IQD1LSY D1 Line Synchroniser

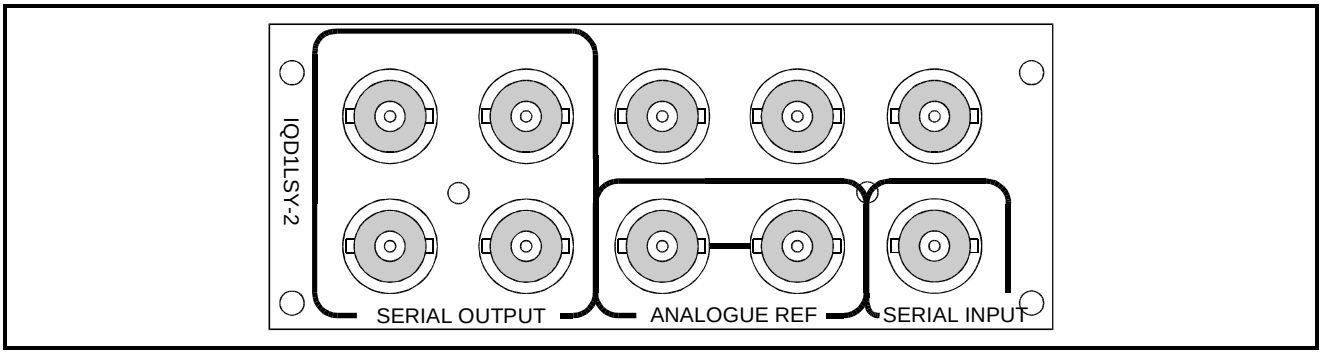
CE

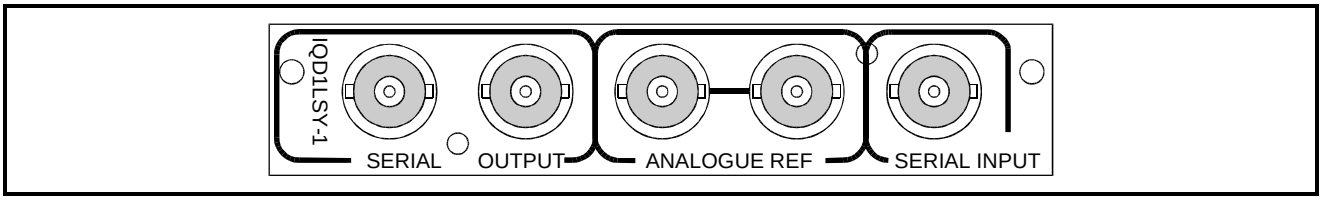
Module Description

The IQD1LSY-1 and IQD1LSY-2 are D1 Serial line synchronisers with a 10-bit data path.

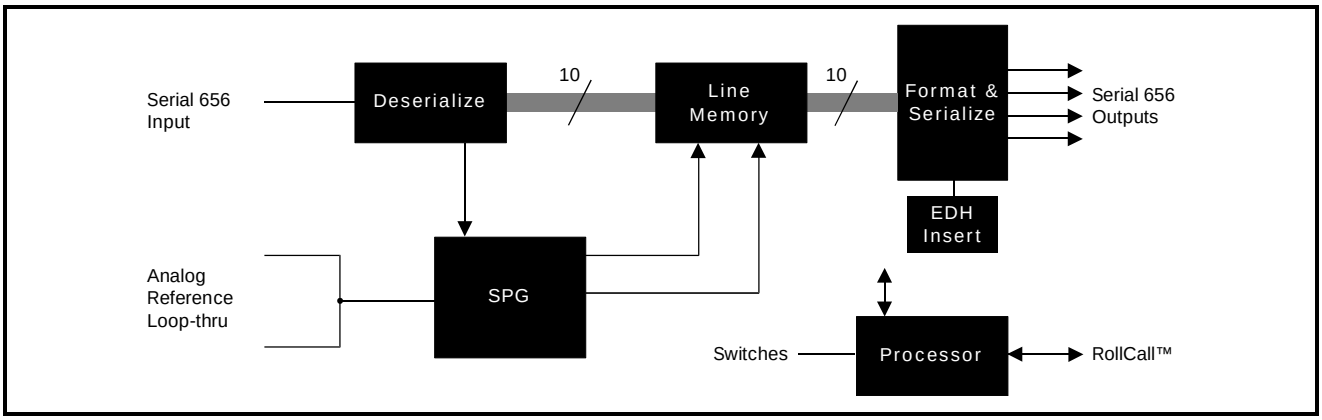
The IQD1LSY-1 provides 2 outputs, the IQD1LSY-2 provides 4 outputs and both versions include EDH monitoring and insertion.

REAR PANEL VIEWS





BLOCK DIAGRAM



Features

- 10-bit Serial 4:2:2 line synchronizer
- Genlock to analog black
- EDH monitoring and insertion
- Picture position and YC timing adjustment
- Minimum delay 400 ns, maximum delay 2 lines
- May be used as a programmable delay - card edge or remote control

Versions of the module cards available are:

IQD1LSY-1-E	D1 line Synchroniser 2 outputs with EDH Mon/Ins.	Single width module
IQD1LSY-2-E	D1 line Synchroniser 4 outputs with EDH Mon/Ins.	Double width module

Technical Profile

Features

Signal Inputs

Serial Input..... D1 serial digital

External Reference ..... Composite Video, Black Burst or Mixed Syncs. (loop-through)

Signal Outputs

Serial ..... 2 (IQD1LSY-1) or 4 (IQD1LSY-2) of Serial Digital

Preset Control Ranges

VITS Pass..... On/Off

Genlock H-Phase..... Complete line period in increments of 37 ns

Genlock V-Phase..... ±50 lines in increments of 1 line

Note..... These are output signal timings with respect to the reference input signal

H-Delay..... 220 ns to 2 lines in increments of 37 ns

Pic Pos (Horizontal) ..... ±259 ns in increments of 37 ns

YC Delay..... ±296 ns in increments of 148 ns

Preset Unit..... Revert to preset values

Additional RollCall™ Functions

Logging..... Input Loss, Reference Loss, EDH Errors

Input EDH ..... Detection, Statistics, Flag Show, Statistics Reset.

Output EDH..... Enable, Flag Show, Flag Selection.

Lock Mode Select ..... External On/off

Specifications

Serial Input Return Loss..... better than 15 dB to 270 MHz

Maximum Input Cable Length
200 m

Serial Output Return Loss.. better than 15 dB to 270 MHz

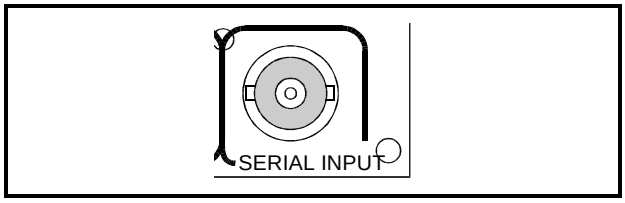
Reference Input Standard.. 525/625 (same standard as D1 input)Composite or
Black Burst Reference Level
Standard level ±6dB
(burst not processed)

Mixed Sync Reference Level
2 V pk to pk ±6dB

INPUTS AND OUTPUTS

SERIAL INPUT

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

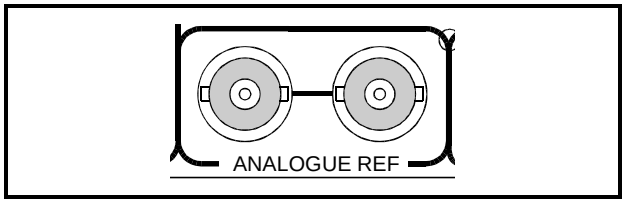


ANALOGUE REFERENCE INPUT

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

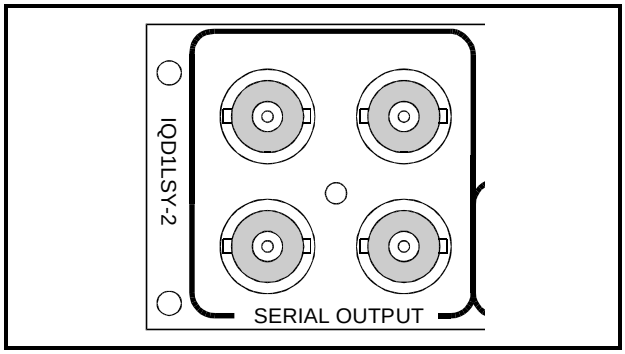
The external sync signal must be the same line standard as the D1 input.

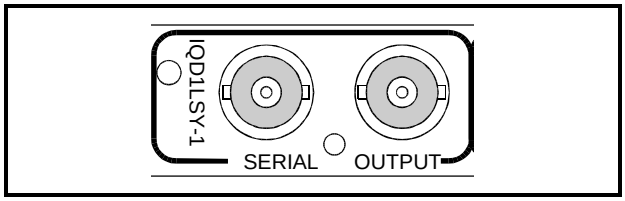
Note that if the loop-through facility is not used the unused socket must be fitted with a 75 Ohm terminator.



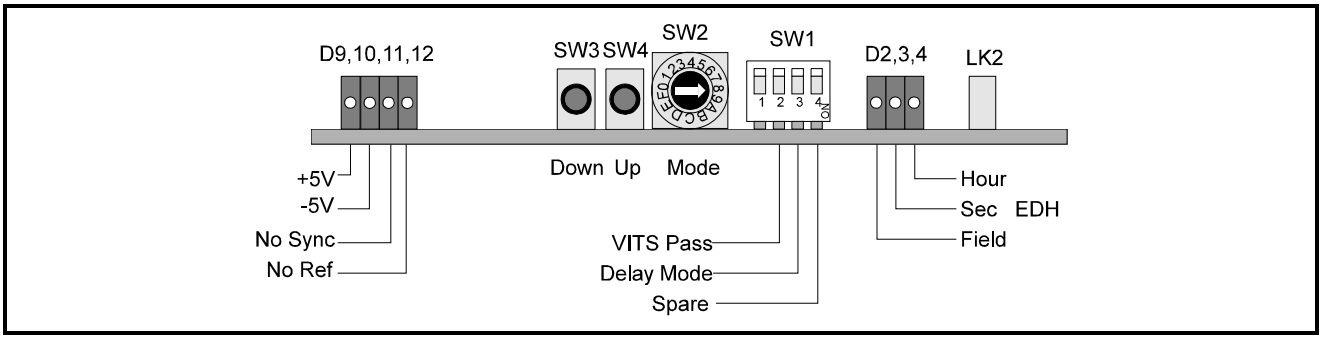
SERIAL OUTPUTS

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



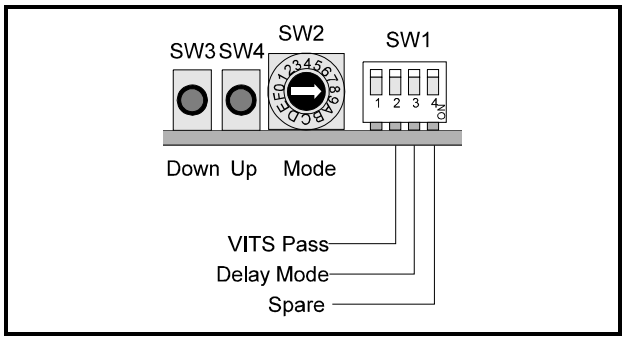


CARD EDGE CONTROLS



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 the remote link, LK2, located at the front of the card, should be removed. This ensures that when the unit is powered-up the factory default settings of parameters not available as card edge adjustments, are loaded. With LK2 fitted the card will power-up with the last settings sent by the remote control panel.



SW1

By setting these switches various modes of operation may be selected.

Position 1

This position has no function on this unit

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 10 and 273 and in the 625 standard from line 6 and 319 inclusive.

Position 3

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

Position 4

This position has no function on this unit

SW2

This HEX switch selects a parameter which may be adjusted with the push-buttons SW3 and SW4. Note that SW3 decreases a setting and SW4 increases a setting. Continual pressure on the button will cause the setting to change continuously, the rate of change increasing with time.

Position 0
In the Synchronise mode (set by SW1-3) this position allows the horizontal phasing between the external sync input and the output sync to be adjusted using SW3 and SW4. The range is a complete line in 37 ns steps.

In the Delay mode (set by SW1-3) this position allows the amount of input-to-output delay to be adjusted in steps of 37 ns using SW3 and SW4. The range is from 1.3 us to 2 lines.

Position 1
In the Synchronise mode (set by SW1-3) this position allows the vertical phasing between the external sync input and the output sync to be adjusted by ± 50 lines using SW3 and SW4.

Note that this range permits the use of early or late syncs; it does not mean that the video data may be advanced or retarded by this amount.

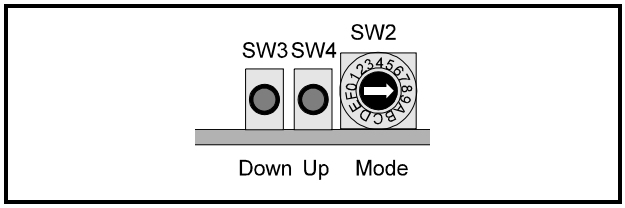
In the Delay mode (set by SW1-3) this position has no function.

Position 2
The horizontal position of the picture (relative to syncs) may be adjusted by ±259 ns in 37 ns steps using SW3 and SW4.

Position 3
The Chrominance delay relative to luminance (i.e. Y to Cb/Cr timing) may be adjusted by ±296 ns in 148 ns steps using SW3 and SW4.

Positions 4 to E
These positions have no function on this unit.

Position F
In this position pressing SW3 sets all parameters to the preset conditions.



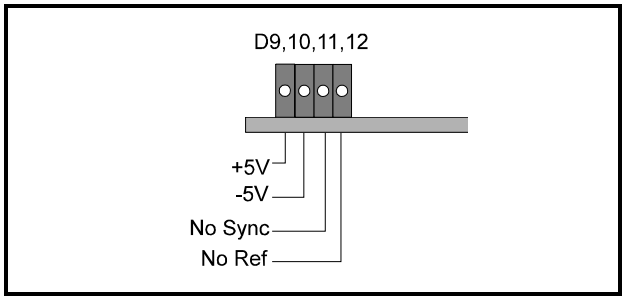
Note that SW2 positions 4 to F have no function on this unit.

LED INDICATORS

When illuminated D9 and D10 indicate that the +5V and the -5V power supplies are present.

When LED D11 is illuminated this indicates that the input PLL is not locked. This normally means that there is no input signal present or the signal is invalid. Note that under these conditions the unit will generate an output signal of D1 colour black.

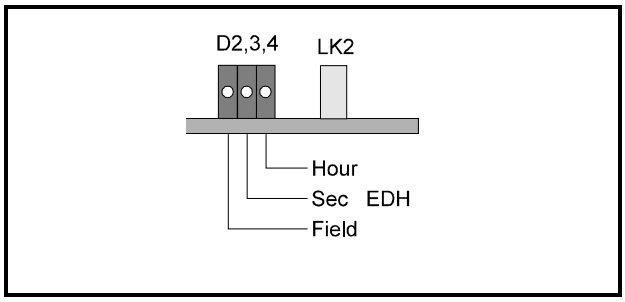
When LED D12 is illuminated this indicates that there is no input signal present, or an invalid signal, at the ANALOGUE REFERENCE connector. Under these conditions the unit will operate only in the Delay mode.



EDH REPORTING (-E version only)

D2, D3 and D4 indicate that EDH errors have occurred.

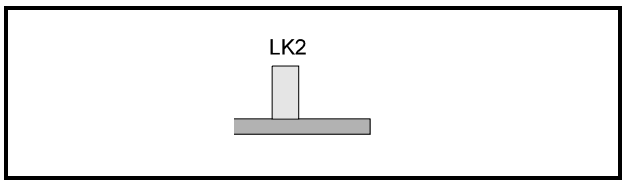
D2 indicates that an error has occurred in the last field.
D3 indicates that an error has occurred in the last second.
D2 indicates that an error has occurred in the last hour.

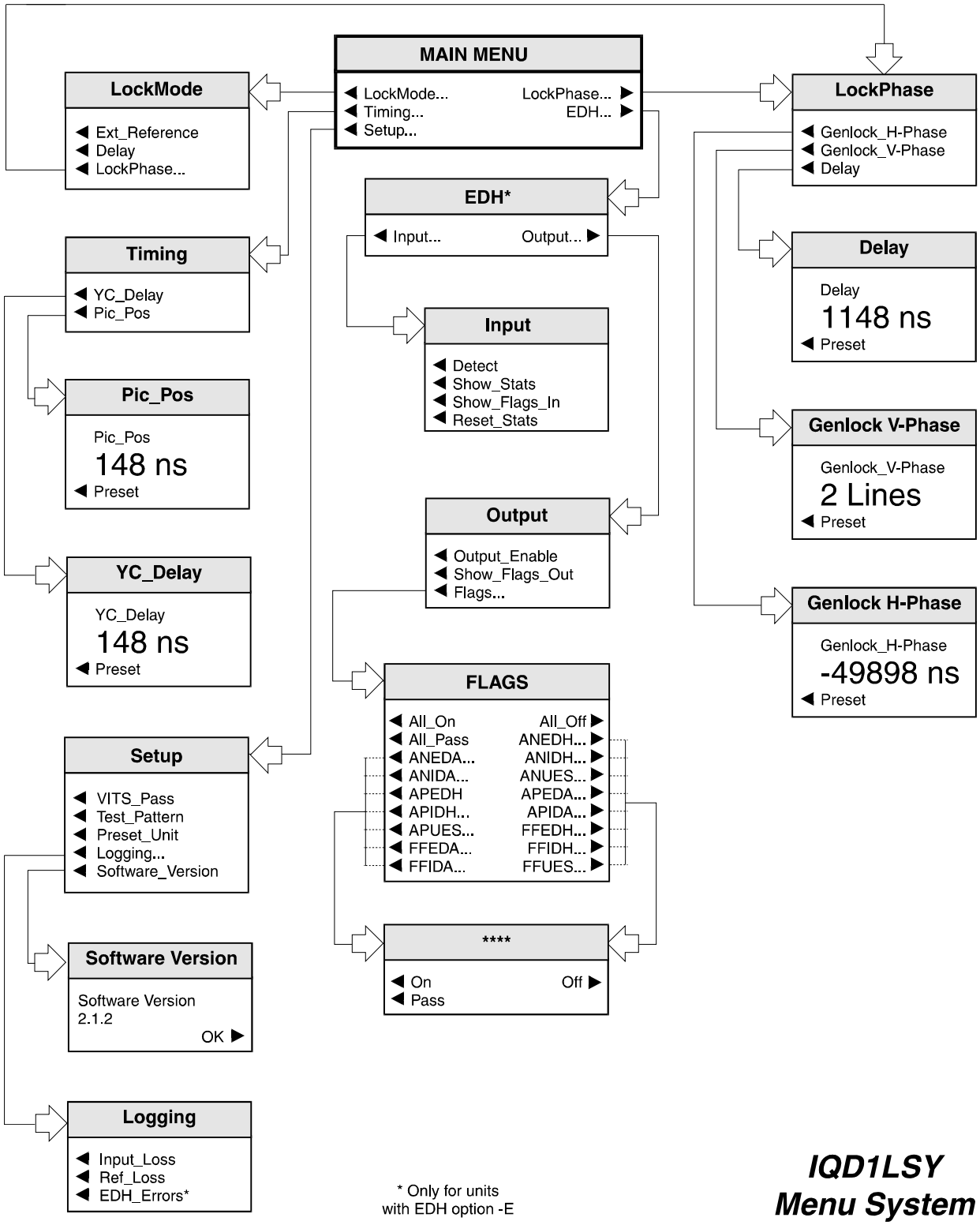


LINK LK2

This link allows the default settings at power-up to set.

When the link is fitted the module will power-up in the same state as when the module was powered-down. When the link is not fitted the module will power-up using the factory default settings in combination with the current settings of SW1.




MAIN MENU
LockMode...
Timing...
Setup...
LockPhase...
EDH...
LockMode
Ext_Reference
Delay
LockPhase...
LockPhase
Genlock_H-Phase
Genlock_V-Phase
Delay
EDH*
Input...
Output...
Timing
YC_Delay
Pic_Pos
Delay
Delay
1148 ns
Preset
Input
Detect
Show_Stats
Show_Flags_In
Reset_Stats
Pic_Pos
Pic_Pos
148 ns
Preset
Genlock V-Phase
Genlock_V-Phase
2 Lines
Preset
Output
Output_Enable
Show_Flags_Out
Flags...
YC_Delay
YC_Delay
148 ns
Preset
Genlock H-Phase
Genlock_H-Phase
-49898 ns
Preset
FLAGS
All_On
All_Pass
ANEDA...
ANIDA...
APEDH
APIDH...
APUES...
FFEDA...
FFIDA...
All_Off
ANEDH...
ANIDH...
ANUES...
APEDA...
APIDA...
FFEDH...
FFIDH...
FFUES...
Setup
VITS_Pass
Test_Pattern
Preset_Unit
Logging...
Software_Version
****
On
Pass
Off
Software Version
Software Version
2.1.2
OK
Logging
Input_Loss
Ref_Loss
EDH_Errors*
* Only for units
with EDH option -E
IQD1LSY
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 on previous page 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 IQD1LSY 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.

Ext Reference

This selection locks the output signal to the signal connected to the Ext Sync 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 be black 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 or Lock Mode 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 or Lock Mode 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 ± 50 lines in 1 line steps.

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

Delay

Selecting this item reveals a display showing the 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 delay.

Timing

This allows two signal timing adjustments to be made:

-Chrominance-to-luminance timing of the output signal

-Horizontal picture position (relative to syncs)

YC_Delay

Selecting this item reveals a display showing the timing of the chrominance signal relative to the luminance signal, in nanoseconds. Rotating the spin-wheel will adjust this value. Range is from -296 ns to +296 ns in 148 ns steps.

Selecting Preset returns the setting to the preset value.

Pic_Pos

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 -296 ns to +296 ns in 148 ns steps.

Selecting Preset returns the setting to the preset value.

EDH (-E version only)

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

Input

This sub-menu allows input signal EDH information to be displayed in the information window.

Detect

Selecting this function (text reversed) turns ON the EDH detection system and `EDH:OK' will appear in the information window.

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.

Show Flags In

When this function is activated the information window will display the status of the various input flags.

Three error checking data locations are shown:

AP Errors during the active picture

AN Ancillary data errors

FF Full Field errors

These locations are followed by a five digit number of logical 1's and 0's indicating the status of the error flags.

The error flags are (from left to right)

EDH - error detected here:
Signifies that a serial transmission data error was been detected. In the case of ancillary data, this means that one or more ANC data blocks did not match its checksum.

EDA - error detected already:
Signifies that a serial transmission data error has been detected somewhere upstream. If device B receives a signal from device A and Device A has set the EDH flag, when B re transmits the data to device C, the EDA flag will be set and the EDH flag will be cleared if there is no further error in the data.

IDH - internal error detected here:
Signifies that a hardware error unrelated to serial transmission has been detected within a device. This is provided specifically for devices which have internal data error checking facilities, as an error reporting mechanism.

IDA - internal error detected already:
Signifies that an IDH flag was received and there was a hardware device failure somewhere upstream.

UES - unknown error status:
Signifies that a serial signal was received from equipment not supporting this error-detection mechanism.

Reset Stats (Statistics)

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

Output

This sub-menu allows output signal EDH flags to be set and the information displayed in the information window.

Output Enable

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

Show Flags Out

When this function is activated the information window will display the status of the various output flags.

Three error checking data locations are shown:

AP Errors during the active picture

AN Ancillary data errors

FF Full Field errors

These locations are followed by a five digit number of logical 1's and 0's indicating the status of the error flags as in `Show Flags In'

Flags

This function reveals a sub-menu of flags that may be set on the output data.

ALL On sets all available flags to the ON state.

All Off sets all flags to the OFF state.

All Pass allows all input signal flags to be passed through, unchanged, to the output.

A particular flag may be selected from the list (see below) and another sub-menu will be revealed that allows the flag to be set to ON, to OFF or pass through from the input to the output.

List of Flags

ANEDH
Ancillary Data: Error Detected Here

ANEDA
Ancillary Data: Error Detected Already

ANIDH
Ancillary Data: Internal Device Error Detected Here

ANIDA
Ancillary Data: Internal Device Error Detected Already

ANUES
Ancillary Data: Unknown Error Status

APEDH
Active Picture: Error Detected Here

APEDA
Active Picture: Error Detected Already

APIDH
Active Picture: Internal Device Error Detected Here

APIDA
Active Picture: Internal Error Detected Already

APUES
Active Picture: Unknown Error Status

FFEDH
Full Field: Error Detected Here

FFEDA
Full Field: Error Detected Already

FFIDH
Full Field: Internal Device Error Detected Here

FFIDA
Full Field: Unknown Error Status

FFUES
Full Field: Unknown Error Status

Setup

This menu allows various system parameters to be set.

VITS Pass

Activating this item allows the Vertical Interval Test Signals of the input signal to pass through the module. When this item is not active VITS signals will be blanked from the signal. Note that in the 525 standard VITS lines are from line 10 and 273 and in the 625 standard from line 6 and 319 inclusive.

Test Pattern

Activating this item provides a simple ramp test pattern output signal.

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.

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 Loss

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

Ref Loss

When activated, a loss 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.

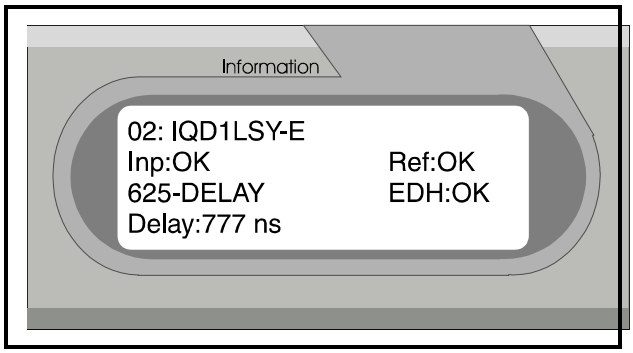
Software Version

Selecting this item reveals a display showing the version of the software fitted in the module. Select OK to return to the System 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 opposite:



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:**

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

Note that this text will be followed by RM if the unit is in the Roll mode.

The fourth line shows that in the Delay mode the Delay is 777 ns (could be Vp, the genlock vertical phase or Hp, the genlock horizontal phase, when in the Ext lock mode).

Manual Revision Record

Date	Version No.	Issue No.	Change	Comments
210996	1	1		First Issue
150897	2	1	Word version created	New issue released
190897	2	2	Output standard determination data added page 19.10	New issue released
031197	2	3	CE mark added	New manual issued
170402	2	4	EDH standard now on both	New manual issued