AVR-8

From

OPERATIONS MANUAL

KEYWEST TECHNOLOGY
14563 W. 96th TERRACE
LENEXA, KANSAS 66215
www.keywesttechnology.com
800-331-2019

CONNECTIONS

Power

Connect 110VAC to 220VAC 50/60Hz. Use only Approved Wires and Cables.

Video

Connect up to eight composite video inputs to BNC connectors labeled VIDEO IN (1 through 8). Connect up to 4 composite video outputs to BNC connectors labeled VIDEO OUT (1 through 4).

Each input is terminated, 75 Ohms. Each output is driving 75 Ohm Load, NTSC or PAL.

Audio

Connect Input and Output Analog Audio Signals as labeled on back of unit, and per the following drawing (Balanced or Unbalanced):

+   -   GND
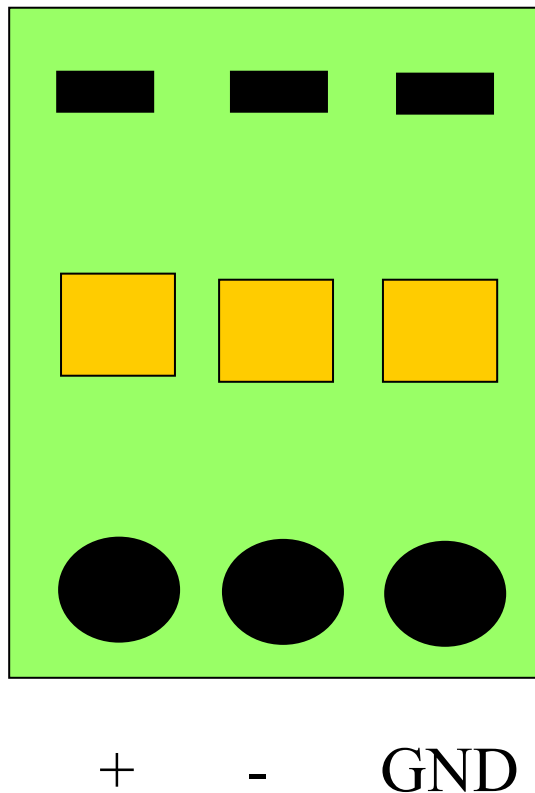
GPI/O

Connect GPI and GPO lines to terminal blocks as marked

RS-232

Utilize a standard NULL MODEM CABLE to communicate (as though the AVR8 were a PC comm port). Use the cable provided. If using an after-market cable, ensure pins 1 and 6 are looped on both connection ends to provide flow control override.

Ethernet

Utilize standard RJ-45 Ethernet connections

USB

Utilize standard USB cabling.

OPERATIONS

Front Panel Operation

OPERATE MODE

Manual Matrix Changes

The OPERATE MODE is in effect any time the OPERATE/CONFIG button on the front panel is in the "out" or extended position. The front panel LCD will indicate OPERATE mode by displaying a text view of current audio and video matrix settings.

```
O1: V1A1          O2: V1A1
O3: V1A1          O4: V1A1
```

Each position represents the current configuration of Video and Audio output ports, for example, O1: V1A1 indicates that both Video and Audio output #1 ports are set to output Video Input source one and Audio Input source one. In our example above, all four output ports are configured to output the same video and audio—all source one inputs.

To change an output channel's configuration, while still in the OPERATE mode (Operate button out or extended), press the ENTER button. Configuration mode is indicated by a flashing character on the LCD—if no other buttons have been pushed after ENTER, the first "V" assigned to O1 should be flashing.

Use the UP and DOWN buttons to change the Video Input Source for Output One (select any input, 1 through 8).

Next, press the RIGHT button to configure Output One's Audio Input source (the "A" should now be flashing at the Output One position). Select the desired audio source by pressing the UP or DOWN buttons as done when setting video sources.

After OUTPUT ONE is configured, press the RIGHT button again to set OUTPUT 2—Press the RIGHT or LEFT buttons to continue manual setting of all 4 OUTPUT channels as desired.

When complete, simply press the ESCAPE button—exiting of configuration mode is indicated by no matrix text in the LCD flashing.

CONFIG MODE

CONFIG or CONFIGURATION MODE is entered by pressing the OPERATE/CONFIG button so the button is DEPRESSED or "IN". When first depressing the CONFIG button, the LCD will read:

```
15Jan05                    11:32
R/L to choose
```
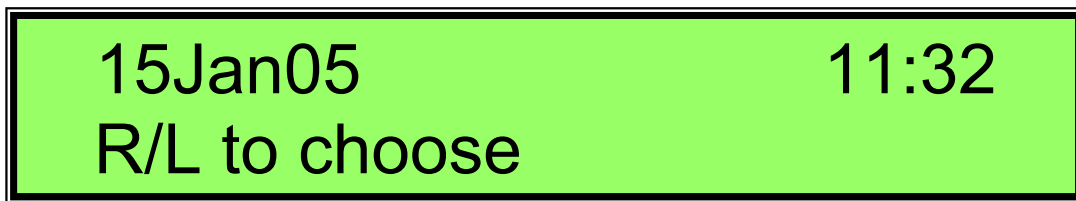
The second line "R/L to choose" alternates with "Enter to Select" on all configuration screens. At this first time and date level, proper values may be set (the AVR contains an internal battery to maintain settings even if disconnected from main power).

Date/Time

To set the DATE and TIME press the ENTER button. The DAY of MONTH (15 in our example) will flash, indicating that it may be adjusted. Set the date using the UP and DOWN buttons as required. Set the remaining date and time variables (Month, Year, Hour, Minutes) by pressing the RIGHT and LEFT buttons, then adjusting the feature with the UP and DOWN buttons.

When the DATE and TIME are satisfactorily set, press the ENTER button to confirm and set the values.

After ENTER is pressed, and no DATE or TIME characters are flashing, additional configurations may be made by pressing the RIGHT or LEFT button.

Schedule Setting

The AVR8 can operate in a stand-alone mode from programmed schedules. The programming will force the device to RECALL a MEMORY POSITION (1 through 15) at a specific date and time (to the minute). MEMORY POSITIONS are programmed via RS-232 only, but consist of AUDIO and VIDEO input and output configurations.

When the LCD indicates SCHEDULE SETTING mode as seen in the next figure

```
SCHEDULE SETTING
Enter to select
```

(Remember, the second line "R/L to choose" alternates with "Enter to Select" on all configuration screens.)

Press the ENTER button; the LCD will now indicate and allow the user to change with of the TWO SCHEDULES is about to be programmed. Use the UP or DOWN buttons to change which schedule is being programmed.

```
SCH NUM.:  1
U/D to change
```

Once the desired schedule is selected, press the ENTER button to set. The LCD will now indicate parameters for the selected SCHEDULE:

```
ACT SCH 1:  On
Enter to confirm
```
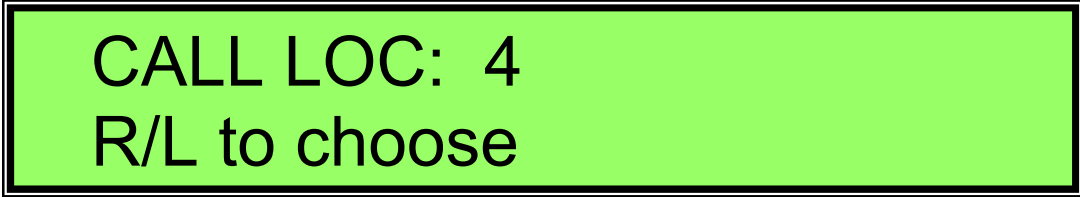
The first parameter to set is to set the SCHEDULE to ON or OFF; use the UP and DOWN buttons to set, and press ENTER.

Next, press the RIGHT button to set the DATE and TIME for the event to occur—this setting functions same as setting current date and time, except now the setting indicates when an event will occur:

```
15Jan05              11:32
R/L to choose
```

To set, press the ENTER button so the DAY of MONTH variable is flashing—use the UP and DOWN buttons to change the values—use the RIGHT and LEFT buttons to change the variable to be adjusted. When complete, press ENTER.

Press the RIGHT button again for the next schedule parameter:

```
CALL LOC:  4
R/L to choose
```

CALL LOC or RECALL LOCATION will recall the set memory location at the preprogrammed time and date. Press ENTER to change which memory location will be recalled using the UP and DOWN buttons. Once set, press ENTER again to confirm.

All parameters for scheduling are now set, press the ESCAPE button twice to return to the normal CONFIGURATION MENU (Indicated by the LCD as shown below):

```
SCHEDULE SETTING
Enter to select
```

Press the RIGHT button again. This will indicate the current condition for GPI (General Purpose Input or Interrupt), as either H (High) or L (Low). High indicates an OPEN, or whatever type switch is connected, is not currently engaged. Low indicates a short, or ground conditions, such as a CLOSED CONTACT CLOSURE (or simple switch).

GPI

No user settings are manually made on this screen:

```
GPI:  1L    2L    3L    4L
R/L to choose
```

GPO

Press the RIGHT button. The LCD will now indicate that GPO (General Purpose Output) programming mode is selected. GPO's may be programmed to trigger external GPI devices. Their values can be manually set through the front control panel; press the ENTER button to select which GPO to set, and how to set (either HIGH or LOW).

```
GPO:  1L    2L    3L    4L
Enter to select
```

Once programmed, press ESCAPE and then press the RIGHT button again.

Unit Address

This will open the ADDRESS programming screen:

```
ADDRESS:  A
R/L to choose
```
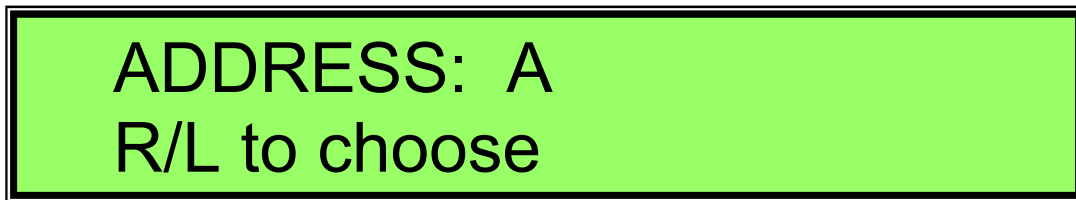
The communication address of the unit may be set to "A", "B", "C", or "D". This allows up to four devices to be connected to a single RS-232 controller. Press ENTER and use the UP and DOWN buttons to set the value. Be sure you note this value when programming your RS-232 interface. Once set, press ESCAPE—back on the main screen again, press the RIGHT button to set the Ethernet connection:

Press ENTER to access the sub-menus setting the parameters of the network, or Ethernet, connection.

Ethernet Config

```
ETH. CONFIG
Enter to select
```

The first selection is DHCP on or off. If DHCP is an unfamiliar term, an information technology or equivalent technician should be contacted prior to making any setting changes (if you intend to use the device over the intranet or even Internet.

```
DHCP:  Off
Enter to select
```

To change this setting, press the ENTER key—the current value (OFF or ON) will flash; use the UP or DOWN buttons to change—Press ENTER when complete. Press the RIGHT button for the next Ethernet sub-menu:

```
IP ADDRESS
Enter to select
```

Press the ENTER key to change the IP ADDRESS of the unit if DHCP OFF was selected previously. Press ENTER to see the assigned IP if DHCP ON was selected and the system is connected to a proper DHCP server via a local network connection.

If DHCP OFF was selected, and an IP address is to be entered, ensure a proper address for the network is obtained from the network administrator. Enter that address here (after pressing ENTER as described above):

```
192.168.1.1
Enter to select
```

To change this setting to the proper IP address you have been assigned, press the ENTER button—the first OCTAVE of the IP address will flash—use the UP and DOWN buttons to set. Use the RIGHT and LEFT buttons to change which octave of the IP is being changed. Once the proper IP is entered, press the ENTER button to set and confirm.   Press ESCAPE to return to the ETHERNET sub-menu. Press the RIGHT button from the sub-menu to access GATEWAY:

```
GATEWAY
Enter to select
```

If the unit is assigned a STATIC IP address, and is intended to be accessed via the Internet, a proper GATEWAY address must be entered. Ensure the address entered is properly assigned by the network administrator. Press ENTER to program the GATEWAY. Press ENTER to confirm, and ESCAPE to exit back to the Ethernet Sub-Menu. From the Sub-Menu, press the RIGHT button again to access NETMASK:

```
NetMask
Enter to select
```

If the NETWORK MASK is to be set (again, meaning the IP is static and not DHCP), press ENTER to set the value. A standard default SUBNET MASK is 255.255.255.0. The Network Administrator should assign the proper number. Failure to enter proper addresses and masks for a particular network is guaranteed to ensure the unit does not receive network instructions. Every address and mask must be correct for proper function. It is highly recommended to consult IT and NETWORK administrators prior to setting up these values. Once set, press ENTER and ESCAPE to return to the Ethernet Sub-menu. Press the RIGHT button to enter PORT settings:

```
PORT NUMBER
Enter to select
```

Network connections require PORTS besides the standard IP addresses. If the network the AVR8 is to communicate on has high-levels of security, there may be ports that are blocked access. This is done to prevent hackers and malicious code from infecting networks. The AVR8 port should only be changed if a Network Administrator has assigned a port and opened a port for its operation.

The AVR8 defaults to PORT 3000, but if it must be changed, press ENTER and use the UP and DOWN buttons to set the port as directed by the network administrator. Press ENTER to confirm once the proper value is set and press EXIT twice to return to the Ethernet Sub-menu.
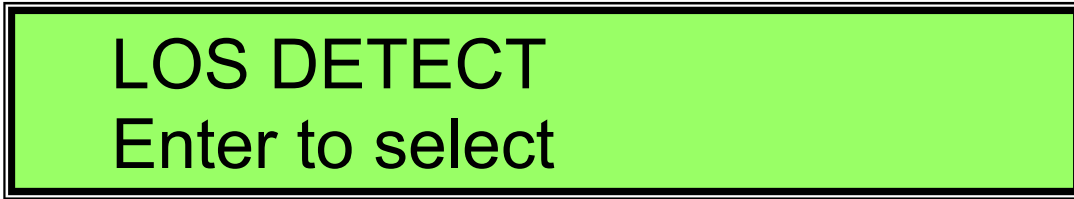
That completes Ethernet settings—the LCD should again read Eth. Config as below

```
ETH. CONFIG
R/L to choose
```

LOS Detect Setup

Press the RIGHT button to access the LOS menu level.

The LCD should now indicate LOS Detect:

```
LOS DETECT
Enter to select
```

LOS is an advanced feature on the AVR8 that protects your programming channel from dead air. LOS stands for LOSS of SYNC. The circuitry in the AVR8 detects the presence of valid video sync signals on each channel. The user may set the priority of the detection circuitry to ensure the proper video sources display should a problem with one or more be encountered.

The LOS DETECT programming allows the user to set a priority list of all input channels and related to each output channel. For example, for Output 1, a priority list such as 12345678 may be programmed. What that means is that, for instance, if the AVR8 Output 1 was currently displaying INPUT 3 video, and input 3 video disappeared (as in a lost satellite signal, or a tape machine shuts down, or broken connections), the unit would automatically attempt to switch to input 1 (one) because it is the highest in the priority list.

So, if, for example, input 8 was to be the default channel should current video programming fail, the priority list would be programmed as such: 81234567—it does matter what follows the leading "8" because if 8 was unavailable, the unit would try "1", then "2" and so on until it finds a valid video signal.

To set the PRIORITY LIST for each output channel detection circuitry, press ENTER. The LCD will indicate which OUTPUT channel is to be programmed:

```
OUT CONFIG:  1
Enter to select
```
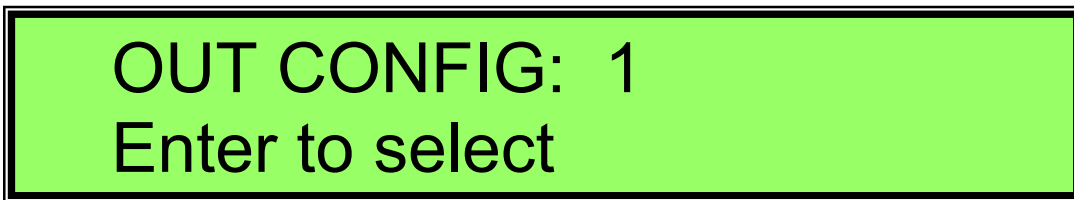
Use the UP and DOWN buttons to select which output (1 through 4) is being programmed, then press ENTER:

```
LOS_DETECT:  ON
Enter to select
```

Press ENTER to change the status of the LOS DETECT, either OFF or ON. ON would be the suggested setting. Press ENTER once completed setting, then press the RIGHT button to program the PRIORITY LIST.

```
LIST:  12345678
R/L to choose
```

Press ENTER, and the first item in the list should flash—use the UP and DOWN buttons to set the priority list as desired.   It is possible to set all 8 positions in the list to the same value, beware this could cause issues should failure on that channel occur—the air will be dead. Once programmed, press ENTER to confirm, and EXIT twice to return to the main CONFIG Menu, as indicated by the LOS Detect screen:

```
LOS DETECT
Enter to select
```

Version

Press the RIGHT button to access the VERSION menu.

```
VERSION
Enter to select
```

Press the ENTER button to view the current software version loaded in the AVR8. Press ESCAPE to return to the main CONFIG MENU

That concludes configuring the AVR8 via the Front Panel.

Be sure to return the device to OPERATE MODE by pressing the OPERATE/CONFIG button so that it is EXTENDED or "OUT" and the LCD indicates the current matrix settings:

```
O1:  V1A1          O2:  V1A1
O3:  V1A1          O4:  V1A1
```

RS-232 Programming

The AVR8 may be controlled via RS-232, Ethernet, or USB. The commands for all three methods are the same. Ethernet and one of the two serial methods (USB or RS-232) are active simultaneously. This allows the unit to be under direct control of another device, such as a MediaXtreme, and still provide the operator a means of instant override via the Network.

Serial Protocol is: 9600, 8, N, 1, and N. Use a standard NULL MODEM cable as provided with the unit for communications with all other serial devices.

The command set is as follows:

(RS-232, USB, Ethernet).

@aMw*xyz*;

Where: @ = start of message
              a = address (a, b, c, or d for control of 4 units)
              M = Matrix Control Command
              w = Video Input Channel (1, 2, 3, 4, 5, 6, 7, 8)
              x = Audio Input Channel (1, 2, 3, 4, 5, 6, 7, 8)
              y = Video Output Channel (1, 2, 3, 4)
              z = Audio Output Channel (1, 2, 3, 4)
              ; = end of message

Sample Command: @aM1122;
Result: AVR would switch video and audio inputs #1 to video and audio outputs #2

@aO*wxyz*;

Where: @ = start of message
              a = address (a, b, c, or d for control of 4 units)
              O = GP Output Command
              w = 1 or 0 (1 = GPI Hi, 0 = GPI Lo)
              x = 1 or 0 (1 = GPI Hi, 0 = GPI Lo)
              y = 1 or 0 (1 = GPI Hi, 0 = GPI Lo)
              z = 1 or 0 (1 = GPI Hi, 0 = GPI Lo)

Sample Command: @aO1111;
Result: GPO would all toggle to Hi state

@aS*vwxyz*;

Where: @ = start of message
a = address (a, b, c, or d for control of 4 units)
S = Input Store Memory Register Command
v = Memory Register (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, a, b, c, d, e, f)
w = Video Input Channel (1, 2, 3, 4, 5, 6, 7, 8)
x = Audio Input Channel (1, 2, 3, 4, 5, 6, 7, 8)
y = Video Output Channel (1, 2, 3, 4)
z = Audio Output Channel (1, 2, 3, 4)

Sample Command: @aS43311;
Result: Memory Register 4 would be stored with configuration video and audio input 3 to video and audio output 1

GPI Interface with this command:

This command will store a configuration into the designated Store register (0 thru f). Once a configuration is stored, the 4 input **GPI** positions will function together to recall a memorized configuration register per the following chart.

Register		
0	0000	Memory Location 1
1	0001	Memory Location 2
2	0010	Memory Location 3
3	0011	Memory Location 4
4	0100	Memory Location 5
5	0101	Memory Location 6
6	0110	Memory Location 7
7	0111	Memory Location 8
8	1000	Memory Location 9
9	1001	Memory Location 10
a	1010	Memory Location 11
b	1011	Memory Location 12
c	1100	Memory Location 13
d	1101	Memory Location 14
e	1110	Memory Location 15
f	1111	Memory Location 16

@aRw;

Where: @ = start of message
                a = address (a, b, c, d, for control of 4 units)
                R = Recall Stored Memory Register
                w = Memory Register
                ; = end of message

Sample Command: @aR5;
Result: Would recall stored settings from memory register 5

@aE"$$$"x;

Where   @ = start of Message
                a = address (a, b, c, d for control of 4 units)
                E = Relay Message Command
                "$$$" = String Message to send out designated Port
                x = output port (0 for RS-232, 1 for USB, and 2 for Ethernet)

Sample Command: @aE"9F 06 00 00 9F 08 FF 9E 98 06 86 06 8C 06 86 06 8C 06 8C 06 86 06 86 06 8C 06 8C 06 86 06 8C 06 86 06 7F 7B 98 06 9E 86 06 8C 06 86 06 8C 06 8C 06 86 06 86 06 8C 06 8C 06 86 06 8C 06 86 06 7F 7B 98 06 86 06 9E 8C 06 86 06 8C 06 8C 06 86 06 86 06 8C 06 8C 06 06 86 06 8C 06 86 06 7F 7F 7F 7F 7F 7F 7F 6F 80"0;
Result: This command would pass the very long string 9F 06 00 00 9F 08 FF 9E 98 06 86 06 8C 06 86 06 8C 06 8C 06 86 06 86 06 8C 06 8C 06 86 06 8C 06 86 06 7F 7B 98 06 9E 86 06 8C 06 86 06 8C 06 8C 06 86 06 86 06 8C 06 8C 06 86 06 8C 06 86 06 7F 7B 98 06 86 06 9E 8C 06 86 06 8C 06 8C 06 86 06 86 06 8C 06 8C 06 06 86 06 8C 06 86 06 7F 7F 7F 7F 7F 7F 7F 6F 80 out the RS-232 port to an external device (this example is a tape deck control command).

GPI/O Setup

The AVR8's GPI control is a Keywest Technology innovation. The unit is programmed so that 4 GPI ports can provide 16 different functions. The user is able to access those 16 different positions by combinations of 4 switches or contact closures as seen in the table below:

Register	GPI Port	
0	0000	Memory Location 1
1*	0001	Memory Location 2
2*	0010	Memory Location 3
3	0011	Memory Location 4
4*	0100	Memory Location 5
5	0101	Memory Location 6
6	0110	Memory Location 7
7	0111	Memory Location 8
8*	1000	Memory Location 9
9	1001	Memory Location 10
a	1010	Memory Location 11
b	1011	Memory Location 12
c	1100	Memory Location 13
d	1101	Memory Location 14
e	1110	Memory Location 15
f	1111	Memory Location 16

The REGISTER column reflects a MEMORY LOCATION (Programmed by RS-232, USB, or ETHERNET only). The second column represents the GPI ports. As can be determined from the color (and asterisked) rows, the unit can operate as a standard GPI device with four independent switches, or, reflected in the entire table, different combinations can expand the GPI capability. Register 0000 is the default, normal operations.

To operate as a 4 GPI device, program Memory Location 2 for GPI 1; Memory Location 3 for GPI 2; Memory Location 5 for GPI 3; Memory Location 9 for GPI 4.

Interface with MX Devices

The AVR8 typically connects to a MX1 or MX5 via RS-232. Use a NULL MODEM cable provided with the device to connect to an available serial port on the MX1 or MX5. Note the serial port you are connecting to on the MX device, as that number will be used to program scheduled events for the AVR8.

Under command of an MX product, no further programming of the AVR8 is really required. The unit will respond to commands instantly upon receipt.

Technical Support:

Keywest Technology Technical Support standard hours are 9:00 AM to 5:00 PM Central Time.

Our Technical Support Number for Registered users is:

800-331-2019

Unregistered Users Dial:

913-492-4666

After Hours Support Available—Follow Instructions at the Above Numbers.

On-Line Support Available at www.mediaxtreme.tv

	AIM:	Keywest_Xtreme
	Yahoo:	Media_Xtreme
	MSN:	tech@keywesttechnology.com
	ICQ:	113986832
	Email:	tech@keywesttechnology.com

KEYWEST TECHNOLOGY
LIMITED WARRANTY

KEYWEST TECHNOLOGY does hereby declare that the said product be covered under limited warranty for defective materials and workmanship. This warranty is extended to the original purchaser only, for the amount of time indicated below, effective from the original purchase date and subject to the following:

****THIS WARRANTY DOES NOT COVER****

A. Products that have been subjected to abuse, accident, alteration, modification, tampering, negligence, misuse, or if repaired or attempted repair performed by anyone other than a service facility authorized to render such service, or if the model or serial number has been altered, tampered with, defaced, or removed

B. Operational adjustments covered in this manual

WARRANTY PERIOD: 2 Years Parts & Labor

Register On-Line for Full Warranty Benefits