

Operation Manual



IN3502 - RGBS Switcher

IN3562 - VGA Switcher

IN3572 - MAC Switcher



DESCRIPTION

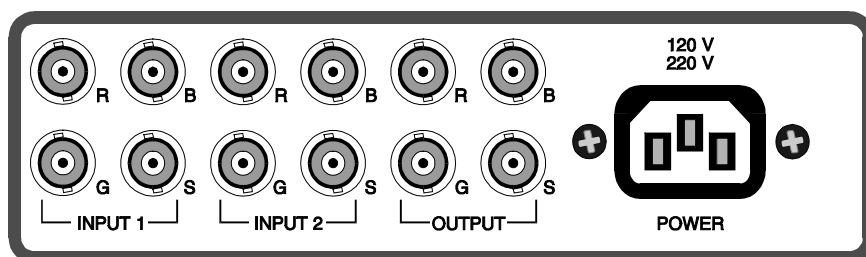
The **IN3502**, **IN3562**, and **IN3572** are high performance analog video switchers featuring two inputs and one output. The **IN3500** Series switchers are designed to route high resolution source signals to an attached video projector, monitor, LCD panel or color printer. Users may select the desired input channel using the front panel channel select button or via remote control by using a wired remote, third-party control system, or any other device capable of providing a latching contact closure. The **IN3500** Series Switchers offer easy operation and the following features:

- ◆ **250 or 150 MHz Bandwidth** - switchers route ultra-high resolution video signals with no signal loss
- ◆ **Passive Design** - ensures compatibility with a wide range of video and audio signals
- ◆ **Front Panel Channel Selection Button** and LED Indicators
- ◆ **Remote Port** - allows for remote selection of input channel using contact closure

COMPATIBILITY

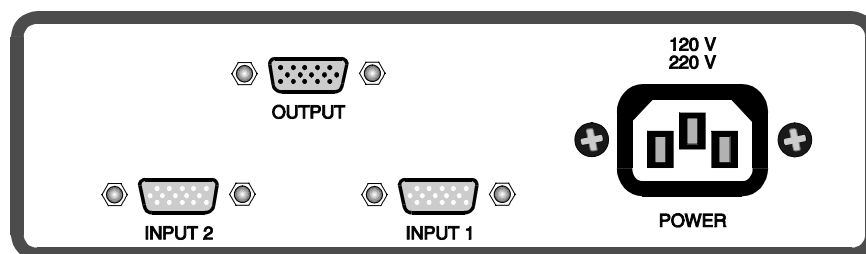
The **IN3500** Series switchers are passive devices which will switch a wide variety of signals. While the units were primarily designed for use with high resolution RGB analog computer graphics type signals, they may also be used to switch Composite Video, S-Video (Y/C), Component Video, or audio signals. The **IN3502**, **IN3562**, and **IN3572** function very similarly, utilizing the same front control panel and switching circuitry. The main difference between the various models is the type of input/output connectors on the back panel and the number of discrete signal components for each input.

IN3502 RGBS Analog Video Switcher - features a set of four BNCs for each input and output connection and can switch four discrete signal components for each input. The **IN3502** is compatible with analog computer video signals in any of the following formats: RGBS, RGsB, RsGsBs, and



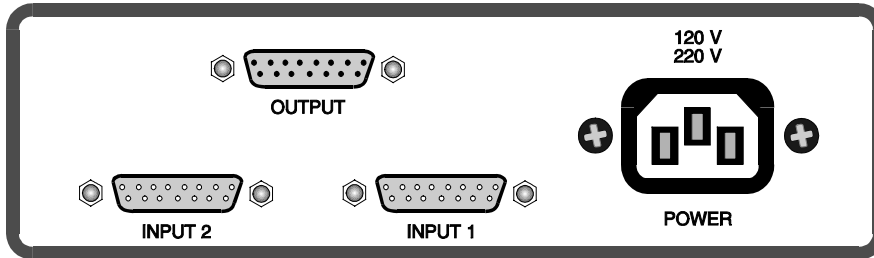
composite monochrome with sync. Since the **IN3502** switches four discrete signal components simultaneously, it may also be employed as audio-follow-video switcher. The **IN3502** is a two input, one output switcher.

IN3562 VGA Switcher - features 15 pin HD connectors for input and output connection and can switch five discrete signal components for each input. The **IN3562** is ideal for use with LCD panels and any other output devices which require that all VGA sync formats and polarities remain unchanged from the original source signal. The **IN3562** is specifically designed to operate with VGA, S-VGA, and XGA



type signals but may be used with analog video signals in any of the following formats: RGBHV, RGBS, RGsB, RsGsBs, and composite monochrome with sync. The **IN3562** is a two input, one output switcher.

IN3572 MAC Switchers - feature 15 pin D connectors for input and output connection and can switch six discrete signal components for each input. The **IN3572** is ideal for use with LCD panels and any other output devices which require that all sync formats and polarities remain unchanged from the original source signal. The **IN3572** is specifically designed to operate with MACII type video signals but



may be used with analog video signals in any of the following formats: RGBHV, RGBS, RGsB, RsGsBs, and composite monochrome with sync. The **IN3572** is a two input, one output switcher.

INSTALLATION

This section offers step-by-step instructions for installing **IN3500 Series** switchers. A detailed application drawing showing all equipment connections is included on the next page.

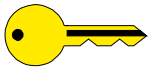
1. Connect both sources to the **IN35xx** input connectors. Unused inputs do not need to be terminated.

IN3502: An interface may be required for each computer video signal source in order to split off a signal for each local monitor, bring all signals into the RGBS format, and amplify the signal to compensate for long input/output cable runs.

IN3562/72: A 1x2 distribution amplifier (VGA - **IN3262**, MACII - **IN2076**) may be required at each computer in order to split off a signal for each the computer's local monitor and amplify the signal to compensate for long input/output cable runs.

2. Connect the **IN35xx** output to the display device.
3. Apply AC power to the unit.

KEY CONCEPT



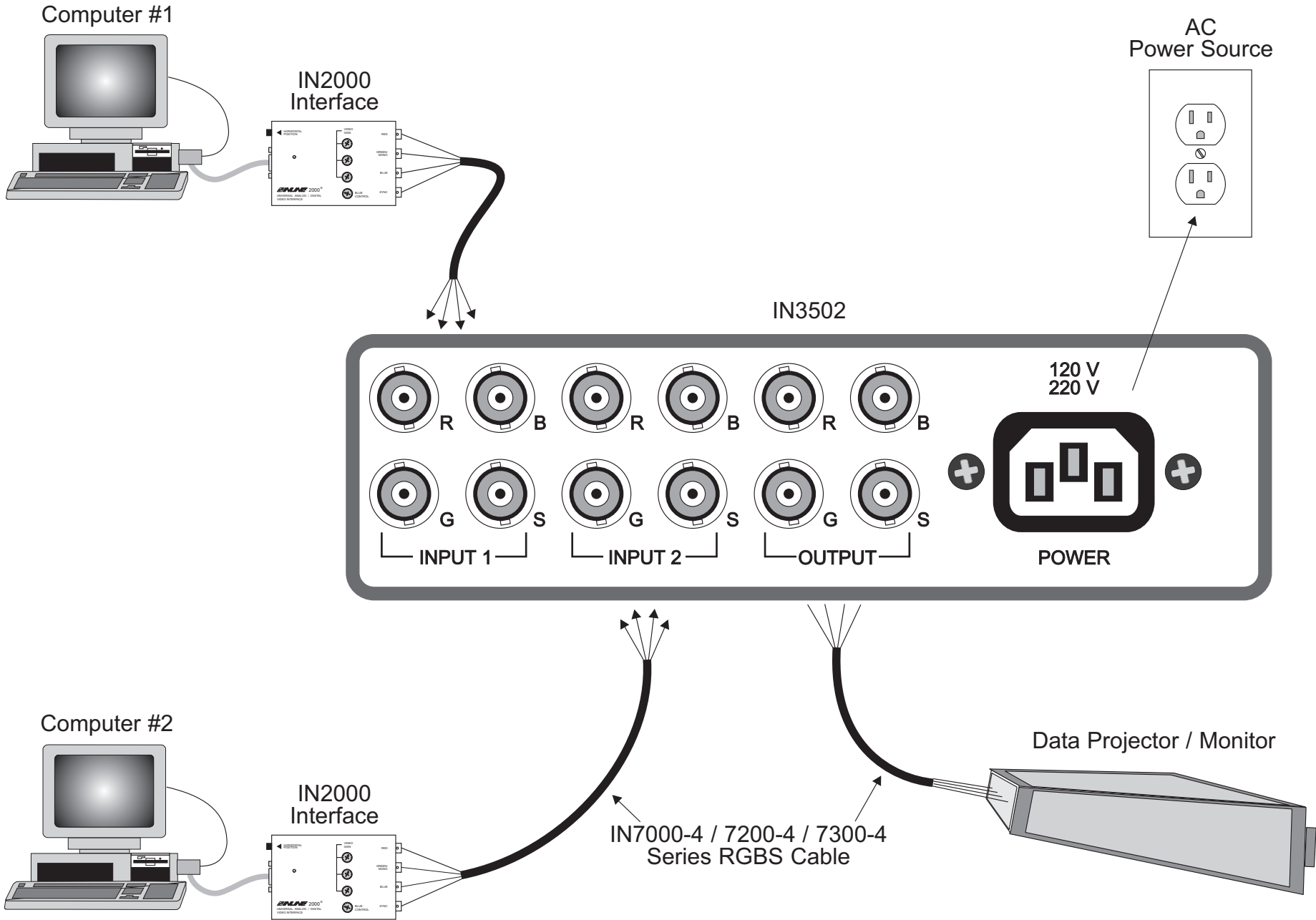
*It is very important that all input / output connections be made utilizing high resolution coaxial cables. Proper cable selection is critical to overall system performance, especially when working with high frequency signals and/or long cable runs. The following cables are recommended for use with the **IN3500 Series** switchers.*

IN3502: Use **IN7000-4**, **IN7200-4**, or **IN7300-4** Series Cables - 4 BNC Male to 4 BNC Male.

IN3562: Use **IN8000** Series Cables - 15 Pin HD Male to 15 Pin HD Female

IN3572: Use **IN8100** Series Cables - 15 Pin D Male to 15 Pin D Female

Application Diagram

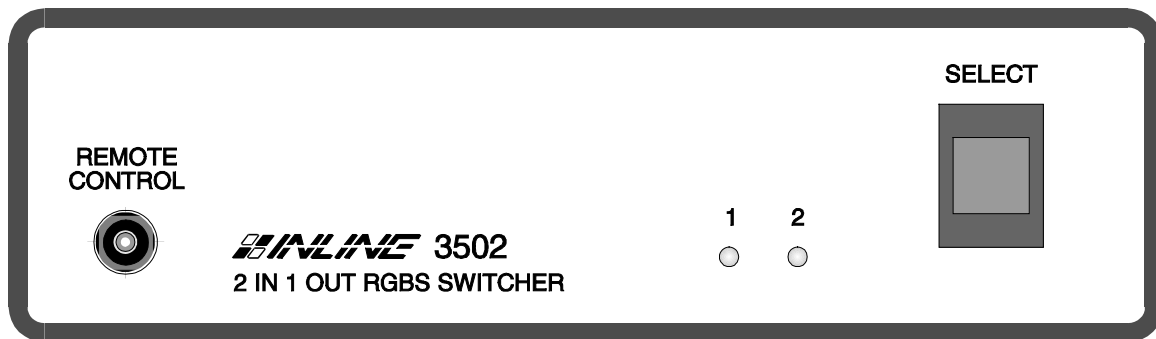


OPERATION

Input Selection

The **IN3500 Series** two input switchers provide a front panel button which may be used to select the desired input channel. Each time the SELECT button is pressed the unit toggles back and forth between Input 1 and Input 2 and the appropriate front panel LED indicator lights to show the current channel selection. The non-selected channel is terminated into 75 Ohms. The switcher automatically returns to the last selected channel if power is removed and reapplied to the unit. Input channels may also be selected remotely by using a wired remote or a third-party control system (see **Remote Control Operation** below for more details).

Since these switchers are passive they are also bi-directional, meaning that signals may pass backwards through the unit. In such an installation, a single source signal is hooked up to the OUTPUT connector and two display devices are attached to the INPUT connectors. When an input is selected, the source signal is routed to one of the attached display devices.



REMOTE CONTROL OPERATION

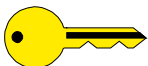
The **IN3502**, **IN3562**, and **IN3572** RGB switchers have a REMOTE CONTROL port which allows the units to be remotely controlled. Input 1 or Input 2 can be selected through the remote port by providing a latching contact closure between the inner and outer conductors on the REMOTE jack. Several contact closure type control devices are available including:

IN6901 / IN6902 RS232 to Contact Closure Converters - allow **IN3500 Series** switchers and other **INLINE** devices with contact closure control ports to be controlled by RS232 sources such as control systems and computer serial ports.

Control System - many control systems are capable of providing contact closures.

Remote Control Panel - a custom remote panel or remote switch may be fabricated by the installer.

KEY CONCEPT



In order to activate the REMOTE CONTROL port, the switcher must first be set to the correct input using the front panel SELECT button. On the IN3502, the unit must be set to Input 2. On the IN3562 and IN3572, set the unit to Input 1.

Control Parameters - IN3502

Input 1 is selected when a latching closure occurs between the inner and outer conductors of the REMOTE CONTROL jack.

Input 2 is selected when the inner and outer conductors of the REMOTE CONTROL jack are not connected to each other.

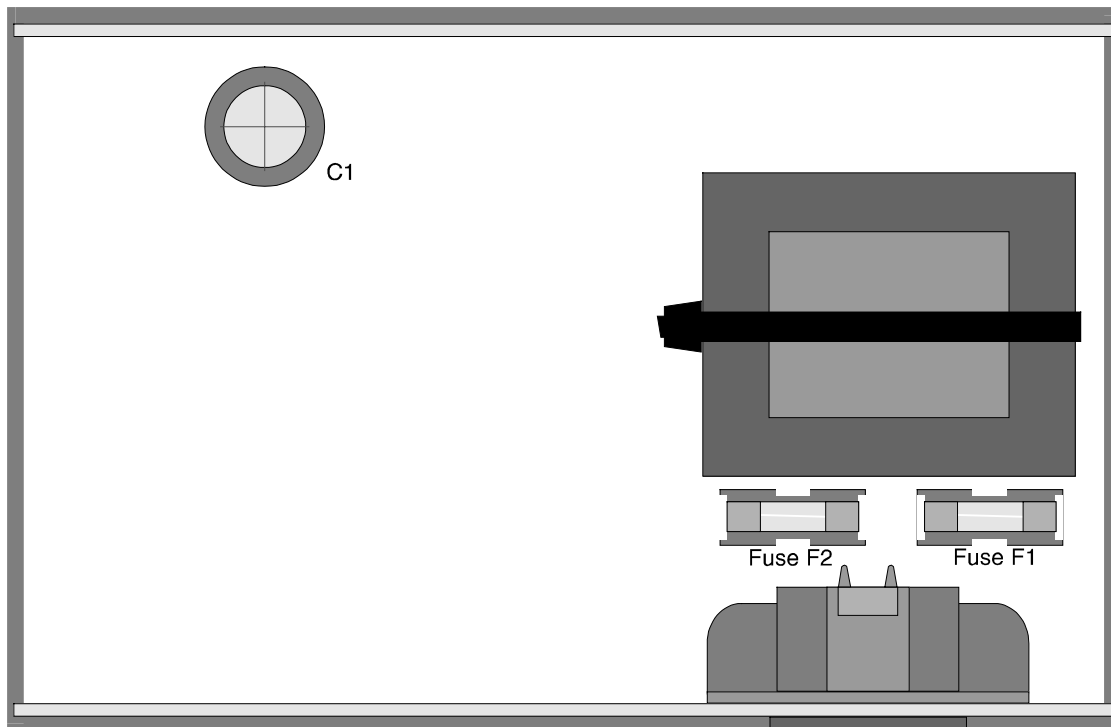
Control Parameters - IN3562 / IN3572

Input 1 is selected when the inner and outer conductors of the REMOTE CONTROL jack are not connected to each other.

Input 2 is selected when a latching closure occurs between the inner and outer conductors of the REMOTE CONTROL jack.

INTERNAL FUSES

The IN3502, IN3562, and IN3572 switchers contain two internal fuses. If power is applied to the unit and neither of the front panel LEDs is illuminated, these fuses may be blown. Open the case as described below and replace any blown fuses with new 200mA / 250V fuses.



Fuse Changing Procedure:

1. Remove power from the unit.
2. Loosen the two case screws on the bottom of the unit.
3. Turn the unit back over (top facing up) and lift off the top half of the **IN3502/3562/3572** case. **Capacitor C1 may store an electrical charge even when the unit is powered down. Take care not to touch this component.**
4. Locate the fuses (F1 & F2) and replace with new 200 mA / 250V fuses as required.
5. Replace the top case and tighten the two bottom case screws.

SPECIFICATIONS

	IN3502 RGSB Switcher	IN3562 VGA Switcher	IN3572 MAC Switcher
Inputs			
Connector type	4 BNC Female	15 Pin HD Male	15 Pin D Male
Number of Inputs	2 Inputs	2 Inputs	2 Inputs
Maximum Signal Components per Input	4	5	6
Signal Compatibility	RGSB, RGSB, RsGsBs, Monochrome with Sync, Composite Video, Y/C, Component Video, Audio	RGSB, RGSB, RsGsBs, RGBHV, Monochrome with Sync, Composite Video, Y/C, Component Video, Audio	RGSB, RGSB, RsGsBs, RGBHV, Monochrome with Sync, Composite Video, Y/C, Component Video, Audio
Output			
Connector type	4 BNC Female	15 Pin HD Female	15 Pin D Female
Bandwidth	250 MHz @ -3dB	150 MHz @ -3dB	
Isolation	60 dB @ 50 MHz 55 dB @ 75 MHz 50 dB @ 100 MHz		
Switching Time	3.0 mS		
Power			
Voltage	110 / 220 V - Set at Factory		
Consumption	10 Watts		
Dimensions			
Size	Height: 2.0" Width: 6.75" Depth: 4.8"		
Shipping Weight	3 lbs.		

Parts Included			
	IN3502 AC Power Cable (U.S. Only) Operations Manual	IN3562 AC Power Cable (U.S. Only) Operations Manual	IN3572 AC Power Cable (U.S. Only) Operations Manual

Optional Accessories			
Input / Output Cables All cables listed here (except IN9045/IN9057) are available in a variety of lengths from 6' to 100'. Longer cables, bulk cable, connectors and crimp tools are also available on special order.	IN7000-4 Series Standard 4-BNC Cables IN7200-4 Series Ultra High Res 4-BNC Cables IN7200-4 Series Super High Res, 4-BNC Cables	IN8000 Series High Res Mini-Coax w/ 15 Pin HD Connectors, IN9045 15 Pin HD Male to 5 BNC Male, 12' long	IN8100 Series High Res Mini-Coax w/ 15 Pin D Connectors IN9057 15 Pin D Male to 5 BNC Male, 6' long

TROUBLESHOOTING

The display device connected to the switcher output has a bad/scrambled image.

Solution 1: The display device connected to the output of the switcher may not be compatible with the computer's video output. CGA and EGA signals vary from 15.75 to 24 KHz. VGA runs at 31.5 KHz but SVGA can be as high as 48 - 58 KHz, with newer modes such as 1600 x 1200 running as high as 79KHz! MACII/Quadra computers sense what monitor is connected and configure themselves accordingly, with horizontal scan rates ranging from 24.48 to 68.9 KHz. Check the operations manual on both the computer graphics card and the display device to ensure that they are compatible.

Solution 2: The RGBS input or output cable may have a bad sync line. Try running the sync through another cable.

The unit does not pass any signals.

Solution: Verify that the unit is getting power by checking the front LEDs. If no LED is on, the AC power source may be faulty or the unit may have an internal problem. Check the two internal 200mA fuses (see Page 5).

When controlling the IN3500 Series switcher through the REMOTE CONTROL port the unit doesn't respond.

Solution: Before controlling the unit from the REMOTE CONTROL port, the switcher must be set to the correct input using the front panel SELECT button. (IN3502: Input 1, IN3562 / IN3572: Input 2)

When controlling the IN3502 switcher through the REMOTE CONTROL port, Input 2 can be selected for an instant, but then the unit quickly switches back to Input 1.

Solution: The control system may be providing a momentary contact closure. The IN3502 requires a latching closure to select Input channel 2 (the IN3562/IN3572 need a latching closure to select Input 1).

When hooking a MAC Quadra computer directly to the IN3572 input, the computer is booting up in the 13" monitor resolution (640 X 480). How can the computer be forced to boot in the 21" mode?

Solution: Use an IN2076 distribution amplifier to split the signal between the local monitor and the switcher input. The computer will see the 21" local monitor attached to the IN2076 loop-through connector and will boot up in that high resolution mode.

WARRANTY

- ◆ INLINE warrants the equipment it manufactures to be free from defects in materials and workmanship.
- ◆ If equipment fails because of such defects and INLINE is notified within two (2) years from the date of shipment, INLINE will, at its option, repair or replace the equipment at its plant, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications.
- ◆ Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of re-shipment to the Buyer.
- ◆ **This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.**

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(800) 882-7117 ◆ (714) 921-4100 ◆ FAX (714) 921-4160