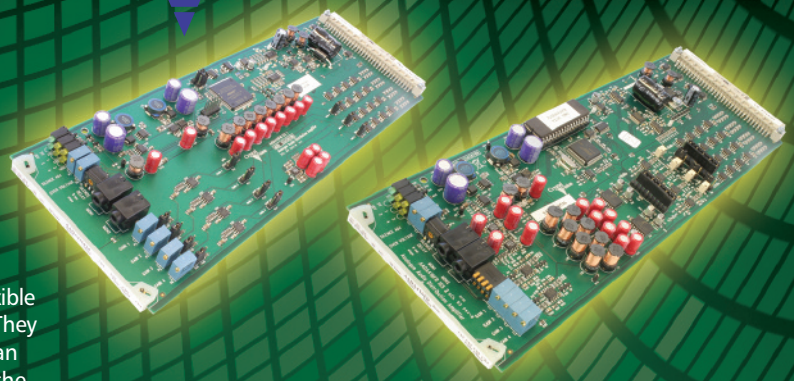
Crystal Vision

Analogue Audio Distribution Amplifiers



- Analogue audio distribution amplifiers, available in two versions for manual or remote control
- Flexible inputs and outputs – five different combinations
- Low noise and distortion
- Robust fully floating inputs and outputs
- Excellent isolation between outputs with individual line drivers
- Audio gain adjustment from +12dB to -12dB on AADA416FM and +18dB to -18dB on AADA416FR
- Audio silence detector for each channel
- Overvoltage detector for each channel
- Space-saving: 100mm x 266mm module allows 12 AADA in 2U (24 in 4U, six in 1U and two in desk top box)
- Flexible remote control on AADA416FR, including PC software

The AADA416FM and AADA416FR quad amplifiers allow the flexible distribution of analogue audio in any broadcast environment. They feature four separate audio distribution amplifiers each with an electronically balanced input and four floating outputs, with the inputs and outputs configurable in five different ways to meet your exact requirements. They will also save you rack space, with these 100mm x 266mm modules providing up to 48 DAs in a single 2U frame, making them excellent value per channel.

The AADAs allow a truly versatile configuration of inputs and outputs. 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). It is also possible to have a mixture of outputs, and configure the boards as either a mixed triple amplifier or mixed dual amplifier.

The AADAs have the essential low noise and distortion which allows the audio to pass through more stages of processing without a loss in quality. The balanced outputs are fully floating which makes them very robust – should one side be connected to ground, the other will double in amplitude to maintain the difference between the balanced signals, giving a correct single-ended system. Each output has an individual line driver which gives excellent isolation between them, meaning a damaged signal injected on to one of the outputs will not affect any of the others.

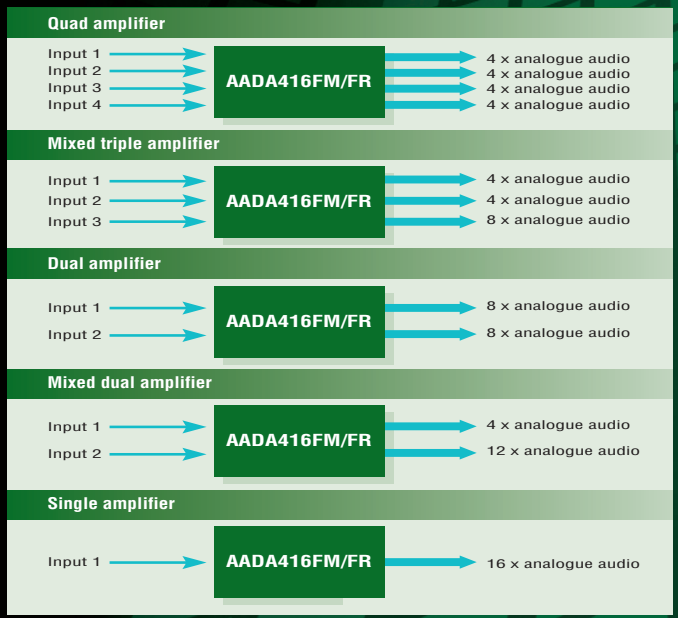
The AADAs can deal with analogue audio that comes from anywhere, with the ability to be configured for the different maximum operating levels that can occur over different geographical areas. The fixed gain settings (-6dB, 0dB or +6dB) allow you to scale the incoming audio so that it is the same relationship to your full scale level. The variable gain settings (of +/-6dB on the AADA416FM and +/-12dB on the AADA416FR) then allow you to correct for gain errors elsewhere. The AADA416FR includes an easy unity calibration mode which will force the gain adjustments to unity so that all outputs go out at the same amplitude.

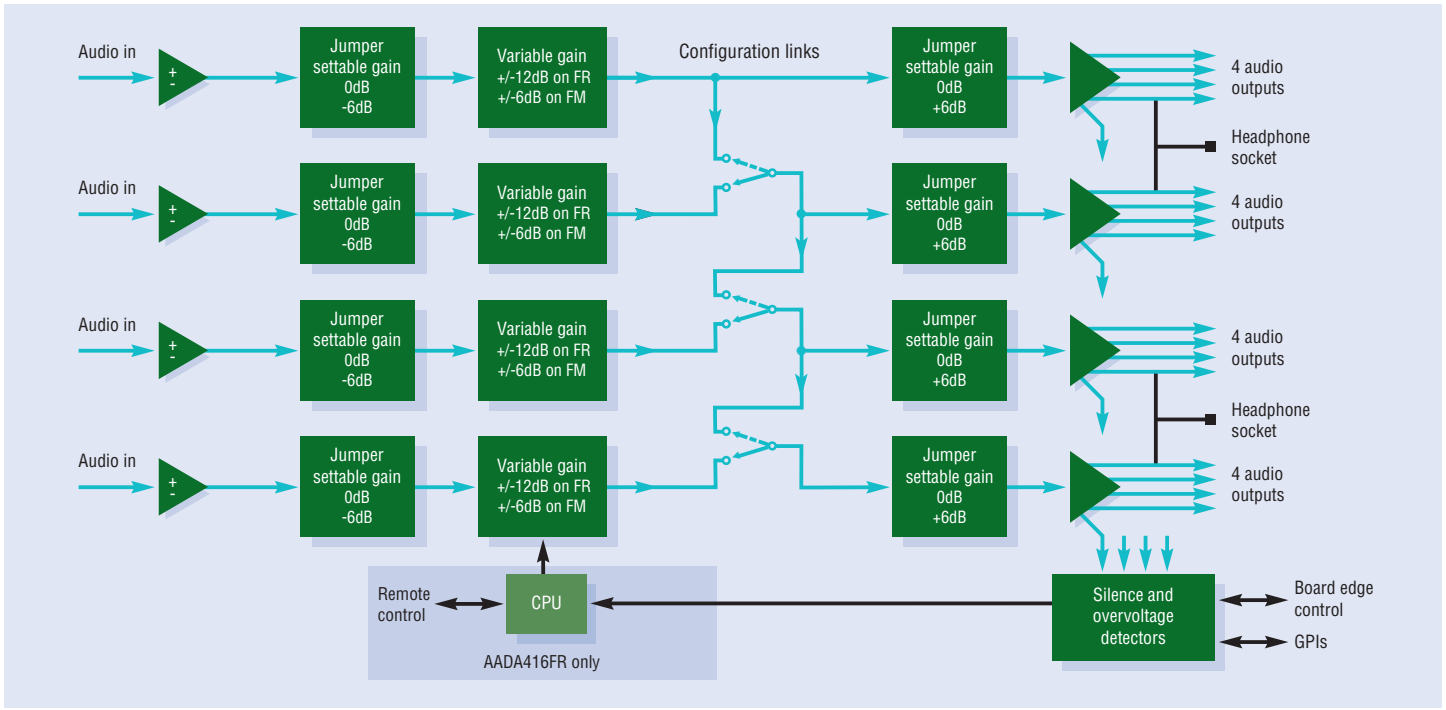
A number of useful monitoring tools ensure you remain aware of exactly what's happening to your audio at all times. Each channel has an individual audio silence detector with adjustable threshold level and duration – useful for alerting you that your audio signal has failed. There is also an overvoltage detector for each channel with adjustable threshold level. Both these tools can be used with GPIs and the Statesman PC software to trigger alarms. Two 3.5mm jacks are provided for local monitoring using headphones and can be used during installation or when investigating problems, allowing you to listen to the audio at various stages to check for continuity or quality.

It takes no time at all to get these analogue audio DAs configured and on air. The manual AADA416FM is operated by on-board pots and jumper links, with its economical distribution making it ideal for for cost-sensitive applications. The AADA416FR can work in either manual or remote modes and is ideal where sources may be of unknown amplitudes and volume adjustments are essential – easier to do from an active front panel or the Statesman PC software than manually.

The AADAs conveniently fit in Crystal Vision's standard frames (available in four sizes to suit all applications) alongside any other video or audio products from the range. The audio inputs and outputs are accessed by using the 'easywire' RM37 frame rear module which features a 64-way DIN 41612 connector, providing plenty of room to solder the wires on to the individual pins. For those who prefer D-Types, the RM17 can also be used.

Configure your outputs in five different ways...





SPECIFICATION

MECHANICAL
Standard Crystal Vision modules 266mm x 100mm

Weight: 175g

Power consumption: 12 Watts

AUDIO INPUTS
Four mono, electronically balanced

High impedance input (>20 kohm)

Maximum level: +28dBu

Factory set default: +24dBu; 0dBFS = +18dBu or +24dBu by on board link

AUDIO OUTPUTS
16 (four per channel), electronically balanced, using RM17 or 'easywire' RM37 frame rear modules

Inputs and outputs are flexible and can be configured in five different ways

It is also possible to use unbalanced audio

Low impedance outputs: 100 ohm

Maximum level: +25dB

Factory set default: 0dBFS = +24dBu

GAIN ADJUSTMENTS PER CHANNEL
Total adjustment: +/-12dB (AADA416FM); +/-18dB (AADA416FR)

Continuous adjustment: +/-6dB (AADA416FM multiturn pot adjustment); +/-12dB in 0.5dB steps (AADA416FR multiturn pot adjustment or remote control)

Link adjustment: +6dB, 0dB, -6dB (on board link settings)

PERFORMANCE
Signal to noise ratio (AADA416FM): >106dB, 0dB gain, 0dBFS = +24dBu (20Hz to 20kHz)

Signal to noise ratio (AADA416FR): >104dB, 0dB gain, 0dBFS = +24dBu (20Hz to 20kHz)

Frequency response: +/-0.05dB (20Hz to 20kHz)

Total Harmonic Distortion (THD): <0.003% at 1kHz, +18dBu/+24dBu

Common mode rejection: >74dB (20Hz to 20kHz)

Interchannel crosstalk: <-94dB, 10kHz (AADA416FM); <-100dB, 10kHz (AADA416FR)

SILENCE DETECTORS
Four (one per audio channel)

Set period of silence before indication from one to 120 seconds in eight second increments

Set silence threshold between -18dBu and -42dBu (factory default set to -30dBu)

OVERVOLTAGE DETECTORS
Four (one per audio channel)

Set overvoltage threshold between +6dBu and +25dBu (factory default set to +25dBu)

MONITORING AUDIO OUTPUTS
Two stereo (four mono) via two 3.5mm stereo jack sockets

Output level: 0dBFS = +10dBu

GPI INPUT LEVELS
Active pull to ground, pulled up to +5V through 10 kohm

GPI INPUTS
Two GPI inputs select silence or overvoltage or both indications on GPI outputs

GPI OUTPUT LEVELS
Electrically: Open collector transistors 30V, 330 ohm current limit resistors

GPI OUTPUTS
Four GPI outputs indicate silence/overvoltage status per channel

LED INDICATION OF:
Four LEDs (one per channel) to indicate silence/overvoltage status

Two LEDs to indicate power supply status

LOCAL CONTROL
Power rail monitoring, channel gain adjustment, silence threshold, silence time and overvoltage level set by switches at board edge. On the AADA416FR the remote/local selection and unity gain can also be set

On board jumper links enable the AADAs to be matched to different maximum operating levels

Three jumper links can link audio channels together to provide a variety of input/output configurations

REMOTE CONTROL (AADA416FR ONLY)
RS422/485

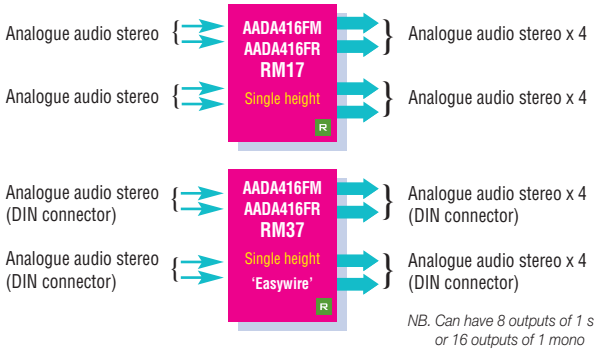
19200 baud, 8 bits, 1 stop no parity

Control from active front panel and remote panel

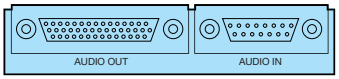
Statesman allows control from any PC on a network

SNMP monitoring and control available as a frame option

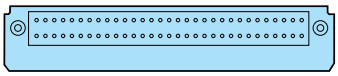
Modes: Manual or remote (selected by switches at board edge). Remote adjustment of audio gain, audio silence duration limit and overvoltage detection level



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



RM17



RM37

ORDERING INFORMATION

AADA416FM	Analogue audio distribution amplifier with manual control
AADA416FR	Analogue audio distribution amplifier with remote or manual control
Indigo 4	4U frame with passive front panel for up to 24 Crystal Vision modules
Indigo 4SE	4U frame with passive front panel fitted with Statesman CPU for up to 24 Crystal Vision modules
Indigo 2	2U frame with passive front panel for up to 12 Crystal Vision modules
Indigo 2AE	2U frame with active front panel for up to 12 Crystal Vision modules
Indigo 2SE	2U frame with passive front panel fitted with Statesman CPU for up to 12 Crystal Vision modules
Indigo 1	1U frame with passive front panel for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1-DP
Indigo 1AE	1U frame with active front panel for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1AE-DP
Indigo 1SE	1U frame with passive front panel fitted with Statesman CPU for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1SE-DP
Indigo DT	Desk top box with passive front panel for up to two Crystal Vision modules
Indigo DTSE	Desk top box with passive front panel fitted with Statesman CPU for up to two Crystal Vision modules
RM17	Single slot frame rear module. Allows maximum number of AADA in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Gives access to all audio inputs and outputs
RM37	Single slot frame rear module with 'easywire' DIN 41612 connector. Allows maximum number of AADA in frame (24 in 4U, 12 in 2U, six in 1U, two in desk top box). Gives access to all audio inputs and outputs
REMIND	19" remote control panel
REMIND-E	19" Ethernet remote control panel
Statesman	PC Control System
SNMP	SNMP monitoring and control

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