

DENSITÉ series

MMX-1801 HD/SD Metadata Embedder Guide to Installation and Operation

M862-9900-102

22 Oct 2010



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Electromagnetic Compatibility



This equipment has been tested for verification of compliance with FCC Part 15, Subpart B requirements for Class A digital devices.

NOTE: 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.



This equipment has been tested and found to comply with the requirements of the EMC directive 2004/108/CE:

- EN 55022 Class A radiated and conducted emissions
- EN 61000-3-2 Harmonic current injection
- EN 61000-3-3 Limitation of voltage changes, voltage fluctuations and flicker
- EN 61000-4-2 Electrostatic discharge immunity
- EN 61000-4-3 Radiated electromagnetic field immunity – radio frequencies
- EN 61000-4-4 Electrical fast transient immunity
- EN 61000-4-5 Surge immunity
- EN 61000-4-6 Conducted emissions immunity
- EN 61000-4-11 Voltage dips, short interruptions and voltage variations immunity
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GUIDE TO INSTALLATION AND OPERATION

1 MMX-1801 HD/SD Metadata Embedder

1.1 Introduction

The MMX-1801 is an HD/SD metadata inserter & embedder that can be used to insert an aspect ratio signalling flag (AFD, VLI, or WSS) in order to convey aspect ratio information within the HD/SD-SDI signal. Moreover, it can also embed Dolby metadata, allowing, among other things, for DialNorm and Dynamic Range Control for incoming feeds, with the use of an external Dolby metadata generator. The two GPI inputs have two possible functions – either they can be used to recall two user presets, which can be useful to trigger the insertion of specific AFD values, or else their states can be embedded in the HANC or VANC to control downstream equipment.

The simplicity and cost-effectiveness of the MMX-1801 makes it an ideal solution for managing incoming feeds.

1.2 Features

- AFD insertion for both SD and HD
- VLI inserter for SD signals in addition to WSS for 625 signals
- Dolby Metadata embedding
- Supports both HD-SDI and SD-SDI
- User preset recall via GPI
- GPI embedding in HANC or VANC } (either one, user-configured)

1.3 Block Diagram

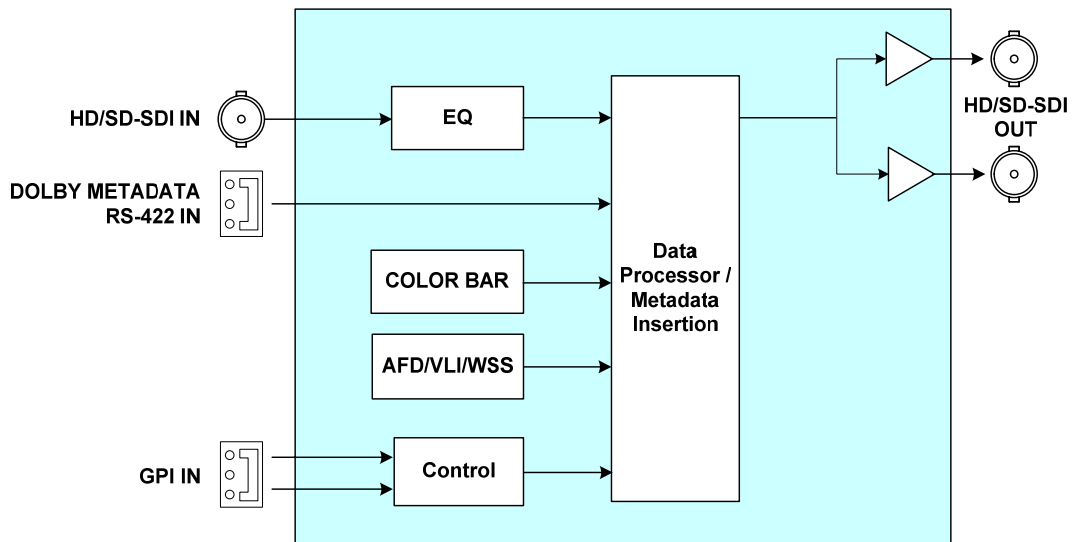


Figure 1.1 MMX-1801 Functional Block Diagram

1.4 Front Card-edge Interface

The front card-edge of the MMX-1801 incorporates two elements:

- Status LED (see section 3.2)
- Select Button (see section 3.3)

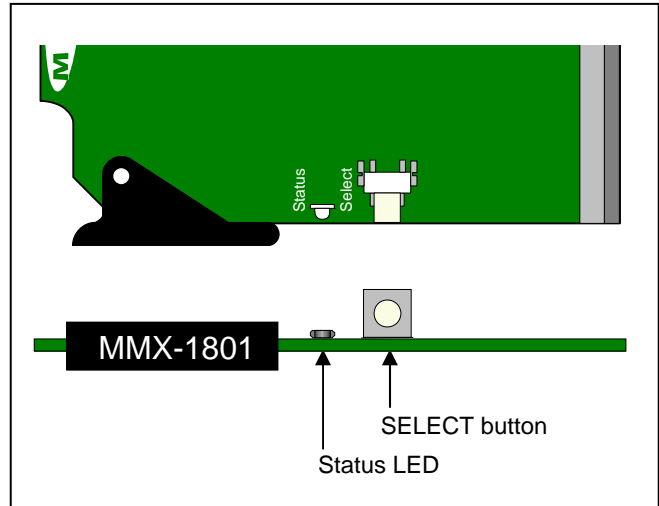


Figure 1.2 Front card-edge layout

2 Installation

2.1 Unpacking

Make sure the following items have been shipped with your MMX-1801. If any of the following items are missing, contact your distributor or Miranda Technologies Inc.

- MMX-1801 HD/SD Metadata Embedder
- MMX-1801-SRP Single Rear Panel (see figure 2.1)

2.2 Installation in the Densité frame

The MMX-1801 and its associated rear connector rear panel must be mounted in a DENSITÉ frame. It is not necessary to switch off the frame’s power when installing or removing the card. See the DENSITÉ Frame manual for detailed instructions for installing cards and their associated rear panels.

2.3 Rear Panel Connector

The MMX-1801 requires a single-width rear panel, as shown in figure 2.1

The following connectors are found on this panel:

HD/SD SDI IN – serial digital HD/SD input

Connect a serial digital video signal, conforming to the SMPTE 292M standard for HD input signals or SMPTE 259M standard for SD input signals, to the BNC labeled **HD/SD IN**. The MMX-1801 will automatically switch to the detected video line format.

HD/SD SDI OUT – serial digital video outputs

The MMX-1801 provides two HD/SD SDI video outputs on BNC connectors, labeled **HD/SD OUT 1** and **2**. The SDI video signal conforms to the SMPTE 292M and SMPTE 259M-C standard.

GPI IN connector

The rear panel WECO GPI IN connector provides two opto-isolated contact closures, allowing selection of user presets (see Section 3.4.8 for more information about user presets), or setting the state of the GPI information embedded in the HANC or VANC (see section 3.4.3 for information about metadata embedding).

Trigger the GPI-IN-1 or GPI-IN-2 pin to:

- Select and load the user preset with the same number (User Preset Mode)
- Set the state of that GPI for embedding in the HANC or VANC (GPI Embedding Mode)

WECO connector	Pin label	Function in User Preset mode	Function in GPI Embedding mode
GPI IN	1	Load User Preset 1	Set GPI 1 state
	G	GND	GND
	2	Load User Preset 2	Set GPI 2 state

RS-422 IN connector

The rear panel WECO RS-422 IN connector provides an input point for Dolby metadata that will be embedded by the MMX-1801. The signal must conform to the SMPTE RDD-6 document.

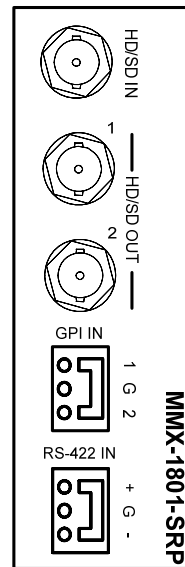


Figure 2.1 MMX-1801-SRP Rear Panel

3 Operation

3.1 Control options

The MMX-1801 can be controlled in two different ways:

- The local control panel and its push-buttons can be used to move through a menu of parameters and to adjust parameter values (see section 3.3).
- Miranda’s iControl system can be used to access the card’s operating parameters from a remote computer, using a convenient graphical user interface (GUI). (see section 3.4)

3.2 Card-Edge Status LED

The status monitor LED is located on the front card-edge of the MMX-1801, and is visible through the front access door of the DENSITÉ frame. This multi-color LED indicates the status of the MMX-1801 by color, and by flashing/steady illumination.

The chart shows how the various error conditions that can be flagged on the MMX-1801 affect the LED status.

- If a cell is gray, the error condition cannot cause the LED to assume that status
- If more than one LED status is possible for a particular error condition, the status is configurable. See Section 3.4.6 for details.
- The factory default status is shown by a ✱

The LED will always show the most severe detected error status that it is configured to display, and in the chart error severity increases from left to right, with green representing no error/disabled, and flashing red the most severe error.

Error Condition	LED Status			
	Green	Yellow	Red	Flashing Red
No input signal or input signal error			✱	
Test mode		✱		
No AFD Present	✱			
No VLI present	✱			
No WSS present	✱			
No Dolby metadata present	✱			
No rear				✱

✱ : Factory default.

If the LED is Flashing Yellow, it means that the card is selected for local control using the Densité frame’s control panel. See Section 3.3 for details.

If the LED is flashing Red/Green, the card is in the “Firmware Update” mode.

3.3 Local control using the Densité frame control panel

3.3.1 Overview

Push the SELECT button on the MMX-1801 card edge (see Section 1.4) to assign the local control panel to operate the MMX-1801. Use the control panel buttons to navigate through the menu, as described below.

All of the cards installed in a Densité frame are connected to the frame's controller card, which handles all interaction between the cards and the outside world. There are no operating controls located on the cards themselves. The controller supports remote operation via its Ethernet ports, and local operation using its integrated control panel.

The local control panel is fastened to the controller card by a hinged connector, and when installed is located in the front center of the frame, positioned in front of the power supplies. The panel consists of a display unit capable of displaying two lines of text, each 16 characters in length, and five pushbuttons.

The panel is assigned to operate any card in the frame by pushing the SELECT button on the front edge of that card.

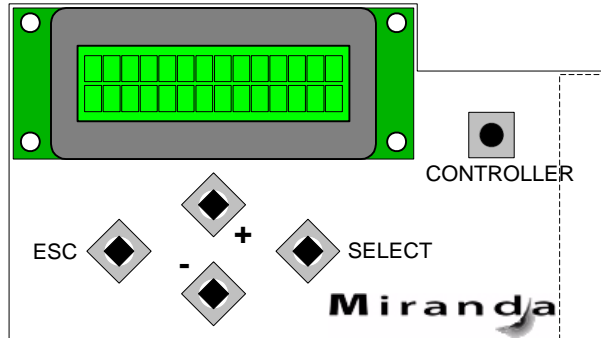


Figure 3.1 Densité Frame local control panel

- Pushing the CONTROLLER button on the control panel selects the Controller card itself.
- The STATUS LED on the selected card flashes yellow.

The local control panel displays a menu that can be navigated using the four pushbuttons located beneath the display. The functionality of the pushbuttons is as follows:

[+] [-] Used for menu navigation and value modification

[SELECT] Gives access to the next menu level. When a parameter value is shown, pushing this button once enables modification of the value using the [+] and [-] buttons; a second push confirms the new value

[ESC] Cancels the effect of parameter value changes that have not been confirmed; pushing [ESC] causes the parameter to revert to its former value.

Pushing [ESC] moves the user back up to the previous menu level. At the main menu, [ESC] does *not* exit the menu system. To exit, re-push the [SELECT] button for the card being controlled.

If no controls are operated for 30 seconds, the controller reverts to its normal standby status, and the selected card's STATUS LED reverts to its normal operating mode.

3.3.2 Menu for local control

The MMX-1801 has operating parameters which may be adjusted locally at the controller card interface.

- Press the SELECT button on the MMX-1801 front card edge to assign the Densité frame's local control panel to the MMX-1801

- Use the keys on the local control panel to step through the displayed menu to configure and adjust the MMX-1801.

The complete menu structure is shown in the Annex to this document, beginning on page 19.

3.4 Remote control using iControl or iControl Solo

The operation of the MMX-1801 may be controlled using Miranda's iControl system.

- This manual describes the control panels associated with the MMX-1801 and their use.
- Please consult the iControl User's Guide for information about setting up and operating iControl.

In iControl Navigator or iControl Websites, double-click on the MMX-1801 icon to open the control panel.

3.4.1 The iControl graphic interface window

The basic window structure for the MMX-1801 is shown in figure 3.2. The window identification line gives the card type (*MMX-1801*) and the slot number where the card installed in its Densité frame.

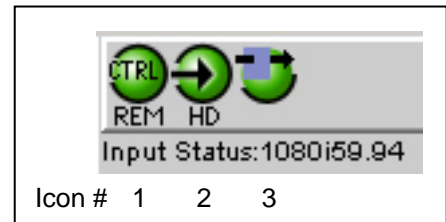


Figure 3.2 MMX-1801 iControl graphic interface window:

There are four main sections in the window itself, shown in Figure 3.2:

1. The top section displays icons on the left. These icons report different statuses such as card communication status, input signal and reference signal format and statuses. In some instances, they relate to conditions defined through parameters settings.

Move the mouse over an icon and a status message appears below



the icon providing additional information.







If there is an error, the error status message appears in the message area without mouse-over.

- If there are multiple errors, the error messages cycle so all can be seen
- The icon whose status or error message is shown is highlighted with a mauve background

The table below lists the various status icons that can appear, and how they are to be interpreted.

- In cases where there is more than one possible interpretation, read the error message in the iControl window to see which applies.

Table – iControl Status Icon interpretation

Icon #1 – Manual Card Configuration	
 (green)	Remote card control activated. The iControl interface can be used to operate the card
 (yellow)	Local card control active, The card is being controlled using the Densité frame control panel, as described in section 3.3. Any changes made using the iControl interface will have no effect on the card.
Icon #2 – Input status	
 (green)	Signal detected and valid. <ul style="list-style-type: none"> • Beneath the icon, the format will be indicated as HD or SD, and the specific format details will be listed if the cursor is moved over the icon.
 (red)	Signal absent Input signal error No rear
Icon #3 – Test status	
 (green)	Test signal OFF – normal processing of the input signal
 (yellow)	Color bar test signal activated (see Sect. 3.4.4)

2. The left portion of the window contains all the parameter groups, which become highlighted when they are selected; the main panel (4) then displays the group's set of parameters. Each of the groups is described in detail below
3. The lower section of the window identifies the Preset currently in use, or "Custom" if none is applicable.

4. The main panel contains all the parameters specific to the group selected. It may contain several tabs to help manage the different parameters.

Each of the panels associated with the groups accessed from the buttons in Section 2, and shown in Section 4, is described individually in the following sections.

3.4.2 The AFD panel

The AFD panel provides resources for the management of aspect ratio signalling in the MMX-1801.

Input Aspect Ratio

The Input Aspect Ratio section of this panel indicates the presence of aspect ratio signalling at the MMX-1801 input in any of three formats:

- AFD – Active Format Description
- VLI – Video Line Index (SD only)
- WSS – Wide Screen Signalling (SD 625 only)

If any of these is detected, the appropriate status icon will appear green, and the associated screen will display an interpretive graphic illustrating the format of the incoming aspect ratio signal.

Note: the MMX-1801 displays graphics associated with the AFD format for all incoming signals, even though these may not be exactly precise representations of the data in the VLI and WSS formats

Output Aspect Ratio

This area provides controls for the user to modify the incoming aspect ratio signal, and displays a graphic representation of the aspect ratio signal that will be used if insertion is enabled.

Note: the MMX-1801 displays graphics associated with the AFD format for all output signals, even though these may not be exact representations of the data in the VLI and WSS formats

The *Insertion* radio buttons allow the user to select the method of aspect ratio signalling that will be incorporated in the MMX-1801 output.

- OFF
- AFD
- VLI (SD only)
- WSS (SD 625 only)

If *Insertion* is OFF, then the incoming AFD, VLI and WSS can be passed through or blanked, using the radio buttons.

If *Insertion* is ON (i.e. AFD, VLI or WSS is selected), then the incoming data will be replaced by the signal format shown in the window, and the non-selected data can be passed or blanked, using the radio buttons.

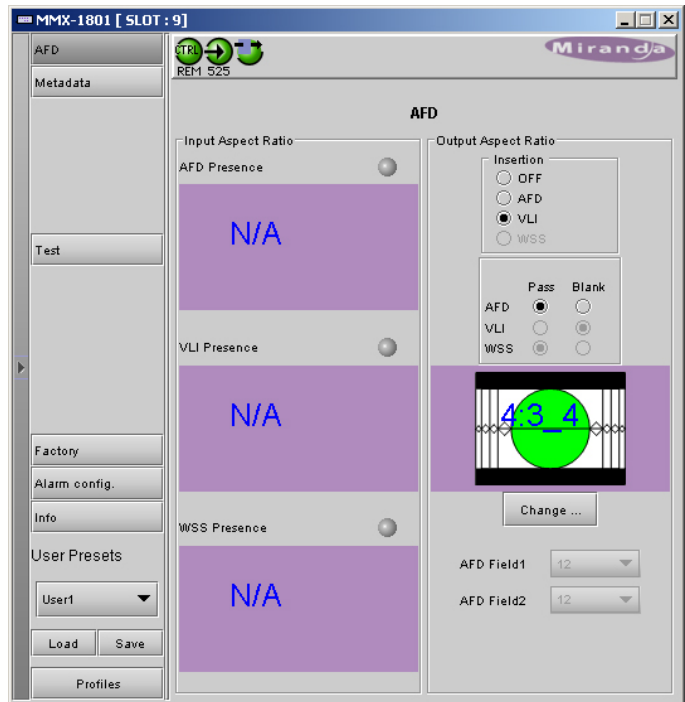


Figure 3.3 AFD panel

- Due to the structure of the VLI format, it is not possible to insert any other data (e.g. metadata, GPI) on the same line as the VLI.

The window shows the current aspect ratio signalling format selection (using the AFD format as noted above, which displays the flag code along with an interpretive graphic).

- Click the Change button to open a window allowing you to select a different AFD on the output (see figure 3.4)
- Click on an AFD in the column corresponding to the aspect ratio (4:3 or 16:9) of the signal being processed by the MMX-1801
- Click Apply to see the results while leaving this window open
- Click OK to apply the change and close the window

If AFD insertion is selected, you can select the line on which the AFD data is inserted using the AFD Field1 and AFD Field2 pulldowns.

- Both pulldowns are active for interlaced formats
- Only the AFD Field1 pulldown is active for progressive formats
- The range of lines available in the pulldowns is format-dependent:
 - 525: 12 through 19
 - 625: 8 through 21
 - 720p: 9 through 25
 - 1080i: 9 through 20

If VLI or WSS insertion is selected, the insertion line is defined by the format standards and is not user-selectable.

VLI (525) line 14
 VLI (625) line 11
 WSS (625) line 23

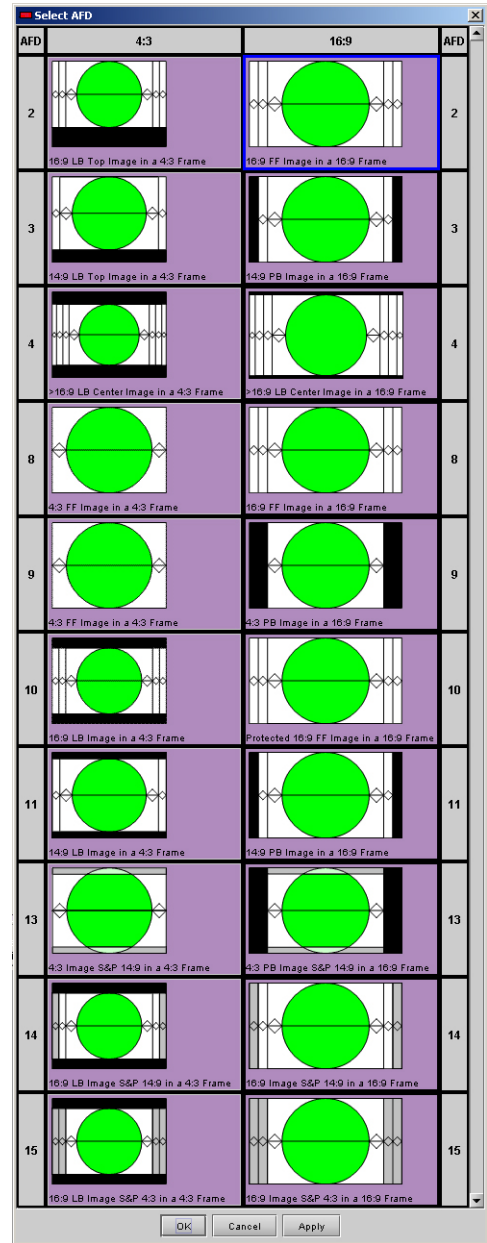


Figure 3.4 Select AFD window

3.4.3 The *Metadata* panel

The Status icon at the top of the panel turns green when Dolby metadata has been detected in the incoming signal

The **RS-422** section controls the embedding of Dolby metadata as VANC data in the HD/SD-SDI signal.

Insert Metadata:

OFF will leave any incoming embedded Dolby metadata data untouched,

ON: embeds the Dolby metadata in the vertical interval (VANC).

- The *Metadata Line* pulldown becomes active, allowing selection of the line to write the data (range of lines varies with input format).
 - *Do not select a line where VLI will be inserted, because the VLI format does not allow other data on the same line, and the metadata will be lost*
- All incoming data on the selected line is lost
- Data on other lines is unchanged.

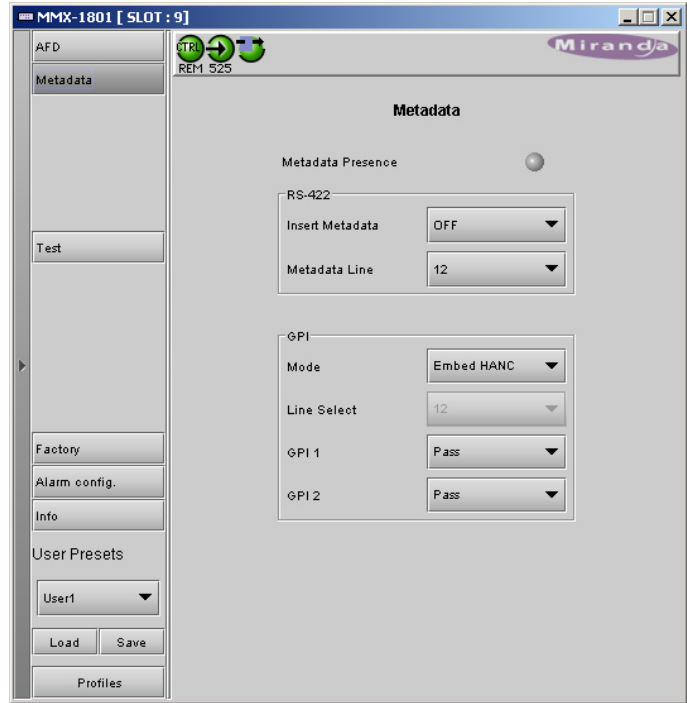


Figure 3.5 *Metadata panel*

The **GPI** section controls the functionality of the MMX-1801's GPI inputs

Mode: Use the pulldown to select between:

User Preset – use the GPI inputs to trigger the selection of user presets on the MMX-1801 (see Section 2.3).

Embed HANC – embed the state of the GPI inputs as a data packet in the HANC

- GPI 1 and GPI 2 pulldowns are active, allowing each of the two GPI packets to be processed individually:
 - Pass – pass the input packet through
 - Overwrite – replace the input packet with data from this MMX-1801
 - Blank – blank the input data packet

Embed VANC – embed the state of the GPI inputs as a data packet in the VANC

- Line Select – select the vertical line on which the GPI packet will be transported
- GPI 1 and GPI 2 pulldowns are active, allowing each of the two GPI packets to be processed individually:
 - Pass – pass the input packet through
 - Overwrite – replace the input packet with data from this MMX-1801
 - Blank – blank the input data packet

Note: *be careful, when selecting an insertion line in the Embed VANC mode (both RS-422 and GPI), that you do not inadvertently overwrite and corrupt other metadata. For example, VLI by default will be inserted on line 14 (525) or line 11 (625), so if you have chosen to use VLI for output aspect ratio signaling (in the AFD panel), and you then set the GPI mode to embed VANC on line 14, the VLI data and the GPI data will both be corrupted. VLI insertion will corrupt incoming metadata (e.g. Dolby information) if it arrives on the VLI insertion line.*

3.4.4 The Test panel

This group contains a single checkbox that sends a 75% color bar test pattern (100% white) to the MMX-1801 output.

- A video source must be present at the input, and will determine the output video format



Figure 3.6 Test panel

3.4.5 The Factory panel

Load Factory: Clicking this button will restore the card to a factory default state.

- Note that User Presets are not changed
- Note that the iControl Alarm Configuration is not changed, but local card alarms are reset to their defaults.

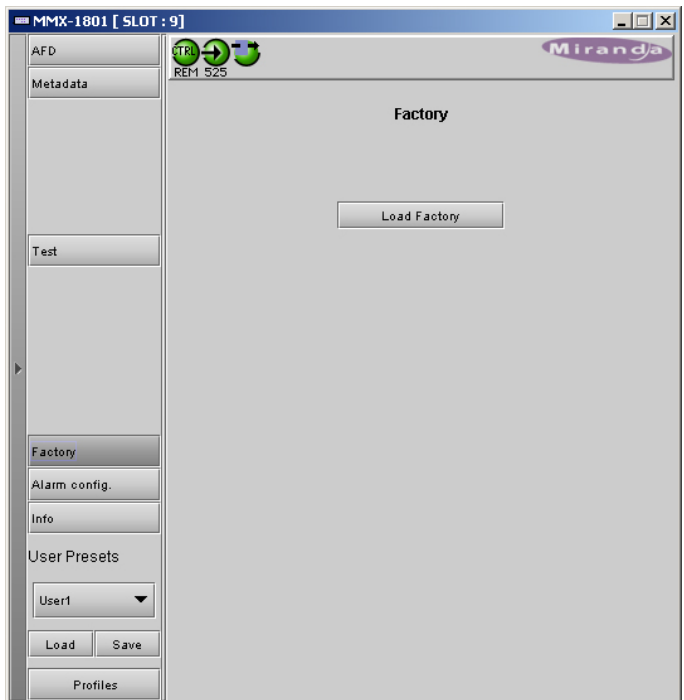


Figure 3.7 Factory panel

3.4.6 The Alarm Config panel

This panel allows the alarm reporting of the MMX-1801 to be configured. The panel opens in a new window when the button is clicked, and can be resized if needed.

The panel is organized in columns.

Status/Name

This contains an expandable tree listing all the alarms reported by this MMX-1801 card.

- Each alarm name includes an icon that shows its current status
- Some alarms may be text-only and the alarm status is shown in the name and not by a status icon

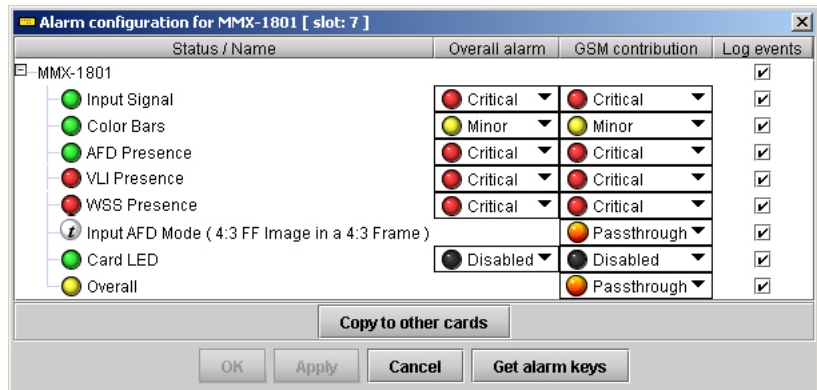


Figure 3.8 Alarm Configuration panel

The **Overall alarm** and **GSM contribution** columns contain pulldown lists that allow the level of contribution of each individual alarm to the alarm named in the column heading to be set.

- If there is no arrowhead in the box, there is no pulldown and the alarm is not user-configurable

Overall Alarm

This column allows configuration of the contribution of each individual alarm to the Overall Alarm associated with this card. The Overall Alarm is shown in the upper left corner of the iControl panel, and also appears at the bottom of the Status/Name column.






GSM Contribution

This column allows configuration of the contribution of each individual alarm to the GSM Alarm Status associated with this card. GSM is a dynamic register of all iControl system alarms, and is also an alarm provider for external applications. The possible values for this contribution are related to the Overall alarm contribution:

- If the Overall alarm contribution is selected as Disabled, the GSM alarm contribution can be set to any available value
- If the Overall alarm contribution is selected as any level other than disabled, the GSM contribution is forced to follow the Overall Alarm.

Levels associated with these alarms:

The pulldown lists may contain some or all of the following options:

 Disabled ▼	The alarm makes no contribution (black icon)
 Minor ▼	The alarm is of minor importance (yellow icon)
 Major ▼	The alarm is of major importance (orange icon)
 Critical ▼	The alarm is of critical importance (red icon)
 Passthrough ▼	The alarm exists but has no effect (used for text and composite alarms)

Shortcut: if you click in one of the columns beside a major heading in the Status/Name column (where there is no pulldown shown), you will open an “invisible” pulldown that lets you assign a level to all alarms in that section of the column simultaneously.

Log Events

iControl maintains a log of alarm events associated with the card. The log is useful for troubleshooting and identifying event sequences. Click in the checkbox to enable logging of alarm events for each individual alarm.

At the bottom of the window are several other controls

Copy to other cards

Click this button to open a panel that allows the alarm configuration set for this card to be copied into another MMX-1801 card.

- Select one or more destination cards from the list in the window by clicking in the checkboxes, or all of them by clicking in the *All* checkbox
- Note that when you do a Copy Profile for this card (see Sect. 3.4.9), the alarm configuration is copied along with all the other settings.

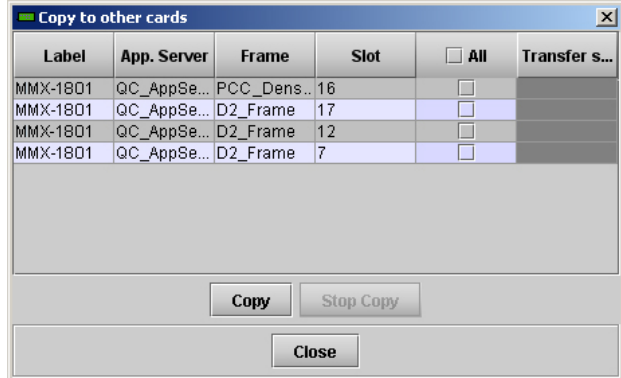


Figure 3.9 Copy to other cards

Get alarm keys

Click this button to open a save dialog where you can save a file containing a list of all alarms on this card and their current values, along with an Alarm Key for each. The alarm keys are useful for system integration and troubleshooting.

- The file is saved in Excel.csv format

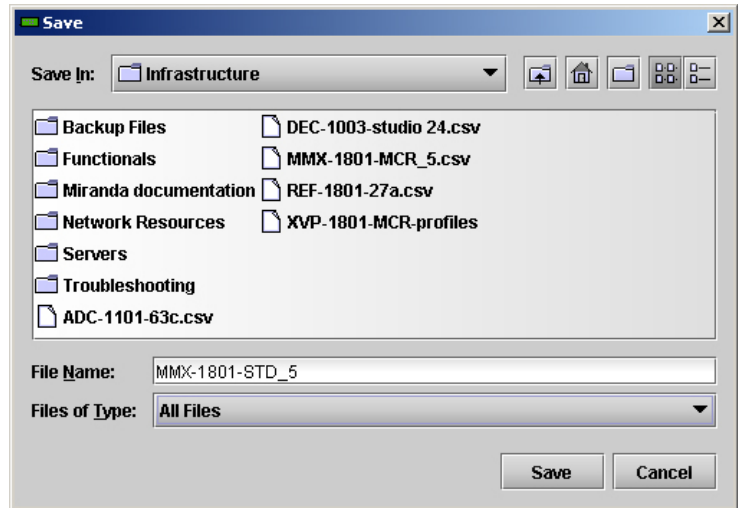


Figure 3.10 Get alarm keys save dialogue

OK, Apply, Cancel

- **OK** accepts the settings and closes the window once the card confirms that there are no errors.
- **Apply** accepts the settings, but leaves the window open
- **Cancel** closes the window without applying any changes, and leaves the previous settings intact.

3.4.7 The Info panel

When the MMX-1801 is included in an iControl environment, certain information about the card should be available to the iControl system. The user can enter labels and comments that will make this card easy to identify in a complex setup. This information is entered into data boxes in the Info control panel.

Label: type the label that is shown for this MMX-1801 when it appears in iControl applications

Short Label type the short-form label that iControl uses in some cases (8 characters)

Source ID type a descriptive name for this MMX-1801

Comments: type any desired text

The remaining data boxes show manufacturing information about this card.



Figure 3.11 Info panel

Three buttons in the panel give access to other information.

- **Details...:** Reports the Firmware version, service version, and panel version for this card

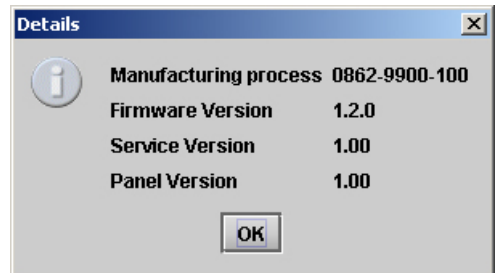


Figure 3.12 Details window

- **Advanced...:** Shows the Miranda LongID for this card. The Miranda LongID is the address of this MMX-1801 in the iControl network.

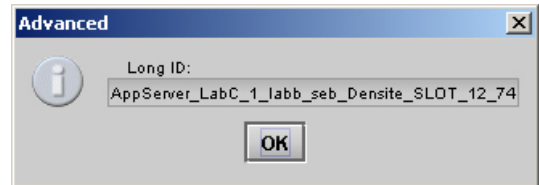


Figure 3.13 Advanced window

- Remote System Administration – opens the Joining Locators data box, which lists remote lookup services to which this MMX-1801 is registered.

Add: Force the iControl service for this MMX-1801 to register itself on a user-specified Jini lookup service, using the following syntax in the Input data box:

jini://<ip_address>

where <ip_address> is the ip address of the server running the lookup service

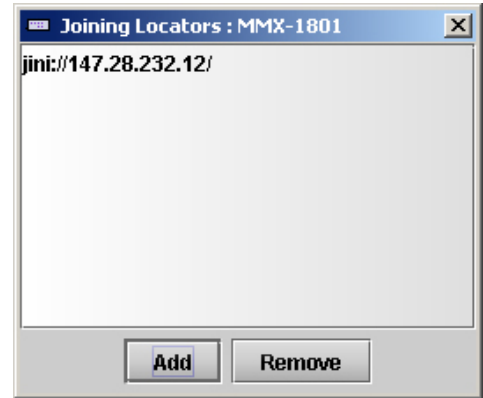
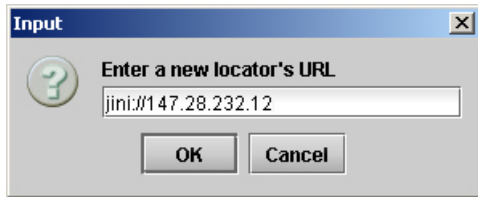
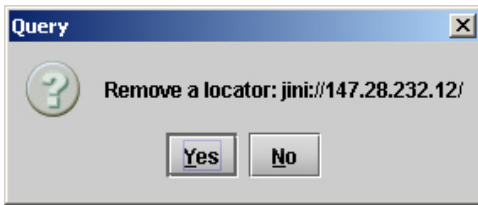


Figure 3.14 Joining Locators window

Remove: select one of the services listed in the window by clicking on it, and click *Remove* to delete it from the window. You will be asked to confirm the removal in a Query box.



3.4.8 User Presets

The MMX-1801 has memory registers which can hold up to 5 user-defined parameter settings.

- The first two user presets can be recalled by using the GPI connector on the rear panel (see Section 2.3 on page 3).

Select any one of the five presets using the pull-down list. The name of the currently-selected User Preset is shown on the name bar.

Click **Load** to load the contents of the selected User Preset into the MMX-1801. All parameter settings and values will be replaced by the contents of the selected User Preset.

Click **Save** to store the current parameter settings and values from the MMX-1801 into the selected User Preset. The existing contents of the preset will be overwritten without asking for confirmation.

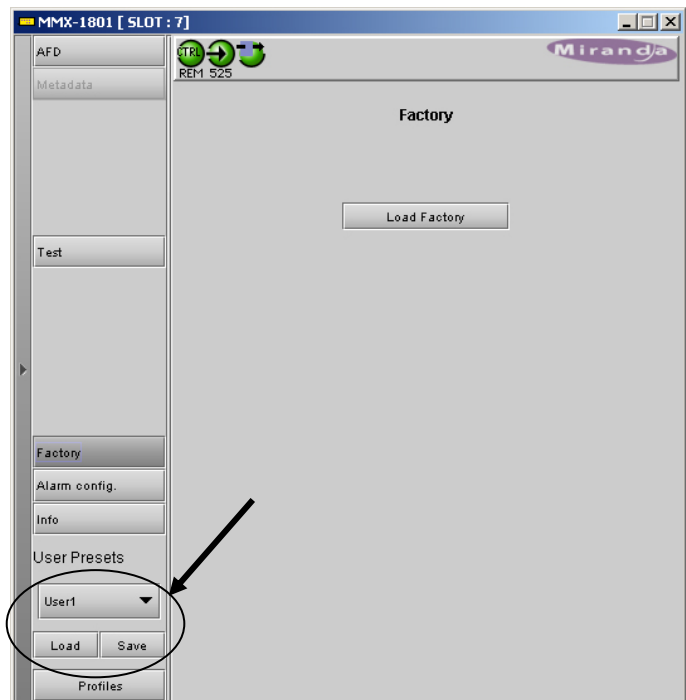


Figure 3.15 User Presets

3.4.9 Profiles

This section provides the option to save and recover the entire card configuration (including user presets if desired) on an external disk, or to copy it to another MMX-1801 card.

Click on *Profiles* to open the Profile Copy window.

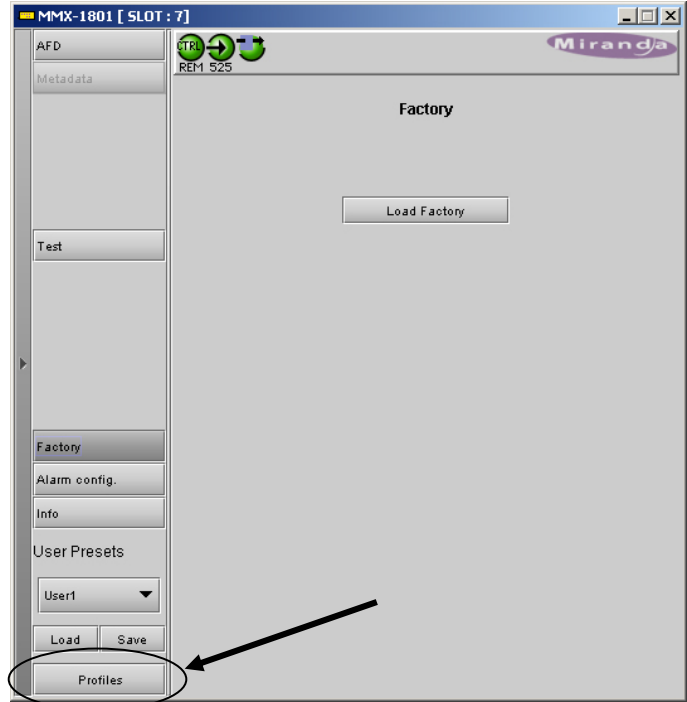


Figure 3.16 Profiles access button

Copy profile from section

This line shows this MMX-1801 card, and identifies it by App server, Densité frame and slot number, card type and firmware version.

The *Profile* column has a pulldown that allows you to select which profiles you will work with, and gives these choices:

- Current, User1, User2, User3, User4, User5

The *Select* column includes a checkbox, preselected as checked, to confirm that you want to work with the current card.

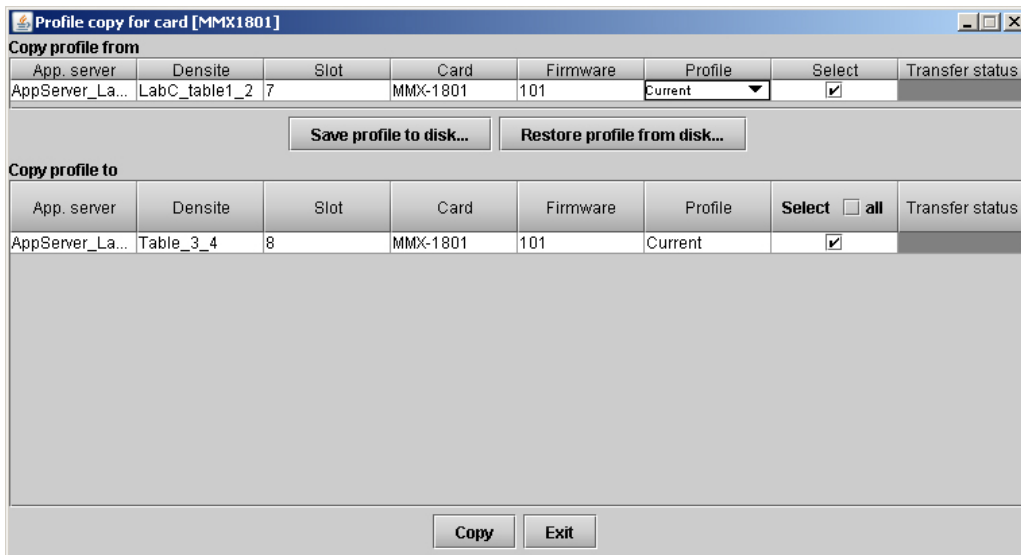


Figure 3.17 Copy Profile for Card window

Save Profile to Disk...

Click this button to open a Save dialog allowing you to specify a file name and location to which the selected profiles for this card will be saved.

Hint - It is a good idea to create a folder for these files, because they are not explicitly identified as MMX-1801 profiles, and will be difficult to find and identify if not clearly named and conveniently located.

- Click the save button once the name and location have been identified in the Save box
- If the file is saved correctly, the Transfer Status box on the right of the *Copy profile from* line will indicate *Succeeded* against a green background
- If the file was not saved for some reason, the Transfer Status box to the right of the *Copy profile from* line will indicate *Failed* against a red background

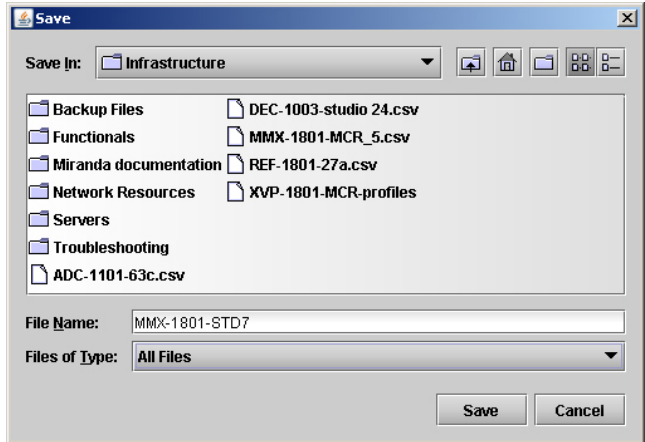


Figure 3.18 Save Profile to Disk dialog

Restore profiles from disk...

Click this button to open an Open dialog box within which you can locate and select a valid MMX-1801 profile file.

- Click Open to read the contents of the file and to reconfigure this MMX-1801's profiles according to its contents
- While the reconfiguration is in progress, the Transfer Status box on the right of the *Copy profile from* line will indicate *Working* against a yellow background
- When the reconfiguration is complete, the Transfer Status box on the right of the *Copy profile from* line will indicate *Succeeded* against a green background

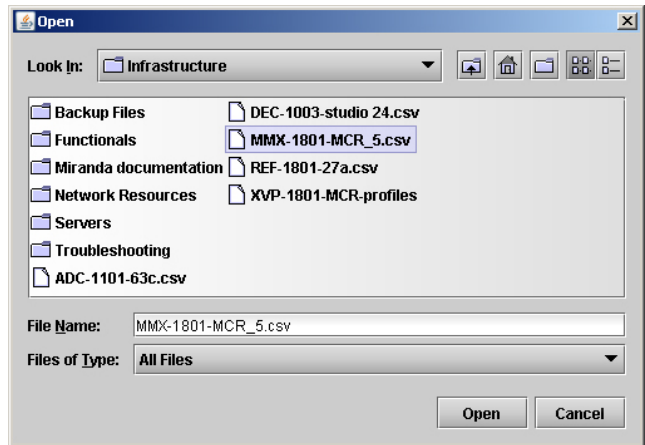


Figure 3.19 Restore Profiles from Disk dialog

Copy profile to section

This line shows other MMX-1801 cards that are available on the iControl network, each identified by App server, Densité frame and slot number, card type and firmware version.

The *Profile* column shows the same information as is shown for the current card in the *Copy profile from* line:

- Current, User1, User2, User3, User4, User5, All

The *Select* column includes a checkbox to identify which MMX-1801 cards you wish to copy profiles into from the current card.

- For convenience, a *Select all* checkbox is provided in the column header

Click *Copy* to copy the selected profiles from this card into the selected other MMX-1801 cards

- While the profile copy operation is in progress, the Transfer Status box on the right of the *Copy profile to* line will indicate *Working* against a yellow background
- When the profile copy operation is complete, the Transfer Status box on the right of the *Copy profile to* line will indicate *Succeeded* against a green background

4 Specifications

Video HD /SD -SDI Input

Signal: HD: SMPTE 292M (1.485, 1.485/1.001 Gbps)
SD: SMPTE 259M-C (270 Mbps)

Cable Length: HD: up to 110 m (350') of Belden 1694A
SD: up to 250 m

Return Loss: >15 dB up to 1.5 GHz

Video HD-SDI Output

Signal: HD: SMPTE 292M (1.485, 1.485/1.001 Gbps)
SD: SMPTE 259M-C (270Mbps)

Return Loss: >15 dB, 5 MHz to 1 GHz
>13 dB, 1 GHz to 1.5 GHz

Jitter: < 0.2 UI p-p

General Purpose Interface (GPI) Input

Signal: (2) Contact closure (opto-isolated), common ground

Level: True = 0 to 0.8 V (max.)
Maximum input voltage = ± 5.5 V

Rate: DC to 250 Hz

Processing Performance

Signal Path: 10-bit video
Video delay: 11.2 μ s
Test Signals: HD or SD Video - color bars 100%
Power < 5 W

Dolby Metadata Input

Signal: Dolby Metadata as per SMPTE RDD-6
Embedding VANC as per SMPTE RP-2020-2
Rate: 115,000 Baud

Aspect Ratio Embedding Formats

AFD As per SMPTE 2016-1 and SMPTE 2016-3
VLI As per RP-186
WSS As per ETSC EN300294

GPI Embedding Formats

GPI Miranda Proprietary Format, VANC or HANC

ANNEX – MMX-1801 User Interface

					HD	SD	
STATUS	NO REAR/ NO SIGNAL/ 720p50/ 720p60/ 720p59.94/ 1080p24/ 1080p24sF/ 1080p23.98/ 1080p23.98sF/ 1080p25/ 1080i50/ 1080p29.97/ 1080i59.94/ 625/ 525				Y	Y	
	AFD	PRESENCE		NONE/PRESENT	Y	Y	
		FORMAT		4:3_0 / .. / 4:3_7 / 16:9_0 / .. / 16:9_5	N	Y	
	VLI	PRESENCE		NONE/PRESENT	Y	Y	
		FORMAT		4:3_0 / .. / 4:3_7 / 16:9_0 / .. / 16:9_5	Y	Y	
	WSS	PRESENCE		NONE/PRESENT	N	625 only	
FORMAT			4:3_0 / .. / 4:3_7 / 16:9_0 / .. / 16:9_5	N	625 only		
METADATA	PRESENCE		NONE/PRESENT	Y	Y		
USER PRESET**	LOAD	[1, 2, 3, 4, 5]			Y	Y	
	SAVE	[1, 2, 3, 4, 5]			Y	Y	
METADATA**	MODE		[OFF, ON]		Y	Y	
	METADATA LINE		[LINE 9, LINE 10, ..., LINE 20] [LINE 9, LINE 10, ..., LINE 25] [LINE 12, LINE 11, ..., LINE 19] [LINE 9, LINE 9, ..., LINE 22]		1080i 720p N	N 525 625	
ASPECT RATIO** #	INSERTION TYPE	AFD			Y	Y	
		VLI			N	Y	
		WSS			N	625 only	
		OFF			Y	Y	
	VALUE	VALUE 4:3 FORMAT	[4:3_0, .. 4:3_7, 16:9_0 / .. / 16:9_5]			N	Y
		VALUE 16:9 FORMAT	[16:9_0, .. , 16:9_5]			Y	N
	INSERTION LINE	F1		[12, 13, 14, ..., 19] [9, 10, 11, ..., 19]		N	Y
		F2		[12, 13, 14, ..., 19] [9, 10, 11, ..., 19]		N	Y
	SDI IN BLANK CTL	AFD		[ON:OFF]		Y	Y
		VLI		[ON:OFF]		N	Y
WSS			[ON:OFF]		N	625 only	
GPI**	MODE		[Embed HANC, Embed VANC, User Preset]		Y	Y	
	INSERTION LINE		[LINE 9, LINE 10, ..., LINE 20] [LINE 9, LINE 10, ..., LINE 25] [LINE 12, LINE 11, ..., LINE 19] [LINE 9, LINE 9, ..., LINE 22]		1080i 720p N	N 525 625	
						Y	Y
	GPI 1		[PASS, OVERWRITE, BLANK]		Y	Y	
GPI 2		[PASS, OVERWRITE, BLANK]		Y	Y		

GUIDE TO INSTALLATION AND OPERATION

TEST	COLOR BAR	[ON:OFF]				Y	Y
CONFIG ALARM**	NO SIGNAL	ALARM LEVEL	[GREEN, YELLOW, <u>RED</u> , FLASH RED]			Y	Y
		ALARM REPORT	[<u>NONE</u> , GPI]			Y	Y
	TEST MODE	ALARM LEVEL	[<u>GREEN</u> , YELLOW, RED, FLASH RED]			Y	Y
		ALARM REPORT	[<u>NONE</u> , GPI]			Y	Y
	NO AFD PRESENCE	ALARM LEVEL	[<u>GREEN</u> , YELLOW, RED, FLASH RED]			Y	Y
		ALARM REPORT	[<u>NONE</u> , GPI]			Y	Y
	NO VLI PRESENCE	ALARM LEVEL	[<u>GREEN</u> , YELLOW, RED, FLASH RED]			N	Y
		ALARM REPORT	[<u>NONE</u> , GPI]			N	Y
	NO WSS PRESENCE	ALARM LEVEL	[<u>GREEN</u> , YELLOW, RED, FLASH RED]			N	625 only
		ALARM REPORT	[<u>NONE</u> , GPI]			N	625 only
	NO METADATA	ALARM LEVEL	[<u>GREEN</u> , YELLOW, RED, FLASH RED]			Y	Y
		ALARM REPORT	[<u>NONE</u> , GPI]			Y	Y
VERSION	MMX-1801:100					Y	Y
FACTORY DEFAULT**	[RESTORE]					Y	Y

[...]: Values to select from

** Press Select push button to activate selection

BLANKING IS FORCED "ON" FOR THE TYPE BEING INSERTED

Underlined options are default values