MANUAL PART NUMBER: 400-0200-001

MX2100AV

2-IN 1-OUT VGA-UXGA + AUDIO

SWITCHER W/ LOCAL

USER'S GUIDE

ALTINEX

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PRECAUTIONS / SAFETY WARNINGS 1

Please read this manual carefully before using your **MX2100AV** Interface. Keep this manual handy for future reference. These safety instructions are to ensure the long life of your **MX2100AV** 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 MX2100AV

- Maximum operating ambient temperature is 35 (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 **MX2100AV** Interface 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 **MX2100AV** Interface 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 **MX2100AV** Interface carefully. Dropping or jarring can damage internal components.

- Do not place heavy objects on top of the **MX2100AV**. If the **MX2100AV** is to be mounted to a table or wall, use only ALTINEX-made mounting accessories, such as brackets (**DA1293FC** or **DA1294FC**) and cables for optimum setup.

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

- Do not pull the adapter or any cable that is attached to the **MX2100AV**.

- If the **MX2100AV** is not used for an extended period, disconnect the adapter from the wall to avoid fire, shock, and loss of power.

1.4 CLEANING

- Unplug the **MX2100AV** power 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 INTERFACE   2

There are several varieties of computers and computer video cards on the market today. There are also numerous data monitors and large screen data projectors. When displaying a computer image on a large screen data projector or on a large screen monitor, it often becomes clear that some computers are not always compatible with certain display devices. The **MX2100AV** is a computer video interface designed to resolve this incompatibility.

The **MX2100AV** is a dual input-switchable computer video interface. It is designed to interface up to two VGA/SVGA/XGA/UXGA/MAC/SUN or SGI computer video sources to two scan-rate compatible presentation monitors or data projectors. Each of the inputs can be connected to different types of computers simultaneously.

The **MX2100AV** is a state-of-the-art piece of equipment with an exceptional combination of advanced features and very competitive pricing.

TECHNICAL SPECIFICATIONS   3

FEATURES/ DESCRIPTION	MX2100AV
GENERAL	
Inputs	
Stereo Audio Input Connector	Two, 3.5 mm stereo jacks
Computer Video Input Connector	Two, 15pin HD-F
Outputs	
Video Output Connectors	Two, 15-pin HD-F
Audio Loop Output	One, 3.5mm stereo jack
Audio Output Connector	One, 5-position terminal block
Compatibility	Stereo or mono unbalanced audio; VGA/SVGA/XGA/UXGA Compatible Signals, Apple/MACII/Quadra/G3 Signals, Sun/SGI Workstations

Table 1. **MX2100AV** General

MECHANICAL	MX2100AV
Enclosure	1 U High, ½ Rack Wide
Width	8.50 in (216mm)
Height	1.75 in (44mm)
Depth	4.93 in. (125mm)
Weight	2.0 lb. (0.91kg)
Ship Weight	2.8 lb. (1.27kg)
Material	0.1" Aluminum
Finish	Gray
Faceplate	Lexan
T° Operating	10°C-35°C
T° Maximum	50°C
Humidity Technical	90% non-condensing
MTBF (calculations)	40,000 hrs

Table 2. **MX2100AV** Mechanical

ELECTRICAL	MX2100AV
Input Video Signals	
Analog Signal	0.3 to 1.2 Volt p-p
Impedance	75 Ohms
Input Sync Signals	
Horizontal, Vertical, & C-Sync	TTL(+/-)
Sync on Green	-0.3V
Impedance	10 k Ohms
Audio Input Signals	

Type	Differential
CMRR	>80dB @ 10 Hz to 20 kHz
Impedance	10 k Ohms
Voltage	10 V p-p, +/-5 Volts
Output Video Signals	
Analog Signal	0.77 V p-p
Impedance	75 Ohms
Output Sync Signals	
Composite, Horizontal & Vertical Sync	TTL(+/-)
Sync on Green	-0.3V
Impedance	22 Ohms
Audio Output Signals	
Type	Single Ended
Impedance	<22 Ohms (drives 600Ohms)
Crosstalk	<80dB @ 1 kHz
Signal-to-Noise Ratio	>95dB
Bandwidth	6 Hz – 40 kHz
Stereo Channel Separation	>75dB @ 1 kHz, >60dB @ 20 kHz
Frequency Compatibility	
Minimum Video Bandwidth	350 MHz
Rise/Fall Time	1.4 ns
Power	
AC/DC Adapter	9V DC 500mA

Table 3. **MX2100AV** Electrical

MX2100AV DESCRIPTION 4

4.1 COMPUTER VIDEO INPUT (VGA-COMPATIBLE 15-PIN HD CONNECTOR)

The two 15-pin HD inputs allow the connections of two computers to the **MX2100AV** Interface using cables with a 15-pin HD connector on the interface end and a matching connector on the computer end. Each of the input connectors provides a plug and play function for computers according to the VESA requirement. These 15-pin HD connectors allow greater flexibility and versatility from the **MX2100AV**. Several computers like the PC, MAC, SUN, and SGI can be attached using the proper cables as described in Section 8 - Accessories.

PIN No.	INPUT SIGNALS ON 15-PIN HD FEMALE CONNECTOR
1	Red Video
2	Green Video
3	Blue Video
4	ID Bit 2
5	SCL/SDA ID Bit Reference/ Return
6	Ground
7	Ground
8	Ground
9	Vesa +5V
10	Sync Return
11	ID Bit 0
12	SDA – DDC Data
13	Horizontal Sync/Composite Sync
14	Vertical Sync
15	SCL – DDC Clock

Table 4. **MX2100AV** Dual Input pin-outs

4.2 VIDEO OUTPUT (15-PIN HD CONNECTOR)

The video output of the **MX2100AV** uses 15 pin HD female connectors. This allows easy installation of the system with PC computers and VGA type monitors. It allows the distribution of video signals to a monitor. With equalization, the **MX2100AV** sends signals through a VGA cable as far as 200 feet away.

PIN No.	VIDEO OUTPUT SIGNALS ON 15-PIN HD FEMALE CONNECTOR
1	Red Video
2	Green Video
3	Blue Video
4	Ground
5	Ground
6	Ground
7	Ground
8	Ground
9	Vesa +5V
10	Ground
11	Ground
12	No Connection
13	Horizontal Sync/Composite Sync
14	Vertical Sync
15	No Connection

Table 5. Video Output pin-outs

4.3 AUDIO

The **MX2100AV** accepts stereo audio input and offers balanced or unbalanced stereo audio output on a terminal block connector. There are two 3.5mm jacks for audio input, which may be returned to a local audio system with a 3.5mm jack for stereo audio loop output. The audio loop output jack is directly connected to audio input 1. A 5-pin terminal block is available for stereo audio transmission to the main sound system. Please note that the audio signal will follow the video signal during switching, which means that in either manual selection or auto-switch mode, if Input 1 is active then both video and audio signals will be selected for this input.

4.5 INPUT SELECTION BUTTON

The selection of inputs between one and two are accomplished by using the INPUT SELECT buttons on the front panel. Use Button 1 to select input 1, button 2 to select input 2 and Auto Switch button to automatically switch from input 1 to input 2.

The LED lights on each of the INPUT SELECT buttons will indicate which input is selected.

If only one source is present and the INPUT SELECT button is in the **MX2100AV**'s AUTO mode**,** the unit will select the active input. An ON LED will indicate the active input.

When two active sources are present and the INPUT SELECT button is on the AUTO position, the **MX2100AV** selects INPUT 2 as the default and turns LED 2 red.

4.6 MOUNTING CAPABILITY

The **MX2100AV** can be easily mounted into an equipment rack. Four mounting holes are provided on each side of the unit. To mount a single unit, use ALTINEX 19"-1U Rack Mount Ears (part # **DA1294FC)**. To mount two units in tandem, use an ALTINEX 19"-1U Rack Mount Shelf (part # **DA1293FC**). For under the table mounts, optional brackets like the **TM1271**, **TM1272**, **TM1273**, or **TM1274** can be used.

4.7 POWER REQUIREMENTS

The **MX2100AV** may be used anywhere in the world where the voltage is from 100 to 240 volts AC at 50/60 Hz by an AC/DC adapter at 9V 500mA. The LED located on the front panel should light RED when power is connected or GREEN when a signal is connected to any input of the **MX2100AV**.
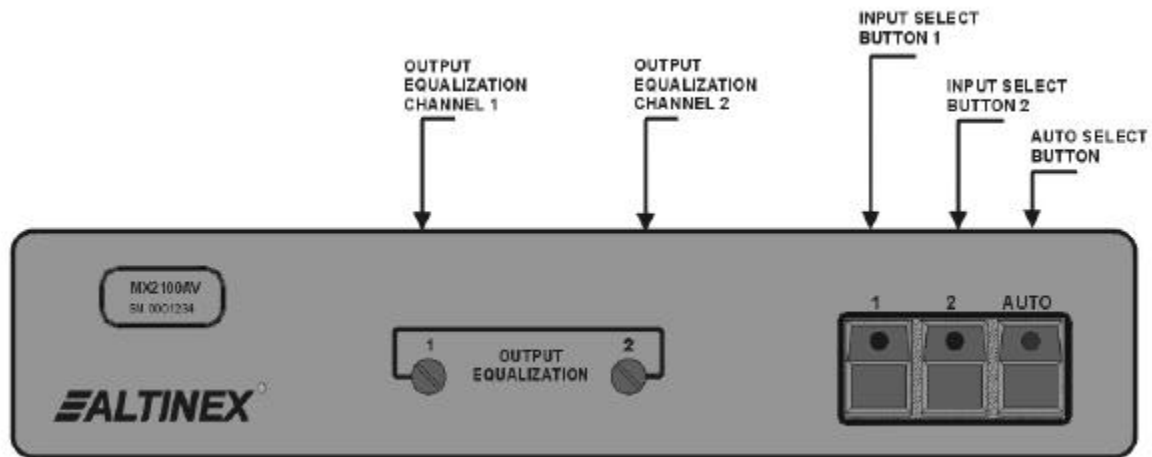
4.8 BANDWIDTH

The minimum bandwidth of the **MX2100AV** is 350 MHz, and the typical bandwidth is 425 MHz. This high bandwidth allows the passing of a video signal's third harmonic, thus ensuring a clean video signal. Indeed, the **MX2100AV** will be virtually transparent to the video signal.
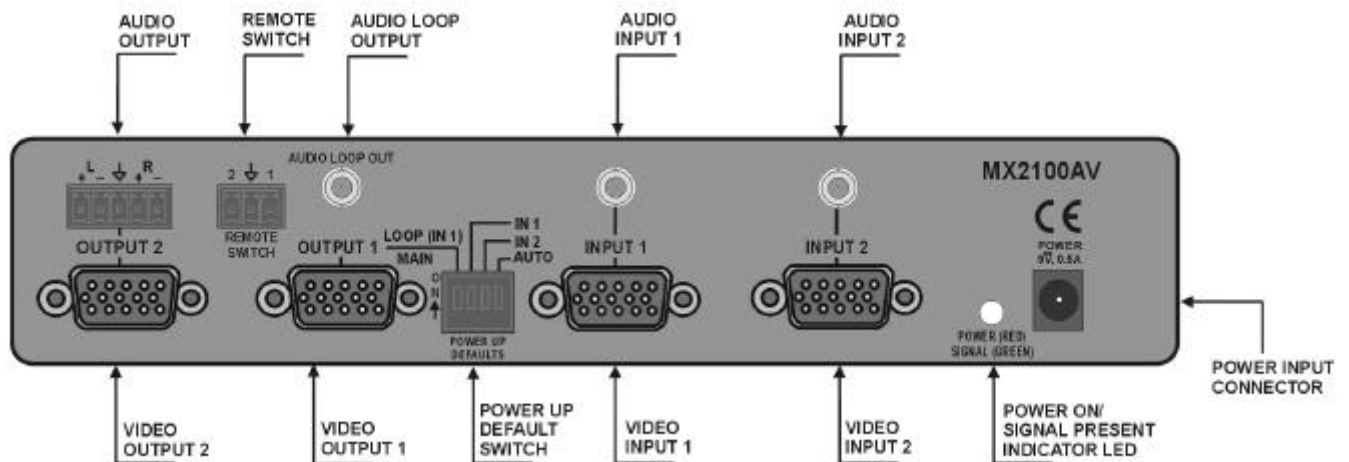
4.9 EQUALIZATION

The **MX2100AV** has a high bandwidth allowing high-resolution signals from each of the inputs to pass through the unit without attenuation for a long run. For cable runs longer than 20ft, the signal attenuates at medium and/or high frequency. To correct this cable attenuation problem, the **MX2100AV** is equipped with a feature called Equalization/Peaking on the front panel for all video signals: Red, Green, and Blue. Adjust the equalization for each of the inputs using knob 1 and knob 2. These channels can be equalized individually. Equalization can be used successfully for cable lengths up to 200ft for resolutions 1600x1200 and up to 300ft for resolutions of 640x480 .
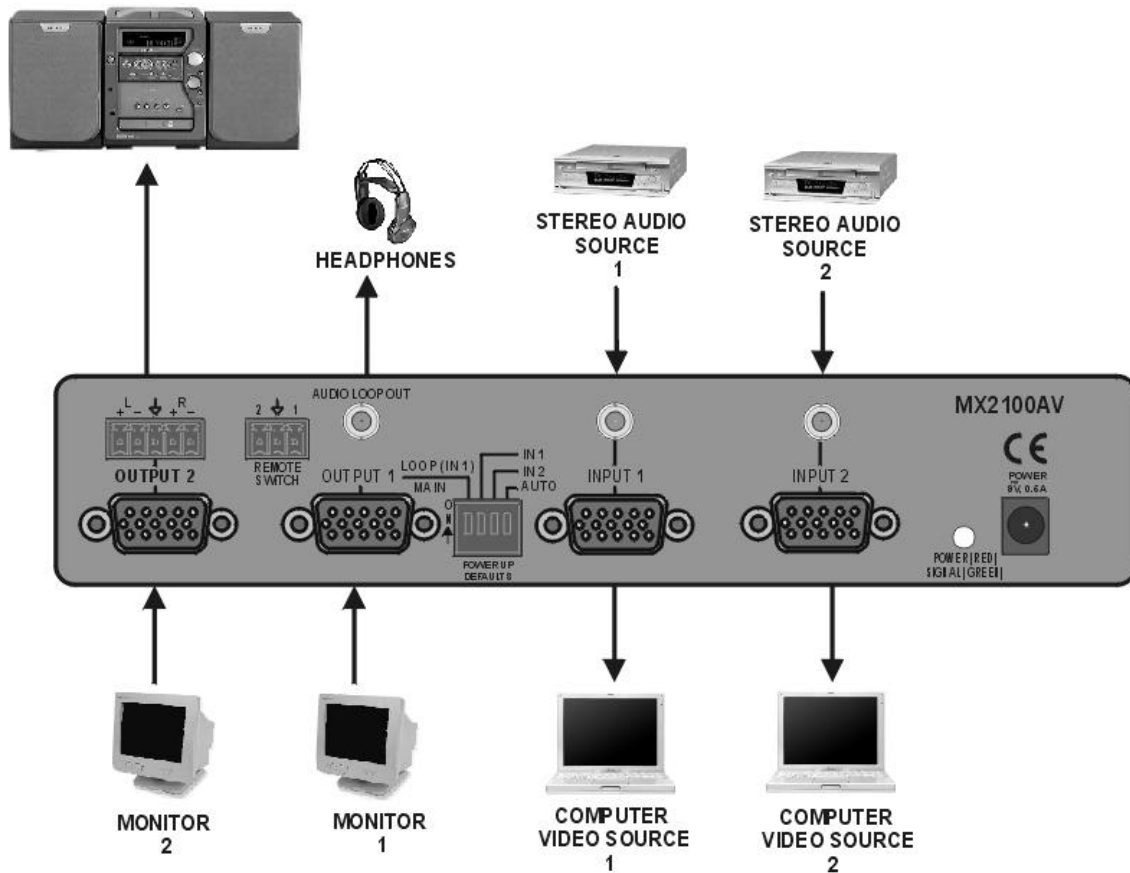
FRONT PANEL

BACK PANEL

APPLICATION DIAGRAM 5

	AUDIO	VIDEO
SOURCE	Audio input cable is available from ALTINEX Audio (3.5mm) cable part # CB1206AU	Video input cable is available from ALTINEX MS8122CA for MAC pack MS8124CA for SUN pack MS8126CA for VGA pack MS8128CA for SGI pack
LOCAL MONITOR	Audio input cable is available from ALTINEX Audio (3.5mm) cable part # CB1206AU	Video input cable is available from ALTINEX MS8121CA for MAC pack MS8123CA for SUN pack MS8125CA for VGA pack MS8127CA for SGI pack

INSTALLING YOUR INTERFACE 6

Step 1. Please attach the **MX2100AV** Interface on the rack using the optional **TM Series** ALTINEX mounting brackets, through two screens on each side of the **MX2100AV**.

Step 2. Using the 9V AC/DC adapter, connect power to the **MX2100AV**. The power supply used in the **MX2100AV** power outlet. When power is connected, the power indicator LED on the front panel of the **MX2100AV** should turn RED. The LED on the front and back panel of the **MX2100AV** will light GREEN if the appropriate input signal is present.

Step 3. Connect the cables from the video sources (computers) to the appropriate input channels. Connect the output channels to the display devices (monitors or projectors).

Step 4. Connect the cables from the audio sources (stereo) to the appropriate input channels. Connect the output channels to the audio sources (amplifier, speakers, etc.).

Step 6. Set POWER UP DEFAULT switches according to Table 6.

OPERATION 7

1) Connect video and audio sources according to the Application Diagram in section 5, page 7.

2) Set POWER UP DEFAULT switches to the position depending on which input needs to switch first as the default setting or set the unit to the default setting using AUTO switch mode when power is connected. Remember that only one of the following switches can be turned "ON" simultaneously: IN1, IN2, and AUTO

3) Turn the LOOP IN1 switch "ON" if output 1 needs to follow output 2.

4) Using the display connected to output 2, select input 1 and adjust image by output using equalization knob 1. Then select input 2 and adjust the image, using knob 2.

The factory default settings are shown below in Table 6.

POWER UP DEFAULTS	OFF	ON
LOOP (IN1)	X	
IN1		X
IN2	X	
AUTO	X	X

Table 6. Dip-switch default settings

ACCESSORIES 8

Model No.	Description
RACK MOUNT ACCESSORIES	
DA1293SX	Rack/Wall Shelf fits two **MX2100AV** units side by side
DA1294SX	Rack/Wall mount ears for single **MX2100AV**
TABLE MOUNT BRACKETS	
TM1271	1U High, ½ Rack-Wide
TM1272	1U High, ½ Rack-Wide with 15-pin HD connector plate
TM1273	1U High, ½ Rack-Wide with snap-in connectors
TM1274	1U High, ½ Rack-Wide with snap-in & POWER connectors

Table 7. Rack Mount Accessories

Model No.	Description
INPUT/LOCAL MONITOR CABLES	
MS8121CA/ MS8151CA/ MS861CA	MAC Local Monitor Cable
MS8122CA/ MS8152CA/ MS8162CA	MAC Input Cable
MS8123CA/ M18153CA/ MS8163CA	SUN/SGI Local Monitor Cable
MS8124CA/ MS8154CA/ MS8164CA	SUN/SGI Input Cable
MS8125CA/ MS8155CA/ MS8165CA	VGA Local Monitor Cable
MS8126CA/ MS8156CA/ MS8166CA	VGA Input Cable
MS8129CA/ MS8159CA/ MS8169CA	5 BNC Input/Local Monitor Cable
4 BNC TO 4 BNC COAXIAL CABLE	
CB4103MR	3 feet, 4 BNC to 4 BNC coaxial cable
CB4106MR	6 feet, 4 BNC to 4 BNC coaxial cable
CB4112MR	12 feet, 4 BNC to 4 BNC coaxial cable
CB4125MR	25 feet, 4 BNC to 4 BNC coaxial cable
CB4150MR	50 feet, 4 BNC to 4 BNC coaxial cable
CB4175MR	75 feet, 4 BNC to 4 BNC coaxial cable
CB41100MR	100 feet, 4 BNC to 4 BNC coaxial cable
CB41150MR	150 feet, 4 BNC to 4 BNC coaxial cable
5 BNC TO 5 BNC COAXIAL CABLE	
CB4203MR	3 feet, 5 BNC to 5 BNC coaxial cable
CB4206MR	6 feet, 5 BNC to 5 BNC coaxial cable
CB4212MR	12 feet, 5 BNC to 5 BNC coaxial cable
CB4225MR	25 feet, 5 BNC to 5 BNC coaxial cable
CB4250MR	50 feet, 5 BNC to 5 BNC coaxial cable
CB4275MR	75 feet, 5 BNC to 5 BNC coaxial cable
CB42100MR	100 feet, 5 BNC to 5 BNC coaxial cable
CB42150MR	150 feet, 5 BNC to 5 BNC coaxial cable

Table 8. Input and Output Cables

Input cable Local Monitor Cables and Output Cables must be ordered separately from following list.

TROUBLESHOOTING GUIDE 9

- Make sure that the LED located on the front panel lights RED when power is connected or GREEN when a signal is connected to any input of the **MX2100AV**.

- Make sure that the cables have the correct pin-outs and the connection and quality of the cables are good.

- Make sure that the source and display are scan-rate compatible. The projector or monitor should support an appropriate signal format (RGsB, RGBS or RGBHV). Connect a projector or monitor directly to the computer with a shorter cable to verify the compatibility of the display and source.

- Make sure that the POWER UP DEFAULT switches are properly set according to Table 6.

ALTINEX POLICY   10

10.1 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 concerning 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.

10.2 RETURN POLICY

It is very important to ALTINEX that you receive the products that you have ordered and that this product fulfills your need. 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 the 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 actual repairs are done.

10.3 CONTACT INFORMATION

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