set to -30dBu)

OVERVOLTAGE DETECTORS
4 (1 per channel)
Set overvoltage threshold between +6dBu and +28dBu
(factory default set to +28dBu)

GPIs
4 outputs, 2 inputs
Outputs: active low, 330ohm resistors in series with output
to drive LEDs. Indicates silence/overvoltage status per
channel
Inputs: active low, 10kohm pull-up resistors to +5v. Controls
if silence or overvoltage or both indications on GPI outputs

MONITORING AUDIO OUTPUTS
2 stereo (4 mono)
Connector: 3.5mm stereo jack socket
Output level: 0dBFS = +10dBu

FRONT BOARD INDICATORS
4 LEDs (1 per channel) to indicate silence/overvoltage status
2 LEDs to indicate power supply status

FRAME REAR MODULES
RM17 (1 frame slot): 4 inputs on 15-way D-Type socket and 16
outputs on 44-way high density D-Type socket

AADA416M

GAIN ADJUSTMENTS PER CHANNEL
Total adjustment: +/-12dB
Continuous multiturn pot adjustment (board front): +/-6dB
On-board links: +6dB, 0dB, -6dB

PERFORMANCE
Signal to noise ratio: >112dB, 0dB gain, 0dBFS = +24dBu;
>106dB, 0dB gain, 0dBFS = +18dBu

AADA416R

MODES
Manual or remote (selected by switches at board edge)

GAIN ADJUSTMENTS PER CHANNEL
Total adjustment: +/-18dB
On-board links: +6dB, 0dB, -6dB
Multiturn pot adjustment (board front, manual mode) of +/-
12dB in 0.5dB steps or remote control adjustment (remote
mode) of +/-12dB in 0.5dB steps

PERFORMANCE
Signal to noise ratio (provisional): >104dB, 0dB gain,
0dBFS = +24dBu

REMOTE CONTROL
RS485: 19200 baud 8 bits, 1 stop no parity
1 serial port connected to frame front panel
Remote control of audio gain and remote status monitoring
from frame front panel or remote control panel

Quad amplifier
Input 1, Input 2, Input 3, Input 4 → AADA416M/R → 4 × analogue audio (×4)
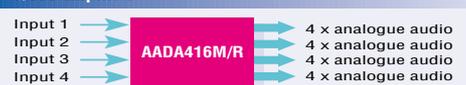
Mixed triple amplifier
Input 1, Input 2, Input 3 → AADA416M/R → 4 × analogue audio, 4 × analogue audio, 8 × analogue audio

Dual amplifier
Input 1, Input 2 → AADA416M/R → 8 × analogue audio, 8 × analogue audio

Mixed dual amplifier
Input 1, Input 2 → AADA416M/R → 4 × analogue audio, 12 × analogue audio
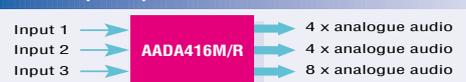
Single amplifier
Input 1 → AADA416M/R → 16 × analogue audio
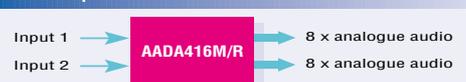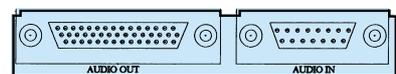
AUDIO OUT | AUDIO IN
RM17

O R D E R I N G   I N F O R M A T I O N

AADA416M	Analogue audio distribution amplifier with manual control
AADA416R	Analogue audio distribution amplifier with remote or manual control
FR2AV	2U frame for up to 12 Crystal Vision modules
FR1AV	1U frame for up to six Crystal Vision modules
DTB-AV	Desk top box for up to two Crystal Vision modules
RM17	Single slot frame rear module. Allows maximum number of AADAs in frame (12 in 2U, six in 1U, two in desk top box) and gives access to all audio inputs and outputs
FP2-LF	Active front panel for remote control of AADA416R in 2U frame
FP1-LAV	Active front panel for remote control of AADA416R in 1U frame
FP1-SAV	Active front panel for remote control of AADA416R in desk top box
REM1U	19" remote panel for remote control of AADA416R
REM1US	Narrow 1U remote panel for remote control of AADA416R

Performance and features are subject to change.   AADA0601