DA1904SX

1 VGA - IN, 1 RGBHV + 1 VGA - OUT

DISTRIBUTION AMPLIFIER

USER'S GUIDE

ALTINEX

SIGNAL MANAGEMENT SOLUTIONS

DISTRIBUTION AMPLIFIERS

INTRODUCTION

Altinex appreciates your purchase of the **DA1904SX** Distribution Amplifier. 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:

DA1904SX – 1 VGA-in, 1 RGBHV +1 VGA-out Distribution Amplifier

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SIGNAL MANAGEMENT SOLUTIONS

PRECAUTIONS / SAFETY WARNINGS   1

Please read this manual carefully before using your **DA1904SX** Distribution Amplifier. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **DA1904SX** 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 since there are high-voltage components inside.

- Qualified Altinex service personnel, or their authorized representatives must perform all service.

1.2 SAFETY GUIDELINES FOR THE RACK-MOUNTING OF THE DA1904SX

- Maximum operating ambient temperature is 35 (degrees C).

- Never restrict the air flow 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 **DA1904SX** Distribution Amplifier 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 **DA1904SX** Distribution Amplifier 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 **DA1904SX** Distribution Amplifier carefully because dropping or jarring can damage internal components.

- Do not place heavy objects on top of the **DA1904SX**. If the **DA1904SX** is to be mounted to a table or wall, use only Altinex made mounting accessories, such as mount mini-brackets **DA1295SX** and cables for optimum setup.

- To turn off the main power, be sure to remove the cord from the power outlet. The power outlet socket should be installed as close to the equipment as possible, and should be easily accessible.

- Do not pull the power cord or any cable that is attached to the **DA1904SX** Distribution Amplifier.

- If the **DA1904SX** Distribution Amplifier is not used for an extended period, disconnect the power cord from the power outlet.

1.4 CLEANING

- Unplug the **DA1904SX** power cord 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

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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 DISTRIBUTION AMPLIFIER 2

The **DA1904SX** is a special distribution amplifier that offers a 15-pin HD input, a RGBHV main output (on 5 BNC connectors), and a 15-pin HD loop output. This product provides a low cost solution and connector adapter needs. This configuration is very similar to that which is used for interfacing VGA type signals. These signals feed RGBHV to a main presentation display on BNC connectors, which in turn feed the local monitor from the loop output. The **DA1904SX** can be used in this method although it does not provide other interfacing features, such as Sync Processing, Horizontal Positioning, etc.

The **DA1904SX** is primarily designed for RGBHV format signals, but it is also capable of passing RGBS and RGsB. The **DA1904SX** is extremely compact and may be mounted to furniture or other surfaces using optional hardware.

In addition to being used for small distribution applications with two displays, the **DA1904SX** also acts as an output module for the Altinex Serial Distribution System. This is a system, which uses the concept of creating a high-resolution video bus in large distribution applications with many displays. This system provides a lower cost and a higher performance alternative to the concept of feeding home runs (a run of cable) to a single large distribution amplifier.

In the Serial Distribution System, up to thirty **DA1904SX** units may be installed at each monitor location along the bus, which is created by using VGA-type cables connected to the 15-pin HD input

and loop output. Each monitor is fed from the RGBHV output. In this system, the **DA1904SX** units may receive their origin feed from an output module (**DA1902SX**).

TECHNICAL SPECIFICATIONS   3

FEATURES/DESCRIPTION	DA1904SX
GENERAL	
Input	1
Input Connector	15-pin HD Female
Output	2
Loop Output Connector	15-pin HD Female
Main Output Connector	5 BNC Female
Compatibility	VGA, SVGA, XGA, high resolution RGBHV, RGBS, RGsB and RsGsBs

Table 1. **DA1904SX** General

MECHANICAL	DA1904SX
Material	0.1" Al
Finish	Gray
Top Panel	Lexan
Height (inches)	3.00in (76mm)
Width (inches)	4.50in (114mm)
Depth (inches)	1.00in (25mm)
Weight (pounds)	0.4lbs (0.18kg)
Ship Weight (pounds)	2.0lbs (0.91kg)
T° Operating	10°C-35°C
T° Maximum	50°C
Humidity	90% non-condensing
MTBF (calculations)	40,000 hrs

Table 2. **DA1904SX** Mechanical

ELECTRICAL	DA1904SX
Input Video Signal	
Analog Signal	1.5V p-p max
Impedance	75 Ohms
Input Sync Signal	
Horizontal, Vertical, & C-Sync	TTL(+/-)
Sync on Green	-0.3V
Impedance	10 k Ohms
Output Video Signals	
Analog Signal	Gain of 1.05 (+/-5%)
Fall/Rise Time (ns)	1.4
Impedance	75 Ohms

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Output Sync Signal	
Composite Sync	TTL(+/-)
Sync on Green	-0.3V
Impedance	22 Ohms
Frequency Compatibility	
Typical Video Bandwidth	380 MHz
Minimum Video Bandwidth	350 MHz
Horizontal	15-200 kHz
Vertical	47-180 Hz
Coupling	DC
Cross-talk	-40dB @ 10MHz
Power	
External Power Adapter	9V 500mA
Power Consumption	4 watts max.

Table 3. **DA1904SX** Electrical

4.1 INPUT AND OUTPUTS

The **DA1904SX** is a special application distribution amplifier providing one VGA (SVGA, XGA) type input on a 15-pin HD connector and one RGBHV buffered input on a 15-pin HD connector. It also provides one RGBHV buffered output on 5 BNC connectors and one VGA (SVGA, XGA) loop output on a 15-pin HD connector. The loop output should be no longer than twelve feet for most applications. Typically, a VGA-type 15-pin HD male to 15-pin HD male cable will be used. The **DA1904SX** may be used. The **DA1904SX** may be used with a variety of input cable types, though the cable should be of high quality output.
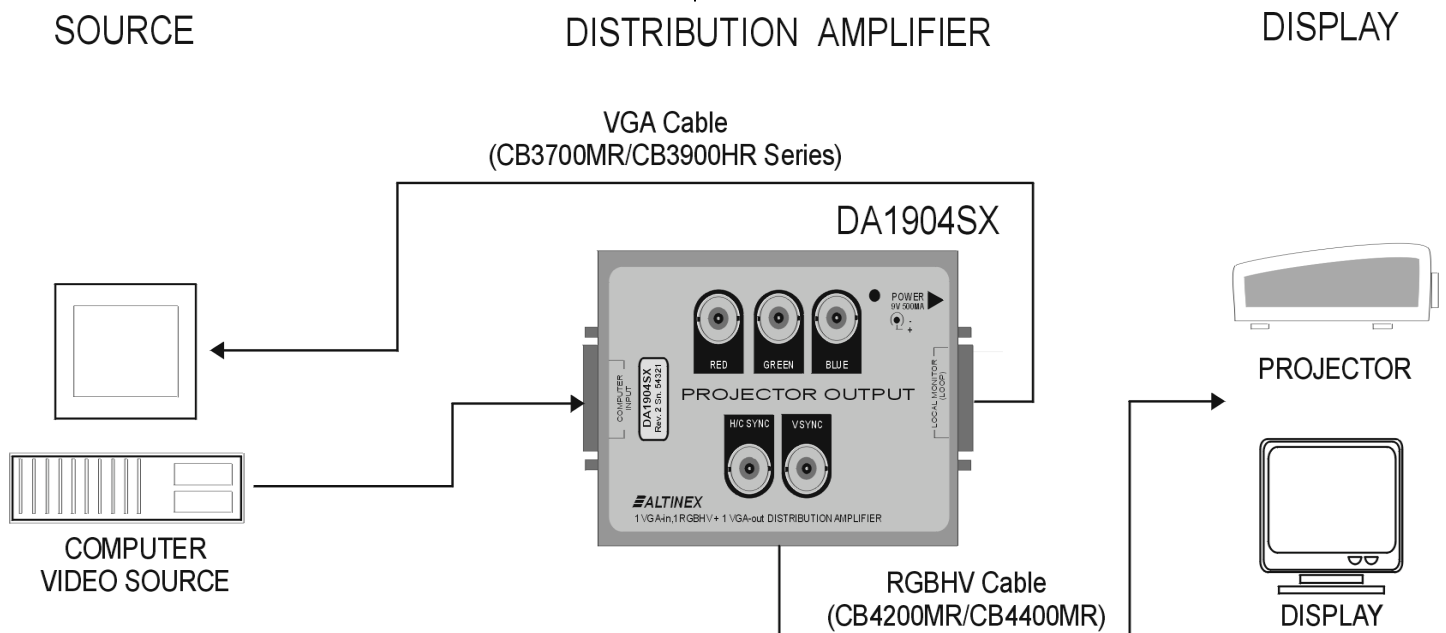
DESCRIPTION OF DA1904SX 4

TOP VIEW

SIDE VIEW

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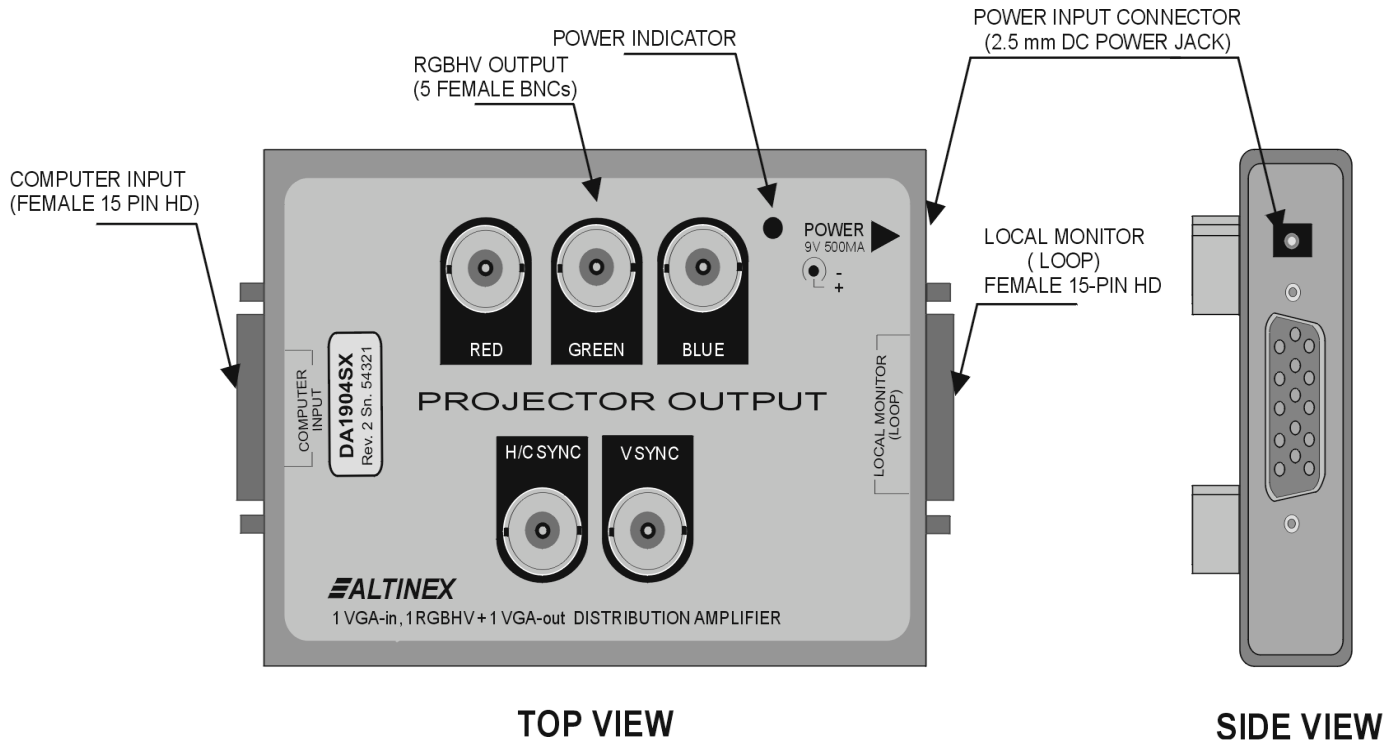
PIN No.	Input signals on 15-pin HD female connector
1	Red
2	Green
3	Blue
4	No connection
5	Ground
6	Ground
7	Ground
8	Ground
9	No connection
10	Ground
11	No connection
12	No connection
13	Horizontal Sync
14	Vertical Sync
15	No connection

Table 4. The **DA1904SX** Input pin-outs

APPLICATION DIAGRAM   5

SOURCE   DISTRIBUTION AMPLIFIER   DISPLAY

VGA Cable
(CB3700MR/CB3900HR Series)

DA1904SX

COMPUTER
VIDEO SOURCE
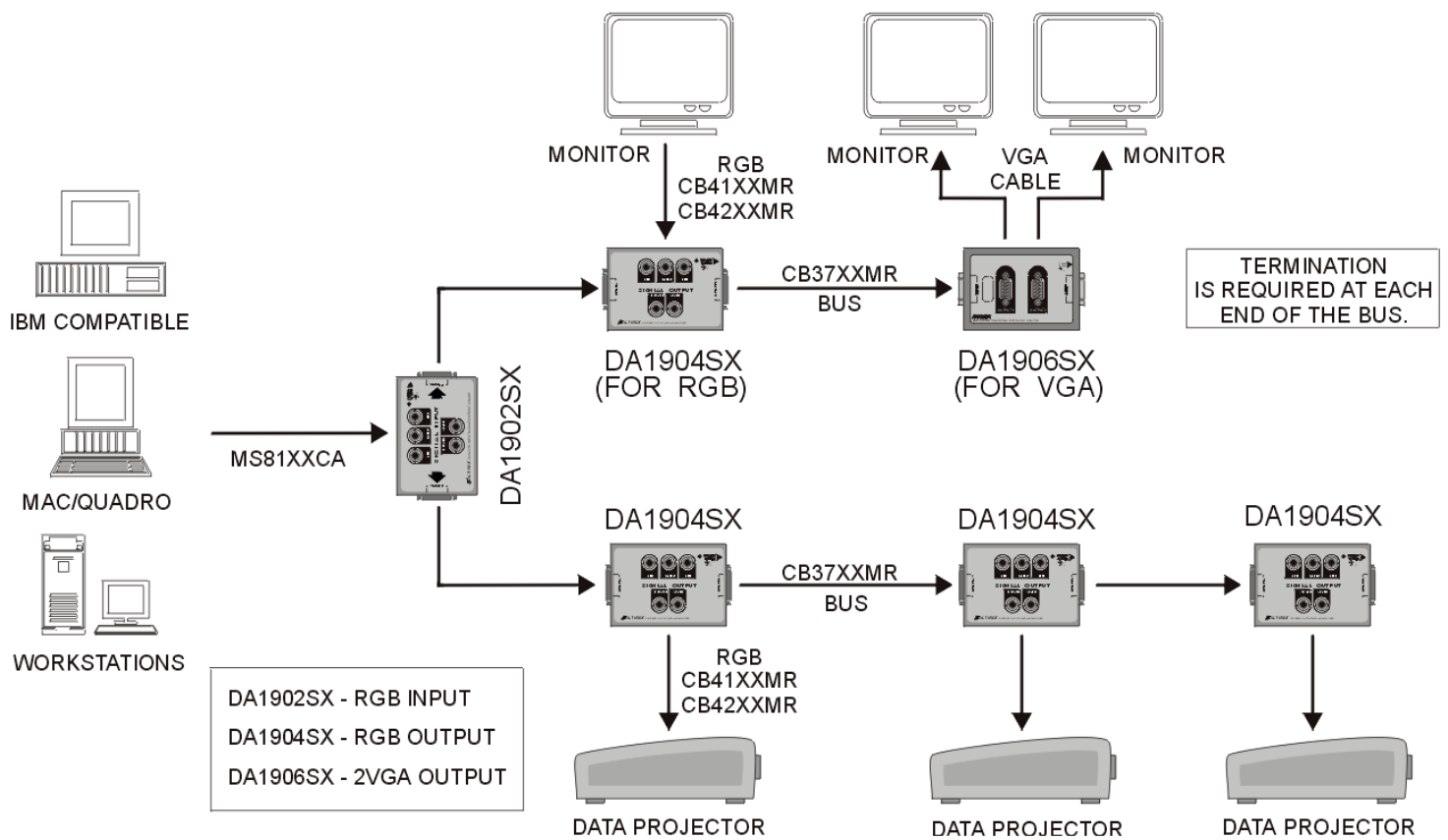
PROJECTOR

DISPLAY

RGBHV Cable
(CB4200MR/CB4400MR)

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SERIAL DISTRIBUTION SYSTEM

THE SERIAL DISTRIBUTION SYSTEM

In addition to acting as a single distribution amplifier, the **DA1904SX** may act as a building block in the Altinex Serial Distribution System. The Serial Distribution system provides a method of distributing a video signal to several displays in an application where the displays are typically spread a few distances apart. When numerous runs are made from the displays back to a single distribution amplifier at a centralized location, it is known as the home run approach. The Serial Distribution System, an alternative to the home run approach, uses the concept of a video bus to provide greater ease of installation and greater flexibility. In the Serial Distribution System, the **DA1904SX** acts as an output module.

Typically, the source signal is connected to the input of a **DA1902SX** and this becomes the starting point for the bus. The outputs are then connected to the output modules, **DA1904SX** which are usually located at each display site and provides a way in which the display can be fed while still maintaining a video bus output to several monitors. A maximum of 30 **DA1904SX** units and a total system length of no more than 300 hundred feet are recommended for optimum performance. See the Serial Distribution System diagram on the following page for an example of the way in which the Serial Distribution System can be applied.

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INSTALLING YOUR DISTRIBUTION AMPLIFIER 6

Step 1. Make sure that the correct power adapter is connected to the unit. A red LED will light to indicate that the unit is receiving power.

Step 2. Connect the video output of the source (computer or other high-resolution source) to the input of the **DA1904SX** using a short, high quality coaxial-type cable. Typically, this will require the use of a VGA Male to Male cable (CB3700 Series).

Step 3. Connect monitors or projectors to the main output of the **DA1904SX** using the appropriate RGBHV (CB4200 Series) type cables or adapter cables.

Step 4. If the **DA1904SX** is being used in the Serial Distribution System, make sure that the end of the video bus is properly terminated with a monitor or with a termination plug. This would usually be done on the loop end of the **DA1904SX**. An unterminated image will appear too bright and may have a distorted color.

Step 5. Verify that the picture quality on all displays is perfect. If you are not receiving a signal, make sure that the display is compatible with the resolution of the computer graphics card.

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

The **DA1904SX** will operate successfully as long as cables are attached properly and other technical specifications are followed. There are no other adjustments necessary to operate the unit.

ACCESSORIES 8

Model No.	Description
	RACK MOUNTING ACCESSORIES
DA1295RM	Mount mini-brackets (2 – "L" shape)
	VGA MALE TO MALE CABLES (15-PIN HD TO 15-PIN HD)
CB3703MR	3 ft
CB3706MR	6 ft
CB3715MR	15 ft
CB3725MR	25 ft
CB3750MR	50 ft (Super High Resolution Coaxes)
CB3775MR	75 ft (Super High Resolution Coaxes)
CB37100MR	100 ft (Super High Resolution Coaxes)
CB37150MR	150 ft (Super High Resolution Coaxes)
	VGA MALE TO FEMALE CABLES (15-PIN HD TO 15-PIN HD)
CB3903MR	3 ft
CB3906MR	6 ft
CB3915MR	15 ft
CB3925MR	25 ft
CB3950MR	50 ft (Super High Resolution Coaxes)
CB3975MR	75 ft (Super High Resolution Coaxes)
CB39100MR	100 ft (Super High Resolution Coaxes)
CB39150MR	150 ft (Super High Resolution Coaxes)
	VGA TO RGB ADAPTER CABLES
MS8102CA	15 pin HD Male to 5 BNC Male, 6ft
MS8104CA	15 pin HD Male to 5 BNC Male, 15ft
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, 6ft
MS8114CA	15 pin HD Female to 5 BNC Male, 15ft
	POWER ADAPTERS
PC5502US	9V 500mA Power Supply for US
PS5503US	9V 500mA Power Supply for US w/50 ft wire
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

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DISTRIBUTION AMPLIFIERS

FREQUENTLY ASKED QUESTIONS   9

No:	Question	Answer
1	What is a Distribution Amplifier?	A Distribution Amplifier is a device that allows you to connect a single video source to multiple display devices, such as monitors or projectors used in presentation applications.
2	What is the Serial Distribution System?	The Serial Distribution System is a system, which uses the concept of creating a high-resolution video bus in large distribution applications with many displays. This system provides a lower cost and a higher performance alternative to the concept of feeding "home runs" to a single large distribution amplifier.
3	Are the outputs of the **DA1904SX** buffered?	The **DA1904SX** has two outputs: one 15-pin HD loop output and one 5-BNC RGBHV buffered output
4	What does buffered output mean?	Buffered output means that the output signal is isolated from the input signal. This means that the loaded output does not affect the input or any other output on the device. A buffered output may vary in terms of the gain or peaking adjustments made to the video signal.
5	Which type of signal format may I pass through the **DA1904SX**?	The **DA1904SX** can pass high-resolution RGBHV, RGBS, RGsB, and RsGsBs format computer video signals. Many display devices that use a 15-pin HD (VGZ-type) connector can only accept RGBHV

format signals. Confirm the compatibility of the display equipment to be used in system.

TROUBLESHOOTING GUIDE   10

We have carefully tested and have found no problems in the supplied **DA1904SX** unit; however, we would like to offer the following suggestions

- Make sure that the correct power adapter is connected to the unit.

- Please make sure that the input amplitude of the analog signal is less than 1.5V.

- Please use the Altinex supplied external adapter (9V, 500mA).

- Please make sure that the proper quality of cables is used. We recommend Altinex made cables for the best results.

- If a problem arises after continuous usage at higher voltage, higher temperature, higher humidity, or at other extreme environmental conditions, please correct the problem.

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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 must 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

Accounting Department
Phone: 714-990-6088
Fax: 714-990-5778

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