IQAVDA Video Distribution Amplifier

Module Description

The IQAVDA-1 and IQAVDA-2 are high quality video distribution amplifier modules for use in broadcast, professional and industrial applications.

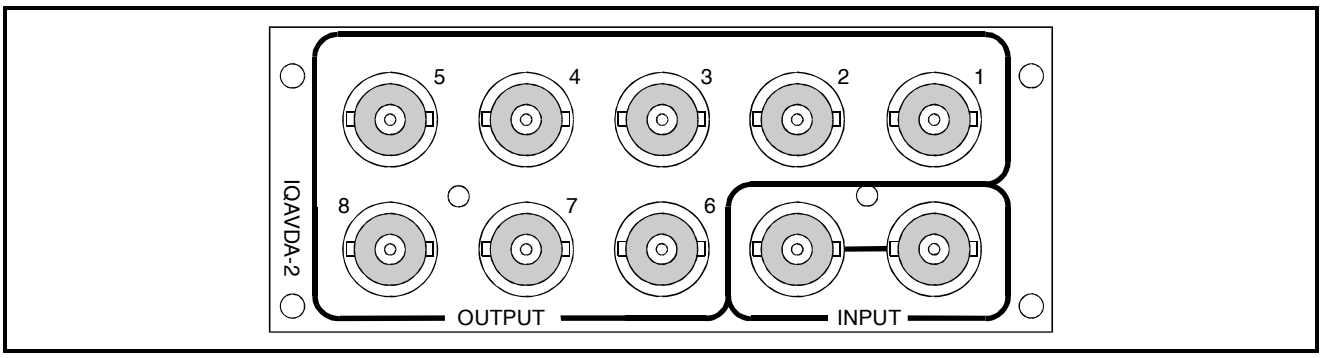
The IQAVDA-1 provides 3 outputs, the IQAVDA-2 provides 8 outputs and both units have gain and cable equalisation adjustments.

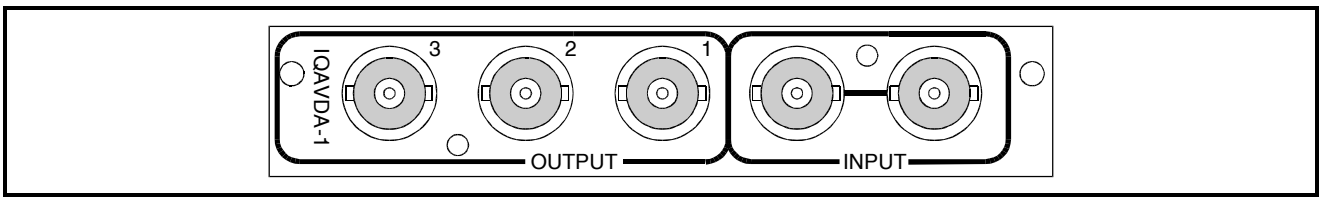
The cable equalisation uses a single control and is able to equalise 100m of RG59 cable to 15 MHz within ±0.1dB.
The loop-through input is isolated from ground (eliminating hum in earth loops) and high input impedance for minimal signal loading.

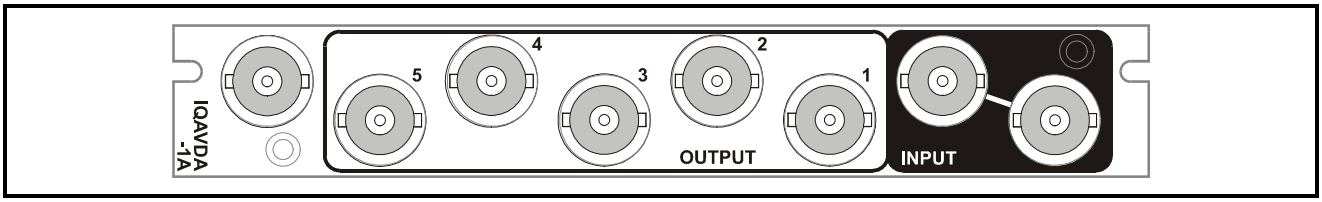
Functional Description

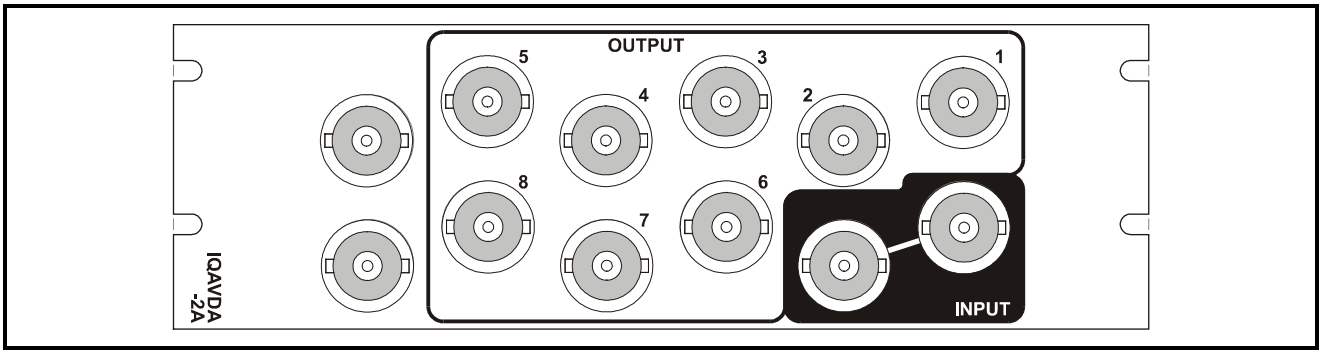
The input stage is a high input impedance differential amplifier I.C. not requiring any adjustment for CMRR.
This is followed by the equaliser stage using a multi-pole R/C network (optimised for coaxial cable) in the feedback path of a high performance I.C.
After passive gain control I.C. amplifiers buffer the signal, each I.C. driving two outputs.
The power supply uses tracking I.C. regulators for the ± supplies that are individually fused on the card.

REAR PANEL VIEWS









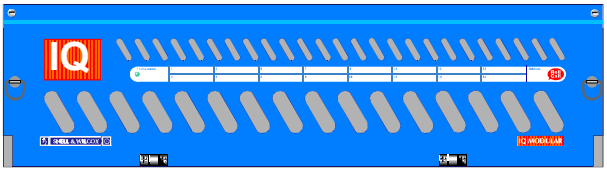
Versions of the module cards available are:

IQAVDA-1	3 output video distribution amplifier with equalisation	Single width module
IQAVDA-1-E1	3 output video distribution amplifier with equalisation for Nokia cable	Single width module
IQAVDA-1A	5 output video distribution amplifier with equalisation	Single width module
IQAVDA-1A-E1	5 output video distribution amplifier with equalisation for Nokia cable	Single width module
IQAVDA-2	8 output video distribution amplifier with equalisation	Double width module
IQAVDA-2-E1	8 output video distribution amplifier with equalisation for Nokia cable	Single width module
IQAVDA-2A	8 output video distribution amplifier with equalisation	Double width module

Note that there are two styles of rear panels available. They are not interchangeable between the two styles of enclosures. However, the cards may be fitted into any style of enclosure.

'A' Style Enclosure

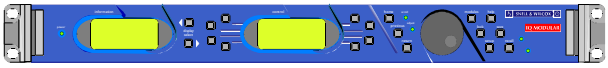
Rear panels ***with*** the suffix A may only be fitted into the 'A' style enclosure shown below.



(Enclosure order codes IQH3A-E-O, IQH3A-E-P, IQH3A-N-O, IQH3A-N-P)

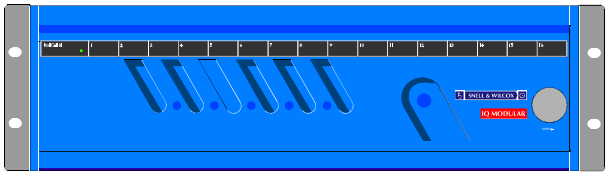
'O' Style Enclosures

Rear panels ***without*** the suffix A may only be fitted into the 'O' style enclosures shown below.



Error! Unknown switch argument.

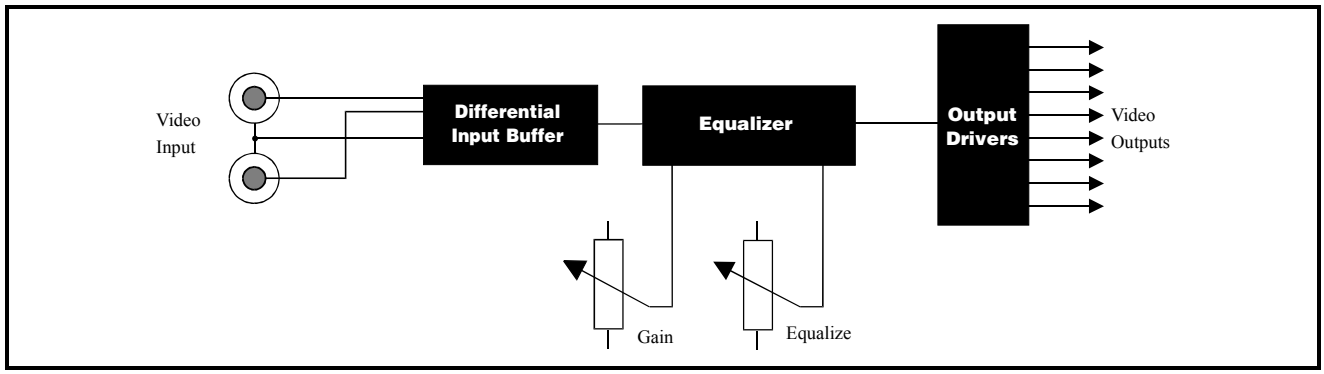
(Enclosure order codes IQH1S-RC-O, IQH1S-RC-AP, IQH1U-RC-O, IQH1U-RC-AP, Kudos Plus Products)



Error! Unknown switch argument.

(Enclosure order codes IQH3N-O, IQH3N-P)

BLOCK DIAGRAM



Features

- Up to 8 high quality outputs on BNC Connectors
- Equalizer, better than ±0.1 dB to 15 MHz with 100 m RG59 cable
- 45MHz frequency response
- High quality, low noise implementation
- Balanced loop-through Input

Technical Profile

Features

Signal Inputs

Video ..... 1 Balanced loop-through

Signal Outputs

Video ..... Up to 8 Unbalanced Outputs

Specifications

Frequency Response..... 15 MHz ±0.1dB

Differential Gain ..... Better than 0.1%

Differential Phase ..... Better than 0.1°

Signal/Noise Ratio ..... Better than 75 dBV rms
(unified weighting filter)

50 Hz tilt K50 Hz ..... Better than 0.5%

Output D.C..... ±45 mV max. ±10 mV typical

Insertion Delay ..... 17 ns

Max. Input Level..... + 6 dB

CMRR ..... Better than 55 dB at 50 Hz
Better than 45 dB at 250 Hz

Input Return Loss..... Better than 50 dB at LF
Better than 40 dB at 5 MHz
Better than 36 dB at 10 MHz

Headroom ..... +6dBV

Output Impedance ..... 75 Ohms ±1%

Output Isolation..... Better than 38 dB to 5 MHz
Better than 36 dB to 10 MHz

Output Return Loss..... Better than 36 dB to 5 MHz
Better than 33 dB at 10 MHz

Gain ..... Unity ±1% as supplied

Power Consumption

Module Power Consumption
3.3W max (-2/2A versions)
2.2W max (-1/1A versions)

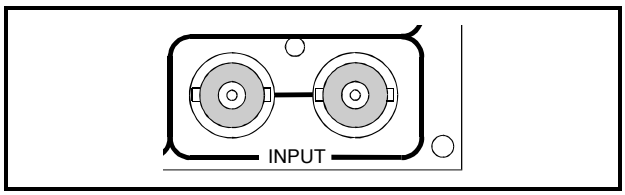
Control Ranges

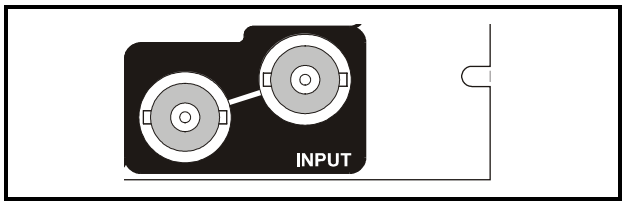
Gain ..... +6 dB to -4 dB typical

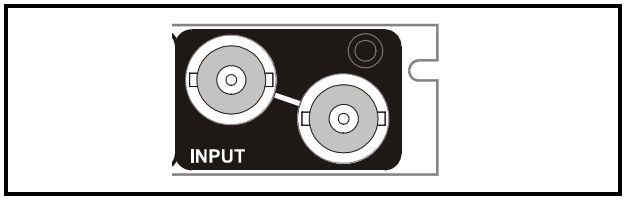
Equalization ..... Equalizes up to 100 m of RG59 to
15 MHz ±0.1 dB

INPUT SIGNAL

This is the video input to the unit via loop-through BNC connectors for 75 ohms. If only one connector is used the other connector should be fitted with a 75 Ohm terminator.



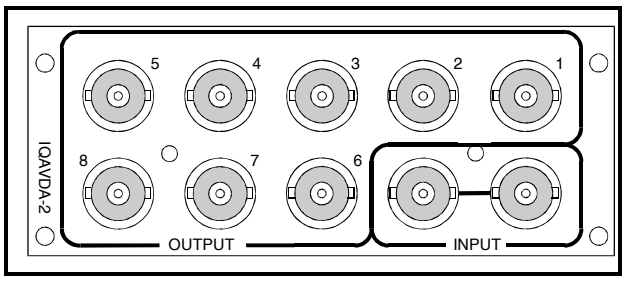


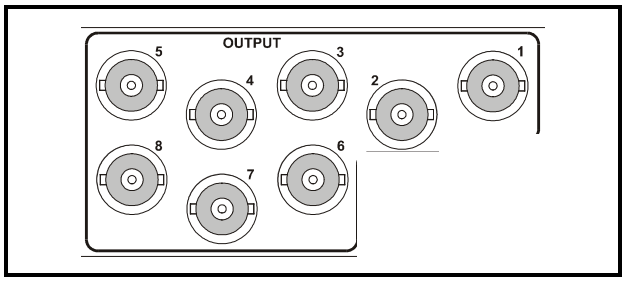


OUTPUT SIGNALS

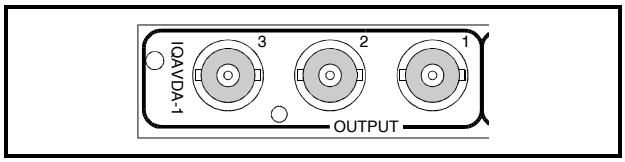
These are the outputs of the unit via BNC connectors for 75 Ohms.

The IQAVDA-2 provides eight isolated outputs.

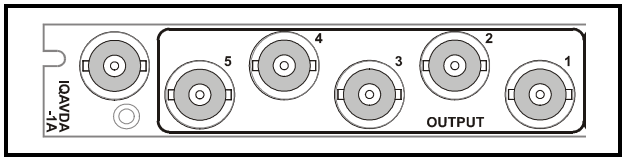




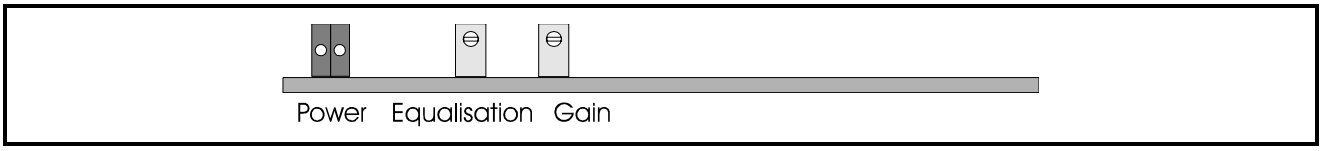
The IQAVDA-1 provides three isolated outputs.



The IQAVDA-1A provides five isolated outputs.



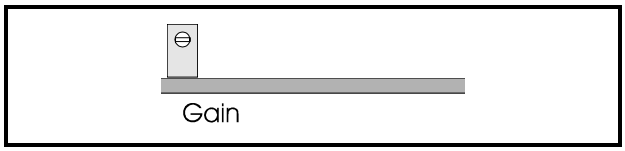
CARD EDGE CONTROLS



The equalisation and gain adjustments are located on the front edge of the card.

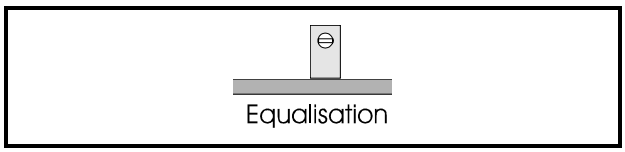
Note that the IQAVDA cannot be remotely controlled.

GAIN



This control adjusts the overall gain of the amplifier. The range of control is +6.4 dB to -4.6 dB and isset by rotating the 10 turn preset locatedon the side of the unit. i.e. a 1 V p-p output signal may be obtained from an input signal level of between approximately 0.48 V p-p and 1.7 V p-p. Clockwise rotation increases the gainand anticlockwise rotation reduces the gain. The setting accuracy is better than 1% and is supplied set to unity gain.

CABLE EQUALISATION

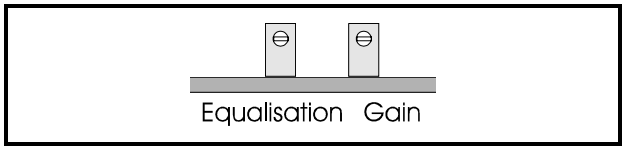


This10 turn preset control adjusts the amount of cable equalisation (or controlled HF lift) that the unit provides. When set at minimum (fully anticlockwise) no lift is provided but as the control is rotated clockwise the amount of lift or equalisation is increased up to a maximum of approximately 10 dB at 10 MHz in the fully clockwise position.The equalisation characteristic has been carefully tailored to allow a standard cable to be corrected with only one control. The unit is supplied adjusted to the `no lift' position.

Setting the Cable Equalisation

Normally the VDA would be installed at the receive end of the cable to be equalised. A video sweep signal covering 0-10 MHz at standard level (1V p-p) should be supplied to the transmit end of the cable and the output of the VDA viewed on a suitable oscilloscope taking care that the loop through input is correctly terminated in 75 Ohms.

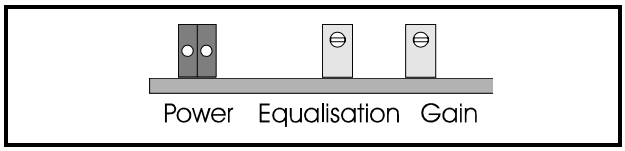
The GAIN control should be adjusted to give a 1 V p-p level at low frequencies and the EQUALISATION control adjusted to give the flattest overall response.



Alternatively a standard Sin^2 Pulse and Bar video test signal at the transmit end could be used and the GAIN control adjusted to give a 1 V p-p bar level at the output. The EQUALISATION control should be used to give best pulse to bar relationship and pulse shape with minimum overshoots.

LED INDICATORS

The left hand LED (D3) indicates that the internal +6V supply is present and the righthand LED (D10) indicates that the -6V supply is present. Both indicators are green types.



Manual Revision Record

Date	Version No.	Issue No.	Change	Comments
110595	1	1		First Issue
060597	2	1	Word version created	
141197	2	2	Section number corrected to 2	New manual issued
150402	2	3	Now includes information for the 3A enclosure modules	New manual issued
310303	2	4	Power consumption added to techspec	New manual issued