



MANUAL PART NUMBER: 400-0108-002
PRODUCT REVISION: 1

DA1909

**COMPUTER VIDEO LINE DRIVER
WITH EQUALIZATION
USER'S GUIDE**

ALTIMEX

SIGNAL
MANAGEMENT
SOLUTIONS

INTRODUCTION

Altinex appreciates your purchase of the **DA1909** Line Driver. We are sure you will find it a reliable and useful product.

Superior performance for the right price backed by solid technical and customer support is what we have to offer.

The product you are holding in your hands is designed using state-of-the-art technology and is superior to anything available on the market. You will find this and our other products reliable, long lasting, and simple to operate.

We are committed to providing our customers with solutions to the most demanding audio-visual installations at very competitive pricing.

We appreciate your selection of our products and are confident that you will join the ranks of our many satisfied customers throughout the world.

This manual covers:

DA1909 – Line Driver with Equalization

TABLE OF CONTENTS

	Page
PRECAUTIONS / SAFETY WARNINGS	2
GENERAL	2
RACK MOUNT SAFETY GUIDELINES	2
INSTALLATION	2
CLEANING	2
FCC / CE NOTICE	2
ABOUT YOUR SYNC STABILIZER.....	3
TECHNICAL SPECIFICATION	3
DA1909 DESCRIPTION	4
VIDEO INPUT (BNC CONNECTORS)	4
VIDEO OUTPUT (15-PIN HD CONNECTOR)	4
POWER INPUT CONNECTOR	4
BANDWIDTH	4
APPLICATION DIAGRAM	5
INSTALLING YOUR LINE DRIVER	6
OPERATION	6
CONTROLS	6
SIGNAL PRESENT/POWER ON	6
VIDEO EQUALIZER.....	6
ACCESSORIES.....	7
FREQUENTLY ASKED QUESTIONS.....	7
TROUBLESHOOTING GUIDE	8
ALTINEX POLICY	8
LIMITED WARRANTY.....	8
RETURN POLICY	8
CONTACT INFORMATION	8

PRECAUTIONS / SAFETY WARNINGS 1

Please read this manual carefully before using your **DA1909**. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **DA1909** and to prevent fire and shock hazard. Please read them carefully and heed all warnings.

1.1 GENERAL

- Unauthorized personnel shall not open the unit to avoid causing any electrical or mechanical damage.
- Qualified Altinex service personnel, or their authorized representatives must perform all service.

1.2 SAFETY GUIDELINES FOR THE RACK-MOUNTING OF THE DA1909

- Maximum operating ambient temperature is 45 (degrees C).
- Never restrict the airflow through the devices' fan or vents.
- When installing equipment into a rack, distribute the units evenly. Otherwise, hazardous conditions may be created by an uneven weight distribution.
- Connect the unit to a properly rated supply circuit.
- Reliable Earthing (Grounding) of Rack-Mounted Equipment should be maintained.

1.3 INSTALLATION

- For best results, place the **DA1909** on a flat, level surface in a dry area away from dust and moisture.
- To prevent fire or shock, do not expose this unit to rain or moisture. Do not place the **DA1909** in direct sunlight, near heaters or heat radiating appliances, or near any liquid. Exposure to direct sunlight, smoke, or steam can harm internal components.
- Handle the **DA1909** carefully. Dropping or jarring can damage internal components.

- Do not place heavy objects on top of the **DA1909**.
- To turn off the power, disconnect the DC plug from the **DA1909**. The power outlet socket should be installed as near to the equipment as possible, and should be easily accessible in order to plug into the AC/DC adapter.
- Do not pull the adapter or any cable that is attached to the **DA1909**.
- If the **DA1909** is not used for an extended period, disconnect the AC/DC adapter from the power outlet.

1.4 CLEANING

- Unplug the **DA1909** AC/DC adapter before cleaning. Clean surfaces with a dry cloth. Never use strong detergents or solvents, such as alcohol or thinner. Do not use a wet cloth or water to clean the unit.

1.5 FCC / CE NOTICE

- 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.
- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to 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.
- Any changes or modifications to the unit not expressly approved by Altinex, Inc. could void the user's authority to operate the equipment.

ABOUT YOUR LINE DRIVER 2

The **DA1909** is a multi-purpose ground loop isolator and a line driver with a video equalizer designed as a high quality video interface. The **DA1909** allows the connection of RGBHV, RGBS, and RGSB signals to any projector, monitor, or display.

Ground Loop Isolator

In an audio/visual system, when different pieces of equipment operating from different power sources are connected, a ground loop can potentially occur. This ground loop usually causes a hum bar to roll from top to bottom over a display image. Severe ground loops can cause damage to equipment. Operating as a ground loop isolator, the **DA1909** can be installed between the equipment to eliminate a ground loop problem. The common mode range of the **DA1909** is +/-1V with a video signal of 1V p-p.

Video Equalizer

The **DA1909** has sixteen position binary switches for each video channel, which allow the equalization of video signals according to cable lengths. The equalization process compensates for video signal distortion after long cables are passed through.

TECHNICAL SPECIFICATION 3

FEATURES/DESCRIPTION	DA1909
GENERAL	
Inputs	
Input Connector	5 BNC
Outputs	
RGBHV	1 (HD-F, 15-pin)

Table 1. **DA1909** General

MECHANICAL	DA1909
Material	0.1" AL
Finish	Gray
Height (inches)	0.96in (22mm)
Width (inches)	3.9in (98mm)
Length (inches)	5.1in (131mm)
Weight (pounds)	1.2lbs (55kg)
Ship Weight (pounds)	1.2lbs (55kg)

T° Operating	10°C – 35°C
T° Maximum	50°C
Humidity	90%non-condensing
MTBF (calculations)	43,000hrs. (min)

Table 2. **DA1909** Mechanical

ELECTRICAL	DA1909
Input Video Signals	
RGB Analog Signal Amplitude	0.3V to 1.2V p-p
Input Impedance	75 Ohms
Input Type	Loop isolation, differential
Input Sync Signals	
Amplitude Level	0.3V - 5.5V
H. Sync Width	0.5us - 5us
V. Sync Width	7us – 220us
Output Video Signals	
RGB Output Amplitude	1.2V p-p
Output Video Impedance	75 Ohms
Output Sync Signals	
Amplitude Level	4.5 ± 0.5V
H. Sync Width	0.5us – 7us
V. Sync Width	7us – 220us
Frequency Compatibility	
Horizontal	15-130 kHz
Vertical	25 – 180 Hz
Typical Video Bandwidth	350 MHz
Power	
Power Consumption	2.5 watts max

Table 3. **DA1909** Electrical

DA1909 DESCRIPTION

4

4.1 VIDEO INPUT (BNC CONNECTORS)

The input on the left panel of the **DA1909** allows the connection of a computer to the Line Driver using an Altinex high quality VGA cable.

INPUT SIGNAL ON BNC CONNECTORS	
1	Red Video
2	Green Video
3	Blue Video
4	Horizontal Sync/Composite Sync
5	Vertical Sync

Table 4. Video Input

4.2 VIDEO OUTPUT (15-PIN HD CONNECTOR)

The output on the right panel of the **DA1909** allows a connection to different types of projectors or monitors using Altinex cables (see Accessories - Section 8).

PIN No.	OUTPUT SIGNAL ON 15-PIN HD FEMALE CONNECTOR
1	Red Video
2	Green Video
3	Blue Video
4	Not Used
5	Not Used
6	Red Signal Return
7	Green Signal Return
8	Blue Signal Return
9	Not Used
10	Sync Signal Return
11	Not Used
12	Not Used
13	Horizontal Sync
14	Vertical Sync
15	Not Used

Table 5. Video Output

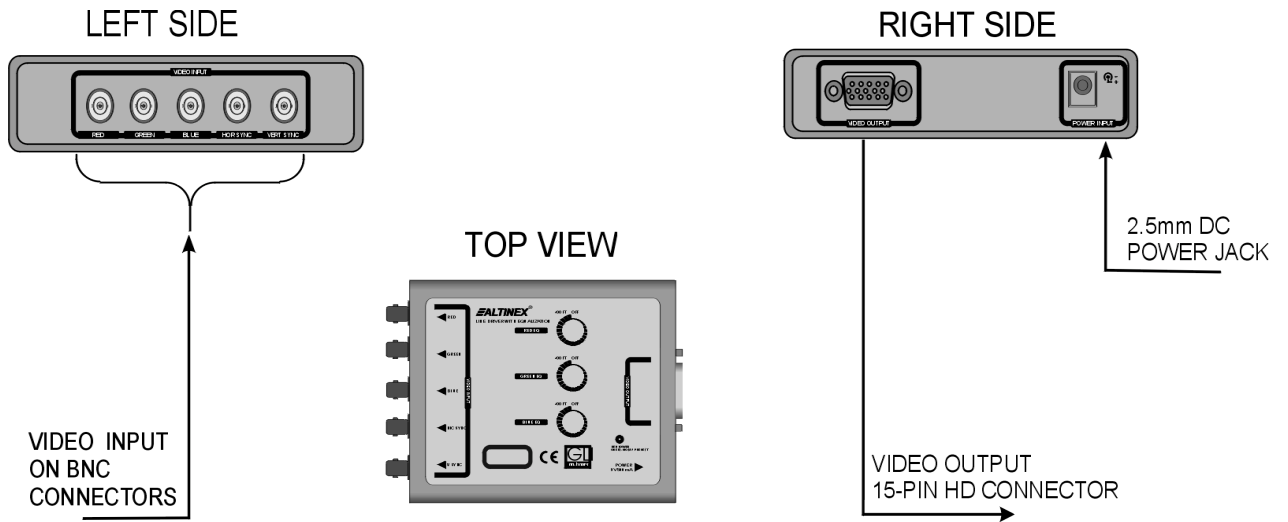
4.3 POWER INPUT CONNECTOR

The **DA1909** has a 2.5mm DC power jack for connection to a 9V 500-mA power external adapter.

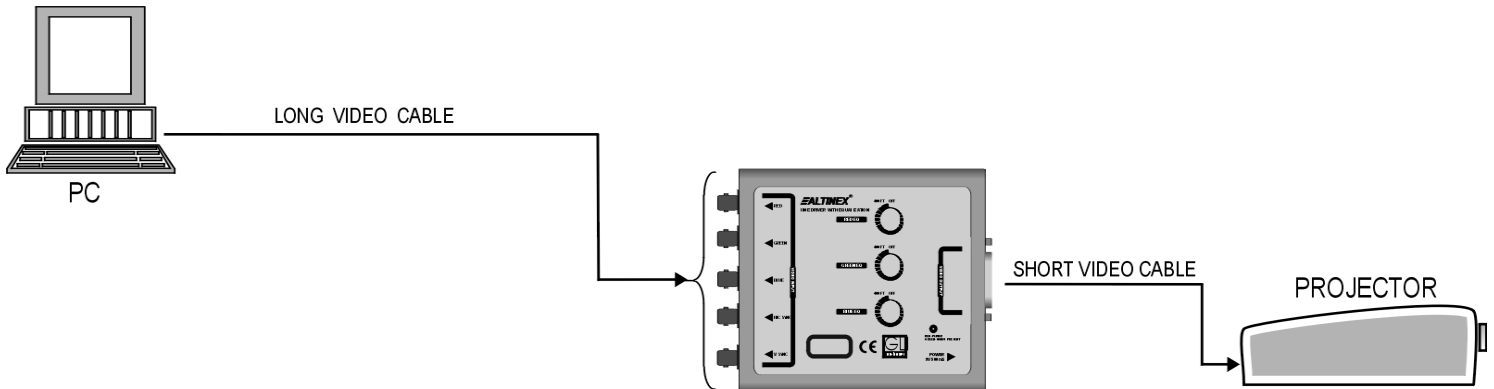
4.4 BANDWIDTH

The typical bandwidth of the **DA1909** is 350 MHz. This high bandwidth allows the passing of the third harmonics of the video signal, thus maintaining the highest quality of the input signal.

DA1909 DESCRIPTION (CON'T)



APPLICATION DIAGRAM 5



INSTALLING YOUR LINE DRIVER 6

- Step 1.** Connect the 9V 500mA AC/DC adapter. Put the AC end into the power outlet and the DC end into the **DA1909**'s 2.5mm DC power jack. The LED should turn red indicating that power is present.
- Step 2.** Connect the cable from the RGBHV video source to the BNC input connector. The LED will turn green indicating that a signal is present.
- Step 3.** Connect the output of the **DA1909** to the input of the projector or monitor.
- Step 4.** Verify that the picture quality on the display is good. If the picture quality is not good, adjust the image as described in the Operation – section 7 of the manual.

CONGRATULATIONS! YOU ARE DONE.

If you experience any problems, please call
1-800-258-4623 or 1-714-990-2300 for
international calls.

OPERATION 7

CONTROLS

- Equalization switches should be in the zero (0) position

7.1 SIGNAL PRESENT/POWER ON

If power is connected to the unit, the LED should turn red. When RGBHV signals are connected to the **DA1909**, the LED should turn green indicating that a signal is present.

7.2 VIDEO EQUALIZER

The **DA1909** has sixteen position binary switches for each video channel, which allow the equalization of video signals according to cable lengths. Verify what cable lengths are connected to the input and output. Each sixteen-position dip-switch approximates an additional 25ft of cable, depending upon the attenuation characteristics of the cable. Turn the Red, Green, and Blue controls to the best position for the image. In typical situations these applications, red, green, and blue switch settings should be in similar positions.

ACCESSORIES 8

Model No.	Description
	HIGH RESOLUTION 5-CHANNEL COAX CABLE
CB4200MR	Bulk cable (500 ft. minimum)
CB4203MR	3 feet, 5-BNC to 5-BNC
CB4206MR	6 feet, 5-BNC to 5-BNC
CB4212MR	12 feet, 5-BNC to 5-BNC
CB4225MR	25 feet, 5-BNC to 5-BNC
CB4250MR	50 feet, 5-BNC to 5-BNC
CHB4275MR	75 feet, 5-BNC to 5-BNC
CB42100MR	100 feet, 5-BNC to 5-BNC
CB42150MR	150 feet, 5-BNC to 5-BNC
	SUPER HIGH RESOLUTION 5-CHANNEL COAX CABLE
CB4400MR	Bulk cable (500 ft. minimum)
CB4406MR	6 feet, 5-BNC to 5-BNC
CB4412MR	12 feet, 5-BNC to 5-BNC
CB4425MR	25 feet, 5-BNC to 5-BNC
CB4450MR	50 feet, 5-BNC to 5-BNC
CB4475MR	75 feet, 5-BNC to 5-BNC
CB44100MR	100 feet, 5-BNC to 5-BNC
CB44150MR	150 feet, 5-BNC to 5-BNC
	VGA TO RGB ADAPTER CABLES
MS8102CA	15-pin HD Male to 5-BNC Male, 6 ft
MS8104CA	15-pin HD Male to 5-BNC Male, 15 ft
MS8105CA	15-pin HD Male to 5-BNC Male, 50 ft
MS8106CA	15-pin HD Male to 5-BNC Female, 6 ft
MS8112CA	15-pin HD Female to 5-BNC Male, 6 ft
MS8114CA	15-pin HD Female to 5-BNC Male, 15 ft
	POWER SUPPLIES
PS5502US	9V 500mA Power Supply for US
PS5512UK	9V 500mA Power Supply for UK
PS5522AU	9V 500mA Power Supply for Australia
PS5532GR	9V 500mA Power Supply for Germany
PS5542JP	9V 500mA Power Supply for Japan

FREQUENTLY ASKED QUESTIONS 9

No:	Question	Answer
1	What is a DA1909 Line Driver?	A DA1909 is a sophisticated audio-visual device, which acts as a ground loop isolator a line driver with a video equalizer.
2	When do I use the DA1909 ?	Often, in large systems, several pieces of equipment are powered from multiple AC feeds and are powered from the same feeds that are used to operate high current equipment. This can potentially create a ground loop problem, evidenced by a rolling hum bar on a display or by sync instability. The DA1909 is a high resolution; high bandwidth ground loop isolator designed to resolve these common ground problems in audio/visual systems. If a monitor or projector is connected to the computer by long cables (from 50ft-400ft), video signals lose their original wave form and amplitude. The DA1909 allows the restoration of video signals by using the Equalization switches for Red, Green, and Blue channels.
3	Which signals can pass through the DA1909 ?	The DA1909 can pass RGBHV, RG $\frac{3}{4}$ B, RGBS, and also balanced and unbalanced stereo audio signals.

TROUBLESHOOTING GUIDE 10

We have carefully tested and have found no problems in the supplied **DA1909** unit; however, we would like to offer the following suggestions:

- Please make sure that the input amplitude of the analog video signal is less than 1.5V and the audio signal is less than 1V p-p.
- Make sure to use the correct power adapter for the country in which it is being used.
- If the image quality is poor after the tune up procedure has been followed, verify that high quality cables are used. Make sure that the cables used for input and output are of coaxial type with proper impedance. Also, check to see if the pins of the connector are in good condition. We recommend Altinex made cables for best results.
- If a problem arises after continuous usage at higher voltage, higher temperature, higher humidity, or other extreme conditions, please correct the problem.
- Make sure that the video output signal formats are appropriate for display.

ALTINEX POLICY 11

11.1 LIMITED WARRANTY

Altinex warrants that its products and cables are free from defects in materials under normal use and service. This warranty is limited to repairing at company's factory any part or parts of the product, which upon company's examination shall disclose to be, thus defective. Products considered defective should be returned to company with transportation charges pre-paid within 2 years (90 days for cables) from date of shipment to the purchaser. The warranty is expressly instead of all other warranties expressed or implied. Altinex neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale of the products. This warranty shall not apply to any product that shall have been repaired or altered outside of company's factory in any way so as, in its judgment, to affect its stability or reliability, or that

has been subject to misuse, negligence, or accident.

11.2 RETURN POLICY

It is very important to Altinex that you receive the products that you have ordered and that this product meets your expectations. In the unlikely event that an Altinex product needs to be returned, please follow the policies below:

Altinex will accept product returns for a period of 30 days from authorized Altinex dealers. Products should be returned in an unopened package.

If a product has been opened, the restocking fees will apply. For the restocking fee amount, please contact an Altinex Sales Representative.

If the product is in your possession for more than 30 days, the restocking fees will apply.

Altinex will not accept any returns on cables or custom products.

If your product is in warranty and needs service, contact the Altinex Sales Department for an RMA (Return Material Authorization). Products returned without an RMA number may experience a delay in service.

If your product is out of warranty and needs service, contact the Altinex Sales Department for an RMA (Return Material Authorization). Products returned without an RMA number may experience a delay in service. The service charges will be quoted to you before the actual repairs are done.

11.3 CONTACT INFORMATION

Sales Department

Phone: 714-990-2300

Fax: 714-990-3303