

Reference Manual

D VA 5718 L

1>8 Analog Video Distribution Amplifier with passive loop out

D VA 5724

Dual 1>4 Analog Video Distribution Amplifier

**Revision 1.0
September 2011**

This Manual Supports Device Revisions:	
D VA Firmware Revision	454
Control System GUI Release	5.0.4

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Warranty

LYNX Technik AG warrants that the product will be free from defects in materials and workmanship for a period of three (3) years from the date of shipment. If this product proves defective during the warranty period, LYNX Technik AG at its option will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, customer must notify LYNX Technik of the defect before expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by LYNX Technik, with shipping charges prepaid. LYNX Technik shall pay for the return of the product to the customer if the shipment is within the country which the LYNX Technik service center is located. Customer shall be responsible for payment of all shipping charges, duties, taxes and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure, or damage caused by improper use or improper or inadequate maintenance and care. LYNX Technik shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than LYNX Technik representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of non LYNX Technik supplies; or d) to service a product which has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty servicing the product.

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Regulatory information

Europe

Declaration of Conformity

<i>We</i>	LYNX Technik AG Brunnenweg 3 D-64331 Weiterstadt Germany
	<i>Declare under our sole responsibility that the product</i>
	TYPE: D VA 5718; D VA 5724
	<i>To which this declaration relates is in conformity with the following standards (environments E1-E3):</i>
	EN 55103-1 /1996
	EN 55103-2 /1996
	EN 60950-1 /2006
	<i>Following the provisions of 89/336/EEC and 73/23/EEC directives.</i>
	Winfried Deckelmann
Weiterstadt, September 2011	
<i>Place and date of issue</i>	<i>Legal Signature</i>

USA

FCC 47 Part 15

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense

Getting Started

Most CardModules are installed into the rack frames and system tested in the factory. If this is an upgrade part, or service exchange item then the module is supplied in a padded cardboard carton which includes the CardModule, rear connection plate and mounting screws.

Packaging

The shipping carton and packaging materials provide protection for the module during transit. Please retain the shipping cartons in case subsequent shipping of the product becomes necessary. Do not remove the module from its protective static bag unless observing adequate ESD precautions. Please see below.

ESD Warning



This product is static sensitive. Please use caution and use preventative measures to prevent static discharge or damage could result to module.

Preventing ESD Damage

Electrostatic discharge (ESD) damage occurs when electronic assemblies or the components are improperly handled and can result in complete or intermittent failure.

Do not handle the module unless using an ESD-preventative wrist strap and ensure that it makes good skin contact. Connect the strap to any solid grounding source such as any exposed metal on the rack chassis or any other unpainted metal surface.

Caution

Periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 Megohms.

Product Description

The D VA 5718 and D VA 5724 are high quality analog video distribution amplifiers designed primarily for broadcast and professional applications.

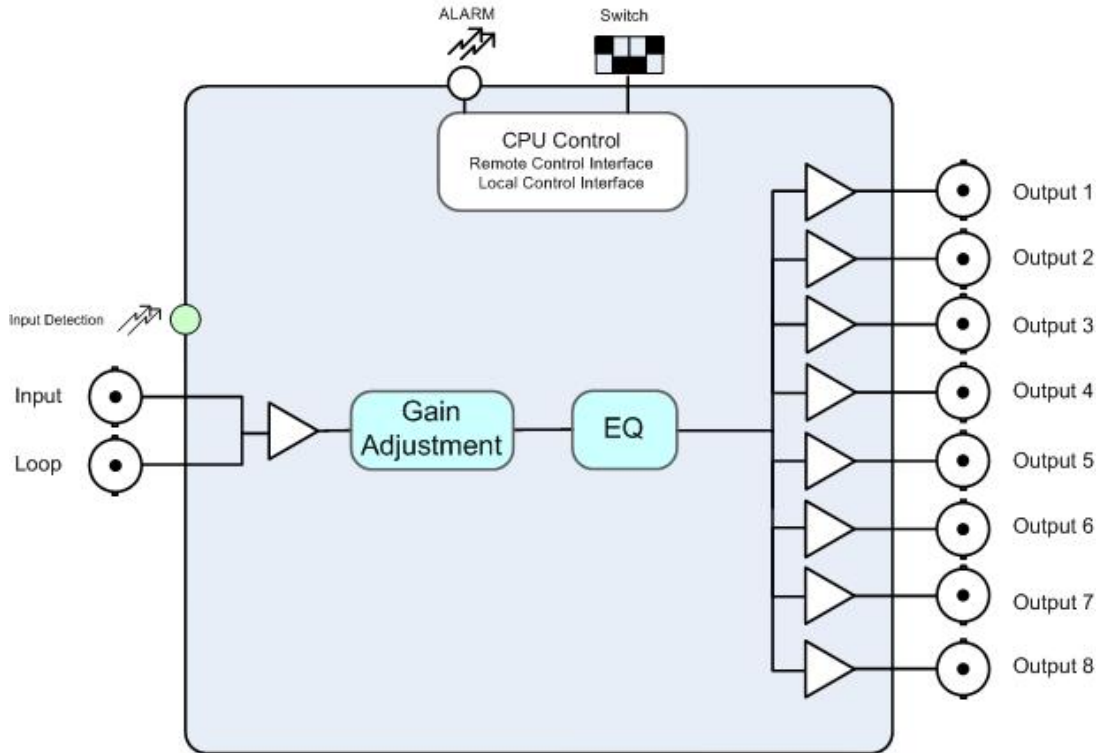
The D VA 5718 has one input with a passive looped output and 8 active outputs which can be adjusted for Gain and EQ.

The D VA 5724 has two inputs and 4 active outputs per input channel. The two channels can be adjusted for gain and EQ independently

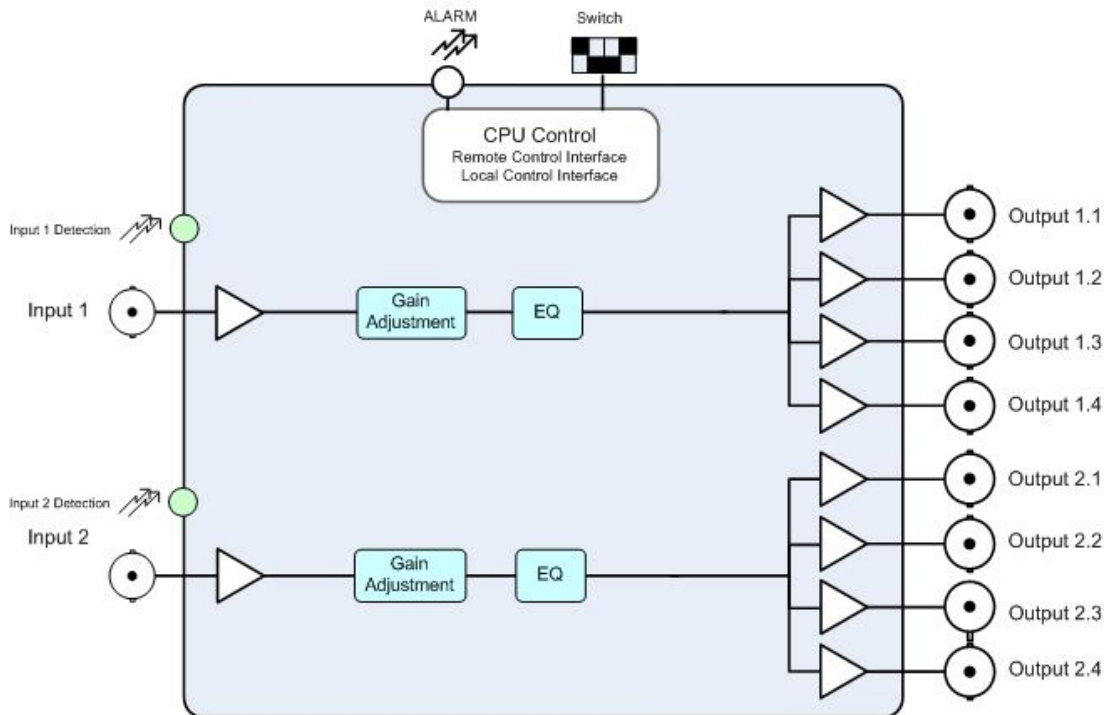
The D VA 5718 and D VA 5724 are part of the 5000 series of CardModules, which offer high quality, modularity and flexibility in a small form factor ideal for applications where space is at a premium.

Functional Diagram

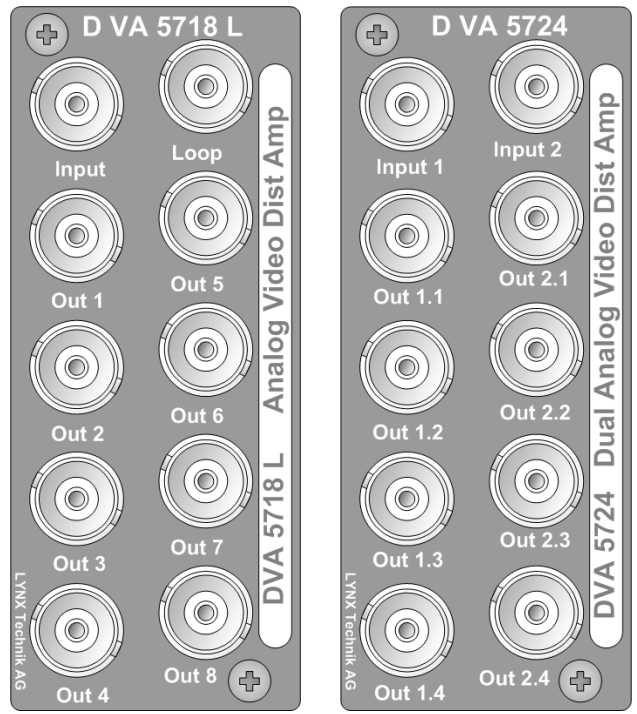
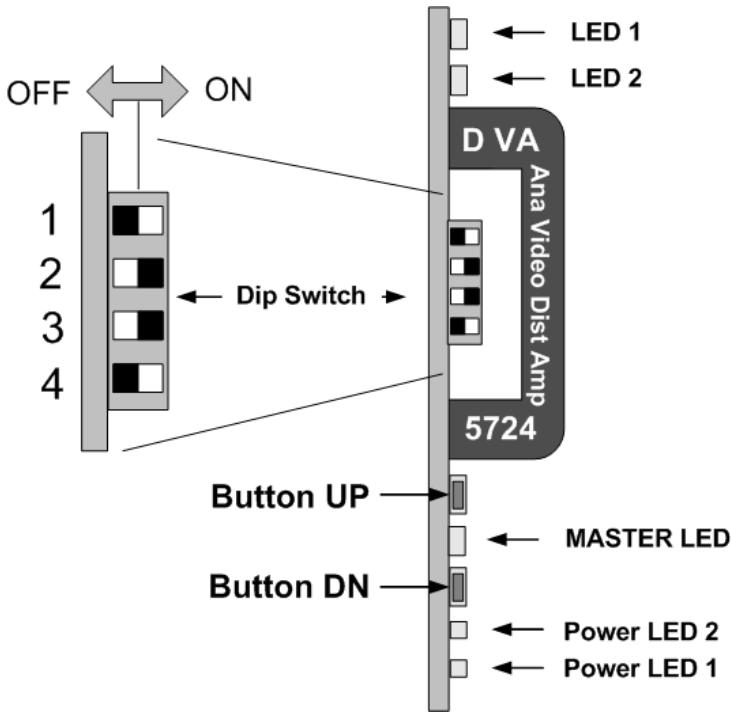
D VA 5718-L – SD/HD Analog Video Distribution Amplifier



D VA 5724 – HD/SD Dual Analog Video Distribution Amplifier



Module Layout



Module Front
(D VA 5724 shown)

Termination Panels



CardModule

Connections

Video

The D VA 5718 and D VA 5724 uses standard 75 Ohm BNC connectors. We recommend the use of high quality video cable to reduce the risk of errors due to excessive cable attenuation.

Note. *Due to the compact design of the connection plate it will be necessary to use a connection tool to secure the BNC video connectors.*

Installation

If this module was supplied as part of a system it is already installed in the rack enclosure. If the module was supplied as a field upgrade please follow the installation procedure below.



NOTE *Observe static precautions when handling card. Please see ESD warnings on Page 5.*

Each Card Module is supplied with a rear connection panel and two mounting screws. Please follow the following procedure for installation of the card module into the Series 5000 Card Frame.

1. Select a slot in the card frame where the CardModule will be located.
2. Remove the blank connection panel from the rear of the rack (if fitted)
3. Install the rear connection panel using the screws supplied. Do not tighten the screws fully
4. Slide the card module into the card frame and carefully check the CardModule connects to the rear connection plate. The card should fit easily and should not require excessive force to insert, if you feel any resistance, there could be something wrong with the rear connection panel location. Do not try and force the connection this may damage the connectors. Remove the rear connection panel and check alignment with the CardModule.
5. Insert and remove the CardModule a few times to ensure correct alignment and then tighten the two screws to secure the rear connection plate.

Settings and Control

The D VA 5718 and D VA 5724 has an integrated micro-controller, which enables the module to be configured and controlled locally via the dip-switch or from remote when using one of the optional controllers and control software.

Once set, all settings are automatically saved in non-volatile internal memory. (Flash ram) The module will always recall the settings used prior to power down.

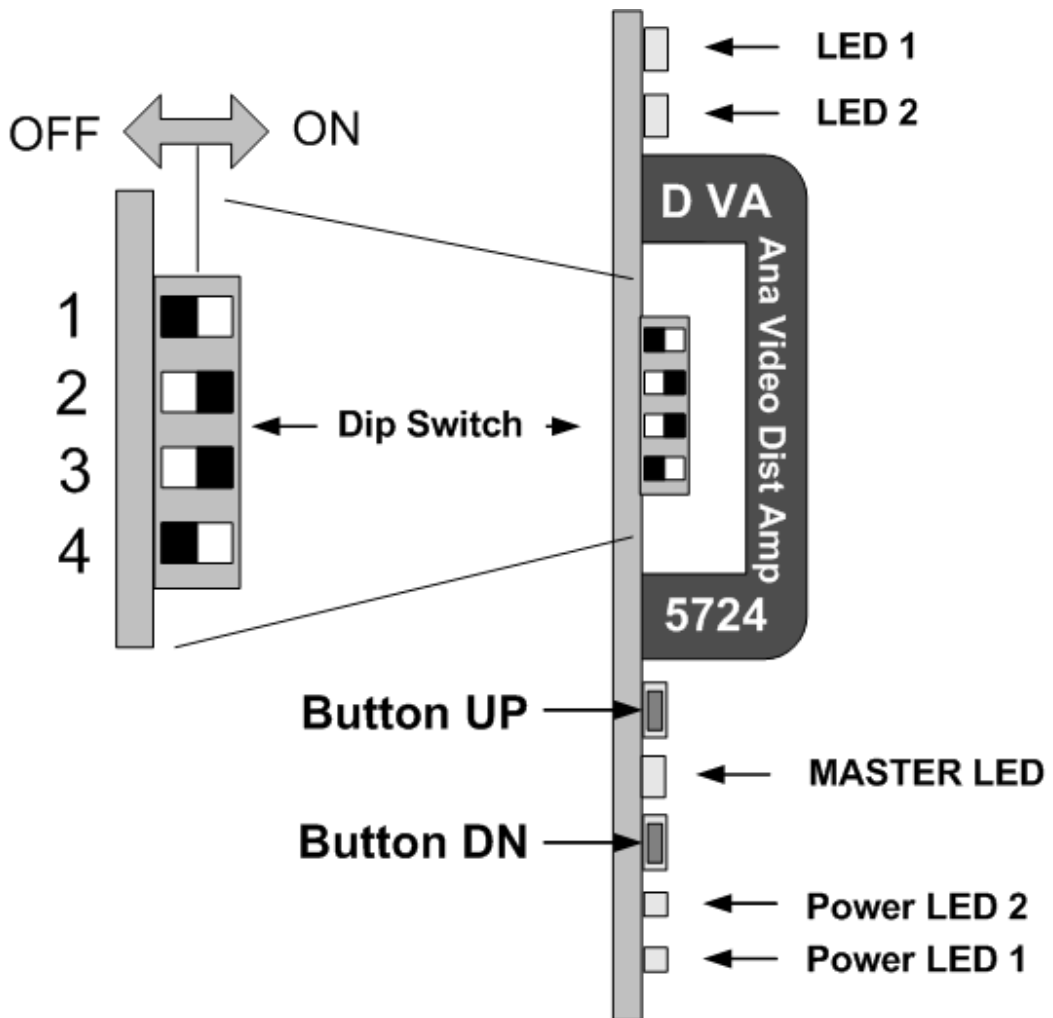


Figure 3 – Switch and LED locations (D VA 5724 shown)

Switch Settings

Below the switch settings for the 4-position dip-switch are defined.

Note: Dip-Switch # 4 only used for D VA 5724

Switch	Setting	Function
1	ON	Enable Local Adjustment
	OFF	Disable Local Adjustment
2	ON	Gain adjustment selected
	OFF	Equalizer adjustment selected
3	ON	Unity selected
	OFF	Unity not selected
4	ON	Channel 1 selected
	OFF	Channel 2 selected

Switch Function Detail

Dip Switch 1

This switch is used to enable or disable local adjustments. Set to **ON** enables the setting of the other dip switches to configure the module. Set to **OFF** will prevent any switch settings taking effect.

Note. The module has a microcontroller and flash ram. When this switch 1 is set to **ON** any configuration settings made on the module with the dip switches will automatically be written into flash ram and stored. (see Auto Store) The module will function normally with the switch left in the **ON** position but it is recommended to set it to **OFF** to prevent accidental changes to the stored module configuration if the switches are moved.

Dip Switch 2

This switch selects the parameter for adjustment using the module push buttons. **ON** selects gain, **OFF** selects equalization.

Dip Switch 3

This switch sets unity gain / equalization for the module. **ON** selects unity, **OFF** allows for adjustment.

Dip Switch 4 (D VA 5724 only)

This switch selects the channel for adjustment. **ON** selects channel 1, **OFF** selects channel 2.

Factory Preset Condition

The module is delivered programmed and preset for the following mode of operation:

Switch 1 **ON** Local Adjustment Enabled
 Switch 2 **ON** Gain Adjustment selected
 Switch 3 **ON** Unity selected
 Switch 4 **OFF** Channel 1 selected (D VA 5724 only)

If this is the mode of operation required, then no adjustments are necessary.

Auto Store

If no parameters are changed for 10 seconds then the current settings will be written into flash memory automatically, this can be seen by the channel status LEDS flashing yellow four times.




Alarm/LED Status Indicators

The D VA 5718 and D VA 5724 modules have integral LED indicators, which serve as alarm and status indication for the modules. Function is described below.




Channel Condition Indicators

Status LEDs are provided on the top edge of the module (figure 3)

LED 1 (input Channel 1)




LED Color	Indication
Green 	Input Present
Red 	Input missing
Yellow Flash 1 x 	Channel 1 selected (Dip Switch #4)

LED 2 (input Channel 2) – D VA 5724 only

LED Color	Indication
Green 	Input Present
Red 	Input missing
Yellow Flash 1 x 	Channel 2 selected (Dip Switch #4)

Alarm Indicator


There is also a single alarm LED on the lower edge of the module (figure 3). This is visible through the card frame front cover and provides a general indication of the module status.


LED Color	Indication
Green 	All Input Signals Present
Yellow 	One signal present, one signal missing (D VA 5724 only)
Red 	Input signals missing

LED **OFF** indicates power is lost, or there is a power supply fault.

Power Indication

There are two LEDs on the lower edge of the module (figure 3) indicating the presence of the two power supply voltages (main power supply and redundant power supply).

LED 1	Indication
Green 	Power from Main PSU ok
off	No power from Main Power Supply

LED 2	Indication
Green 	Power from Redundant PSU ok
off	No power from Redundant PSU

Adjustment Procedures

The modules gain/EQ settings are set using combinations of the Dip Switch and the up-down push buttons located on the module edge (figure 3).

Setting functionality and calibration is interactive and not an implicit switch setting process. The adjustments are made through embedded micro-controller and settings stored on internal flash ram. To simplify the configuration and setting of the module a series of procedures has been defined to make setting the module easier. These are:

- Set Video Gain
- Set Equalization
- Set Unity Gain
- Set Unity Equalization

These procedures capture most things you would need to change or set on the module.

Set Video Gain

Use this procedure to set the video gain of the module.

1. Set Switch 2 [Gain / Equalization select] to **ON**
2. Set Switch 3 [Set Unity] to **OFF**
3. Set switch 4 [select input channel] to select the channel to be adjusted **ON** for IN 1 and **OFF** for IN 2 (respective LED will flash yellow once indicating selected channel) – only used in D VA 5724
4. Press the push buttons either UP or DN to make the necessary gain adjustment for the selected channel.
5. If 10 seconds pass with no further adjustments being made both channel status LEDs will flash yellow four times. This confirms settings have been written into flash ram and stored.

Set Equalization

Use this procedure to set the cable equalization for the module

1. Set Switch 2 [Gain / Equalization select] to **OFF**
2. Set Switch 3 [Set Unity] to **OFF**
3. Set switch 4 [select input channel] to select the channel to be adjusted **ON** for IN 1 and **OFF** for IN 2 (respective LED will flash yellow once indicating selected channel) – only used in D VA 5724
4. Press the push button either UP or DN to make the necessary equalization adjustment for the selected channel.
5. If 10 seconds pass with no further adjustments being made both channel status LEDs will flash yellow four times. This confirms settings have been written into flash ram and stored.

Set Unity Gain

Use the following procedure to set unity gain for the module

1. Set Switch 2 [Gain / Equalization select] to **ON**
2. Set Switch 3 [Set Unity] to **ON**
3. Set switch 4 [Select input channel] to select the channel to be adjusted to unity **ON** for IN 1 and **OFF** for IN 2 (respective LED will flash yellow once indicating selected channel) – only used in D VA 5724
4. Press the push button either UP or DN once to set unity gain for the selected channel.
5. If 10 seconds pass with no further adjustments being made both channel status LEDs will flash yellow four times. This confirms settings have been written into flash ram and stored.

Set Unity Equalization

Use the following procedure to set unity equalization.

1. Set Switch 2 [Gain / Equalization select] to OFF
2. Set Switch 3 [Set Unity] to ON
3. Set switch 4 [Select input channel] to select the channel to be adjusted to unity ON for IN 1 and OFF for IN 2* (respective LED will flash yellow once indicating selected channel) – only used in D VA 5724
4. Press the push button either UP or DN once to set unity equalization for the selected channel
5. If 10 seconds pass with no further adjustments being made both channel status LEDs will flash yellow four times. This confirms settings have been written into flash ram and stored.

Auto Store

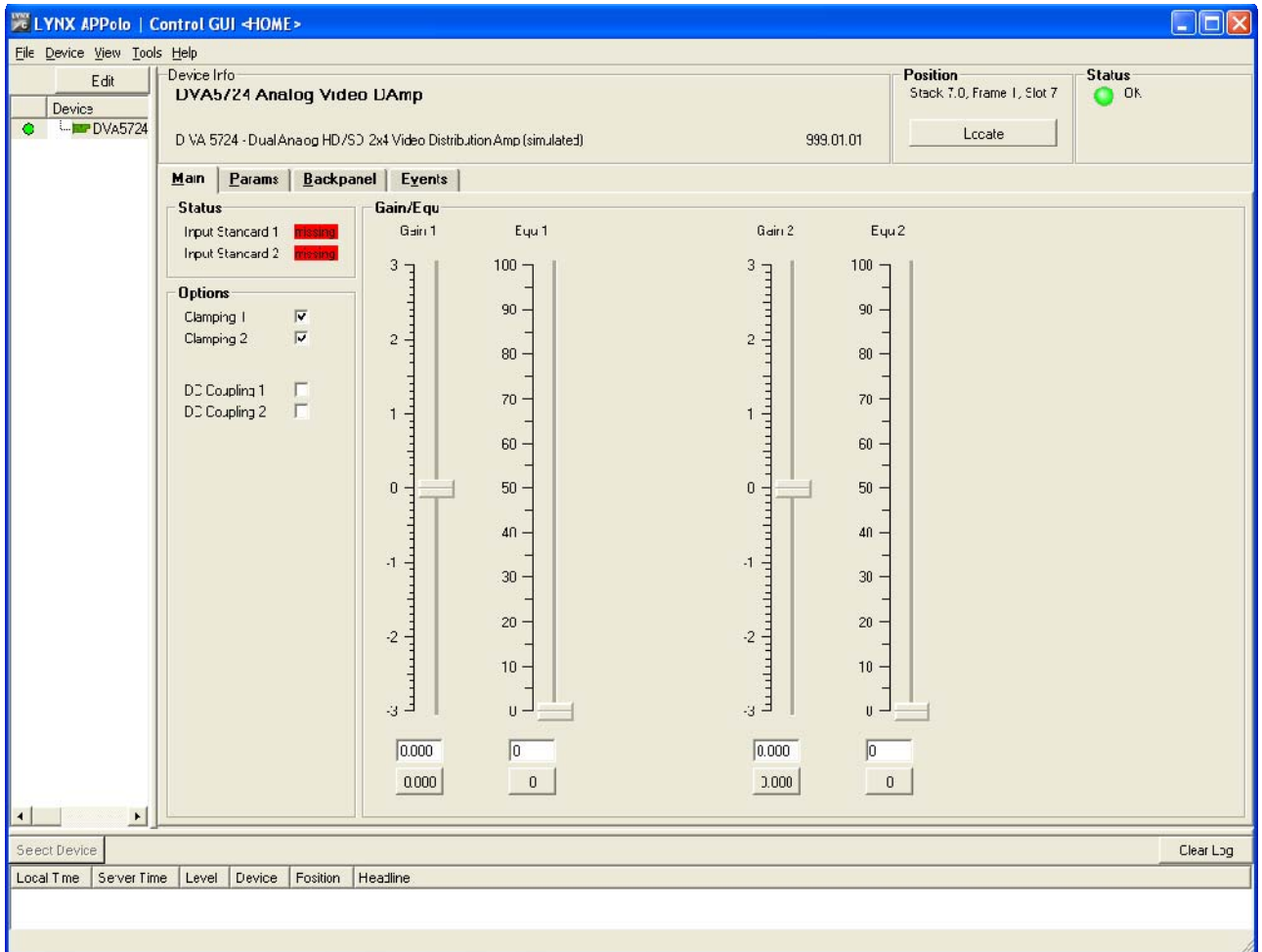
If no parameters are changed for 10 seconds then the current settings will be written into flash memory automatically, this can be seen by the channel condition LEDs flashing yellow four times.

Control System GUI

When using the module in a system with the optional LYNX control system all module settings are available on an intuitive Windows GUI interface.

Any settings made using the control system will override any settings made locally. All settings are stored automatically in the module flash RAM.

Screenshots below show the D VA 5724 module, the D VA 5718 looks similar, just showing one channel.



The above screenshot shows the complete module GUI. The Device info area contains information about the module including name and firmware revision. If used as part of a larger system (using the LYNX central control system) the modules position and physical location is displayed above the "locate" button.

Note. The Locate function is a tool used to quickly identify a module in larger systems. Selecting "locate" will flash the module alarm LED yellow. (This does not effect module operation)

The first screen displayed when the module is selected is the **Main Tab** this is a graphical representation of the modules overall function and signal flow (left to right).

The area at the bottom of the screen is the error log. Any fault condition (or event) will be time stamped and entered into the log.

There are a number of “Tabs” along the top of the screen which splits up the module settings into a number of logical displays. The various GUI screens and primary functions are described below.

Main Tab

This screen is the main interface and is presented first when the module is displayed in the GUI.

The screenshot displays the 'Main Tab' of the DVA5724 Analog Video DAmP GUI. At the top, there is a header bar with 'Device Info' (DVA5724 Analog Video DAmP), 'Position' (Stack 7.0, Frame 1, Slot 7), and 'Status' (a green light and 'OK'). Below this, a 'Locate' button is visible. The main area is divided into several sections: 'Main', 'Params', 'Backpanel', and 'Events' tabs. The 'Main' tab is active, showing a 'Status' section with 'Input Standard 1' and 'Input Standard 2' both marked as 'missing' in red. Below this is an 'Options' section with four checkboxes: 'Clamping 1' and 'Clamping 2' are checked, while 'DC Coupling 1' and 'DC Coupling 2' are unchecked. The central part of the screen is titled 'Gain/Equ' and contains four vertical sliders: 'Gain 1', 'Equ 1', 'Gain 2', and 'Equ 2'. Each slider has a numerical scale and a corresponding text input field below it. The 'Gain' sliders range from -3 to 3, and the 'Equ' sliders range from 0 to 100. The current values are 0.000 for Gain 1 and 0 for Equ 1. Below the sliders are 'ZERO' buttons for each, labeled '0.000' for Gain and '0' for Equ.

Status: The input detection indicates if the analog video standard of a connected signal is SDTV or HDTV. If no signal is detected the color of the input detection will turn red.

Options:

The two top check boxes enable or disable the input clamping of the respective input.

The two lower checkboxes enable DC coupling, if deactivated AC coupling is active.

Gain/Equ:

The sliders provide adjustment for Gain and Cable Equalization for each channel. The values can also be entered through the text fields below the sliders.

Clicking on the ZERO buttons (“0.000” for Gain or “0” for Equ) stets the sliders back to Unity (zero)

Events Tab

The Events Tab is where the module alarming and error notifications are configured for the module.

Main				Params				Backpanel				Events			
<p>Activate or deactivate event notifications by clicking the "event enable" boxes.</p> <p>Enable and disable entry into the logfile for status changes of any event to active ("ON") or to inactive ("OFF") by selecting the respective "log in GUI" boxes.</p>															
event enabled				log in GUI		SNMP Trap									
				<i>(on/off)</i>		<i>(on/off)</i>									
<input checked="" type="checkbox"/>		PSU1: Failure		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>		PSU2: Failure		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>		Video Input 1: No Input		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>		Video Input 2: No Input		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The GUI has an integrated error log, which is a simple text log file stored in the controller PC. This will record an event and timestamp it. The log can be seen at the bottom of the GUI screen and can be scrolled through using the scrolling bar.

Log in GUI Function

Events are selectable, you can choose if you want to record a particular event in the log (or not) or configure it to only record one side of the event. (*For example you might want to log when a SDI input was removed but do not want to log when it came back*). The ON/OFF trigger can be configured for each of the available events shown in the list and is setup using the checkboxes provided.

Event Enabled

By default all alarm conditions are activated (checked), by de-selecting a specific alarm condition in this column you are telling the module to ignore this condition completely. It will not color the Alarm LED, log and event in the GUI or send a SNMP trap. This is useful if for example you never have anything connected to input 2 and want the card to ignore this input condition completely you would simply de-select "SDI Input 2 No Input" and it will be ignored.

SNMP Support

If the system is using a RCT 5031 Master Controller and the SNMP option is installed then the "SNMP Trap" columns become available.

Here you can configure what events you would like to transmit a "SNMP trap" for over the network. (This has no impact or influence over the internally error log maintained by the LYNX control system)

(Internal LYNX error logging and external SNMP traps can be configured independently).

Note. *The simulated event is part of the GUI simulator and allows us to force a particular error condition for testing and demonstration purposes.*

Note. *"simulate event" is only present if simulation mode is activated. This is not available for real modules*

Specifications

Inputs

Signal	D VA 5724: 2 x analog video, 75 Ohm D VA 5718: 1 x analog video with passive looped output Sync Signal can be SDTV bi-Level (black burst) or HDTV Tri-Level
Input Impedance	75 Ohm
Input level (max)	2V p-p
Return loss	> 25dB to 10MHz
Common Mode Rejection	> 65dB to 10KHz
Connection	BNC, 75 Ohm

Outputs

Signal	D VA 5724: 2 x 4 analog video return loss 46,5 dB to 10 MHz D VA 5718: 8 x analog video return loss 46,5 dB to 10 MHz
Phase match	< 0.1° at 4.43 MHz
Response Variation	< 0.15dB to 8 loads
Connection	BNC, 75 Ohm

Performance

Frequency Response	+/- 0.1dB to 30 MHz, -3dB at 66 MHz
Differential Gain	<0.20%
Differential Phase	<0.15°
Hor./Vert. tilt	< 0.5%
Signal to noise ratio	>68 dB to 17MHz (RMS noise/700mV, unweighted)
Hum	< 0.5 mV
Gain	-3 dB / +3 dB in 256 increments
Cable Equalization	Up to 200m using Belden 8281
Control	Local settings (dip switch).
Status Monitoring (LED)	Signal presence and alarm

Electrical Specifications

Operating Voltage	+ 5VDC
Power Consumption	4 VA
Connection	DC input via 5 pin locking bayonet connector
Safety	IEC 60950/ EN 60950/VDE 0805

Mechanical

Size	283mm x 78mm
Weight	Card module 120g, connection panel 70g

Ambient

Temperature	5°C to 40°C Maintaining specifications -20°C to +70°C Storage
Humidity	Max 90% non condensing

Supplied Accessories

Documentation	Reference Manual CD
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Service

Parts List

Due to the very dense design and high level of integration there the module is not user serviceable. Please contact LYNX for repairs or to request an exchange unit.

Technical Support

If you are experiencing problems, or have questions please contact your local distributor for further assistance.

Technical support is also available from our website.

Please do not return products to LYNX without an RMA. Please contact your authorized dealer or reseller for more details.

More detailed product information and product updates may be available on our web site:

www.lynx-technik.com

Contact Information

Please contact your local distributor; this is your local and fastest method for obtaining support and sales information.

LYNX Technik can be contacted directly using the information below.

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Broadcast Television Equipment