

DMON-4S

**Quad (3G/HD/SD)-SDI to HDMI
Multi-Viewer and Converter**

Operating Manual for Firmware Version 2.0



Introduction

Thank you for purchasing the DMON-4S Quad (3G/HD/SD)-SDI to HDMI Multi-Viewer and Converter.

The DMON-4S is a truly portable converter, which incorporates our new easy to use LCD and button control system. The DMON-4S features 4 independent mini HDMI outputs that can each output any of the four (3G/HD/SD)-SDI inputs or a Multi-View of all them.

For example you could use the unit to have:

- 4 independent SDI to HDMI converters
- 3 independent SDI to HDMI converters with a Multi-View output
- 2 independent SDI to 2 x HDMI converters with loop through
- A single SDI or Multi-View to 4 x HDMI outputs

The DMON-4S also features the following:

- Low cost miniature (3G/HD/SD)-SDI 1 to 4 channel Multi-Viewer or 4 to 1 input multiplexer
- 4 x (3G/HD/SD)-SDI inputs with auto detection (26 Formats supported in total)
- Supports both 3G level A and B on the inputs
- Inputs 2 and 4 can be individually changed to output active loop copies of inputs 1 and 2 respectively
- Custom Layouts with various standard layouts
- 16 Character UMD overlay per window with individual enables, custom positioning and size
- Audio ID overlay
- Each window in the Multi-Viewer can be horizontally and/or vertically flipped
- Load and restore Custom Layouts
- Fast switching between inputs using Full-Screen scaling
- Selectable output format in both Full-Screen and Multi-Viewer mode
- Low latency buffering for each input allowing non-synchronous inputs
- Each window is independent of the others, allowing any 3G/HD/SD format of any frame rate to be displayed simultaneously
- Variable aspect ratios per window
- Multi-Viewer mode allows selection of audio from any window

This unit also includes:

- USB port for control and firmware updates
- Heavy duty metal box
- New Metal Thread Locking DC Power Socket
- Power Supply, HDMI Cable and USB Cable

Main Menu

Upon power up the unit will start in the Main Menu pointing to Input Status.

The Main Menus are:

1. Input Status
2. Control
3. Multi-View
4. M.V. Routing
5. M.V. Colours
6. M.V. UMDs
7. M.V. Flip
8. Setup

Press the < and > buttons to move left or right through the menus.

To enter into a menu press the ENTER button.

Notes:

1. Defaults are highlighted in yellow.
2. When an option is changed, a highlighted **S** will appear in the top right of the LCD screen and will disappear when the options are saved after 10 seconds. Avoid powering down the unit during this time.
3. You can always return to the Main Menu by pressing the BACK button twice.
4. As you move through the menus changing parameters, they will be instantly applied to the output signal.

Input Status: (Has no SUB-MENUs)

1: 3GB 1080p59.94	←Current format on SDI Input 1
2: 3GA 1080p50	←Current format on SDI Input 2
3: SD 480i59.94	←Current format on SDI Input 3
4: HD 1080i59.94	←Current format on SDI Input 4

Control: (Has SUB-MENUs)

Control	←Main Menu
HDMI Out1 Type	←Sub Menu
HDMI RGB444 2C	←Parameter Window

When highlighted in the Main Menu, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right respectively through the 10 menus below and press the BACK button to go back to the Main Menu when finished.

The current value for each Sub Menu is shown in the Parameter Window.

1. Control / HDMI Out1 Type (Parameter)

This is the current HDMI output type for output 1.

When the sub menu is highlighted, press ENTER to toggle through the following types:

- 1.) DVI RGB444 ←DVI-D RGB 4:4:4
- 2.) HDMI RGB444 2C ←HDMI RGB 4:4:4 with 2-Channels of Audio
- 3.) HDMI YCbCr444 2C ←HDMI YCbCr 4:4:4 with 2-Channels of Audio
- 4.) HDMI YCbCr422 2C ←HDMI YCbCr 4:2:2 with 2-Channels of Audio
- 5.) HDMI RGB444 8C ←HDMI RGB 4:4:4 with 8-Channels of Audio
- 6.) HDMI YCbCr444 8C ←HDMI YCbCr 4:4:4 with 8-Channels of Audio
- 7.) HDMI YCbCr422 8C ←HDMI YCbCr 4:2:2 with 8-Channels of Audio

2. Control / HDMI Out2 Type (Parameter)

This is the current HDMI output type for output 2.

This sub menu operates the same as Control / HDMI Out1 Type.

3. Control / HDMI Out3 Type (Parameter)

This is the current HDMI output type for output 3.

This sub menu operates the same as Control / HDMI Out1 Type.

4. Control / HDMI Out4 Type (Parameter)

This is the current HDMI output type for output 4.

This sub menu operates the same as Control / HDMI Out1 Type.

5. Control / HDMI Out1 Source (Parameter)

This is the current source for HDMI output 1.

When the sub menu is highlighted, press ENTER to toggle through the following sources:

1.) Multi-View 2.) Input 1 3.) Input 2 4.) Input 3 5.) Input 4

6. Control / HDMI Out2 Source (Parameter)

This is the current source for HDMI output 2.

When the sub menu is highlighted, press ENTER to toggle through the following sources:

1.) Multi-View 2.) Input 1 3.) Input 2 4.) Input 3 5.) Input 4

7. Control / HDMI Out3 Source (Parameter)

This is the current source for HDMI output 3.

When the sub menu is highlighted, press ENTER to toggle through the following sources:

1.) Multi-View 2.) Input 1 3.) Input 2 4.) Input 3 5.) Input 4

8. Control / HDMI Out4 Source (Parameter)

This is the current source for HDMI output 4.

When the sub menu is highlighted, press ENTER to toggle through the following sources:

1.) Multi-View 2.) Input 1 3.) Input 2 4.) Input 3 5.) Input 4

9. Control / Loop 2 Enable (Parameter)

This enables a loop through copy of input 1 on BNC 2.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

1.) No 2.) Yes

10. Control / Loop 4 Enable (Parameter)

This enables a loop through copy of input 3 on BNC 4.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

1.) No 2.) Yes

Multi-View: (Has SUB-MENUs)

Multi-Viewer

MV Audio Source

Input 1

← Main Menu

← Sub Menu

← Parameter Window

When highlighted in the Main Menu, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right respectively through the 8 menus below and press the BACK button to go back to the Main Menu when finished.

The current value for each Sub Menu is shown in the Parameter Window.

1. Multi-View / Output Select (Parameter)

This is the current source for the HDMI and SDI outputs.

When the parameter is highlighted, press the ENTER button to toggle through the following selections:

2.) Multi-View 2.) Window 1 3.) Window 2 4.) Window 3 5.) Window 4

2. Multi-View / Output Format (Parameter / Left and Right Adjust)

This is the current output format for the Multi-Viewer.

When the sub menu is highlighted, press the ENTER button to enter the Parameter Window.

Press the < and > buttons to move left or right through the 21 video formats listed below and the BACK button to leave this SUB-MENU.

1. SD 720x487i59.94	10. HD 1920x1080p25	17. HD 1280x720p29.97
2. SD 720x576i50	11. HD 1920x1080p24	18. HD 1280x720p25
5. HD 1920x1080i60	12. HD 1920x1080p23.98	19. 3G 1920x1080p60
6. HD 1920x1080i59.94	13. HD 1280x720p60	20. 3G 1920x1080p59.94
7. HD 1920x1080i50	14. HD 1280x720p59.94	21. 3G 1920x1080p50
8. HD 1920x1080p30	15. HD 1280x720p50	
9. HD 1920x1080p29.97	16. HD 1280x720p30	

3. Multi-View / Windows (Parameter / Enter Toggle)

This is the current number of windows shown on the multi-view output.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

1.) 01 2.) 02 3.) 03 4.) 04

4. Control / Layout (Parameter / Left and Right Adjust)

This is the current layout of the multi-viewer, there are 32 layouts selectable per format and multi-viewer window number. 10 of these are predefined layouts. When the sub menu is highlighted, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right through the following layouts:

- | | |
|----------------------------|---------------------------|
| 1.) 100% | 7.) 90% with Gap |
| 2.) 100% with Border | 8.) 90% with Border + Gap |
| 3.) 90% | 9 to 30.) Custom |
| 4.) 90% with Border | 31.) Top to Bottom |
| 5.) 100% with Gap | 32.) Left to Right |
| 6.) 100% with Border + Gap | |

Notes:

For every 'Format' and 'Number of Windows' there are 32 layouts.

When **Output Select** is set to Windows 1 to 4, the layout for 1 window will be used.

E.g. for a 1920x1080i60 format showing 4 windows there are 32 layouts tied to this output, if the number of windows is changed to 3 there are also 32 separate layouts attached to this setting.

5. Multi-View / MV Audio Source (Parameter)

This selects which window the audio is extracted from for the Multi-Viewer output.

When the sub menu is highlighted, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right through the following sources:

- 1.) Window 1 2.) Window 2 3.) Window 3 4.) Window 4

6. Multi-View / Reference (Parameter)

This is reference for the Multi-Viewer.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) Input 1 2.) Free-Run

7. Multi-View / Format Status (Parameter)

When an input is detected the DMON-4S will display the format detected in the top left of each window by default unless the location has been modified via the USB Control Panel. When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) Show for 5 sec 2.) Show Always 3.) Off

8. Multi-View / Audio Source ID (Parameter)

The Audio Source Identification icon will appear when selecting which window the audio will be passed from to the output when in multi-viewer mode. This option toggles whether the icon is shown to indicate the window source the audio is coming from. This icon appears in front of the Format Status. When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) Show for 5 sec 2.) Show Always 3.) Off

M.V. (Multi-View) Routing: (Has SUB-MENUS)

M.V. Routing

Window 1 Source

Input 1

←Main Menu

←Sub Menu

←Parameter Window

When highlighted in the Main Menu, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right respectively through the 4 menus below and press the BACK button to go back to the Main Menu when finished.

The current value for each Sub Menu is shown in the Parameter Window.

1. M.V. Routing / Window 1 Source (Parameter / Enter Toggle)

This is the input source for window 1.

When the sub menu is highlighted, press ENTER to toggle through the following sources:

- 1.) Input 1 2.) Input 2 3.) Input 3 4.) Input 4

2. M.V. Routing / Window 2 Source (Parameter / Enter Toggle)

This is the input source for window 2.

When the sub menu is highlighted, press ENTER to toggle through the following sources:

- 1.) Input 1 2.) Input 2 3.) Input 3 4.) Input 4

3. M.V. Routing / Window 3 Source (Parameter / Enter Toggle)

This is the input source for window 3.

When the sub menu is highlighted, press ENTER to toggle through the following sources:

- 1.) Input 1 2.) Input 2 3.) Input 3 4.) Input 4

4. M.V. Routing / Window 4 Source (Parameter / Enter Toggle)

This is the input source for window 4.

When the sub menu is highlighted, press ENTER to toggle through the following sources:

- 1.) Input 1 2.) Input 3 3.) Input 3 4.) Input 4

M.V. (Multi-View) Colours: (Has SUB-MENUs)

M.V. Colours

Background Color

Black

←Main Menu

←Sub Menu

←Parameter Window

When highlighted in the Main Menu, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right respectively through the 6 menus below and press the BACK button to go back to the Main Menu when finished.

The current value for each Sub Menu is shown in the Parameter Window.

1. M.V. Colours / Background Colour (Parameter / Left and Right Adjust)

This is background colour for the Multi-Viewer.

When the sub menu is highlighted, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right through the following colours:

- | | | | |
|-----------|-----------|-------------|------------|
| 1.) Black | 3.) Green | 5.) Red | 7.) Yellow |
| 2.) Blue | 4.) Cyan | 6.) Magenta | 8.) White |

2. M.V. Colours / Border Colour (Parameter / Left and Right Adjust)

This is border colour for the Multi-Viewer.

When the sub menu is highlighted, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right through the following colours:

- | | | | |
|-----------|-----------|-------------|------------|
| 1.) Black | 3.) Green | 5.) Red | 7.) Yellow |
| 2.) Blue | 4.) Cyan | 6.) Magenta | 8.) White |

3. M.V. Colours / UMD Foreground (Parameter / Left and Right Adjust)

This is the UMD colour and transparency setting for the text.

When the sub menu is highlighted, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right through the following colours:

1. None	10. Black (Transparent 25%)	19. Blue (Transparent 0%)
2. Black (Transparent 50%)	11. Blue (Transparent 25%)	20. Green (Transparent 0%)
3. Blue (Transparent 50%)	12. Green (Transparent 25%)	21. Cyan (Transparent 0%)
4. Green (Transparent 50%)	13. Cyan (Transparent 25%)	22. Red (Transparent 0%)
5. Cyan (Transparent 50%)	14. Red (Transparent 25%)	23. Magenta (Transparent 0%)
6. Red (Transparent 50%)	15. Magenta (Transparent 25%)	24. Yellow (Transparent 0%)
7. Magenta (Transparent 50%)	16. Yellow (Transparent 25%)	25. White (Transparent 0%)
8. Yellow (Transparent 50%)	17. White (Transparent 25%)	
9. White (Transparent 50%)	18. Black (Transparent 0%)	

4. M.V. Colours / UMD Background (Parameter / Left and Right Adjust)

This is the UMD colour and transparency setting for the background of the UMDs.

When the sub menu is highlighted, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right through the following colours:

1. None	10. Black (Transparent 25%)	19. Blue (Transparent 0%)
2. Black (Transparent 50%)	11. Blue (Transparent 25%)	20. Green (Transparent 0%)
3. Blue (Transparent 50%)	12. Green (Transparent 25%)	21. Cyan (Transparent 0%)
4. Green (Transparent 50%)	13. Cyan (Transparent 25%)	22. Red (Transparent 0%)
5. Cyan (Transparent 50%)	14. Red (Transparent 25%)	23. Magenta (Transparent 0%)
6. Red (Transparent 50%)	15. Magenta (Transparent 25%)	24. Yellow (Transparent 0%)
7. Magenta (Transparent 50%)	16. Yellow (Transparent 25%)	25. White (Transparent 0%)
8. Yellow (Transparent 50%)	17. White (Transparent 25%)	
9. White (Transparent 50%)	18. Black (Transparent 0%)	

5. **M.V. Colours / Format ForeGrnd (Parameter / Left and Right Adjust)**

This is the Status Format text colour and transparency setting.

When the sub menu is highlighted, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right through the following colours:

1. None	10. Black (Transparent 25%)	19. Blue (Transparent 0%)
2. Black (Transparent 50%)	11. Blue (Transparent 25%)	20. Green (Transparent 0%)
3. Blue (Transparent 50%)	12. Green (Transparent 25%)	21. Cyan (Transparent 0%)
4. Green (Transparent 50%)	13. Cyan (Transparent 25%)	22. Red (Transparent 0%)
5. Cyan (Transparent 50%)	14. Red (Transparent 25%)	23. Magenta (Transparent 0%)
6. Red (Transparent 50%)	15. Magenta (Transparent 25%)	24. Yellow (Transparent 0%)
7. Magenta (Transparent 50%)	16. Yellow (Transparent 25%)	25. White (Transparent 0%)
8. Yellow (Transparent 50%)	17. White (Transparent 25%)	
9. White (Transparent 50%)	18. Black (Transparent 0%)	

6. **M.V. Colours / Format BackGrnd (Parameter / Left and Right Adjust)**

This is the Status Format text background colour and transparency setting.

When the sub menu is highlighted, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right through the following colours:

1. None	10. Black (Transparent 25%)	19. Blue (Transparent 0%)
2. Black (Transparent 50%)	11. Blue (Transparent 25%)	20. Green (Transparent 0%)
3. Blue (Transparent 50%)	12. Green (Transparent 25%)	21. Cyan (Transparent 0%)
4. Green (Transparent 50%)	13. Cyan (Transparent 25%)	22. Red (Transparent 0%)
5. Cyan (Transparent 50%)	14. Red (Transparent 25%)	23. Magenta (Transparent 0%)
6. Red (Transparent 50%)	15. Magenta (Transparent 25%)	24. Yellow (Transparent 0%)
7. Magenta (Transparent 50%)	16. Yellow (Transparent 25%)	25. White (Transparent 0%)
8. Yellow (Transparent 50%)	17. White (Transparent 25%)	
9. White (Transparent 50%)	18. Black (Transparent 0%)	

M.V. (Multi-View) UMDs: (Has SUB-MENUs)

M.V. Flip

Window 1 H Flip

No

←Main Menu

←Sub Menu

←Parameter Window

When highlighted in the Main Menu, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right respectively through the 7 menus below and press the BACK button to go back to the Main Menu when finished.

The current value for each Sub Menu is shown in the Parameter Window.

1. **M.V. UMDs / All On (Action)**

Pressing ENTER when this submenu is selected will turn all UMD overlays on.

2. **M.V. UMDs / All Off (Action)**

Pressing ENTER when this submenu is selected will turn all UMD overlays off.

3. **M.V. UMDs / W1 UMD Enable (Parameter)**

This enables the UMD on Multi-View Window 1.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

1.) Yes

2.) No

4. **M.V. UMDs / W2 UMD Enable (Parameter)**

This enables the UMD on Multi-View Window 2.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

1.) Yes

2.) No

5. **M.V. UMDs / W3 UMD Enable (Parameter)**

This enables the UMD on Multi-View Window 3.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) Yes 2.) No

6. **M.V. UMDs / W4 UMD Enable (Parameter)**

This enables the UMD on Multi-View Window 4.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) Yes 2.) No

7. **M.V. UMDs / UMD Justify (Parameter)**

This parameter determines whether the text inside the 16 character window is centred, left or right justified.

When the sub menu is highlighted, press ENTER to toggle through the following options:

- 1.) Centre 2.) Left 3.) Right

M.V. (Multi-View) Flip: (Has SUB-MENUs)

M.V. Flip

Window 1 H Flip

No

←Main Menu

←Sub Menu

←Parameter Window

When highlighted in the Main Menu, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right respectively through the 8 menus below and press the BACK button to go back to the Main Menu when finished.

The current value for each Sub Menu is shown in the Parameter Window.

1. **M.V. Flip / Window 1 H Flip (Parameter)**

This enables a horizontal flip on Multi-View Window 1.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) No 2.) Yes

2. **M.V. Flip / Window 1 V Flip (Parameter)**

This enables a vertical flip on Multi-View Window 1.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) No 2.) Yes

3. **M.V. Flip / Window 2 H Flip (Parameter)**

This enables a horizontal flip on Multi-View Window 2.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) No 2.) Yes

4. **M.V. Flip / Window 2 V Flip (Parameter)**

This enables a vertical flip on Multi-View Window 2.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 3.) No 4.) Yes

5. **M.V. Flip / Window 3 H Flip (Parameter)**

This enables a horizontal flip on Multi-View Window 3.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) No 2.) Yes

6. **M.V. Flip / Window 3 V Flip (Parameter)**

This enables a vertical flip on Multi-View Window 3.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) No 2.) Yes

7. **M.V. Flip / Window 4 H Flip (Parameter)**

This enables a horizontal flip on Multi-View Window 4.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) No
- 2.) Yes

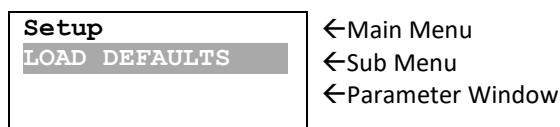
8. **M.V. Flip / Window 4 V Flip (Parameter)**

This enables a vertical flip on Multi-View Window 4.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) No
- 2.) Yes

Setup: (Has SUB-MENUs)



When highlighted in the Main Menu, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right respectively through the 6 menus below and press the BACK button to go back to the Main Menu when finished.

The current value for each Sub Menu is shown in the Parameter Window.

1. **SETUP / LOAD DEFAULTS (Action)**

When highlighted in the Menu Window, press the ENTER button to load the default settings. The device will be reset to the Main Menu Input Status.

2. **SETUP / LCD OFF TIME (Parameter)**

This is the time taken for the LCD light to turn off after the last button press.

When the sub menu is highlighted, press ENTER to toggle through the following times:

- 1.) 5 seconds
- 2.) 15 seconds
- 3.) 30 seconds
- 4.) 1 minute
- 5.) 5 minutes
- 6.) 10 minutes
- 7.) 30 minutes
- 8.) Never

3. **SETUP / BACK2STATUS TIME (Parameter)**

This is the time before the main menu is returned to Input Status after the last button press.

When the sub menu is highlighted, press ENTER to toggle through the following times:

- 1.) 5 seconds
- 2.) 15 seconds
- 3.) 30 seconds
- 4.) 1 minute
- 5.) 5 minutes
- 6.) 10 minutes
- 7.) 30 minutes
- 8.) Never

4. **SETUP / AUTO SAVE (Parameter)**

This parameter will determine if any changes will be saved to memory when changes are made.

When the sub menu is highlighted, press ENTER to toggle through the following selections:

- 1.) Yes
- 2.) No

5. **SETUP / Demo Cycle (Parameter)**

The Demo cycle setting is used for cycling through multiple layouts, windows or inputs on a time delay. When the sub menu is highlighted, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right through the following cycle types:

- 1.) None
- 2.) Output Select
- 3.) MV Windows
- 4.) MV Layouts

6. SETUP / Demo Cycle Time (Parameter)

The Demo Cycle Time determines the amount of time to elapse before cycling to the next item. When the sub menu is highlighted, press the ENTER button to enter this sub-menu.

Press the < and > buttons to move left or right through the time until the unit moves to the next item in the cycle.

Default time is 10 Seconds, Maximum time is 256 Seconds

Note: The parameter will only be updated when leaving this sub-menu.

SERVICE WARRANTY

Decimator Design warrants that this product will be free from defects in materials and workmanship for a period of 36 months from the date of purchase. If this product proves to be defective within this warranty period, Decimator Design, at its discretion, will either repair the defective product without charge for parts and labour, or will provide a replacement product in exchange for the defective product.

In order to service under this warranty, you the Customer, must notify Decimator Design of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to a designated service centre nominated by Decimator Design, with shipping charges prepaid. Decimator Design shall pay for the return of the product to the Customer if the shipment is to a location within the country in which the Decimator Design service centre is located. The Customer shall be responsible for paying all shipping charges, insurance, duties, taxes, and any other charges for products returned to any other location.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Decimator Design shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than Decimator Design representatives to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non-Decimator Design parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time of difficulty of servicing the product.