



# **Presmaster Automation Protocol**

**01235-14**  
**© December 2009**

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# Preface

## Warranty

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During the warranty period, Miranda Technologies Ltd will replace or repair at its cost, Oxtel Series equipment returned to the factory, carriage and duty paid and insured by the sender.

Before returning any item for warranty repair, a valid returns authorisation must be granted by Miranda Technologies Ltd.

All repaired goods will be delivered (as instructed) carriage and duty paid and insured by the sender.

Any warranty, over and above that offered here, is the responsibility of the local Miranda Sales Office or appointed Distributor.

## Contact Information

For service, repair and warranty information and for returns authorisation contact:

[oxtelsupport@miranda.com](mailto:oxtelsupport@miranda.com)

## **Associated Publications**

<b>Description</b>	<b>Part number</b>
Presmaster User Manual	01232
Presmaster Integration Guide	01234
Presmaster Configurator User Manual	02717
PresStation User Manual	03251
Imagestore User Manual	02359
Oxtel Series Automation Protocol	01035

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## **Disclaimer:**

Presmaster was written in 'C' and thus many 'C' style terms or syntax may appear in the document. In addition, the information contained within is correct at the time of writing but may change without notice. Any parameters not specified in a fixed length command must be set to zero and **MUST** be present, undefined behaviour will result otherwise. Any values outside of specified boundaries will result in undefined behaviour. **NO** guarantee of functionality is given if the FF or FE values occur during communication other than as start of packet identifiers.

The Presmaster is under constant improvement and additional commands will be available regularly; it is recommended that you check that you have the most recent documentation. It is also recommended that the extended commands be used in preference to the standard commands as they have a greater level of error detection and correction, coupled with increased flexibility.

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# Overview

The Presmaster automation link is the communications link between third-party automation systems and the Miranda Presmaster. Although the Presmaster uses the Oxtel-Series Imagestore for all signal-processing duties, the Presmaster interface integrates control of the Imagestore with control of the upstream routing selection matrix (or a part of it) plus a variety of Sony 9-pin compatible devices. For this reason, the Presmaster automation protocol differs from the Imagestore automation protocol and was originally based on the TX220 protocol from Pro-Bel. At the electrical level, the automation control link conforms to the RS422 or the RS232 standard running at 38400 or 57600. At the command protocol level, the link uses two types of messages:

## The default serial parameters

Baud: 38400

Data bits: 8

Parity: Even

Stop bits: 1

## Simple message format

The Simple message format is based on the older Pro-Bel TX220 protocol. Note however, that, although the command structure is similar to the Pro-Bel protocol, tallies sent back to automation do not obey Pro-Bel protocols and that, therefore, this protocol *should not be regarded as an emulation of the Pro-Bel TX220 protocol*. Rather its similarity is intended to ease the development of the Presmaster protocol for those automation vendors who already have a driver for the Pro-Bel product.

## Extended message format

The second types of command, the Extended Message format, are entirely new commands and relate to functionality only found in the Presmaster product. Various functional commands exist both in simple format and extended format. The extended format may be regarded as a more secure

format adding as it does message checking at the protocol level (as described below) and, therefore, the extended format is the preferred format wherever possible.

Simple message format commands are described in the Message Formats Section and largely prompt simple message format tallies. Extended message format commands usually provoke extended format tallies.

Some simple message format commands provoke extended message format tallies as described below. All the following tabulated commands are valid; where one form of command is preferred over another that is annotated against the individual command.

In addition it should be noted that Presmaster can initiate an unsolicited tally dump approximately once every ten seconds. This is optional and may be disabled in the Presmaster configuration. The background tally dump is described in the Presmaster Tallies and only occurs in verbose mode.

## **General Recommendations**

In order to achieve peak performance when driving a Presmaster V3 system, several aspects of timing should be obeyed.

When setting up a transition the commands should be sent in the following order, ideally at the same timecode:

Preset Video Source

Arm Keyers

Arm Voiceover(s)

Arm VGPIs

Set Transition Rate

Set Transition Type

Then at the time required:

Take

When sending these commands there should be NO delay between each packet, i.e. for optimal performance all packets should be sent at the same timecode. These will be buffered in the Presmaster and set up will occur as

fast as the Presmaster can manage. Only the commands required should be sent or unnecessary processing will have to be done on redundant commands.

## **Dealing with events of greater than 1 second duration**

Upon receipt of a Take command (0x0F) all previously armed actions are initialised. In the most basic case, a mix from one source to another, the Imagestore is requested to mix from the A input to the B input. When this has completed the transition visually is finished; however a number of things are still left to be done inside the Presmaster system:

The Presmaster requests the routing system to route the source selected on the Preset bus to also be the source selected on the Programme bus. (Since the A input is no longer on air, nothing will be seen.) When Presmaster receives the tally from the routing system saying that the source switch has been made it can then, make a cut on the Imagestore from the B input back to the A input.

By operating in this "flip-flop" manner we know that the A input should always be the source intended to air.

Once this cut has been made and the tallies received from the Imagestores, Routers and VTRs Presmaster is ready to process another series of commands. Obviously this is the simplest case, additional work is done for keyers, voiceovers, shuffles and DVEs. Because the communications speed are limited when dealing with external routers and controlled equipment (especially when the routing system is large) we recommend a delay after the take command of Transition Time + S seconds before issuing any further commands to a Presmaster system, where S is defined as,

**S = r + 1** seconds,

Where r = Tally Response Time of Controlled Routing System.

To understand the necessity of the S second hold off time and to understand the correct way to drive Presmaster, it is best to understand what a Presmaster does when a Take is actioned.

## Dealing with very short events of less than 1 second duration

Given that some routing systems can be quite slow to tally (and sometimes even to switch) Presmaster must hold off its final cut back to A for some time, this is the delay required before another event can occur. Since this can preclude extremely short transitions (two Programme switches in less time than the hold off time defined above) it is possible to cause a direct cut on the router itself, using command 0x09 - Set TX Video, this still sets shuffles and per source information but does not do a full mix, enabling extremely short Programme bus cuts.

**Note!** Ignoring these recommendations will not result in missed transitions but they may occur later than intended.

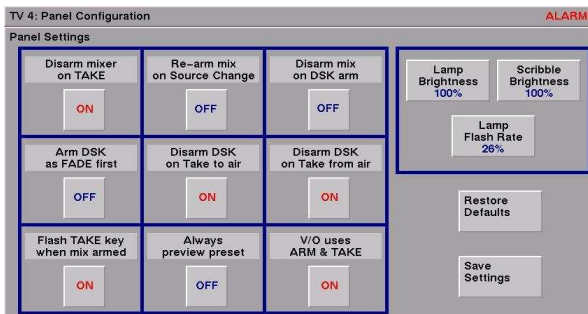
In addition, change the following parameters from the “Panel Configuration” screen:

Set the "Re-arm mix on Source Change" button to OFF.

Set the "Disarm mix on DSK arm" button to OFF.

Set the "Disarm DSK on Take to air" button to ON.

Set the “Disarm DSK on Take from air” button to ON.



To access the Panel Configuration screen refer to page 78 of the Presmaster User manual 01232-03.

# Message Formats

## Simple Message Format

### Packet Structure

The start of each packet is indicated with a 0xFF data byte, preceding the header byte(s). The header byte(s) implicitly define the packet length, or contain explicit data to define this. In all cases, the 0xFF value cannot occur within the packet body.

For example, the simple command for set transition type is 01 followed by an enumeration for the type. So the full packet to set the current transition type to be a V-fade would be: -

**FF 01 01**

## Simple Message Format Tallies

The format of a simple message tally is identical to the format of a simple message. For example the tally: -

**FF 4F**

Indicates that a take is complete. Again, these simple tallies have no form of error checking and they are of pre-determined length. They are all listed in section 5.

## Extended Message Format

Additional commands and status responses are added to the basic protocol as follows: Extended packets have explicit length information, allowing variable-length packets to be sent. They also have a greater range of command codes, and a simple checksum to validate reception.

### Packet structure

0xFE (indicates extended packet distinct from 0xFF)

CMD Code High (0-0x7F)

CMD Code Low (0-0x7F)

Data Length (0..127). This is the number of bytes contained in the following data section of the packet.

<Data-section> - This cannot contain 0xFE/0xFF bytes. It is recommended to use only 7-bit data.

Checksum: Derived by summing both CMD code bytes, DataLength and all data-section bytes, negating the result, then AND ing with 0x7F.

## Extended Message Format Tallies

Extended message format tallies are of the same form as the extended commands.

# **Verbose and Non-Verbose Tallies**

As its default mode of operation Presmaster is very verbose about its actions. Nearly any change to the equipment attached to a Presmaster system will be tallied to the appropriate automation port. Although this constant state is very useful some automation vendors prefer a less busy connection and so the non-verbose system was developed. Presmaster can be arranged to give Verbose or Non-Verbose tallies by adding a line to the prescontrol system configuration. This is best performed at commission time by an experienced Miranda engineer. The exact difference between verbose and non-verbose mode can be found in the Presmaster Tallies section of this manual.

# Commands and Examples

## Setting crosspoints

Router control is accomplished with commands:

- FF 08 (or FF 08 7F)**      – Set AUX bus command
- FF 09 (or FF 09 7F)**      – Set PGM bus command
- FF 0B (or FF 0B 7F)**      – Set PST bus command

All these commands obey the same rules. PGM bus switching is used in the following example. When the source number is less than 20, the form of the command is:

**FF 09 xx**                    where xx is the source number 1 – 20

When the source number is greater than 20, the form of the command is:

**FF 09 7F aa bb**

Where aa and bb are calculated by splitting the source- number into two separate, zero padded, 7-bit bytes; Here is a C source-code example:

```
cc = source number (above 20)
```

```
aa = (cc >> 7) & 0x7F;
```

```
bb = cc & 0x7F;
```

## Crosspoint set tallies

Successful crosspoints setting will result in the following tallies:



**FF 4D (or FF 4D 7F)** – **AUX video source tally**

**FF 4E (or FF 4E 7F)** – **AUX audio source tally**

**FF 49 (or FF 49 7F)** – **PGM video source tally**

**FF 4A (or FF 4A 7F)** – **PGM audio source tally**

**FF 4B (or FF 4B 7F)** – **PST video source tally**

**FF 4C (or FF 4C 7F)** – **PST audio source tally**

All these tallies obey the same rules as the crosspoint switching commands. PGM bus switching is used in the following example. When the source number is less than 20, the form of the tally is:

**FF 49 xx**            **where xx is the source number 1 – 20**

When the source number is greater than 20, the form of the tally is:

**FF 49 7F aa bb**

Where aa and bb combine to represent the high and low bits of a fourteen bit number cc such that,

$$cc = ( bb \& 0x7F ) | (( aa \& 0x7F ) \ll 7 );$$

The tallies depend on the driven router configuration. In effect, each level of the router will tally separately. So if we imagine a PGM bus switch to source 4 in a system with a single video layer and two slaved audio layers, the following dialogue will take place:

Command sent to Presmaster:    **FF 09 04**

Tally received from Presmaster:    **FF 49 04, FF 4A 04, FF 4A 04**

## Setting and Arming Transition Types

The command for setting and arming the transition type is FF 01. Transitions are not performed until a “Take” command is received. The form of this command is,

**FF 01 tt where tt is defined as follows:**

- 00 Not used
- 01 V-fade
- 02 Fade down, take up
- 03 Mix
- 04 Take down, fade up
- 05 Cut
- 06 Wipe left to right
- 07 Wipe top to bottom
- 08 thru 0F converted to type 06
- 10 Wipe right to left
- 11 Wipe bottom to top
- 12 thru 19 converted to type 10

The tally for this command is FF 41. The tally is in the form FF 41 tt, where tt is defined as above. In addition the command FF 03 is used to set the rate of a wipe or mix command. It is of the form:

**FF 03 dd            where dd is the value in frames.**

The tally is FF 43 dd, where dd is defined as above

A typical dialogue would be the following:

**Command sent to Presmaster:    FF 01 03**

**Tally received from Presmaster: FF 41 03**

**Command sent to Presmaster: FF 03 0A**

**Tally received from Presmaster: FF 43 0A**

## **Take**

The take command has the same effect as pressing the “Take” button on the Presmaster; that all armed functions are executed. The Take command is,

**0F        (there are no following parameters)**

The tallies following a Take command depend on whether verbose on non-verbose reporting is set. In non-verbose mode, the tallies depend on the changes seen following a take command, so that – if no functions are armed – no tallies will be received.

In the case of where a simple source change is required, the tallies will report the change of sources, followed by the FF 4F, Take Complete tally. This would be a typical dialogue,

**Command sent to Presmaster: FF 0B 04 (set up source 4 on PST bus)**

**Tally received from Presmaster: FF 4B 04 FF 4C 04 FF 4C 04 (tallies received showing the router has changed)**

**Command sent to Presmaster: FF 01 03 (arm the mix transition)**

**Tally received from Presmaster: FF 41 03**

**Command sent to Presmaster: FF 03 05 (set transition rate)**

**Tally received from Presmaster: FF 43 05**

**Command sent to Presmaster: FF 0F (Take)**

**Tally received from Presmaster: FF 49 04 FF 4A 04 FF 4A 04 FF 4F (tallies received showing the router has changed and that the take is complete)**

## **Downstream Keyers**

### **Down Stream Keyers (DSK)**

The Presmaster has two DSKs, an optional two extra keyers (when the second Imagestore is fitted) or an optional 8 extra keyers (when an Imagestore Intuition is fitted). The first two DSKs may be controlled by simple commands. All keyers may be controlled by Extended Commands and this latter type is therefore preferred. DSK 'source' numbers 1 to 99 refer to images V001 through V099 on an Imagestore, 'source zero' equals load live. The extended commands allow image loading by name (file extension not required).

The Extended commands for DSKs support two methods of cutting/fading the keyers to and from AIR.

### **Arm and Take**

The arm and take principle is widely employed in Presmaster and is described above in relation to transition selection and arming; this is the preferred method of operation. Essentially the next required state of a DSK is armed but is only executed when a subsequent Take command is received. This is useful if DSKs are required combined with background (PGM/PST) transitions because direct control of the DSKs must otherwise obey the timing limitations discussed above in relation to Take transitions.

The DSK arm command is in the following format:

**FE 00 06 LL kk aa CC**

Where LL and CC relate to the command length parameter byte and checksum byte, kk relates to DSK number and aa relates to armed state as defined below:

**kk**

- 00 DSK 1
- 01 DSK 2
- 02 DSK 3
- 03 DSK 4

**aa**

- 00 Cut down
- 01 Cut up
- 02 Fade down
- 03 Fade up

Changes only occur after the Take command (FF 0F). The change of state is tallied (for DSKs 1 and 2) using the simple messages FF 46 and FF 47. These are both of the form:

**FF 46 xx            where xx is defined thus,**

- 00 DSK 1 off
- 01 DSK 1 on

And,

**FF 47 xx**            **where xx is defined thus,**

00 DSK 2 off

01 DSK 2 on

DSKs 3 and 4 are tallied with extended packet 0x806

## **Direct Control**

Direct control of the DSKs is accomplished by means of the extended command

**FE 00 07 LL kk ss CC**

Where LL and CC relate to the command length parameter byte and checksum byte described above and kk and ss are defined below.

### **kk**

00 DSK 1

01 DSK 2

02 DSK 3

03 DSK 4

### **ss**

00 Cut down

01 Cut up

02 Fade down

03 Fade up

The change of state is tallied (for DSKs 1 and 2) using the simple messages FF 46 and FF 47. These are both of the form:

**FF 46 xx**            **where xx is defined thus,**

00 DSK 1 off

01 DSK 1 on

And,

**FF 47 xx**            **where xx is defined thus,**

00 DSK 2 off

01 DSK 2 on

DSKs 3 and 4 are tallied by extended tally packet 0x406.

## **Controlling a Presmaster System Containing an Imagestore Intuition**

Controlling the extra functionality of a system containing the Imagestore Intuition is done by utilising the keyer layer numbering above the normal four supported by Presmaster. In an installation with an Intuition the extended DSK commands are expanded as follows:

**kk** (decimal)

00 - First Imagestore Keyer (Upstream (A) Imagestore)

01 - Second Imagestore Keyer (Upstream (A) Imagestore)

02 - Third Imagestore Keyer (Downstream (B) Imagestore)

03 - Fourth Imagestore Keyer (Downstream (B) Imagestore)

Intuition will replace the Downstream Imagestore if fitted.

02 - First Intuition Keyer

03 - Second Intuition Keyer

04 - Third Intuition Keyer

05 - Fourth Intuition Keyer

06 - Fifth Intuition Keyer

07 - Sixth Intuition Keyer

08 - Seventh Intuition Keyer

09 - Eighth Intuition Keyer

Intuition keyers are all tallied using the extended tally packet 0x806.

This numbering scheme is valid for all extended commands relating to the keyers in a Presmaster system (0x0006, 0x0007, 0x0032, 0x0033).

Loading/Selecting the Intuition for use is done by using the reserved file name INTUI in any keyer load command relating to keyers 0 & 1.



## **Voice-Overs, Audio Levels, Shuffles, Mutes and Phase Inversion.**

### **Voice-Overs**

Voice-overs are set using the FF 13 voice-over state command. As there are two voice-overs in the Presmaster, selection of the appropriate voice-over number can be set by the preceding FF 14 voice-over select command. The form of the FF 14 (Voice-over select) command is:

**FF 14 vv**            **where vv is defined thus,**

00 Voice over 1

01 Voice over 2

The format of the voice-over state command is:

**FF 13 mm**            **where mm is defined thus,**

00 Cut down

01 Cut up (voice-over live)

02 Mix down

03 Mix up (voice-over live)

**Note:** Audio transitions are implicitly limited to 1 field or more, to prevent clicks.

## Voice over state tallies

As of software version 2.01, change of voice-over state does not automatically produce a tally response. A voice-over state command must therefore be followed by the Status Enquiry Packet.

## Setting Audio Levels

The audio level, shown as the audio preset level on the panel, can be set using simple command 0x24. This command affects the voice-over most recently specified with the audio source command (0x14). The program (duck) level is set in the same way using simple command 0x25.

The format of the audio level command is: -

**FF 24 hh ll**

The format of the duck level command is: -

**FF 25 hh ll**

where the hh and ll bytes are the audio level high and low bytes as derived below.

Audio level parameters are specified in 1/10<sup>th</sup> dB steps, offset so that 0x800 is unity. The allowable range, therefore, is normally -99.5db to +28dB. This is formatted as a 12-bit unsigned number which is split into two 6-bit fields. NOTE: Each of these 6-bit fields are zero-extended into a byte for sending, (ie, the top two bits of each byte will be 0's and the lower 6 bits will be the respective 6 bit field).

Showing how a gain of +8.5dB is achieved: -

$8.5 * 10 = 85 == 0x055$  (Multiply up by the step resolution and convert to hexadecimal)  
 $0x800 + 0x055 = 0x855$  (Adding the 0x800 offset for unity)  
 $0x855 == 0001000\ 01010101$  (Convert from hexadecimal to binary)  
 $00100001\ 00010101$  (Splitting into two byte fields and padding the top two bits with zero)  
 $0x21$  (MSB) and  $0x15$  (LSB) (Conversion back to hex).

Obviously these steps are for illustration only and are not an optimal algorithm!

For a negative gain of -1.0dB;  $-1.0 * 10 = -10 = 0xff6$ . Adding 0x800 gives us 0x7F6. This is split into two 6-bit fields, giving 0x1f (MSB) and 0x36 (LSB).

For example, to set voice-over 2 to have an 8.5db level and a -1.0db duck the actual dialog to the Presmaster would be as follows: -

**FF 14 01**

**FF 24 21 15**

**FF 25 1F 36**

Further note: C code to convert a floating point number into the two separate raw bytes to send would look like this:

f = Floating point decibel number (eg: -19.5)

a = First raw byte to send.

b = Second raw byte to send.

```
temp_val = ((int)(f * 10)) + 0x800;
```

```
a = (temp_val >> 6) & 0x3f;
```

```
b = temp_val & 0x3f;
```

## Shuffles, Mutes and Phase Inversion

The ‘Set Audio Mode’ (0x34) command is used for audio shuffling, muting and phase inversion (the latter two are not supported at present). It sets the ‘audio mode’ for the router source specified; these shuffles are saved for each source. The setting for this router source is held until another ‘Set Audio Mode’ command is issued for that source or the operator overrides it. For best performance the shuffles should be set for all sources at system startup and then only on a specific source if the shuffle for that source must be changed.

**Note! Mono channels within the group are indexed from 0 and not from 1: -**

AES1 L = Input 0                      AES1 R = Input 1

AES2 L = Input 2                      AES2 R = Input 3

The command format is:

**L1, R1, M1**

**L2, R2, M2**

**L3, R3, M3**

**L4, R4, M4**

**SH, SL**

With these values representing:

Input Chan 1	Level	Mute	Phase	L1=0R1=0L2=0R2=0
	0.0 dB	Off	Normal	
Input Chan 2	Level	Mute	Phase	L1=1R1=1L2=1R2=1
	0.0 dB	Off	Normal	
Input Chan 3	Level	Mute	Phase	L1=2R1=2L2=2R2=2
	0.0 dB	Off	Normal	
Input Chan 4	Level	Mute	Phase	L1=3R1=3L2=3R2=3
	0.0 dB	Off	Normal	

The values M1, M2, L3, R3, M3, L4, R4, M4 are ignored by Presmaster (unsupported) – they **must** however be present in the command. This is due to the FIXED length of simple format commands.

SH & SL are the high and low 7 bits of the source, **0-99**. See the “Setting Crosspoints” examples earlier for an explanation of how these source numbers are created.

So to set a ‘straight through’ mode on source 1, the command bytes would be:

```
0x34,0,1,0,2,3,0,0,0,0,0,0,0,0
```

Which is:

```
<ID><L1><R1><M1><L2><R2><M2><L3><R3><M3><L4><R4><M4><SH><SL>
```

To swap pairs one and two on source 1, the command bytes would be:

```
0x34,2,3,0,0,1,0,0,0,0,0,0,0,0
```

To place a Mono input from AES2 R on all outputs on source 1, the command bytes would be:

```
0x34,3,3,0,3,3,0,0,0,0,0,0,0,0
```

Some more examples, with the representation shown on the Presmaster screen, follow.

**Example One:**

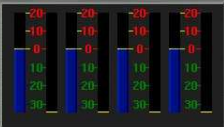
Command Bytes Sent: FF 34 01 00 00 01 00 00 00 00 00 00 00 00 00 00

Result Whilst Source **One** is Selected:

aes test: Program Bus ALARM!

	Input Chan 1	Level	Mute	Phase	
Name src1		0.0 dB	Off	Normal	X
Machine N/A	Input Chan 2	0.0 dB	Off	Normal	X
Audio Type AES	Input Chan 3	0.0 dB	Off	Normal	
	Input Chan 4	0.0 dB	Off	Normal	

All Levels  
Zero Edit Source



**Example Two:**

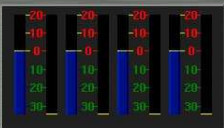
Command Bytes sent: FF 34 00 00 00 02 02 00 00 00 00 00 00 00 00 00

Result Whilst Source **One** is Selected:

aes test: Program Bus ALARM!

	Input Chan 1	Level	Mute	Phase	
Name src1		0.0 dB	Off	Normal	X
Machine N/A	Input Chan 2	0.0 dB	Off	Normal	X
Audio Type AES	Input Chan 3	0.0 dB	Off	Normal	
	Input Chan 4	0.0 dB	Off	Normal	

All Levels  
Zero Edit Source



**Example Three:**

Command Bytes Sent: FF 34 00 01 00 02 03 00 00 00 00 00 00 00 00

Result Whilst Source **One** is Selected:

Interface for 'aes test: Program Bus' showing channel settings and a 4x4 matrix. The matrix has 'X' marks at (1,1), (2,2), (3,3), and (4,4). A red 'ALARM!' indicator is in the top right. A level meter is at the bottom right.

Input Chan	Level	Mute	Phase
Input Chan 1	0.0 dB	Off	Normal
Input Chan 2	0.0 dB	Off	Normal
Input Chan 3	0.0 dB	Off	Normal
Input Chan 4	0.0 dB	Off	Normal

Matrix (Row, Column): (1,1) X, (2,2) X, (3,3) X, (4,4) X

Level Meter: -20, -10, 0, 10, 20, 30 (dB)

**Example Four:**

Command bytes sent: FF 34 00 01 00 02 02 00 00 00 00 00 00 00 00

Result Whilst Source **One** is Selected:

Interface for 'aes test: Program Bus' showing channel settings and a 4x4 matrix. The matrix has 'X' marks at (1,1), (2,2), (3,3), and (3,4). A red 'ALARM!' indicator is in the top right. A level meter is at the bottom right.

Input Chan	Level	Mute	Phase
Input Chan 1	0.0 dB	Off	Normal
Input Chan 2	0.0 dB	Off	Normal
Input Chan 3	0.0 dB	Off	Normal
Input Chan 4	0.0 dB	Off	Normal

Matrix (Row, Column): (1,1) X, (2,2) X, (3,3) X, (3,4) X

Level Meter: -20, -10, 0, 10, 20, 30 (dB)

**Example Five:**

Command Bytes Sent: FF 34 01 01 00 01 01 00 00 00 00 00 00 00 09

Result When Source **Ten** is Selected:

Interface for 'aes test: Program Bus' showing channel settings and a 4x4 matrix. The matrix has 'X' marks in the second row and third column. A red 'ALARM!' indicator is in the top right. A level meter is at the bottom right.

Input Chan	Level	Mute	Phase
Input Chan 1	0.0 dB	Off	Normal
Input Chan 2	0.0 dB	Off	Normal
Input Chan 3	0.0 dB	Off	Normal
Input Chan 4	0.0 dB	Off	Normal

Matrix (Row 2, Col 3): X

Level Meter: -20, -10, 0, 10, 20, 30

**Example Six:**

Command Bytes Sent: FF 34 02 03 00 02 03 00 00 00 00 00 00 00 09

Result When Source **Ten** is Selected:

Interface for 'aes test: Program Bus' showing channel settings and a 4x4 matrix. The matrix has 'X' marks in the second row, first column; second row, third column; third row, second column; and third row, fourth column. A red 'ALARM!' indicator is in the top right. A level meter is at the bottom right.

Input Chan	Level	Mute	Phase
Input Chan 1	0.0 dB	Off	Normal
Input Chan 2	0.0 dB	Off	Normal
Input Chan 3	0.0 dB	Off	Normal
Input Chan 4	0.0 dB	Off	Normal

Matrix (Row 2, Col 1): X

Matrix (Row 2, Col 3): X

Matrix (Row 3, Col 2): X

Matrix (Row 3, Col 4): X

Level Meter: -20, -10, 0, 10, 20, 30



**Example Seven:**

Command Bytes Sent: FF 34 02 02 00 00 00 00 00 00 00 00 00 00 09

Result When Source **Ten** is Selected:

Interface for 'aes test: Program Bus' showing channel settings and a 4x4 matrix. The matrix has 'X' marks at (1,2), (1,3), (2,1), and (2,2). A red 'ALARM!' indicator is in the top right. A level meter is at the bottom right.

Input Chan	Level	Mute	Phase
Input Chan 1	0.0 dB	Off	Normal
Input Chan 2	0.0 dB	Off	Normal
Input Chan 3	0.0 dB	Off	Normal
Input Chan 4	0.0 dB	Off	Normal

Matrix:

		X	X
X	X		

Level Meter (dB):

Channel	Level
1	0.0
2	0.0
3	0.0
4	0.0

**Example Eight:**

Command Bytes Sent: FF 34 02 02 00 02 02 00 00 00 00 00 00 00 09

Result When Source **Ten** is Selected:

Interface for 'aes test: Program Bus' showing channel settings and a 4x4 matrix. The matrix has 'X' marks at (2,1), (2,2), (2,3), and (2,4). A red 'ALARM!' indicator is in the top right. A level meter is at the bottom right.

Input Chan	Level	Mute	Phase
Input Chan 1	0.0 dB	Off	Normal
Input Chan 2	0.0 dB	Off	Normal
Input Chan 3	0.0 dB	Off	Normal
Input Chan 4	0.0 dB	Off	Normal

Matrix:

		X	X
X	X	X	X

Level Meter (dB):

Channel	Level
1	0.0
2	0.0
3	0.0
4	0.0

## The Status Enquiry Command

The Status Enquiry Message (FF 02) is one of the most important messages in the protocol. In response to The Status Enquiry message, the Presmaster will send back the following packets of information, giving a detailed “snapshot” of the current state of the channel. The format of the Status Enquiry Packet is:

### **FF 02                    (there are no parameters)**

This message will prompt a response in the form:

Current Transition Type (FF 41)

Current Transition Rate (FF 43)

State of the DSK 1, (extended packet, FE 08 06)

State of the DSK 2, (extended packet, FE 08 06)

State of the DSK 3, (extended packet, FE 08 06)

State of the DSK 4, (extended packet, FE 08 06)

State of Voice Over 1 arm (extended packet, FF 08 13)

State of Voice Over 1 (FF 53)

State of Voice Over 2 arm (extended packet, FF 08 13)

State of Voice Over 2 (FF 53)

Source Selected on Programme Bus (FF 49)

Source Selected on Preset Bus (FF 4B)

Source Selected on Auxiliary Bus (FF 4D)

A typical dialogue would look like this:

Command sent to Presmaster: FF 02  
Tally received from Presmaster: FF 41 00  
FF 43 49  
FE 08 06 02 00 01 6F  
FE 08 06 02 01 00 6F  
FE 08 06 02 02 00 6E  
FE 08 06 02 03 00 6D  
FE 08 13 02 00 00 63  
FF 53 00 01  
FE 08 13 02 01 00 62  
FF 53 01 00  
FF 49 01  
FF 4B 01  
FF 4D 00

## Automation Control of a Panel

There are two commands that can be sent directly to a panel to control which channel that the panel is displaying. These are:

- Set a panel to display a channel on the PCS that is being controlled by automation.
- Get the information on the channel that is currently being displayed on a panel.

To set a Panel to display a channel on the PCS you will need to use the extended command FE 00 40 followed by the channel number (0-3) on the PCS that the automation system is controlling, then the IP address of the panel which you require to change. If the panel is currently displaying another channel this channel will be dropped with no warning, and the new channel acquired.

An example of this command to display channel 0 on the PCS on the panel, IP address 172.16.132.203, the command would be:

```
FE 00 40 0f 30 31 37 32 2e 3136 2e 31 33 32 2e 32 30 33
```

The PCS will reply with an extended tally command possible replies are:

Fe 08 40 01 30 07	Panel set to channel 0 on PCS
Fe 08 40 01 31 06	Panel set to channel 1 on PCS
Fe 08 40 01 32 05	Panel set to channel 2 on PCS
Fe 08 40 01 33 04	Panel set to channel 3 on PCS
Fe 08 40 01 f0 47	Error: no channel set on PCS
Fe 08 40 01 f1 46	Error: no panel response
Fe 08 40 01 f2 45	Error: no shotbox set in panel configuration
Fe 08 40 01 f3 44	Error: unknown error

To find out if a panel is connected to a channel the 'Get which channel a Panel is connected to' command can be used. The format of the command is an extended command 0x0041 with the IP address of the Panel to which you need to inquire if it is connected, the command being sent to panel IP address 172.16.132.203 would be:

```
FE 00 4114 31 37 32 2e 31 36 2e 31 33 32 2e 32 30 33 7b
```

The response to this command will be an extended tally response of the format:

Fe 08 41 0c 31 31 37 32 2e 31 36 2e 31 2e 34 31 59 this response indicates that the Panel is connected to a PCS, the channel on the PCS is 1 and the IP address of the PCS is 172.16.1.41.

Other responses are:

Fe 08 41 01 f1 45

Error: no panel response

Fe 08 41 01 f2 44

Panel is not connected to a channel on a PCS

Fe 08 41 01 f3 43

Error: unknown error

# Presmaster Commands

Presmaster commands are as follows: -

Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
0x01	Set Transition Type – 1 Parameter.	Sets the transition type, the parameter is the transition type: - 01 V Fade 02 Fade and Take 03 Mix 04 Take and Fade 05 Cut 06 WIPE left to right horizontal wipe 07 WIPE top to bottom vertical wipe 10 WIPE REVERSE left to right horizontal wipe 11 WIPE REVERSE top to bottom vertical wipe 1A U-Fade Note: The transition does not occur until a Take is received.	FF 01 04
0x02	Status Enquiry – 0 Parameters.	Causes the Presmaster to send the current channels state to automation, (see 'Tallies' below for exact description of state).	FF 02
0x03	Set Transition Rate – 1 Parameter.	The single parameter is the transition rate in frames. Minimum value is 0, maximum value is 99.	FF 03 25

<b>Hex I.D. / Cmd Code</b>	<b>Name &amp; Number of Parameters</b>	<b>Description</b>	<b>Example (including start of packet)</b>
0x06	Set DSK 1 state – 1 Parameter	The single parameter is: - 00 - Cut Down, 01 - Cut Up, 02 - Fade Down, 03 - Fade Up Any other value will result in the keyer being un-armed. It is not recommended to use this value as this may change in future.	FF 06 00
0x07	Set DSK 2 state – 1 Parameter	The single parameter is: - 00 - Cut Down, 01 - Cut Up, 02 - Fade Down, 03 - Fade Up Any other value will result in the keyer being un-armed. It is not recommended to use this value as this may change in future.	FF 07 01
0x09	Set TX Video – 1 or 3 Parameters	Sets programme bus video source. Takes one parameter if the source number is less than 20, otherwise you must use 0x7F then the high 7 bits of source and then the low 7 bits of source.	FF 09 01 or FF 09 7F 00 32
0x0B	Set Preset Video – 1 or 3 Parameters	Sets preset bus video source. Takes one parameter if the source number is less than 20, otherwise you must use 0x7F then the high 7 bits of source	FF 0B 01 or FF 0B 7F 00 21

Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
		and then the low 7 bits of source.	
0x0D	Set AUX Video – 1 or 3 Parameters	Sets aux bus video source. Takes one parameter if the source number is less than 20, otherwise you must use 0x7F then the high 7 bits of source and then the low 7 bits of source.	FF 0D 01 or FF 0D 7F 00 26
0x0F	TAKE – 0 Parameters	Takes all armed functions to air and then initiates the end of transition cleanup.	FF 0F
0x10	TAKE audio – 0 Parameters	Does an audio only take, i.e. a breakaway on the IS2.	FF 10
0x13	Audio Over State – 1 Parameter	Parameter is Fade Down, Cut Down, Fade Up, Cut Up voice over specified by audio over source (0x14).	FF 13 01
0x14	Audio Over Source – 1 Parameter	Specifies which voice over subsequent commands are acting upon. Parameter is voiceover, indexed from zero.	FF 14 00
0x1A	Source Table Set-up – 8 Parameters	Currently has no function however this command will be recognised if sent.	FF 1A 00 00 00 00 00 00 00 00
0x1E	Mixer Poll – 0 Parameters	Sends back a 0x5E with no parameters, i.e. Valid but non-functional.	FF 1E
0x24	Set Audio Over Level – 2 Parameters	Parameters are high and low (6 bit 0 packed) bytes of level in dB. Goes to VO previously specified with cmd 0x14,	For a gain of +8.5db: FF 24 21 15



<b>Hex I.D. / Cmd Code</b>	<b>Name &amp; Number of Parameters</b>	<b>Description</b>	<b>Example (including start of packet)</b>
		represented as preset level on panel.	
0x25	Set Program Level – 2 Parameters	Parameters are high and low (6-bit 0 packed) bytes of level in dB. Goes to VO previously specified with cmd 0x14, represented as duck level on panel.	For gain of -1.0db: FF 25 1F 36
0x26	Set Source Channel Level – 3 Parameters	First parameter is channel number; subsequent two parameters are high and low (6-bit 0 packed) bytes of level in dB.	FF 26 00 1F 36
0x27	Set DSK Clip Level – 3 Parameters	Initial parameter is DSK number (zero based); second two parameters are high and low (6-bit 0 packed) bytes of level 0-1023.	FF 27 00 00 12
0x28	Set DSK Gain Level – 3 Parameters	Initial parameter is DSK number (zero based); second two parameters are high and low (6 bit 0 packed) bytes of level 0-1023.	FF 28 01 0F 3F
0x29	Set Source Gain – 7 Parameters	SH = High 7 bits, SL = Low 7 bits of source (1-999) LV = Level/Pair number (1-2) for stereo pairs 1 & 2 LH = High 6 bits, LL = Low 6 bits of Left gain RH = High 6 bits, RL = Low 6 bits of Right gain	FF 29 00 01 01 21 15 21 15

Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
		(This sets the level of a single mono channel)	
0x2B	Set Automation State – 2 Parameters	This is a valid packet however it has no effect at the time of writing.	
0x2C	Start audio lead	This command will mix the audio from the source selected on the preset bus with the audio from the selected source on the program bus. To complete the transition issue the take command.	FF 2C
0x2E	Abort audio lead	If in audio lead, and this command is issued, this will cause the PresMaster to revert to the audio and video from the selected program source on the output.	FF 2E
0x2F	Start audio lag	This command will start audio lag, the video from the preset source is taken to the output. The audio from the preset source is mixed with the audio from the old program source on the output. To complete the transition issue the take command.	FF 2F
0x31	Abort audio lag	If in audio lag, and this command is issued, this will cause the PresMaster to revert to the audio and video from the selected program source on the output.	FF 31
0x32	DSK 1 Setting	First param is number of image	FF 32 00 00

Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
	– 2 Parameters	to load, only for Vnnn.OXT style images (0 = load live). Second param is reserved but must be zero.	
0x33	DSK 2 Setting – 2 Parameters	First param is number of image to load, only for Vnnn.OXT style images (0 = load live). Second param is reserved but must be zero.	FF 33 23 00
0x34	Set Audio Mode – 14 Parameters	<p>L1,R1,M1 L2,R2,M2 L3,R3,M3 L4,R4,M4 SH, SL</p> <p>Where the 4 Stereo (8 mono) output channels have their input channel and audio mode selected.</p> <p>Ln is the input channel 0-7 for the nth left output.</p> <p>Rn is the input channel 0-7 for the nth right output.</p> <p>NOTE: M1, M2, L3, R3, M3, L4, R4, M4 are NOT USED at current. These values MUST all be present however.</p> <p>The following section about the Mn bits are for future reference only.</p> <p>Mn is the mode for stereo pair</p>	<p>FF 34 00 01 00 02 03 00 00 00 00 00 00 00 00 09</p>

Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
		<p>n. This is a bit mask consisting of: -</p> <p>Bit 1 (01) is Un-used.                      Bit 2 (02) is phase reverse, if set.                      Bit 3 (04) is Un-used.                      Bit 4 (08) is Mute source, if set.                      Higher bits are unused.</p> <p>And similarly for the other 3 output channels.</p> <p>SH &amp; SL are the high and low 7-bit 0 packed bytes of the source number 0-99.</p> <p>For more detail see the examples section in this document.</p>	
0x38	Set Audio Over Rate – 2 Parameters	First param is VO, indexed from 0, second parameter is rate in frames.	FF 38 00 25
0x3C	Set Symmetric U-Fade Times – 2 Parameters	<p>NOTE: This command MUST precede use of the UFade transition type.</p> <p>First param is number of frames in/out, second param is number of frames zero time.</p>	FF 3C 10 15
Ext 0x0001	IS2 command tunnelling – 2 Parameters;	First param: Imagestore select. 0x00 = First Imagestore on channel, 0x01 is second	To send the command Z01000TodayS

Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
	<p>maximum of 120 bytes in total.</p>	<p>(cascaded) Imagestore / Intuition XG if present.</p> <p>Second Parameter (Subsequent Bytes): Imagestore automation command. See Miranda Technologies Ltd. Imagestore Automation Protocol manual for details.</p> <p>Note that STX and CRC bytes and the colon : command terminator must all be omitted. The Presmaster inserts the command into the Imagestore command stream, handling CRC generation, STX toggling and retries as appropriate. Other status information from IS2 is ignored with this command.</p> <p><b>IMPORTANT NOTE:</b> When using this command, the Presmaster does not try to recognise what is being sent through, it merely tunnels the command directly to the Imagestore, the Presmaster will then reflect any changes on the panel from recognised tallies from the Imagestore. It is therefore possible to send commands through that put the Imagestore in a state that is neither recognised or</p>	<p>News through a tunnel to the Imagestore:</p> <pre>FE 00 01 12 00 5A 30 31 30 30 30 54 6F 64 61 79 73 20 4E 65 77 73 71</pre>

Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
		supported, for this reason it is recommended that this command is only used when necessary and sending commands the Presmaster supports. It is also recommended to only use the first Imagestore.	
Ext 0x0010	Take Video – 0 Parameters	Takes video only	FE 00 10 00 70
Ext 0x0006	DSK Arm – 2 Parameters	xx, yy  Where : xx = DSK number (0 based) yy = arm state: 00 - Cut Down 01 - Cut Up 02 - Fade Down 03 - Fade Up 04 Disarm	FE 00 06 02 00 00 78
Ext 0x0007	DSK State – 2 Parameters	xx, yy  Where : xx = DSK number (0 based) yy = take state: 00 - Cut Down 01 - Cut Up 02 - Fade Down 03 - Fade Up  Note: This performs the same as standard packet commands	FE 00 07 02 00 00 77

Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
		0x06 and 0x07 but allows dsk3, dsk4 and Imagestore Intuition to be controlled, (if fitted).	
Ext 0x0120	DVE Arm – 3 Parameters	xx, yy, zz  Where: xx = DVE mode 4 = Squeeze & Reveal MG Key 5 = Squeeze & Reveal FG Key yy = DVE Preset zz = Time (in frames)  NOTE: This command is now considered deprecated, the VGPI command should be used in it's place.	DEPRECATED
Ext 0x0032	DSK Load Previous image – 1 Parameter	Loads the image that was previously in specified DSK.  xx = DSK number (0 based)	FE 00 32 01 00 4D
Ext 0x0033	DSK Load image – 2 Parameters	Loads a certain filename into a specified DSK.  To load live send filename LIVE – this will load F&K1 LIVE1 –this will load F&K1 LIVE2 –this will load F&K2 LIVE3 –this will load F&K3  To load Intuition send filename. INTUI if connected to F&K1	For filename: bug.oxa  FE 00 33 08 00 62 75 67 2E 6F 78 61 11

Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
		INTUI1 if connected to F&K1 INTUI2 if connected to F&K2 INTUI3 if connected to F&K3  Xx, filename  yy = DSK number (0 based) zz = filename (filename does not need the file extension)	
Ext 0x0013	Voiceover Arm – 2 Parameters	xx = VO number (0 based) yy = Arm state: 00 = Arm to toggle opposite of current state 04 = Disarm	FE 00 13 02 00 00 6B
Ext 0x0014	Voiceover State – 2 Parameters	xx = VO number (0 based) yy = State: 00 = Cut down 01 = Cut up 02 = Fade down 03 = Fade up	FE 00 14 02 00 03 67
Ext 0x0024	Set VO Preset level	xx = VO number (0 based) LH, LL = high and low 6 bits of level	FE 00 24 03 00 20 03 36
Ext 0x0025	Set VO Duck level	xx = VO number (0 based) LH, LL = high and low 6 bits of level	FE 00 25 03 00 1F 3A 7F
Ext 0x0034	Enquire DSK Image exists	Enquires wether a certain filename exists on any DSKs of any Imagestore attached to the Presmaster on that channel.  Will send back a tally (0x0834)	For bug.oxa:  FE 00 34 07 62 75 67 2E 6F 78 61 11



Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
		for EACH DSK. IE. 2 tallies for one Imagestore and 4 tallies for 2 Imagestores.  To enquire live send filename LIVE. To enquire Intuition send filename INTUI.  xx = filename	
Ext 0x0038	Set VO rate	xx = VO number (0 based) rr = rate (frames 0-99)	FE 00 38 02 00 0C 3A
Ext 0x0026	VO shuffle	xx = Voice Over Number (only 0 supported at present) a = Mono Input chan assigned to output 0 b = Mono Input chan assigned to output 1 c = Mono Input chan assigned to output 2 d = Mono Input chan assigned to output 3	FE 00 26 05 00 03 02 01 00 4F
Ext 0x0130	VGPI Arm	xx = VGPI number (0 – 17 at present) yy = Arm state: 00 = Disarm 01 = Arm up 02 = Arm down	FE 01 30 02 00 00 4D
Ext 0x0140	VGPI State	xx = VGPI number (0 – 17 at present) yy = State: 00 = Down	FE 01 40 02 00 00 3D

Hex I.D. / Cmd Code	Name & Number of Parameters	Description	Example (including start of packet)
		01 = Up	
Ext 0x0040	Set Panel to channel on PCS	xx = channel number on PCS (0-3) yy = IP address of panel	FE 00 40 0f 30 31 37 32 2e 31 36 2e 31 33 32 2e 32 30 33 4b
Ext 0x0041	Get which channel a Panel is connected to	xx = IP address of panel	FE 00 4114 31 37 32 2e 31 36 2e 31 33 32 2e 32 30 33 7b
Ext 0x0042	Automation Status Tally Enable	xx = Enable/disable 00 = Off 01 = On Yy = Rate (every yy seconds – minimum is 1)	FE 00 42 02 01 05 36
Ext 0x0043	Set Panel to Shotbox	Xx = Shotbox number Yy – IP address of panel  Example shows connecting to shotbox 12 on panel IP address 172.16.2.36	FE 00 43 0E 31 32 2C 31 37 32 2E 31 36 2E 32 2E 33 36 7A
Ext 0x0044	Get which shotbox a Panel is connected to	Xx = IP address of panel	FE 00 44 0B 31 37 32 2E 31 36 2E 32 2E 33 36 0B
Ext 0x0047	Intuition media check, this checks to see if any media is missing in a template	Filename of template	FE 00 47 03 30 30 30 26
Ext 0x0048	Disconnect a	XX: Shotbox number	FE 00 48 0D 30

<b>Hex I.D. / Cmd Code</b>	<b>Name &amp; Number of Parameters</b>	<b>Description</b>	<b>Example (including start of packet)</b>
	panel from a channel by specifying shotbox number	Yy: IP address of panel	2C 31 37 32 2E 31 36 2E 34 2E 38 30 28

# Presmaster Tallies

The Presmaster sends its complete state table to automation at the end of a transition (during end of transition cleanup), when a tally is received from one of the Imagestores connected to the Presmaster and when a Prespanel connects to the channel that the automation is controlling.

End of transition cleanup is defined as being the time after a transition when the Presmaster is receiving tallies from all of its connected equipment to find the new state of the channel. This period can be quite long, typically greater than a second - though this is dependent on the equipment attached. At the end of this period when all tallies have been received and the new state is known Presmaster will send its state to the controlling automation system for that channel.

Presmasters state, as it pertains to automation, is defined as: -

The current transition type and rate (commands 0x41 and 0x43).

The state of each keyer (extended commands ext 0x806).

The state of each voiceover (extended command ext 0x813 and command 0x53).

The state of the programme, preset and aux sources (commands 0x49, 0x4B and 0x4D).

These packets will be sent in the order listed above.

The Presmaster also updates its state of the attached Imagestores at least every ten seconds, regardless of any other tallies it has received. As a result a complete state update will be sent to the controlling automation system at least every ten seconds.

No representation of a Prespanels interaction with a channel is ever sent to the controlling automation system; however, any tally that results from the panels' interaction with the components attached to a Presmaster system will be tallied to automation in the normal manner.

<b>Tally Hex I.D.</b>	<b>Name.</b>	<b>No of Params.</b>	<b>Desc</b>	<b>Cause of message.</b>
49	Programme Video Source.	Variable parameters, 2-3 depends on size of source.	The current programme video source.	An SDI route has been made on the programme bus or the whole state is being tallied.
4A	Programme Audio Source.	Variable parameters, 2-3 depends on size of source.	The current programme audio source.	An AES route has been made on the programme bus or the whole state is being tallied.
4B	Preset Video Source.	Variable parameters, 2-3 depends on size of source.	The current preset video source.	An SDI route has been made on the preset bus or the whole state is being tallied.
4C	Preset Audio Source.	Variable parameters, 2-3 depends on size of source.	The current preset audio source.	An AES route has been made on the preset bus or the whole state is being tallied.

<b>Tally Hex I.D.</b>	<b>Name.</b>	<b>No of Params.</b>	<b>Desc</b>	<b>Cause of message.</b>
4D	Aux Video Source.	Variable parameters, 2-3 depends on size of source.	The current aux video source.	An n SDI route has been made on the aux bus or the whole state is being tallied.
4E	Aux Audio Source.	Variable parameters, 2-3 depends on size of source.	The current aux audio source.	An AES route has been made on the aux bus or whole state is being tallied.
4F	Take Complete.	No parameters.	Indicates that the end of transition cleanup is completed.	A transition has been completed.
50	Take Audio.	-	-	This is a valid packet but there are currently no situations in which this is sent.
53	V/O State.	2	The 1st parameter is the V/O, the second is whether it is up or down	Sent when entire state is sent.
7C	U-Fade Rate.	2	1st is fade rate (frames) 2nd is time at black (frames)	
41	Transition Type.	1	The only parameter is the transition type.	Sent when entire state is sent or when the transition type has just been set by automation.
43	Transition Rate.	1	The only parameter is the new transition rate.	Sent when entire state is sent or when the transition rate has just been set by automation.

<b>Tally Hex I.D.</b>	<b>Name.</b>	<b>No of Params.</b>	<b>Desc</b>	<b>Cause of message.</b>
6E	Source Audio Parameters.	14		Sent only in response to the source parameters being set.
67	DSK Clip Value.	3	The current DSK clip value. 1st parameter is the layer, the second two are the high and low bytes of the clip value.	Sent only as a response to keyer clip or gain being set.
68	DSK gain.	3	The current DSK gain value. 1st parameter is the layer, the second two are the high and low bytes of the gain value.	Sent only as a response to keyer clip or gain being set.
Ext 0x0806	DSK state.	2	Indicates whether the keyer is live or not. 1st parameter is the layer then the next is whether that layer is on or off.	Sent when a change from IS2 has been received by the Presmaster.
Ext 0x0813	VO Arm State.	2	The V/O number then whether it is armed or not.	Sent when a VO is armed by automation and when entire state is sent.
Ext 0x0826	V/O Params.	5	The V/O number and then the shuffle.	Sent when a VO is armed by automation and when entire state is sent.
Ext 0x0833	Image load state.	2	The layer and then filename.	Sent when a new file is finished loading into a keyer.

Tally Hex I.D.	Name.	No of Params.	Desc	Cause of message.
Ext 0x0834	DSK Image existance	3	xx = DSK number (0 based). yy = Exists (0 = does not exist, 1 = does exist. zz = Filename of image.	Sent in response to extended command 0x0034 (Enquire DSK Image exists).
Ext 0x0940	Current VGPI state.	2	VGPI number (0-17), then the state (0 = down, 1 = up)	Sent whenever a VGPI's state has changed
Ext 0x0840	Set Panel to channel on PCS	1	0-3 successful acquisition of a channel. F0 – no channel set on PCS F1 – no communication with panel F2 – no shotbox setup F3 – unknown error F4 – Panel is currently acquiring channe. This command has been rejected.l	Sent as a response to the 'set panel to channel on PCS' command.



<b>Tally Hex I.D.</b>	<b>Name.</b>	<b>No of Params.</b>	<b>Desc</b>	<b>Cause of message.</b>
Ext 0x0841	Get which channel a Panel is connected to	1 or variable	If the panel is connected to a channel format of reply will be channel number followed by the IP address of the PCS that the channel is connected to. Other responses: F1 – no communication with panel. F2 – panel not connected to a channel. F3 – unknown error.	Sent as a response to the 'Get which channel a Panel is connected to'
Ext 0x0842	Automation Control Status	1	0 = Automation control is disabled. 1 = Automation control is enabled.	Sent configured to do so or if requested by extended command 0x0042 (on a per-channel basis)

<b>Tally Hex I.D.</b>	<b>Name.</b>	<b>No of Params.</b>	<b>Desc</b>	<b>Cause of message.</b>
Ext 0x0843	Current shotbox selected on Panel	1 or variable	<p>If the panel is connected to a channel the shotbox number currently selected on the panel, e.g. for shotbox number 12 selected you will get FE 08 43 02 31 32 50 returned as the tally.</p> <p>Other responses are:                      F0: Invalid shotbox number                      F1: No shotbox setup.                      F4: Panel is currently in the process of acquiring a channel. So this command is rejected.</p>	Sent as a tally response when the Set Panel to Shotbox command is sent or as a result of the Get Panel Shotbox command.

<b>Tally Hex I.D.</b>	<b>Name.</b>	<b>No of Params.</b>	<b>Desc</b>	<b>Cause of message.</b>
Ext 0x0845	Tally sent when a panel acquires a channel	Variable	Passed the ip address of the panel that has just acquired the channel.	This command is sent each time a panel acquires the current automation channel on the PCS.
Ext 0x0846	Tally sent when a panel drops a channel	Variable	Passed the ip address of the panel that has just acquired the channel.	This command is sent each time a panel drops the current automation channel on the PCS.

<b>Tally Hex I.D.</b>	<b>Name.</b>	<b>No of Params.</b>	<b>Desc</b>	<b>Cause of message.</b>
Ext 0x0847	Tally sent back from Intuition to show which files, if any, are missing in a template	2	<p>First tally back gives:</p> <p>First parameter: 0: No missing files Non 0 value: number of missing files</p> <p>Second parameter: 1 : template is missing</p> <p>Third parameter: filename</p> <p>This tally is then sent again for each missing file. Format of the subsequent tallies is: First parameter set to 1. Second parameter filename of missing file.</p>	This tally is sent as a result of the automation command 0x0047 being sent.

<b>Tally Hex I.D.</b>	<b>Name.</b>	<b>No of Params.</b>	<b>Desc</b>	<b>Cause of message.</b>
Ext 0x0928	Automation Assist Command	Variable	ip address of panel, auto assist command  xx = Auto Assist command. 0 = Skip Next 1 = Hold Next 2 = Cue Next 3 = Take Next  Example: FE 09 28 0D 31 37 32 2E 31 36 2E 32 2E 32 2E 33 36 2C 30 40	Sent as a result of on of the auto-assist buttons on the panel being pressed.

# Support

## Product Support

Miranda Technologies Ltd's support desk exists to provide timely help and advice to users and telephone support is available for the entire life of the product. The support desk may be contacted using any of the following methods.

Telephone: +(44) 1491 820000  
(Monday to Friday, 0900-1730 (U.K. times))

Fax: +(44) 1491 820001 (at all times)

E-mail: oxtelsupport@miranda.com (at all times)

Where the query relates to a specific Presmaster Control, make a note of the unit's serial number (on the rear panel) and the software version (displayed on the front panel at boot-up).

## Warranty and Non-Warranty Repairs

Miranda Technologies Ltd provides all products that are sold new with a two-year, return-to-base warranty. Products that are purchased as "ex-demo" may have a limited warranty and reference should be made the original acknowledgement of order or the Product Certificate for warranty details.

A repair service for warranty and non-warranty products provides a typical turnaround time of ten working days. The procedure for returning a unit to Miranda Technologies Ltd is given later in this section.

## Obsolescence

Obsolete products will be supported for a minimum of 3 years from the date of obsolescence. Miranda Technologies Ltd will continue to provide support beyond this period, but will not replenish service stock and is therefore unable to guarantee the availability of every component used.

## **Upgrades**

Software upgrades are regularly available as part of a continuing commitment to product improvement. Most software upgrades can be performed remotely and customers are kept informed of software and hardware upgrades via Release Notes that are e-mailed to the nominated contact.

Hardware upgrading is normally carried out at Miranda Technologies Ltd's factory and involves full re-testing and QA checks. Refurbishment can also be performed where required but these are not covered by the standard warranty.

## **Service Visits**

On-site assistance from a Miranda Technologies Ltd Field Service Engineer will be provided assuming adequate notice is given. Service visits are normally chargeable and are not covered by the standard warranty.

## **Equipment Loans**

A variety of loan agreements are possible and can be arranged with the Engineering Support department through the helpdesk although it is not always possible to fulfil loan requests at short notice.

## **Training**

Customer training can be provided to match individual requirements. Training can be carried out either at customer premises (preferred option) or at Miranda Technologies Ltd's facility in Oxfordshire where a dedicated demonstration room is available.

Courses can be tailored for either technical or operational staff and these courses can be ordered at the same time as the equipment or at any subsequent time.

## **Web Page**

Miranda Technologies Ltd's web page can be found at **[www.miranda.com](http://www.miranda.com)**.

## **Returns Procedure**

Should there be a need to return any Miranda Technologies Ltd product for upgrade or repair, telephone the Helpdesk and request a "return number".

The helpdesk will ask for details of the return including the unit's serial number, reason for return and any fault information. Make sure that these details are to hand when contacting the helpdesk.

Mark the "return number" clearly on any packaging as well as on the return paperwork. Any subsequent correspondence should reference this "return number".

## **Transit Packaging**

When returning equipment ensure that it is adequately packaged using good quality materials. Particularly ensure that the unit is tightly packed within a strong carton (preferably the original) and avoid common polythene or polystyrene chips, since the product may contain static sensitive devices.

Some components, such as hard drives, may be susceptible to damage by physical shock and caution is required when removing the equipment from racks.

Units received at Miranda Technologies Ltd with obvious damage, not described on the accompanying documentation, or not notified to Miranda Technologies Ltd by the customer, are assumed damaged in transit and this is chargeable. Customers are strongly advised to insure the equipment against damage in transit when returning it to Miranda Technologies Ltd. Should a unit be received from Miranda Technologies Ltd in a damaged state (either new or repaired), this should be reported to both the courier and Miranda Technologies Ltd immediately.



