

# IQDFSYB D1 Frame Synchroniser with Ancillary Space Passing Capability

**Module Description**

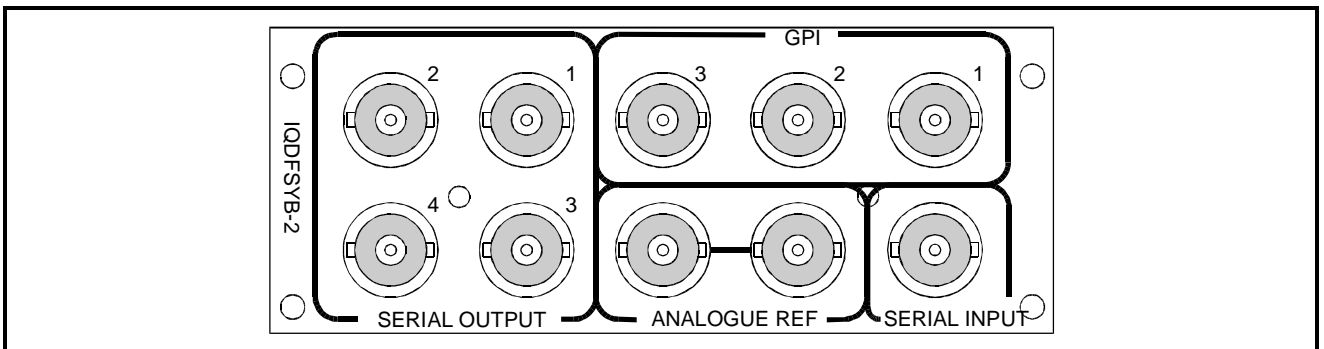
The IQDFSYB is a full frame synchroniser for SDI video, capable of preserving all ancillary data. The synchroniser will operate in 2 modes.

First is the full synchroniser, where the output video is locked to an analog black reference input. In this mode the delay through the unit will change according to the scan positions of the input video relative to the reference input. In this mode the synchroniser will drop/repeat the ancillary space

data in direct correspondence with the active picture synchroniser, i.e. data discontinuity will occur should the synchroniser drop or repeat a frame.

In the second operational mode the unit behaves as a constant, programmable delay of up to 1 frame + 2 microseconds

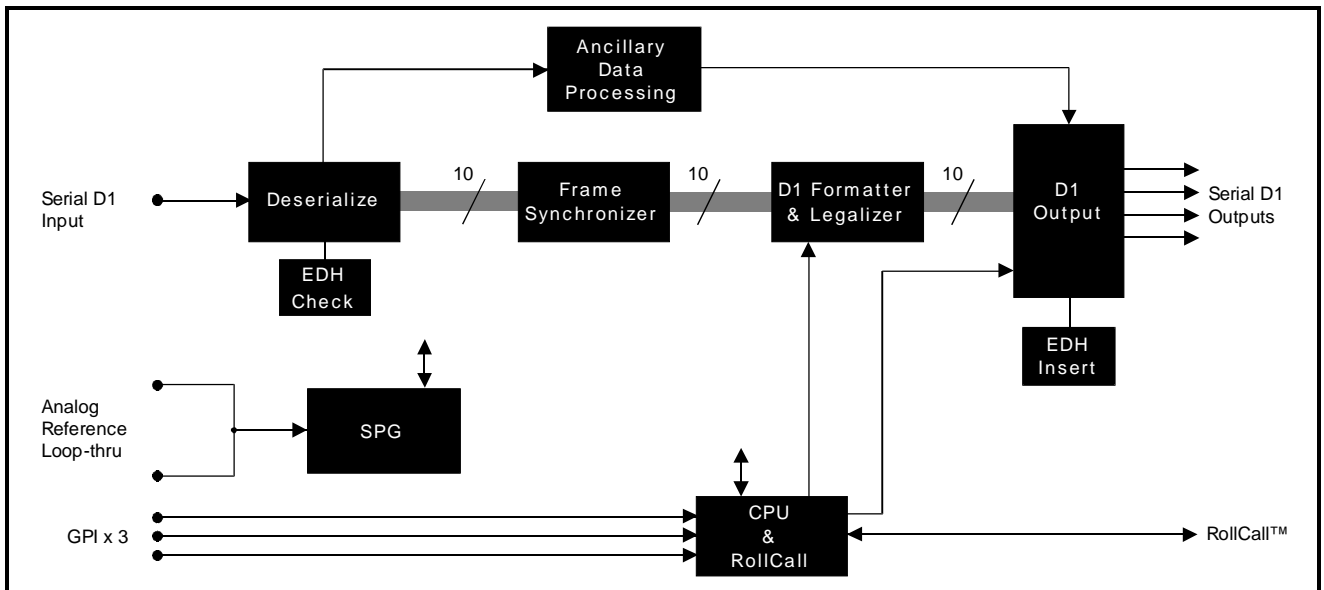
**REAR PANEL VIEWS**



Versions of the module cards available are:

**IQDFSYB-2** SDI Synchroniser with ancillary space passing 4 o/ps with EDH Double width module

## BLOCK DIAGRAM



## Features

- SDI frame synchroniser with 10-bit data path
- Ancillary data passing
- Router switching tolerant (SMPTE RP168)
- Genlock to black/composite reference or
- Fixed delay mode (lock to input)
- EDH checking and insertion (SMPTE RP165)
- Pattern generation
- Un-interruptable valid output
- Controlled and crash freeze
- Automatic 625 and 525 operation
- RollCall remote control plus 3 Configurable GPI BNC's
- Horizontal picture position adjustment
- Horizontal Y/C timing correction

## TECHNICAL PROFILE

**Features****Signal Inputs**

Serial	SDI serial digital
External Reference	Composite Video or Black Burst (loop-through)
GPI	3 Closing Contact style inputs

**Signal Outputs**

Serial	4 x Serial Digital D1
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**Controls****Preset Control Ranges**

Mode Select	Synchronise / Delay
V Genlock offset	+ 100 Lines
H Genlock offset	+ 1 Lines in 37ns steps
V Delay (Delay mode)	1 line to 1 Frame + 2 $\mu$ s
H Delay (Delay mode)	0 to 64 $\mu$ s in 37ns steps
EDH insertion	On / Off
Pattern	On / Off
Pattern Select	Black; EBU Bars; 100% Bars; Multiburst; Valid Ramp; Pulse and Bar
Auto Freeze	Freeze on Input Loss (Default is Pattern Output)
Horizontal Picture position	$\pm$ 1628 ns in 148ns steps
Horizontal YC Adjust	$\pm$ 2960 ns in 148ns steps
Vertical YC Adjust	+4/-5 lines in 1 line steps
Vertical Data	Pass / Strip (Individual selection via RollCall only)
HANC Data	Pass / Strip
Freeze Mode	Frame / Field 1/ Field 2
Preset Unit	Returns all settings to factory defaults

**Additional Controls via RollCall™****Remote Control System**

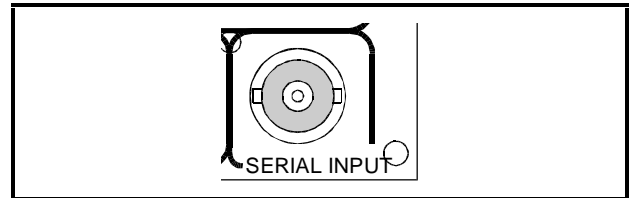
Vertical Data	Individual Line Selection of Pass / Blank or Blank/Pass all lines
EDH logging	
GPI configuration	Select the function of each GPI input from a predefined list of options
RollTrack™	

**Specifications**

Serial Input Return Loss	Better than 15 dB to 270 MHz
Maximum Input Cable length	> 200m (PSF1/2 or equiv. cable)
Serial Output Level	800 mV $\pm$ 10%
Output Overshoot	< 70 mV
Output Return Loss	Better than -15 dB to 270 MHz
Output Jitter	< 0.2UI
Reference Return Loss	Better than -35 dB to 5.8 MHz
Reference Input Level	1 V p-p $\pm$ 3 dB
Minimum Delay (Synchronise Mode)	31 $\mu$ s
Synchronise Hysteresis	1 $\mu$ s
Minimum Delay (Delay Mode)	1 Line
Maximum Delay (Delay Mode)	1 Fame + 2 $\mu$ s

### SERIAL INPUT

The serial digital input to the unit is made via this BNC connector that terminates in 75 Ohms.

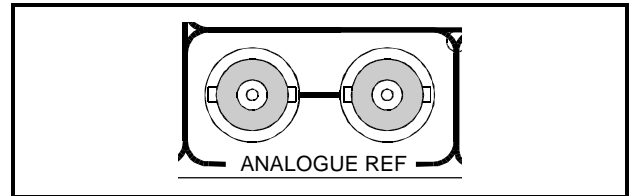


### ANALOGUE REFERENCE INPUT

The external sync input to the unit is made via the passive loop-through BNC connectors for 75 Ohms.

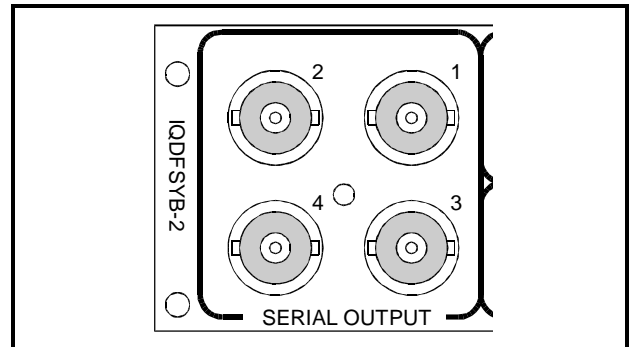
The external sync signal must be the same line standard as the D1 input.

Note that if the loop-through facility is not used the unused BNC socket must be fitted with a 75 Ohm terminator.



### SERIAL OUTPUTS

These are the two or four isolated Serial Digital outputs of the unit via BNC connectors for 75 Ohms.

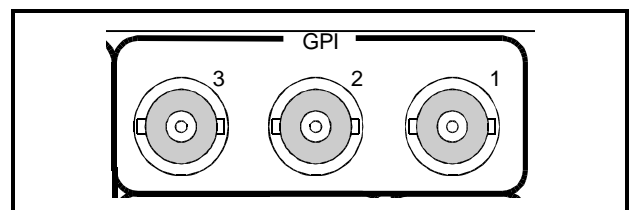


### GPI

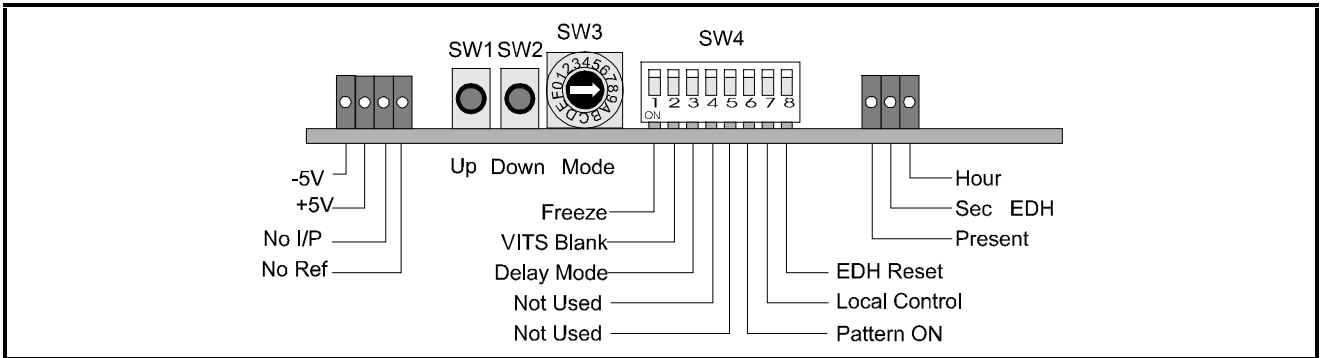
These three connectors are used for accepting GPI information (from mechanical switch contacts, relay contacts etc.) The resulting action that the unit takes may be programmed via RollCall.

The GPI inputs have two user selectable modes of operation:

1. Latched: when the contact is closed the function is activated; when the contact is open, the function is de-activated.
2. Edge-triggered: with each open-to-closed trigger the GPI function is toggled between activated and de-activated.



CARD EDGE CONTROLS



Note that the unit will respond to both local and remote control, one system overriding the settings of the other. For cards using the RollCall™ remote control system, activating these switches will override the remote control settings. The RollCall™ control panel will then follow these settings.

Note that in Main-frames where RollCall™ is not available SW4/7, should be set to ON (DOWN). This ensures that when the unit is powered-up the factory default settings of parameters not available as card edge adjustments, are loaded. With SW4/7 OFF (UP) the card will power-up with the last settings sent by the remote control panel.

LED INDICATORS

**+5V and -5V**

When illuminated these LED's indicate that the +5 V and -5 V supplies are present.

**No I/P**

The **No I/P** LED will be continuously illuminated when the unit is not receiving an input signal.

Note that in the **Genlock** mode this LED will flash when the input signal is of a different standard to that of the reference input. Under these conditions the output signal standard will be the same as the reference signal; the input signal will be ignored.

**No Ref**

When the **No Ref** LED is illuminated this indicates that the unit is not receiving a reference input signal.

Note that when both the **No I/P** and **No Ref** LED's are flashing, this will indicate that an internal error has occurred.

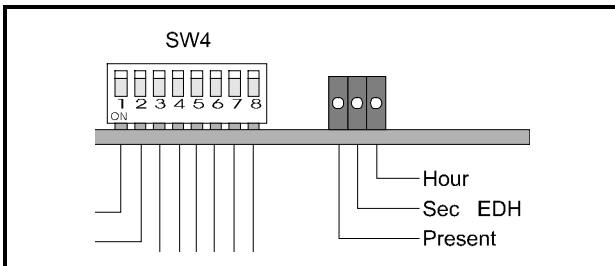
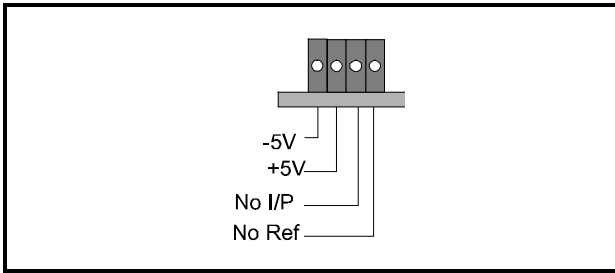
EDH Reporting

The **Present** LED will be illuminated if EDH data is present on the incoming signal.

The **Hour** LED indicates that an error has occurred in the last hour and the **Sec** LED

indicates that an error has occurred in the last second.

Note that SW4/8 resets these indicators.



## SWITCHES

Two push buttons, a Hex switch and a 8 way DIL switch allow various functions and modes to be set.

The DIL switch SW4 selects a particular function and the Hex switch SW3 selects a mode or variable parameter.

The push buttons SW1, SW2 allow the value of the selected function/parameter to be adjusted.

The Mode select switch may select a mode or a parameter that may be adjusted.

**Note that to select the preset value both buttons should be pressed together.**

These switches allow the module to be operated when an active front panel is not available.

More detailed information about these functions will be found under *MENU DETAILS*

## FUNCTION AND MODE SELECTIONS

## DIL SWITCH FUNCTIONS SW4

By setting these switches various modes of operation may be selected.  
(Down is ON and Up is OFF)

## Position 1

Setting this to ON provides a **freeze** frame picture.

## Position 2

Setting to ON allows the **VITS** signal to pass through the unit; in the OFF position VITS signals are blanked out.

*Note that in the 525 standard VITS lines are from line 11 and 274 and in the 625 standard from line 7 and 320 inclusive.*

## Position 3

Setting to ON enables the **delay mode**; OFF selects synchronise mode.

## Position 4

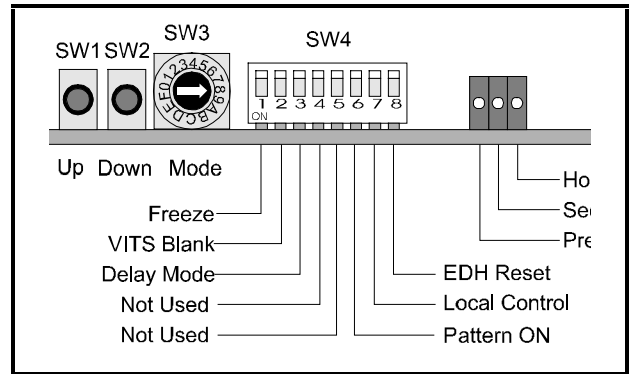
Not Used

## Position 5

Not Used

## Position 6

When set to ON (Down) this allows the unit to produce a **test pattern** (selected using SW3) signal as an output.



## Position 7

When set to ON (Down) this allows the unit to operate under **local control**.

Note that in Main-frames where RollCall™ is not available this switch should be set to the ON position. This ensures that when the unit is powered-up the factory default settings of parameters not available as card edge adjustments, are loaded. When set to the UP position the card will power-up with the last settings sent by the remote control panel.

## Position 8

Setting this to the ON position resets the **EDH** log indicators.

## SW3

This HEX switch selects a parameter that may be adjusted with the push-buttons SW1 and SW2.

*Note that SW1 increases a setting and SW2 decreases a setting. Continual pressure on the button will cause the setting to change continuously, the rate of change increasing with time. Pressing both together sets functions to their default values.*

## Position 0

In the Synchronise mode (set by SW4-3) this position allows the **horizontal phasing** between the external sync input and the output sync to be adjusted using SW1 and SW2. The range covers the whole line period in 37 ns steps.

Default is to 0 ns

In the Delay mode (set by SW4-3) this position allows the amount of input-to-output **horizontal delay** to be adjusted in steps of 37 ns using SW1 and SW2.

Default is to 0 ns

## Position 1

In the Synchronise mode (set by SW4-3) this position allows the **vertical phasing** between the external sync input and the output sync to be adjusted in steps of 1 line using SW1 and SW2.

Default is to 0 lines

In the Delay mode (set by SW4-3) this position allows the amount of **input-to-output delay** to be adjusted in steps of 1 line using SW1 and SW2.

Minimum delay	1 line
Maximum delay	1 frame + 2 $\mu$ s

Default is to 1 line

## Position 2

The **horizontal position** of the picture (relative to syncs) may be adjusted by  $\pm 1628$  ns in 148 ns steps using SW1 and SW2.

Default is to 0 ns

## Position 3

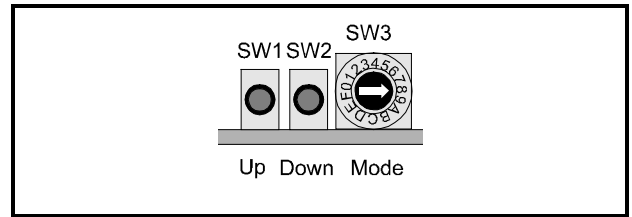
The **horizontal chrominance delay** relative to luminance (i.e. Y to Cb/Cr timing) may be adjusted by  $\pm 2960$  ns in 148 ns steps using SW1 and SW2.

Default is to 0 ns

## Position 4

The **vertical chrominance delay** relative to luminance (i.e. Y to Cb/Cr timing) may be adjusted by +4 lines to -5 lines in 1-line steps using SW1 and SW2.

Default is to 0 lines



Position 5  
Not Used

Position 6  
Not Used

Position 7  
Not Used

Position 8  
This allows a **test pattern** to be selected (in this order) from the following list:

Black  
EBU Bars  
100% Bars  
Multiburst  
Valid Ramp  
Pulse and Bar

Default is to black.

Position 9, Position A and Position B are not used.

## Position C

When the unit enters the **freeze mode** this position allows either a frame, field 1 or field 2 to be used as the frozen picture.

Default is to frame.

## Position D

When the unit suffers a **loss of input** signal the output signal will revert to a pattern (selected only from the menu) or a frame freeze. Default pattern is to Black. In this position pressing SW1 sets the unit to the pattern and pressing SW2 sets the unit to freeze.

Note that picture corruption is possible in the freeze frame mode.

Default is to freeze.

## Position E

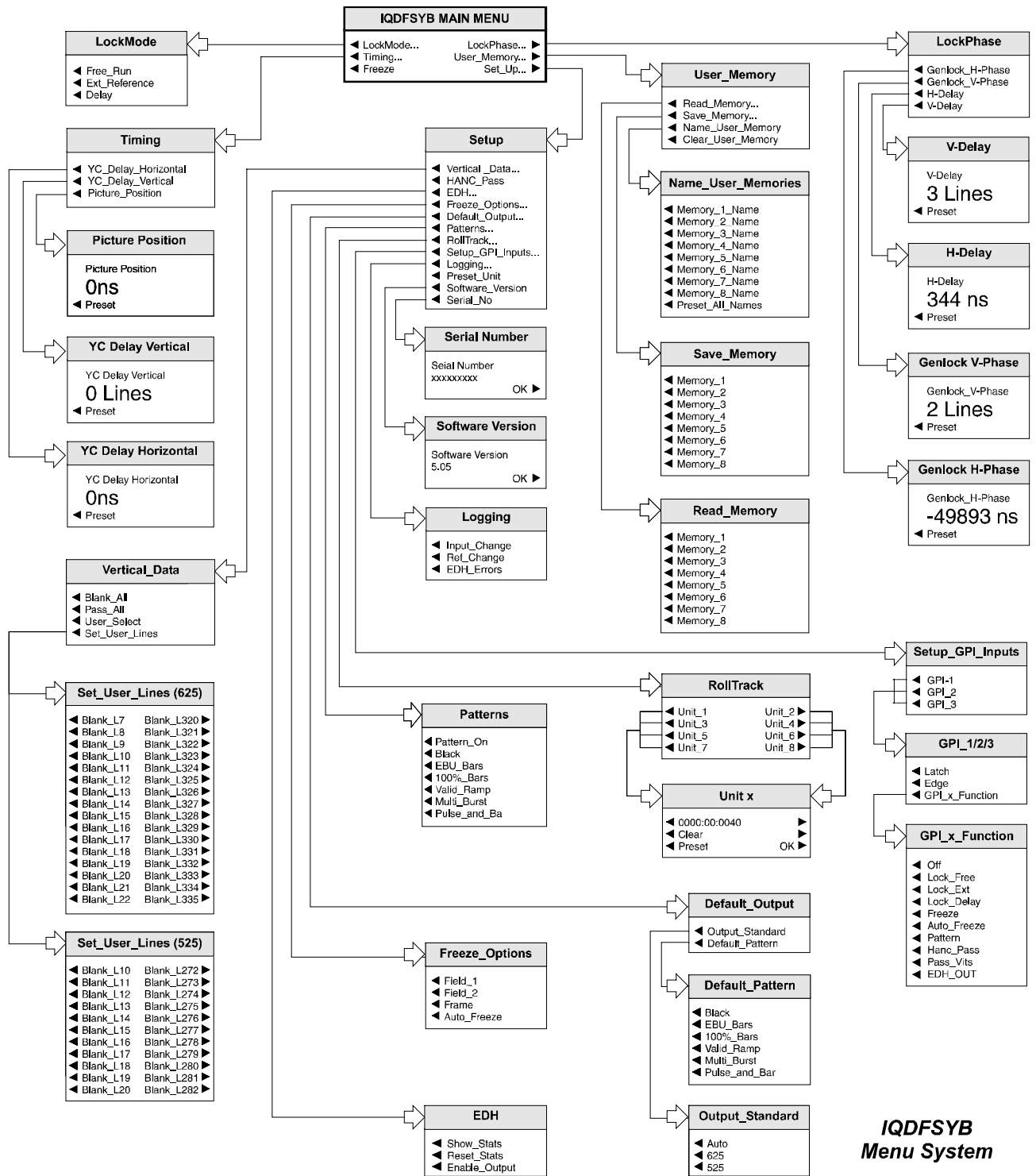
This position allows **HANC data** to be passed through (SW2) or blanked (SW1)

Default is to pass

## Position F

In this position pressing SW1 and SW2 together sets all parameters to the **default/preset** conditions.





**IQDFSYB Menu System**

## OPERATION FROM AN ACTIVE CONTROL PANEL

The card may be operated with an active control panel via the RollCall™ network.

The menus available for this card are shown opposite and will appear in the Control display window.

Operational details for the remote control panel will be found in SECTION 1 of the Modular System Operator's Manual.

## MENU DETAILS

(see IQFSYBYB Menu System opposite)

## MAIN MENU

The main, or top level menu allows various sub-menus to be selected by pressing the button adjacent to the required text line.

*Note that where a menu item is followed by three dots (...) this indicates that a further sub-menu may be selected.*

Whenever a menu item is selected the parameters of that selection will be displayed in the **Information** window of the front panel. Where the selection is purely a mode selection and does not enable a sub-menu, the text will become reversed (white-on-black) indicating that the mode is active. If the mode is not available for selection the text will remain normal.

## ◀ Lock Mode...

This allows the method that the card may be locked (or not) to an external reference signal.

## ◀ Free Run

In this mode the output signal will be locked to the internal clock generator.

## ◀ Ext Reference

This selection locks the output signal to the signal connected to the Analogue Ref input connector.

The standard of the reference signal determines the standard of the output signal.

In the absence of a reference signal the standard of the output signal will be the same as the input signal.

If the reference signal and input signal are of different standards the output will display a pattern selected by the default pattern menu in the standard of the reference signal.

*Note that to change the horizontal and vertical phasing between the external sync signal and the output signal select Lock Phase in the Main menu.*

## ◀ Delay

When this mode is selected the output signal will appear after the input signal with a time delay. When not selected the module will operate in the synchronise mode.

*Note that to change the horizontal and vertical delay between the input signal and the output signal select Lock Phase in the Main menu. This function is only available when the delay mode is selected.*

**Lock Phase... ▶**

This menu allows various phasing/delay adjustments to be made.

Note that the H-Delay and V-Delay adjustments will only be available when the Delay selection has been made in the Lock Mode menu.

**◀ Genlock H Phase**

Selecting this item reveals a display showing the horizontal timing of the output signal relative to the reference sync signal, in nanoseconds. Rotating the spin-wheel will adjust this value.

Selecting **Preset** returns the setting to zero. (Output coincident with reference)

**◀ Genlock V Phase**

Selecting this item reveals a display showing the vertical timing of the output signal relative to the reference sync signal, in TV lines. Rotating the spin-wheel will adjust this value. Range is 100 lines in 1 line steps.

Selecting **Preset** returns the setting to zero. (Output coincident with reference)

**◀ H Delay**

Selecting this item reveals a display showing the horizontal timing of the output signal relative to the input signal, in nanoseconds. Rotating the spin-wheel will adjust this value.

Selecting **Preset** returns the setting to the minimum horizontal delay.

**◀ V Delay**

Selecting this item reveals a display showing the vertical timing of the output signal relative to the input signal, in TV lines. Rotating the spin-wheel will adjust this value. Range is from 1 line to 624 or 525 lines in 1 line steps.

Selecting **Preset** returns the setting to the minimum vertical delay.

**◀ Timing**

This selection allows various adjustments to be made to the processed signal.

**◀ YC\_Delay Horizontal**

Selecting this item reveals a display showing the timing of the chrominance signal relative to the luminance signal, (i.e. Y to Cb/Cr timing) in nanoseconds. Rotating the spin-wheel will adjust this value.

Range is from  $\pm 2960$  ns in 148 ns steps.

Selecting **Preset** returns the setting to the preset value of 0.

**◀ YC\_Delay Vertical**

The vertical delay of chrominance relative to luminance (i.e. Y to Cb/Cr timing) may be adjusted by +4 lines to -5 lines in 1 line steps.

Selecting **Preset** returns the setting to the preset value of 0.

**◀ Picture Position**

Selecting this item reveals a display showing the timing of the picture position relative to the normal value, in nanoseconds. Rotating the spin-wheel will adjust this value.

Range is from  $\pm 1628$  ns in 148 ns steps.

Selecting **Preset** returns the setting to the preset value of 0.

**User Memory ▶**

All settings of the unit may be stored in any of 8 non-volatile memory locations. These locations may be read, saved, given a name or cleared to the preset names by selecting this function to reveal the sub-menu.

**◀ Read Memory**

This will reveal a list of 8 memory locations. When a particular location is enabled, settings will be changed to the values contained in that memory location.

**◀ Save Memory**

This will reveal a list of 8 memory locations. When a particular location is enabled, current settings will be saved in that memory location.

**◀ Name User Memories**

This will reveal a list of the 8 memory locations which may be given a specific name. Use the adjacent buttons to select the cursor position and the spinwheel to select the alphanumeric character.

**◀ Preset All Names**

This function will set all names to their preset (default) values.

**◀ Freeze**

This toggle On/Off function produces a freeze-frame picture.

**Set Up ►**

This menu allows various system parameters to be set.

**◀ Vertical Data**

Activating this item allows the Vertical Interval data (all or specific lines) contained in the input signal to be blanked or passed through the module.

*Note that in the 525 standard VITS lines are from line 10 and 272 and in the 625 standard from line 7 and 319 inclusive.*

**◀ Blank All**

This function will blank (remove) all data lines.

**◀ Pass All**

This function will allow all data lines to pass through the unit.

**◀ User Select**

When this function is enabled specific lines may be selected to be blanked (removed) from passing through the unit.

**◀ Set User Lines 625/525**

These sub-menus will show the lines that may be selected to be blanked from the output signal. In the 525 standard VITS lines are from line 10 to 282 and in the 625 standard from line 7 to 335 inclusive.

**◀ HANC Pass**

When this function is enabled the unit will pass all ancillary data in the HANC region.

*Note: Normally the audio samples go through polyphase sample rate converters with the input rate and the output rate locked to preserve the delay through the audio buffer.*

*When there is a difference between the audio and video delays, e.g. when the synchroniser drops or repeats a frame, the rate converters' input and output rates are varied accordingly in order to smoothly track the audio delay to the video delay. Once the audio and the video delays are matched the sample rate converters resume normal operation*

**◀ EDH**

This selection reveals a sub-menu that allows various Input or Output EDH parameters to be enabled.

**◀ Show Stats (Statistics)**

When this function is enabled (text reversed) the information window will display the number of errors from the time the function was enabled. The elapsed time in hours, minutes and seconds is also displayed.

**◀ Reset Stats (Statistics)**

Selecting this function will reset the EDH error count and the timer shown in the information window, to zero.

**◀ Enable Output**

Selecting this item (text highlighted) will enable EDH generation onto the output data stream. Default is to ON.

**◀ Freeze Options**

When the freeze mode is enabled this item allows the type of frozen picture to be selected.

Options are:

- ◀ Field 1      An odd field will be selected
- ◀ Field 2      An even field will be selected
- ◀ Frame        A frame will be selected

**◀ Auto Freeze**

When this item is active and the input signal is lost, a freeze field picture will be produced. When inactive a pattern signal (as selected from the Default Output/Default Pattern menu) will be produced under these conditions.

### ◀ Default Output

This item allows the output standard and pattern output to be selected in the event of a loss of input or a conflict of input/reference standard.

#### ◀ Output Standard

In the event of a loss of input *and* reference or a conflict of input/reference standard the output standard may be set to become:

- ◀ Auto            The output will be in the last known standard
- ◀ 625            The output will be in the 625 standard
- ◀ 525            The output will be in the 525 standard

#### ◀ Default Pattern

Under the above conditions the pattern that appears at the output may be selected from the following list:

- ◀ Black
- ◀ EBU Bars
- ◀ 100% Bars
- ◀ Valid Ramp
- ◀ Multiburst
- ◀ Pulse and Bar

### ◀ Patterns

Enabling this function will allow various patterns to be used as the output signal.

#### ◀ Pattern On

When this item is enabled a pattern, selected from the list below, will become the output signal.

Patterns available are:

- ◀ Black
- ◀ EBU Bars
- ◀ 100% Bars
- ◀ Valid Ramp
- ◀ Multiburst
- ◀ Pulse and Bar

### ◀ RollTrack

This function allows the value of the delay time produced by this module to be sent, via the RollCall™ network, to audio delay units connected on the same network. This enables compatible audio delay units to produce an audio delay dependent on this and other similar units. The audio delay unit will dynamically follow or track the received delay-time information allowing processed video signals to be timed correctly with audio signals. This automatic tracking system via the RollCall™ network is call **RollTrack**.

The destination for the delay information is set by the network code address as follows:

Selecting RollTrack in the Set-up menu provides a sub-menu that allows up to 8 units (mainframes enclosures etc.) to be selected as a destination.

A further sub-menu then appears to allow the code to be set up using the adjacent push buttons to edit the text.

(The left and right hand buttons select the cursor position and the spinwheel selects the character; the clear button sets the text line to all zero's and the OK button accepts the network address)

*For more detailed information see the RollTrack section, page 20, of this manual.*

The full network address has four sets of numbers.

The first set (0000) is the network segment code number

The second set (10) is the number identifying the (enclosure/mainframe) unit

The third set (01) is the slot number in the unit

The fourth set (14) separated by an \* is the channel number.

*Note that only channel numbers 14, 15, 16 & 17 should be used for audio delay cards.*

Once a destination address for a unit has been set the OK function will return to the unit menu to allow another address to be set if required.

### ◀ Setup GPI Inputs

The three GPI connectors are used for accepting GPI information (from mechanical switch contacts, relay contacts etc.) The resulting action that the unit takes may be selected from this menu.

The required GPI input should be selected:

- ◀ GPI-1
- ◀ GPI-2
- ◀ GPI-3

The GPI input has two user selectable modes of operation:

#### ◀ Latch

When the contact is closed the function is activated; when the contact is open, the function is de-activated.

#### ◀ Edge

(Edge-triggered) With each open-to-closed trigger the GPI function is toggled between activated and de-activated.

#### ◀ GPI\_x\_Function

The action resulting from the selected GPI input being activated may be programmed from this list:

Setting	Action
◀ Off	Function inactive
◀ Lock_Free	Lockmode to Free_run
◀ Lock_Ext	Lockmode to Ext_Reference
◀ Lock_Delay	Lockmode to Delay Mode
◀ Freeze	Freezes picture
◀ Auto_Freeze	Setup/Freeze_Option to Auto_Freeze
◀ Pattern	Output to Pattern
◀ Hanc_Pass	HANC Pass or Blank
◀ Pass_Vits	Vertical_Data to Pass_All
◀ EDH_OUT	EDH to Enable_Output

### ◀ Logging

If a logging device is attached to the RollCall™ network, information about various parameters can be made available to such a device.

Selecting this item reveals a display that allows information about three parameters to be made available for logging.

#### ◀ Input Change

When activated, a change of input signal condition will be available for the logging device.

#### ◀ Ref Change

When activated, a change of External reference signal condition will be available for the logging device.

#### ◀ EDH Errors

When activated, EDH error reports will be available for the logging device.

### ◀ Preset Unit

Selecting this item sets all adjustment functions that include a preset facility, to their preset values. Note that this is a momentary action and the text will not become reversed.

### ◀ Software Version

Selecting this item reveals a display showing the version of the software fitted in the module. Select OK to return to the Setup Menu.

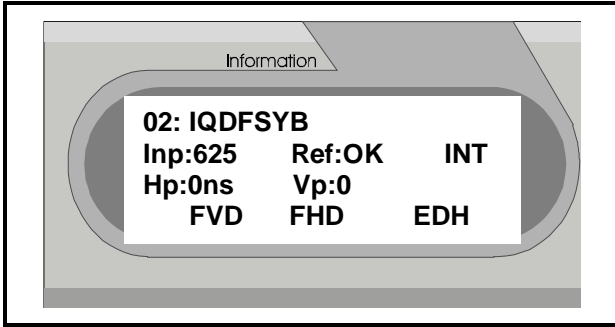
### ◀ Serial Number

Selecting this item reveals a display showing the serial number of the module. Select OK to return to the Setup Menu.

THE INFORMATION WINDOW

The parameters of the selected item in the Control window will be displayed in the Information window.

An example is shown below:



The first line shows the name of the module card. This name can be changed using RollCall™ and the Remote Control Interface Menu.

The second line shows that the signal input and the reference input are receiving valid signals; if there is no signal or the signal is invalid it will show Inp:\*\* or Ref:\*\*

This text may be followed by the following abbreviations:

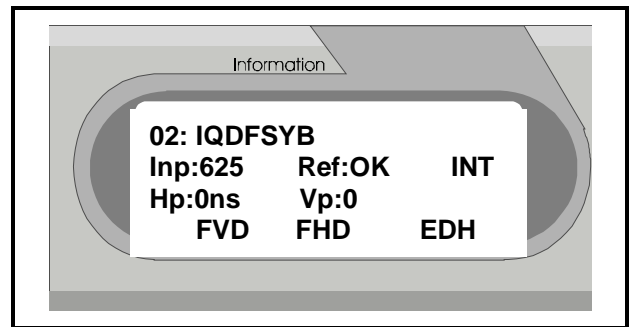
- FRZ** Unit has been set to the Freeze mode; the output picture is frozen
- AFZ** Unit has lost the input signal and the Auto Freeze mode activated; output picture is frozen
- PAT** Unit has been set to enable the test pattern signal as the output
- BLK** Unit has lost the input signal and the Auto Freeze mode is not activated; output picture will be black

The third line shows that the module is operating in the Delay mode (could be Ext Reference lock or Internal Lock mode) and that the line standard is 625 (could be 525).

The fourth line shows that in the Delay mode the Vertical Delay is 1 Line (could be Vp, the genlock vertical phase in synchronise mode) and that the Horizontal Delay is 2047 ns (could be Hp, the genlock horizontal phase).

In the next example the module is receiving a 625 input signal, a reference signal is present, Lock mode is internal, H phase=0 and V phase=0.

The flags FVD, FHD, EDH are shown in the last line.





IQDFSYB Menu Command Set						
Command Name	Value	Type	Parameter or Min	Max or Action	Selection or Step	Comment
Serial No	1	Display				
Software Version	2	Display				
Setup	3	Button	1	to select	Preset Unit	
LockMode	5	Button	0	to select	Free Run	
LockMode	5	Button	1	to select	Ext Reference	
LockMode	5	Button	2	to select	Delay	
Freeze	10	Checkbox	1	to set		
Freeze Options	11	Button	0	to select	Field 1	
Freeze Options	11	Button	1	to select	Field 2	
Freeze Options	11	Button	2	to select	Frame	
Auto Freeze	12	Checkbox	1	to set		
Pattern On	20	Checkbox	1	to set		Enable Test Patterns
Patterns	21	Button	0	to select	Black	
Patterns	21	Button	1	to select	Valid Ramp	
Patterns	21	Button	2	to select	100% Bars	
Patterns	21	Button	3	to select	EBU Bars	
Patterns	21	Button	4	to select	Multi Burst	
Patterns	21	Button	5	to select	Pulse and Bar	
Blank L10	28	Checkbox	1	to set		
Blank L323	29	Checkbox	1	to set		
Blank L11	30	Checkbox	1	to set		
Blank L324	31	Checkbox	1	to set		
Blank L12	32	Checkbox	1	to set		
Blank L325	33	Checkbox	1	to set		
Blank L13	34	Checkbox	1	to set		
Blank L326	35	Checkbox	1	to set		
Blank L14	36	Checkbox	1	to set		
Blank L327	37	Checkbox	1	to set		
Blank L15	38	Checkbox	1	to set		
Blank L328	39	Checkbox	1	to set		

Blank L16	40	Checkbox	1	to set		
Blank L329	41	Checkbox	1	to set		
Blank L17	42	Checkbox	1	to set		
Blank L330	43	Checkbox	1	to set		
Blank L18	44	Checkbox	1	to set		
Blank L331	45	Checkbox	1	to set		
Blank L19	46	Checkbox	1	to set		
Blank L332	47	Checkbox	1	to set		
Blank L20	48	Checkbox	1	to set		
Blank L333	49	Checkbox	1	to set		
Blank L21	50	Checkbox	1	to set		
Blank L334	51	Checkbox	1	to set		
Vertical Data	52	Button	0	to select	Blank All	
Vertical Data	52	Button	1	to select	Pass All	
Vertical Data	52	Button	2	to select	User Select	
Input Change	73	Checkbox	1	to set		Logging
Ref Change	74	Checkbox	1	to set		Logging
EDH Errors	75	Checkbox	1	to set		Logging
Blank L22	84	Checkbox	1	to set		
Blank L335	85	Checkbox	1	to set		
Blank L10	89	Checkbox	1	to set		
Blank L272	90	Checkbox	1	to set		
Blank L11	91	Checkbox	1	to set		
Blank L273	92	Checkbox	1	to set		
Blank L12	93	Checkbox	1	to set		
Blank L274	94	Checkbox	1	to set		
Blank L13	95	Checkbox	1	to set		
Blank L275	96	Checkbox	1	to set		
Blank L14	97	Checkbox	1	to set		
Blank L276	98	Checkbox	1	to set		
Blank L15	99	Checkbox	1	to set		
Blank L277	100	Checkbox	1	to set		
Blank L16	101	Checkbox	1	to set		
Blank L278	102	Checkbox	1	to set		

Blank L17	103	Checkbox	1	to set		
Blank L279	104	Checkbox	1	to set		
Blank L18	105	Checkbox	1	to set		
Blank L280	106	Checkbox	1	to set		
Blank L19	107	Checkbox	1	to set		
Blank L281	108	Checkbox	1	to set		
Blank L20	109	Checkbox	1	to set		
Blank L282	110	Checkbox	1	to set		
EDH	62	Button	1	to select	Reset Stats	
Read Memory	86	Button	0	to select	Memory 1	
Read Memory	86	Button	1	to select	Memory 2	
Read Memory	86	Button	2	to select	Memory 3	
Read Memory	86	Button	3	to select	Memory 4	
Read Memory	86	Button	4	to select	Memory 5	
Read Memory	86	Button	5	to select	Memory 6	
Read Memory	86	Button	6	to select	Memory 7	
Read Memory	86	Button	7	to select	Memory 8	
Save Memory	87	Button	0	to select	Memory 1	
Save Memory	87	Button	1	to select	Memory 2	
Save Memory	87	Button	2	to select	Memory 3	
Save Memory	87	Button	3	to select	Memory 4	
Save Memory	87	Button	4	to select	Memory 5	
Save Memory	87	Button	5	to select	Memory 6	
Save Memory	87	Button	6	to select	Memory 7	
Save Memory	87	Button	7	to select	Memory 8	
Clear User Memory	88	Button	1	to select	Clear Memory	
Output Standard	111	Button	0	to select	Auto	
Output Standard	111	Button	1	to select	625	
Output Standard	111	Button	2	to select	525	
Default Pattern	112	Button	0	to select	Black	
Default Pattern	112	Button	1	to select	Valid Ramp	

Default Pattern	112	Button	2	to select	100% Bars	
Default Pattern	112	Button	3	to select	EBU Bars	
Default Pattern	112	Button	4	to select	Multi Burst	
Default Pattern	112	Button	5	to select	Pulse and Bar	
Preset All Names	121	Button	1	to select	Preset All Names	
GPI 1	124	Button	0	to select	Latch	
GPI 1	124	Button	1	to select	Edge	
GPI 2	125	Button	0	to select	Latch	
GPI 2	125	Button	1	to select	Edge	
GPI 3	126	Button	0	to select	Latch	
GPI 3	126	Button	1	to select	Edge	
Memory 1 Name	113	String				
Memory 2 Name	114	String				
Memory 3 Name	115	String				
Memory 4 Name	116	String				
Memory 5 Name	117	String				
Memory 6 Name	118	String				
Memory 7 Name	119	String				
Memory 8 Name	120	String				

