

IQDMENCS Encoder



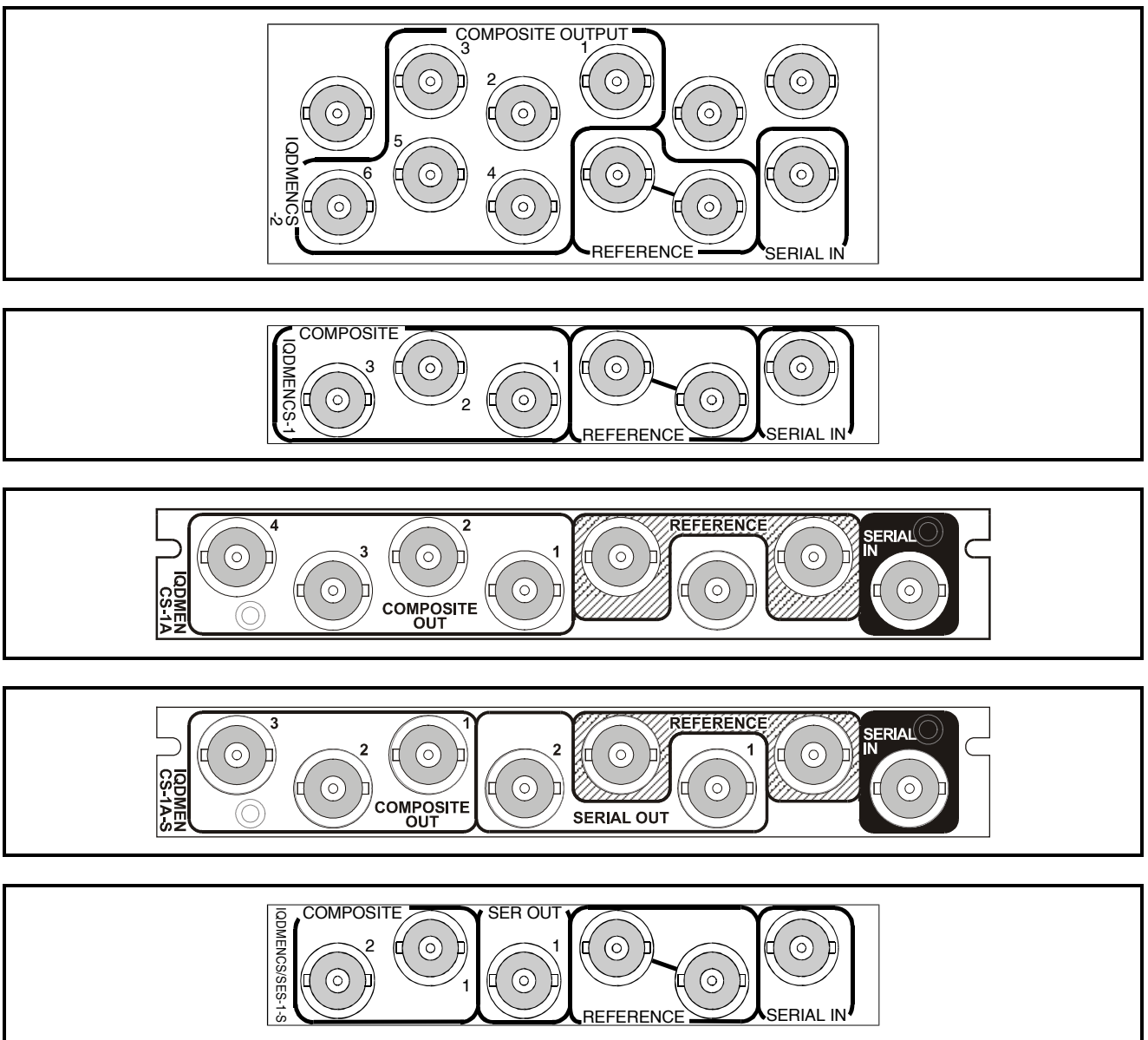
Module Description

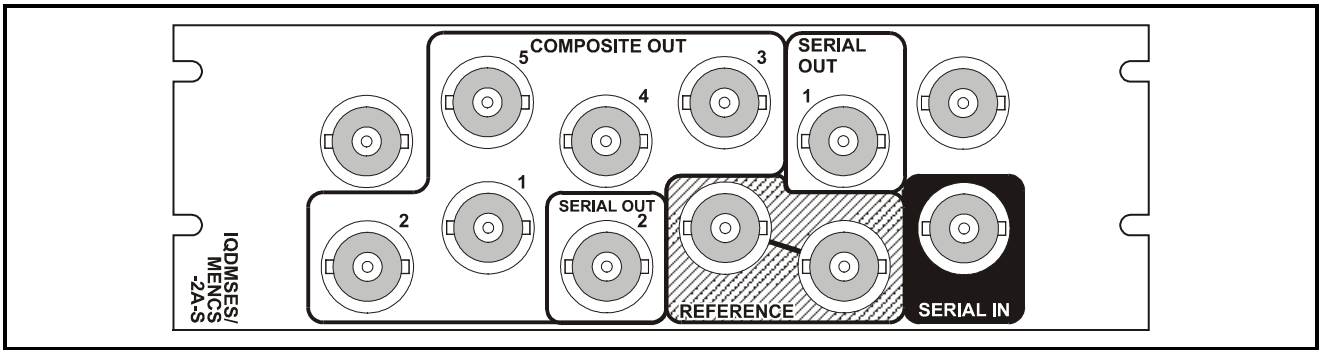
The IQDMENCS is a full broadcast quality PAL/SECAM/NTSC encoder. A 10-bit SDI input is encoded into PAL or SECAM for 625 line inputs or NTSC for 525 line inputs. A full frame synchronizer and color frame accurate genlock allows for simple installation.

A 10-bit oversampled DAC gives excellent analog reconstruction. Without a reference a minimum delay mode is automatically selected. Encoding is in accordance to CCIR624. RollCall provides full remote control and monitoring.

This product is available in single and double width form.

REAR PANEL VIEWS





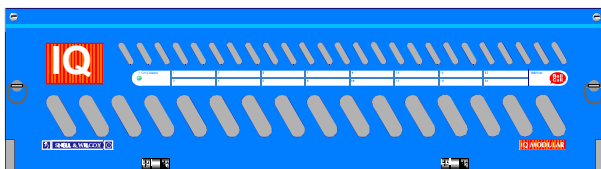
Versions of the module cards available are:

IQDMENCS-2	6 Composite output genlockable encoder	Double width module
IQDMENCS-1	3 Composite output genlockable encoder	Single width module
IQDMENCS-1-S	2 Composite 1 Serial output genlockable encoder	Single width module
IQDMENCS-1A	4 Composite output genlockable encoder	Single width module
IQDMENCS-1A-S	3 Composite 2 Serial output genlockable encoder	Single width module
IQDMENCS-2A-S	5 Composite 2 Serial output genlockable encoder	Double width module

Note that there are two styles of rear panels available. They are not interchangeable between the two styles of enclosures. However, the cards may be fitted into any style of enclosure.

‘A’ Style Enclosure

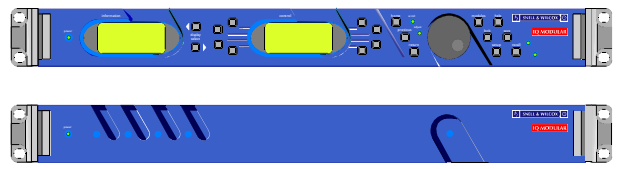
Rear panels **with** the suffix A may only be fitted into the ‘A’ style enclosure shown below.



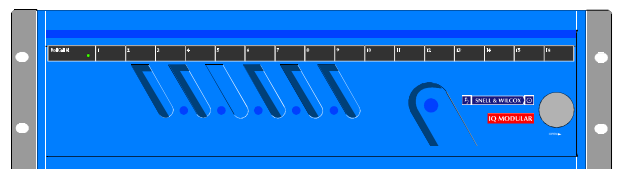
(Enclosure order codes IQH3A-E-O, IQH3A-E-P, IQH3A-N-O, IQH3A-N-P)

‘O’ Style Enclosures

Rear panels **without** the suffix A may only be fitted into the ‘O’ style enclosures shown below.



(Enclosure order codes IQH1S-RC-O, IQH1S-RC-AP, IQH1U-RC-O, IQH1U-RC-AP, Kudos Plus Products)

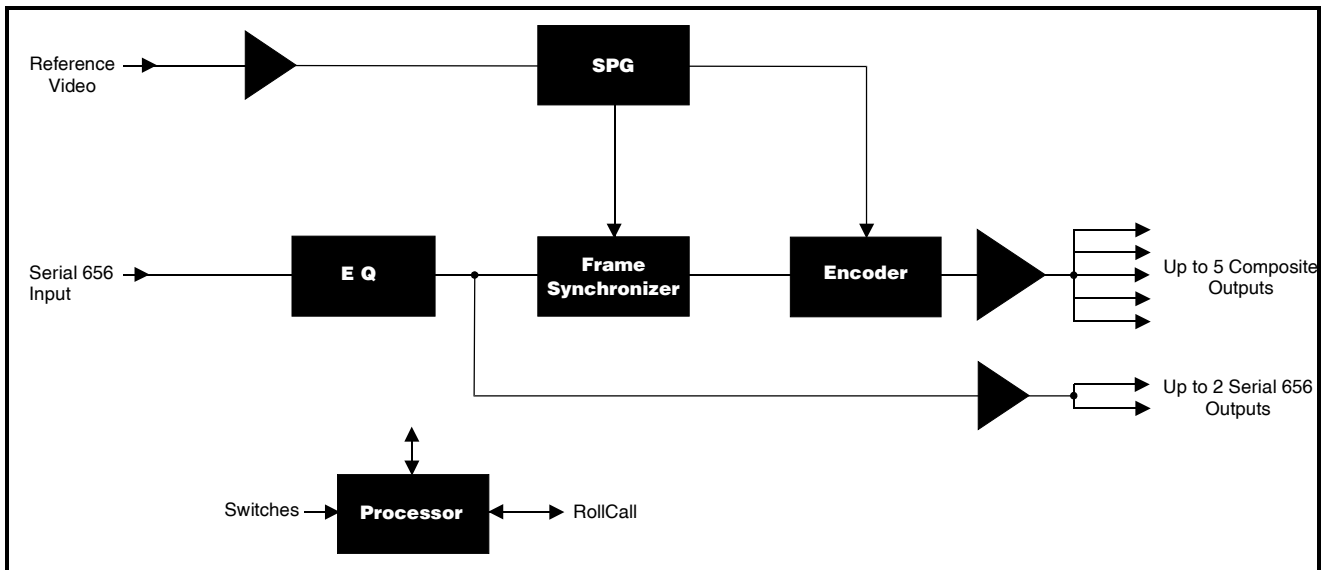


(Enclosure order codes IQH3N-O, IQH3N-P)



(Enclosure order codes IQH3U-RC-O, IQH3U-RC-P)

BLOCK DIAGRAM



Features

- PAL/NTSC/SECAM encoder
- Full genlock and minimum delay operation
- Full Frame synchronizer
- 10-bit oversampled DAC with CCIR quality reconstruction
- Up to 6 Composite outputs
- Up to 2 Serial 4:2:2 outputs
- Internal color bar generator and VITS Generation
- Pass or blank vertical interval data
- Selectable SECAM Bottles
- SECAM genlock to PAL switch or SECAM
- SECAM dynamic notch
- Tolerant of SMPTE RP168 serial switching
- EDH checking on SDI input
- RollTrack to link tracking audio delays
- RollCall™ compatible

TECHNICAL PROFILE

Features**Signal Inputs**

Serial Digital..... 1 x Equalized SDI
 Standards SMPTE 259M-C-1997
 Reference Input Composite or black burst

Signal Outputs

Analog Up to 5 x Composite encoded
 Standards PAL/NTSC/SECAM
 SDI Up to 2 x Re-clocked SDI
 Standards SMPTE 259M-C-1997

Card Edge Controls (also available via RollCall)

Standard - PAL/NTSC/SECAM
 Test pattern select Black, Color bars or Mute
 VITS Insert..... On/Off
 Vertical Data Pass/Strip
 Genlock Mode..... Internal (Min Delay) lock/ Zero Sch
 Lock
 Genlock H-Phase offset ±1.9 lines
 Genlock SC Phase Offset .. 360°

Specifications**Signal Inputs**

Serial Input Return Loss..... Better than -15 dB to 270 MHz
 Reference Input Standard .. 525/625
 (same standard as D1 input)
 Color Standard PAL/NTSC/SECAM
 Composite or Black Burst Reference Input Level
 Standard level ±3 dB

Signal Outputs

Composite Encoding..... 10-bit
 Y Frequency Response..... 5.5 MHz ± 0.05 dB
 U/I & V/Q Frequency Response
 Less than -3 dB at 1.3 MHz
 Less than 20 dB at 4.0 MHz
 Differential Gain Better than 0.2%
 Differential Phase Better than 0.2°

EDH Monitor Reset Statistics
 SECAM Notch..... On/Off
 SECAM Bottles On/Off
 SECAM Carrier On/Off
 SECAM Pre-Filter..... On/Off
 Preset Unit On

Indicators

Power Supplies OK
 No Input
 No Reference
 EDH Present : error second : error hour
 ScH Error Reference ScH error
 Flashes for synchronizer delay of
 > 1 ms

Functions Available via RollCall™ Only

RollTrack Compatible
 EDH Monitor Show/Reset Statistics
 Logging Input change/EDHScH Error

ScH Phase 0° ±2°
 Composite Output Return Loss
 Better than 35 dB to 5.8 MHz
 Serial Output Return Loss .. Better than -15 dB to 270 MHz
 Delay (minimum delay mode)
 Less than 3 µs

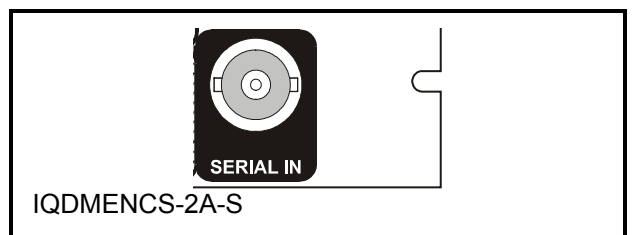
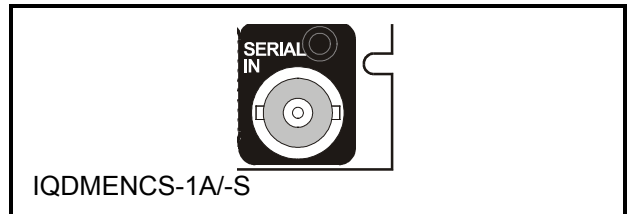
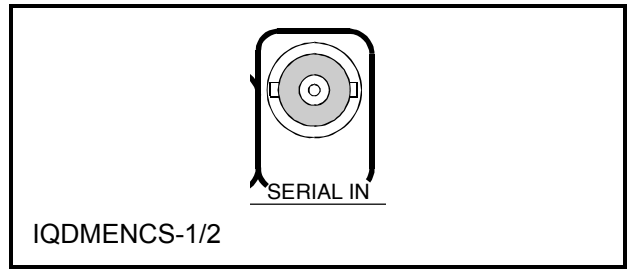
Power Consumption

Module Power Consumption 6.9 W max
 EMC Performance Information
 Environment Commercial and light industrial E2
 Peak Mains Inrush Current
 following a 5 second mains
 interruption
 No mains input
 Performance Information.... No performance degradations or
 cable length limitations

INPUTS AND OUTPUTS

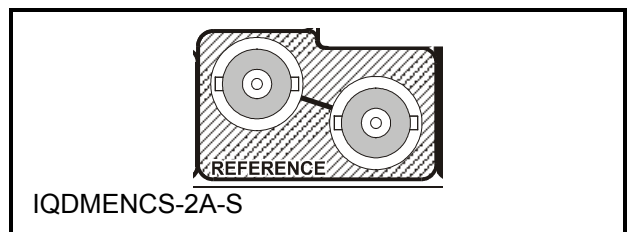
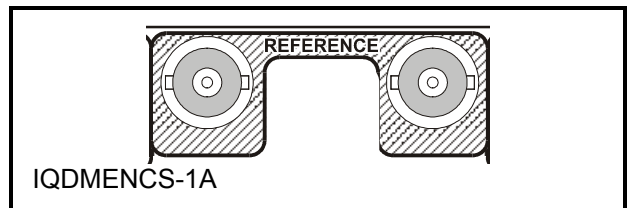
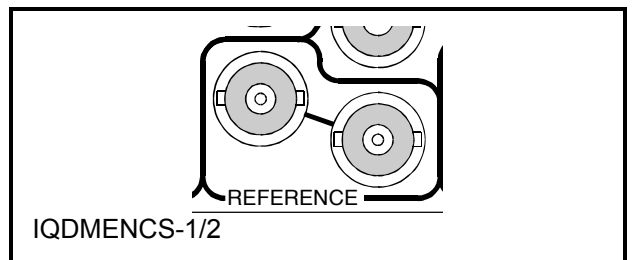
SERIAL INPUT

This connector is the serial digital video input to the encoder via a BNC connector terminated in 75 Ohms.



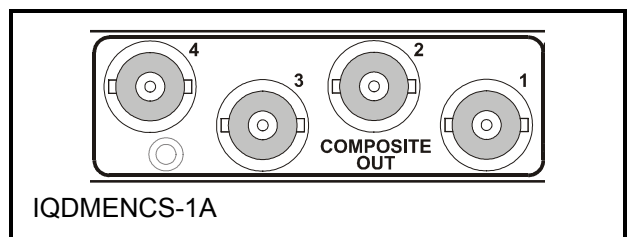
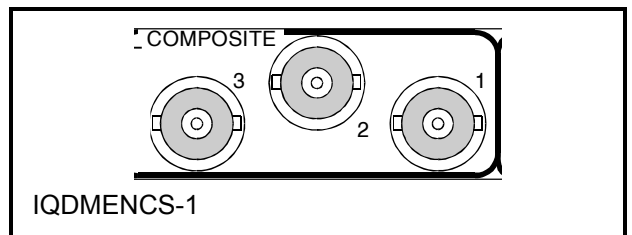
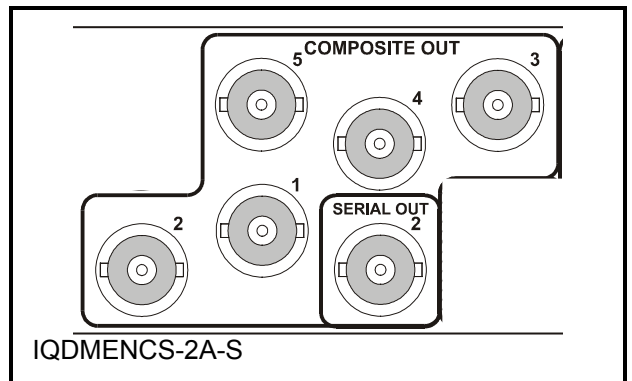
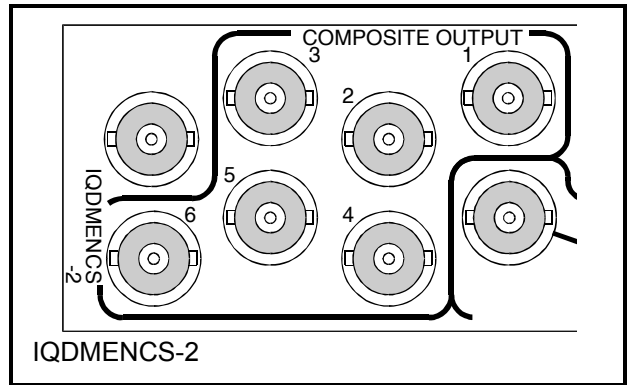
REFERENCE INPUT

These are the high impedance loop-through connections via BNC connectors for a black burst or composite video reference signal.



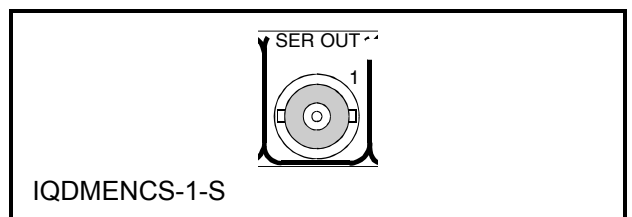
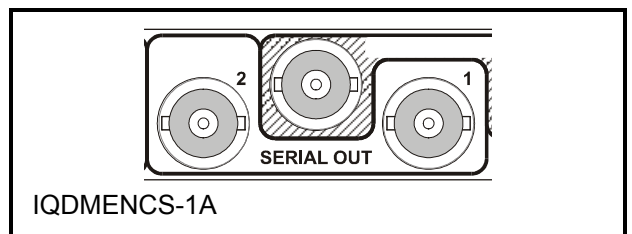
COMPOSITE OUTPUTS

These are the composite video outputs of the unit via BNC connectors.

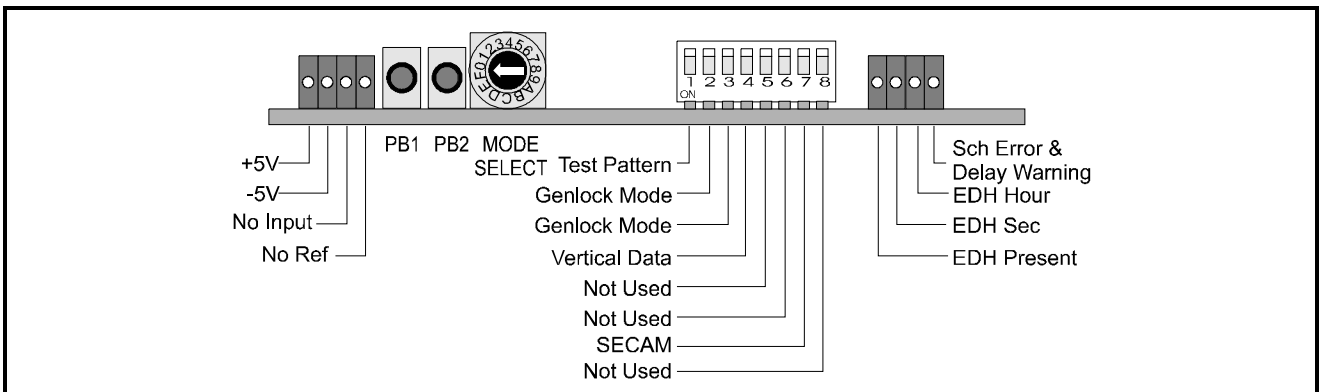


SERIAL OUTPUTS

These are the Serial video outputs of the unit via BNC connectors.



CARD EDGE CONTROLS



Adjustment of the settings of the IQDMENC S is available either via card edge controls and/or via a more comprehensive remote control system using RollCall™

Note that the availability of some of the card edge controls will depend on the card version; see feature table for variations.

LED INDICATORS

+5V and -5V

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

No Input

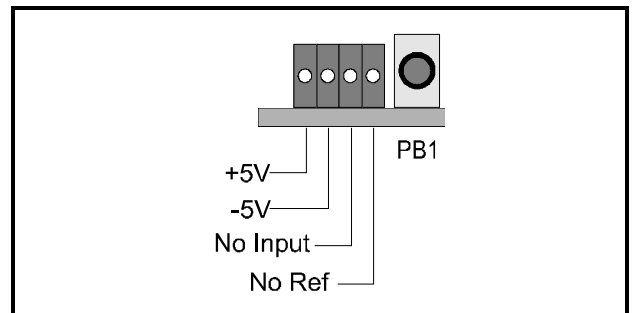
The **No Input** LED will be continuously illuminated when the unit is not receiving an input signal.

Note that in **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 and the input signal will be ignored.

No Ref

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

Note that the **No Input** and **No Ref** LEDs will flash alternately when the unit is configuring or re-configuring in the event of a standard change. The message **Please wait....** will appear in the lower line of the Information Window during this operation.



EDH Present

This LED will be illuminated if EDH is present on the serial input. In the event of an EDH error being detected the EDH Present LED will become extinguished and the **EDH Sec** and **EDH Hour** LEDs will become appropriately illuminated.

EDH Sec

The **EDH Sec** LED will be extinguished if no errors have occurred during the previous second.

EDH Hour

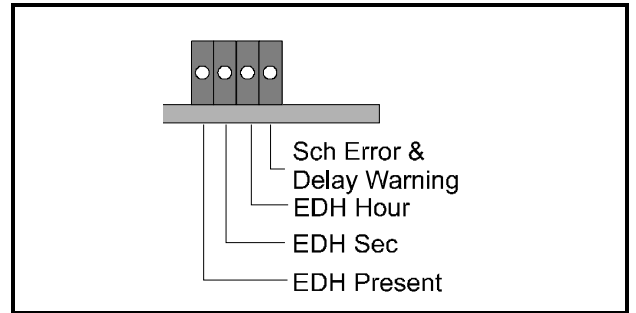
The **EDH Hour** LED will be extinguished if no errors have occurred during the previous hour.

Sch Error/Delay Warning

This dual function LED warns of Genlock error conditions.

It will be illuminated if Sch errors are detected in the reference signal.

It will flash to warn when the delay through the synchronizer exceeds 1 ms.

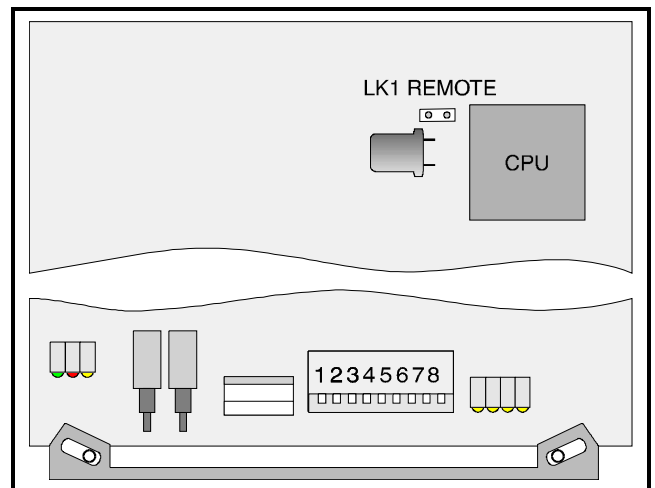


LINKS

Remote LK1

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 the 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 link LK1 (Remote) should be set to the OFF (unconnected) position. This ensures that when the unit is powered-up the factory default settings of parameters not available as card edge adjustments are loaded. With the link in the ON (connected) position card will power-up with the last settings sent by the remote control panel.



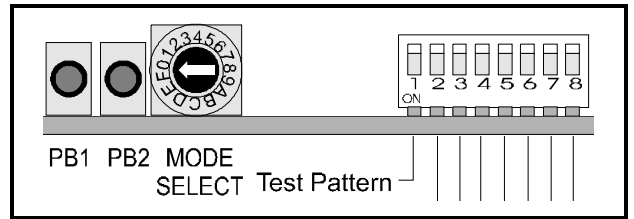
SWITCHES

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

The DIL switch selects a particular function and the Hex switch (mode select) selects a mode or parameter that may be adjusted.

The push buttons PB1, PB2 allow the value of the selected function/parameter to 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. All functions available via an active front panel are duplicated by these switches. More detailed information about these functions will be found under MENU DETAILS starting on page 11b.13.

FUNCTION AND MODE SELECTIONS

DIL SWITCH FUNCTIONS

Position 1

When set to ON (Down) the encoder will produce a **test pattern** signal as its output.

Position 2 (SECAM Operation only)

When set to OFF the output SECAM-V color ident signal (Bottles) will be switched ON.

When set to ON the output SECAM-V color ident signal (Bottles) will be switched OFF.

Note that in PAL/ NTSC operation this position will have no function.

Position 3 (Genlock Mode PAL/NTSC Operation)

When set to OFF (Up) Zero Sch lock will be enabled.

When set to ON (Down) genlock will be disabled and the internal mode (Freerun) will be enabled.

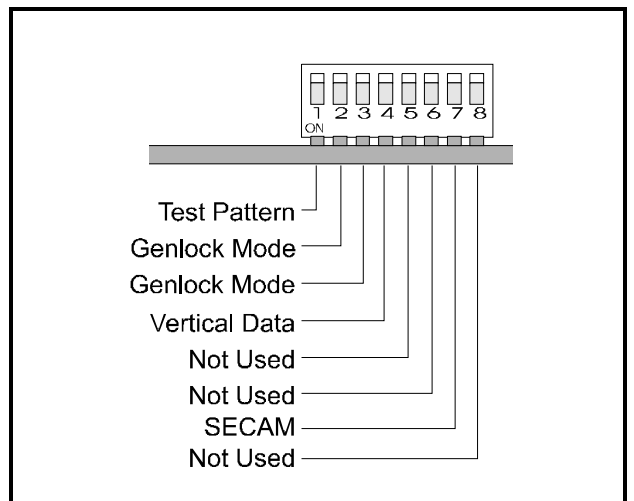
Position 3 (Genlock Mode SECAM Operation)

When set to OFF (Up) the genlock mode will be enabled.

When set to ON (Down) genlock will be disabled and the internal mode (Freerun) will be enabled.

Note that the output will H phase to a PAL black or black-burst reference; Db/Dr phase is such that if the reference has a PAL burst, a V-Switch (Phase = 135°) of burst on Line 1, Field 1 will produce a Dr line in the encoded output.

If a SECAM reference signal is used the output Db/Dr sequence will be locked to that of the reference signal.



Position 4 (Vertical Data)

When set to OFF (UP) the encoder will pass vertical interval data (unblanked) to the output.

When set to ON (Down) all data in the vertical interval will be blanked.

Positions 5, 6, and 8 have no function.

Position 7

This position allows the output standard for 625 line inputs to be set.

Standard	Position 7
SECAM	ON
PAL	OFF

Operating Standard

The output standard is determined by the operating line standard - for 525 line the output will be NTSC; for 625 line the output will be PAL or SECAM. The operating line standard will be determined by the following detection method (in order of priority)

1. The **reference input standard** (signal input standard ignored) when in Genlock mode.
2. If there is no reference signal, by the **input signal standard**.
3. If there is no reference signal and no signal input the standard may be selected by using either the **Mode Select** switch or the **Menu system** of an active front panel.

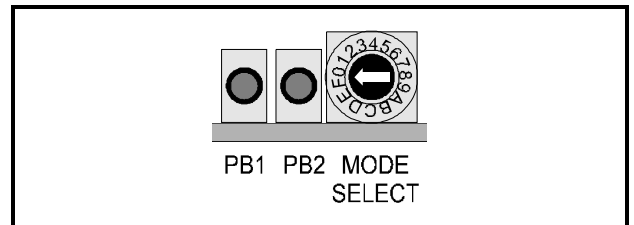
*Note that to use this method of selection the module must be operating in the **Internal Lock** mode set by the DIL switch position 3 or via the Genlock menu.*

MODE SELECT SWITCH

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

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

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



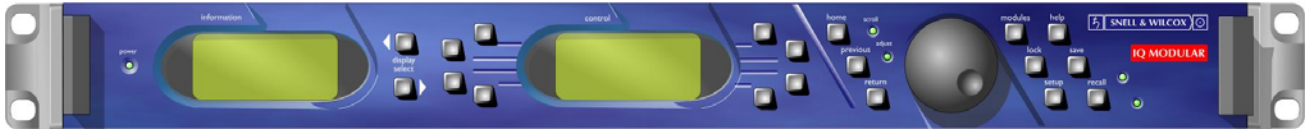
Function	Switch	Action of PB1	Action of PB2
S/C Phase	0	Rotates vectors anticlockwise	Rotates vectors clockwise
H Phase	1	Moves output ahead of reference	Moves reference ahead of output
Pattern Select	2	Toggles Black/Bars	Toggles Black/Bars
No Function	3		
No Function	4		
VITS Insert	5	Removes VITS	Inserts VITS
EDH Reset	6	Resets EDH statistics	Resets EDH statistics
No Function	7		
No Function	8		
Standard ⁽¹⁾	9	Selects 625 PAL/SECAM standard	Selects 525 NTSC standard
SECAM Notch	A	Turns OFF notch	Turns ON notch
SECAM Carrier	B	Turns ON carrier	Turns OFF carrier
SECAM pre-filter	C	Turns OFF pre-filter	Turns ON pre-filter
No Function	D		
No Function	E		
Preset Unit	F	Press together to select all preset values	

(1) Normally the standard selection is automatic. If there is no input signal and no reference signal available to determine the operating standard this switch and the DIL switch (position 7) should be used to set the output standard. Ensure that the Genlock Mode is set to Internal Lock.

Note that the availability of some of the above functions will depend on the operating mode of the module. e.g. test patterns will be different for different line standards; availability of phasing controls will depend on the genlock mode etc.

Operation from an Active Control Panel

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



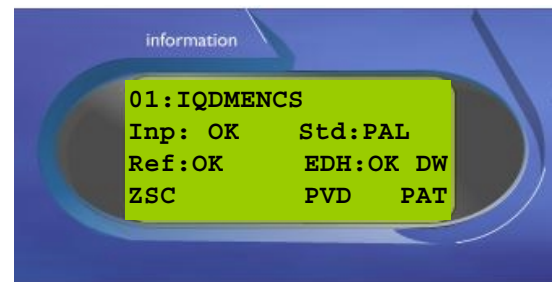
All operational parameters and selections are made using a system of menus displayed in two LCD windows.

Operational details for the remote control panel can be found in the Modular System Operator's Manual.

Information Window

The Information window has four lines of text indicating current selections and various information messages.

Note that in a RollCall system some units will overwrite the information window indication with their own messages. Under these conditions the control panel will only be able to write to the information window when the unit has been disconnected.



The first line will contain the name of the module that is currently being controlled.

The second, third and fourth lines provide specific information about the operating conditions of the module.

Text Line Details for example opposite:

Line 1 This line contains the name of the module and Gateway code data.

Line 2 This line gives information about the state of the video input and the output standard.
Input state may be OK, ERR (input error detected) or ***(no signal connected)
Output standard may be PAL or NTSC.

Line 3 This line gives information about the state of the reference input.
Reference may be OK, ***(no signal connected) or SCE (a subcarrier error detected. e.g. a ScH error of >20°)
It will also show EDH statistics (NONE, Fail or OK) and whether the synchroniser delay has exceeded 1 ms (DW = Delay Warning)

Line 4 This will display setup messages:

ZSC Genlock Zero SC/H Lock enabled

If the text is static (not flashing) this indicates that the unit has successfully genlocked to the reference source.

If the text is flashing this indicates that the unit is attempting to genlock to the reference source.

GEN SECAM Genlock

VTS Insert VITS enabled

PVD Pass Vertical Data enabled

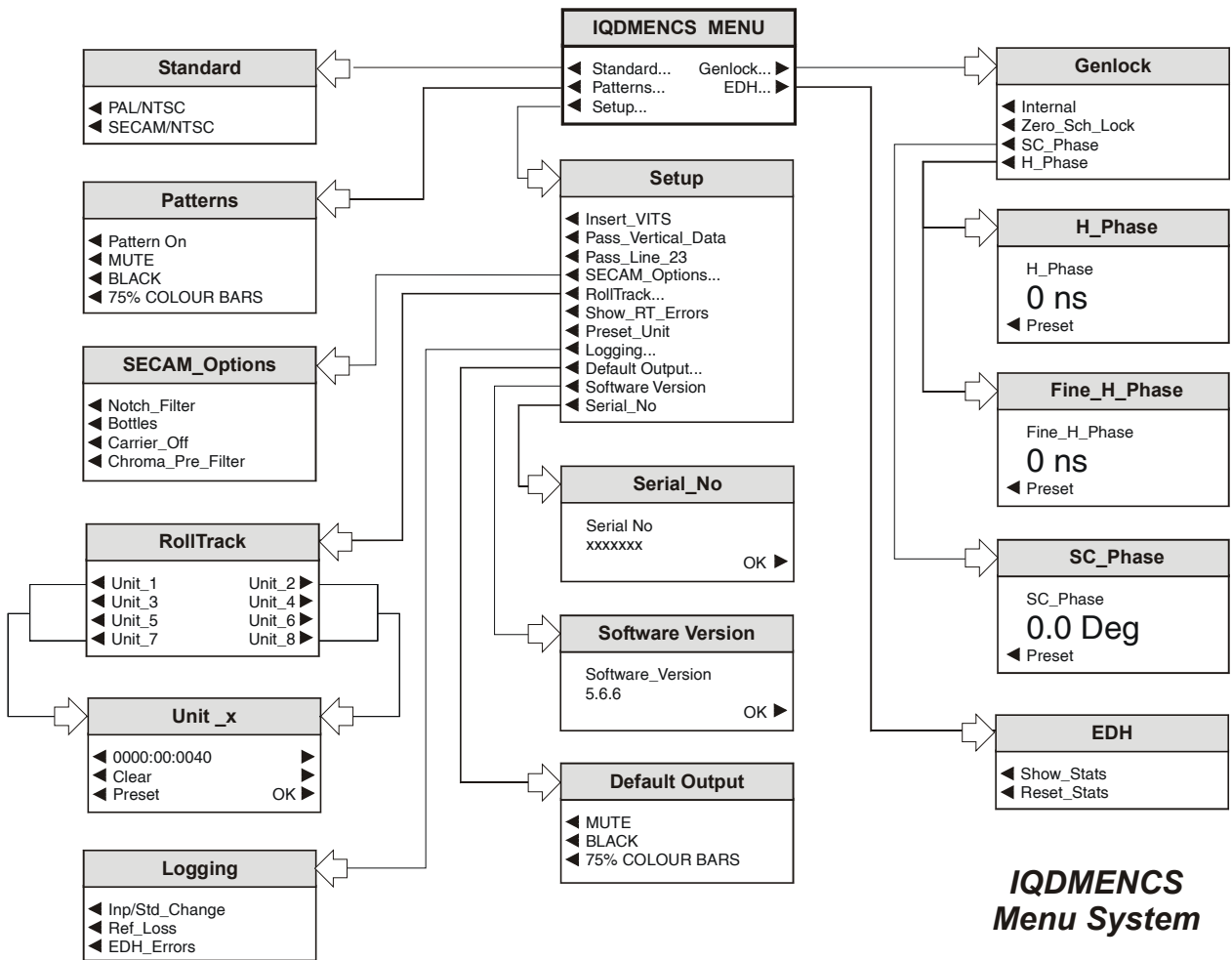
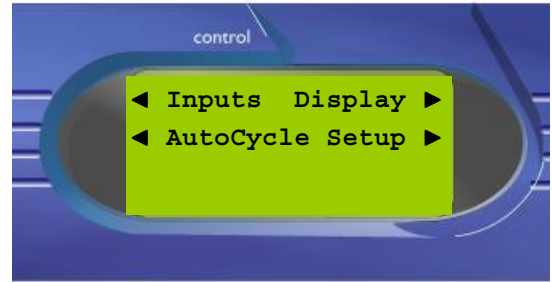
PAT Pattern ON enabled

Control Window

The **Control** window displays all Selection Menus and sub-menus.

The selection is made by pressing the button adjacent to the required item.

The menu structure is shown below.



MENU DETAILS

(see IQDMENCS Menu System on previous page)

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.

IQDMENCS MENU	
◀ Standard...	Genlock... ▶
◀ Patterns...	EDH... ▶
◀ Setup...	

◀ Standard

This menu selection allows the operating standard of the unit to be set.

Standard
◀ PAL/NTSC
◀ SECAM/NTSC

The operating line standard will be determined by the following detection method (in order of priority)

1. The **reference input standard** (input signal standard is ignored) when in Genlock mode
2. If there is no reference signal, by the **input signal standard**.
3. If there is no reference signal and no signal input the standard may be selected by using this menu. This allows the module to provide test signals in either standard. Selecting the **PAL/NTSC** menu will toggle the output standard between PAL and NTSC.

*Note that to use this method of selection the module **must** be operating in the **Internal Lock** mode set in the **Genlock** menu.*

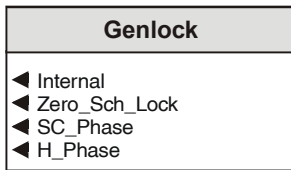
If the operating standard is determined by either method (1) or (2) and is 625 line, PAL or SECAM can be selected as the output standard.

If the operating standard is determined by either method (1) or (2) and is 525 line, NTSC will be selected as the output standard.

If the signal input and reference input are of different line standards, the unit will output a black signal at the reference signal line rate.

Genlock ▶

This sub-menu allows various modes of genlock to be enabled.



◀ Internal

When this function is enabled the output signal will be locked to the serial input (if available) or free-running if no serial input is available.

In this mode the frequency accuracy will be ±10 ppm

Notes:

1. *This mode will be automatically enabled if the signal input and reference input are of different line standards and the output will default to black burst in the reference standard.*
2. *This mode should be selected if test patterns of a particular line standard (and different to the reference input) are required at the output.*

◀ Zero_SC/H_Lock

In this mode the module locks to the reference subcarrier and will always produce a zero ScH (Subcarrier phase to H-Phase) output. The output H timing will be maintained as close as possible to the reference H timing in the correct color frame. The ScH warning LED will light if the ScH error of the reference is > 20° (approx.), indicating that the color framing will be lost should the reference ScH error increase.

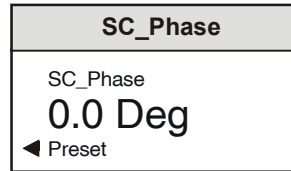
Note that the output will always be 0° ScH phase regardless of the reference ScH phase.

◀ SECAM Genlock

For SECAM the output will H phase to a PAL black or black-burst reference; Db/Dr phase is such that if the reference has a PAL burst, a V-Switch (Phase = 135°) of burst on Line 1, Field 1 will produce a Dr line in the encoded output. If a SECAM reference signal is used the output Db/Dr sequence will be locked to that of the reference signal.

◀ SC_Phase

This function allows the relative phasing between the reference subcarrier and the output signal subcarrier to be adjusted.

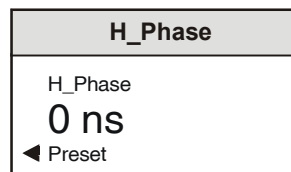


Rotating the spin-wheel will adjust this value and the numerical display shows the phasing in degrees.

The range of adjustment is 359.9° (continuously adjustable) in steps of 0.1° and the preset value is 0° (Output coincident with reference)

◀ H_Phase

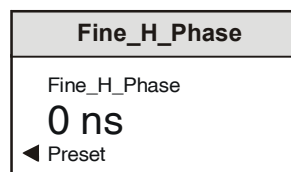
Selecting this item reveals a display showing the horizontal timing of the output signal relative to the reference sync signal, in nanoseconds. Rotating the spin-wheel will adjust this value.



The range is approximately ±1.9 lines in steps of one cycle of subcarrier. (This ensures the correct SC/H timing is maintained)

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

◀ Fine_H_Phase



Note that when operating in the SECAM standard and genlock is selected a Fine Horizontal Phase control will become available.

The range is approximately ±800 units in steps of 1 unit.

◀ **Patterns**

This menu selection allows the unit to output test pattern signals.

Patterns
◀ Pattern On
◀ MUTE
◀ BLACK
◀ 75% COLOUR BARS

This function is enabled by selecting **Pattern_On**
The desired pattern may then be selected.

When Mute is selected there will be no signal of any kind at the output.

EDH ▶

The input stream is continuously monitored for EDH errors. Basic information on this can be monitored and/or reset here.

EDH
◀ Show_Stats
◀ Reset_Stats

The following functions may be selected:

◀ **Show_Stats** The information will be displayed in the LCD window

◀ **Reset_Stats** Data will be reset

◀ **Setup**

This selection reveals a sub-menu that allows the following functions to be set up:

Setup
◀ Insert_VITS
◀ Pass_Vertical_Data
◀ Pass_Line_23
◀ SECAM_Options...
◀ RollTrack...
◀ Show_RT_Errors
◀ Preset_Unit
◀ Logging...
◀ Default Output...
◀ Software Version
◀ Serial_No

◀ **Insert_VITS**

When this function is selected the four standard VITS lines are inserted in the vertical interval. The letters **VTS** will appear in the lower line of the control window when this is enabled.

◀ **Pass_Vertical_Data**

When selected (text reversed) the unit will pass data (unblanked) present in the vertical interval, to the output.

In 525 line standards all vertical interval lines from 11 and 274 onwards are passed with the exception of the half lines 263 and 283. In 625 line standards all vertical interval lines from 7 and 320 onwards are passed with the exception of the half lines 23 and 623. When de-selected (text normal) all data in the vertical interval will be blanked.

Note that when this item is selected the word PVD will appear on the bottom line in the information window.

◀ **Pass_Line_23**

When selected the unit will pass the whole of line 23 (WSS Line) in PAL and PAL-N standards.

When not selected only half of line 23 is passed in accordance with CCIR-624.

Note that this control will have no effect in 525 line standards.

◀ **SECAM_Options**

SECAM_Options
◀ Notch_Filter
◀ Bottles
◀ Carrier_Off
◀ Chroma_Pre_Filter

◀ **Notch_Filter**

When selected (text highlighted) the SECAM luminance notch filter will be enabled.

Preset is to notch filter ON.

◀ **Bottles**

This function allows the SECAM-V color ident signal (Bottles) to be switched ON (text highlighted) or OFF.

Preset is to Bottles OFF.

◀ **Carrier_Off**

This function allows the chrominance carrier to be switched ON or OFF (text highlighted)

Preset is to ON.

◀ **Chroma_Pre_Filter**

This function allows the chrominance filter to be switched ON (text highlighted) or OFF.

Preset is to ON.

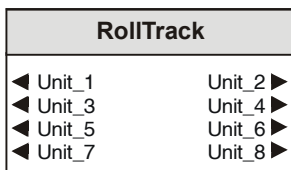
◀ **RollTrack**

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**.

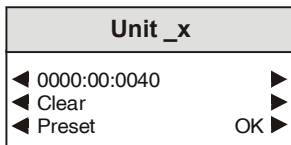
For more detailed information, see the RollTrack section (Appendix) at the end of this manual.

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

Selecting **RollTrack** provides a sub-menu that allows up to 8 audio delays to be selected as a destination.



When a unit is selected a further sub-menu then appears to allow the code to be set up.



To edit the text the buttons adjacent to the upper text line in the menu are used to select the character position in the text and the spinwheel used to select the character.

The code may be set up using the adjacent push buttons to edit the text.

(The right ▶ and left ◀ buttons select the cursor position and the spinwheel selects the character; the clear button sets the text line to all zeros and the OK button accepts the network address)

The full network address has five sets of numbers.

For example: 0000:10:01*14*51

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.

The fifth set (51) is the board type identification.

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.

For more detailed information see the RollTrack section of this manual.

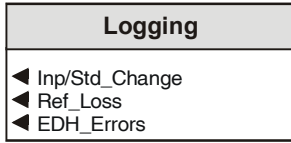
◀ **Show_RT_Errors**

Selecting this item will display any RollTrack messages/errors in the Information window.

◀ **Preset_Unit**

Selecting this item sets all adjustment functions that include a preset facility, to their preset values.

◀ **Logging**



If a logging device is attached to the RollCall™ network, information about various parameters will be reported to the logging device assigned in the Remote Control Interface system.

◀ **Inp/Std_Change**

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

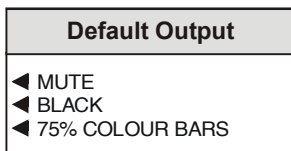
◀ **Ref_Loss**

When activated a loss of reference signal condition will be notified to any logging device.

◀ **EDH_Errors**

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

◀ **Default Output**



If the input signal fails or is of poor quality this function allows a signal to be selected to become the default output.

When Mute is selected there will be no signal of any kind at the output.

◀ **Software_Version**

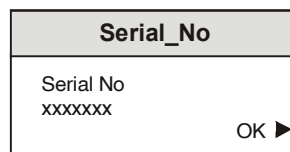
Selecting this item reveals a display showing the version of the software fitted in the module.



Select OK to return to the Setup Menu.

◀ **Serial No**

This displays the serial number of the unit.



Select OK to return to the setup menu.

RollCall PC Control Panel Screens for the IQDMENCS

Control

This screen allows basic control functions to be setup.

Standard

This item allows the operating standard of the unit to be set.

The operating line standard will be determined by the following detection method (in order of priority)

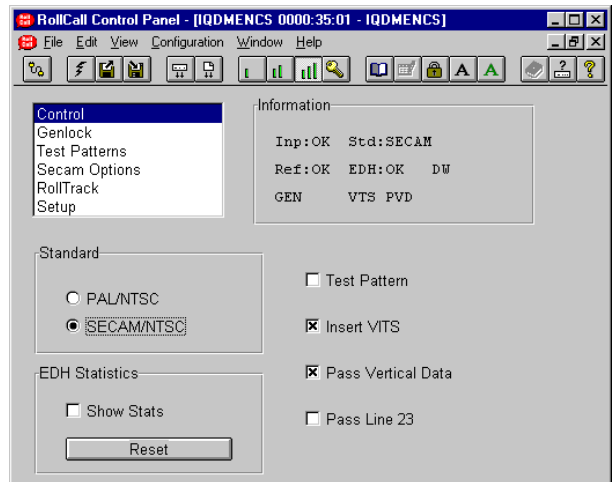
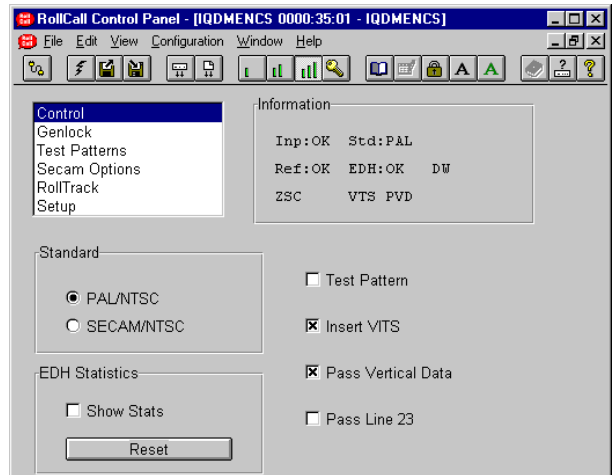
1. The **reference input standard** (input signal standard is ignored) when in Genlock mode
2. If there is no reference signal, by the **input signal standard**.
3. If there is no reference signal and no signal input the standard may be selected by using this menu. This allows the module to provide test signals in either standard. Selecting the **PAL/NTSC** menu will toggle the output standard between PAL and NTSC.

*Note that to use this method of selection the module **must** be operating in the **Internal Lock** mode set in the **Genlock** menu.*

If the operating standard is determined by either method (1) or (2) and is 625 line, PAL or SECAM can be selected as the output standard.

If the operating standard is determined by either method (1) or (2) and is 525 line, NTSC will be selected as the output standard.

If the signal input and reference input are of different line standards, the unit will output a black signal at the reference signal line rate.



Control (continued)

Test Pattern

When checked the output will become the pattern selected by the **Test Patterns** screen.

Insert VITS

When this item is checked the four standard VITS lines are inserted in the vertical interval.

The letters **VTS** will appear in the lower line of the control window when this is enabled.

Pass Vertical Data

When checked the unit will pass data (unblanked) present in the vertical interval, to the output.

In 525 line standards all vertical interval lines from 11 and 274 onwards are passed with the exception of the half lines 263 and 283. In 625 line standards all vertical interval lines from 7 and 320 onwards are passed with the exception of the half lines 23 and 623.

When unchecked all data in the vertical interval will be blanked.

Note that when this item is selected the word PVD will appear on the bottom line in the information window.

Pass Line 23

When checked the unit will pass the whole of line 23 (WSS Line) in PAL and PAL-N standards.

When unchecked only half of line 23 is passed in accordance with CCIR-624.

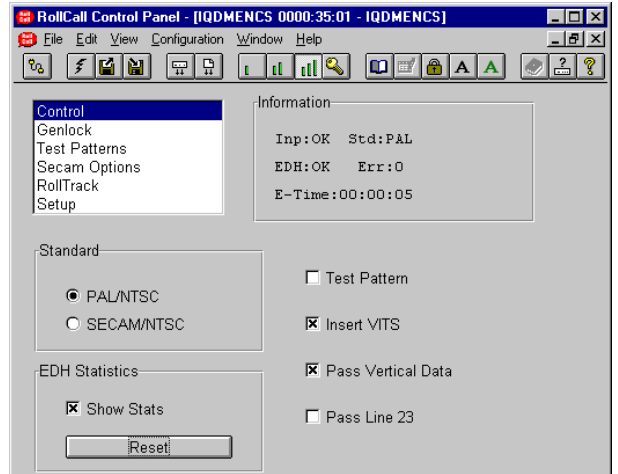
Note that this control will have no effect in 525 line standards.

EDH Statistics

The following functions may be selected:

Show Stats The information will be displayed in the information window.

Reset Data will be reset to zero.



Genlock

This screen allows various modes of genlock to be enabled.

Genlock Modes

Internal

When this function is enabled the output signal will be locked to the serial input (if available) or free-running if no serial input is available.



In this mode the frequency accuracy will be ± 10 ppm


Notes:

1. This mode will be automatically enabled if the signal input and reference input are of different line standards and the output will default to black burst in the reference standard.
2. This mode should be selected if test patterns of a particular line standard (and different to the reference input) are required at the output

Scroll bars

Note that for this and other screens the following applies:

The  and  symbols at the ends of the scroll bar allow the item to be adjusted in discrete steps.

The  symbol represents the Preset function and will return the function to the default setting.

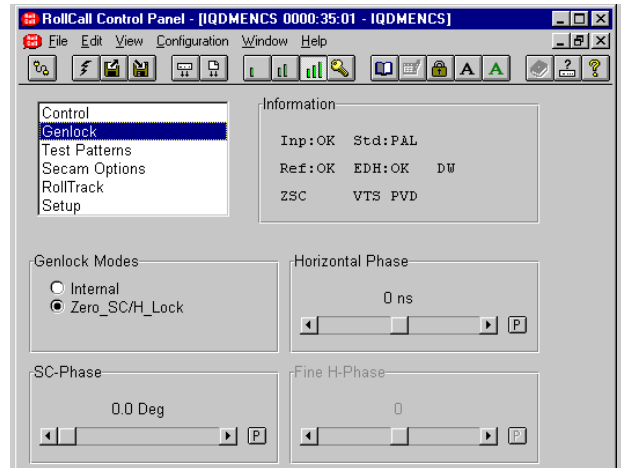
The numerical value is shown above the scroll bar.

Zero_SC/H_Lock

In this mode the module locks to the reference subcarrier and will always produce a zero ScH (Subcarrier phase to H-Phase) output. The output H timing will be maintained as close as possible to the reference H timing in the correct color frame. The ScH warning LED will light if the ScH error of the reference is $> 20^\circ$ (approx.), indicating that the color framing will be lost should the reference ScH error increase.

Note that the output will always be 0° ScH phase regardless of the reference ScH phase.

Note also that this item will become **Genlock** when the unit is operating in the SECAM standard.

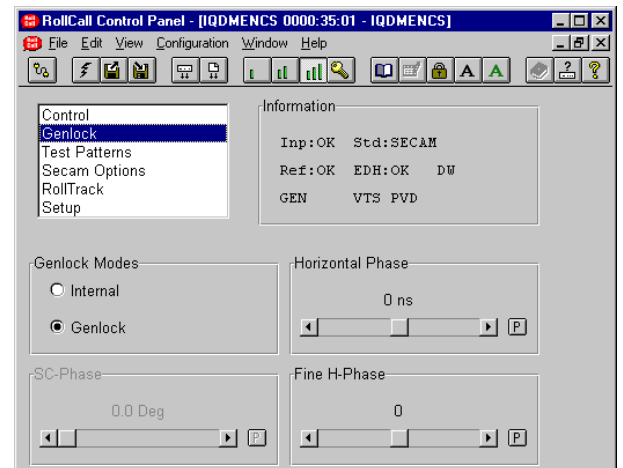


H Phase

This item allows the horizontal timing of the output signal relative to the reference sync signal to be adjusted

The range is approximately ± 1.9 lines in steps of one cycle of subcarrier. (This ensures the correct ScH timing is maintained)

Genlock (SECAM)



For SECAM the output will H phase to a PAL black or black-burst reference; Db/Dr phase is such that if the reference has a PAL burst, a V-Switch (Phase = 135°) of burst on Line 1, Field 1 will produce a Dr line in the encoded output. If a SECAM reference signal is used the output Db/Dr sequence will be locked to that of the reference signal.

Note that when operating in the SECAM standard and genlock is selected a Fine Horizontal Phase control will become available.

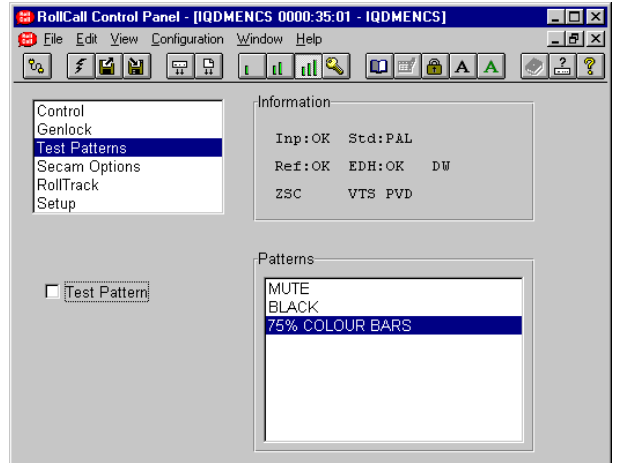
The range is approximately ± 800 units in steps of 1 unit.

Test Patterns

This screen allows the unit to output test pattern signals.

This function is enabled by checking the **Test Pattern** box. The selected pattern will then become the output signal.

When Mute is selected there will be no signal of any kind at the output.



SECAM Options

Notch Filter

When selected the SECAM luminance notch filter will be enabled.

Preset is to notch filter ON.

Bottles

This function allows the SECAM-V color ident signal (Bottles) to be switched or OFF.

Preset is to Bottles OFF.

Carrier Off

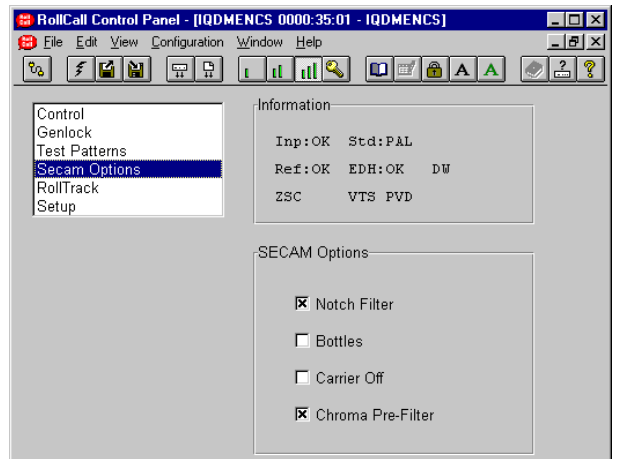
This function allows the chrominance carrier to be switched ON or OFF.

Preset is to ON.

Chroma Pre Filter

This function allows the chrominance filter to be switched ON or OFF.


Preset is to ON.




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 called **RollTrack**.

For more detailed information, see the RollTrack section (Appendix) at the end of this manual.

To change the address, type the new destination in the text area and then select  (return).

 (Preset) returns to the default destination.

The destination for the delay information to one of eight units is set by the network code address as follows:

The full network address has five sets of numbers.

For example: 0000:10:01*14*51

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.

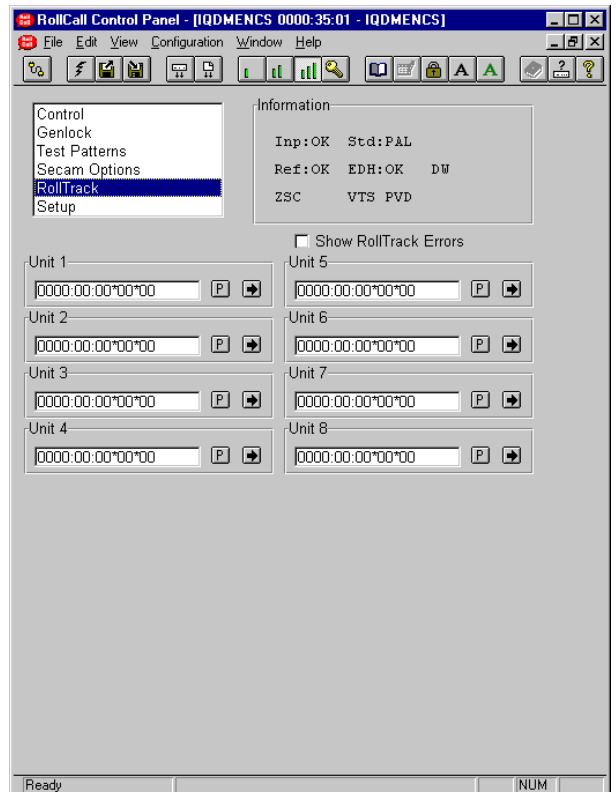
Note that only channel numbers 14, 15, 16 & 17 should be used for audio delay cards.

The fifth set (51) is the board type identification.

For more detailed information see the RollTrack section of this manual.

Show RollTrack Errors

Selecting this item will display any RollTrack messages/errors in the Information window.



Setup



Selecting this item sets all adjustment functions that include a preset facility, to their preset values.

Logging

If a logging device is attached to the RollCall™ network, information about the checked parameters will be reported to the logging device assigned in the Remote Control Interface system.

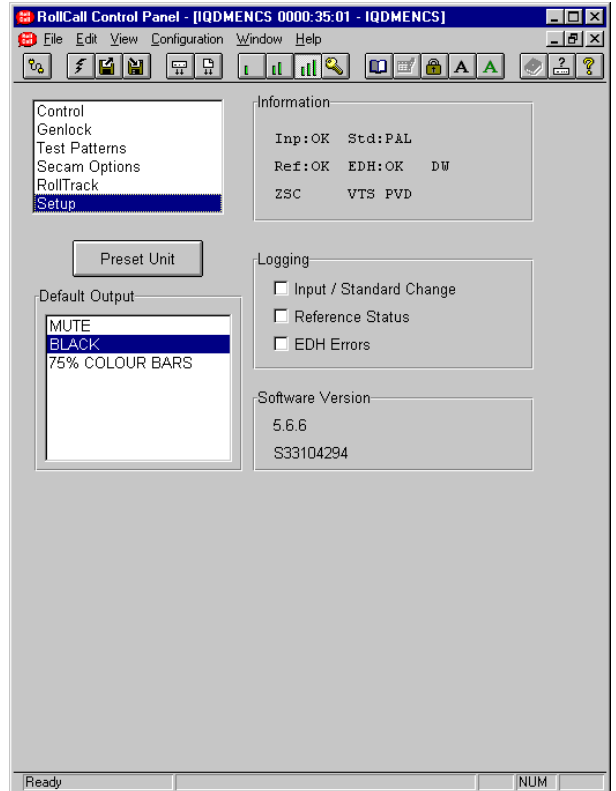
Default Output

If the input signal fails or is of poor quality this function allows a signal to be selected to become the default output.

When Mute is selected there will be no signal of any kind at the output.

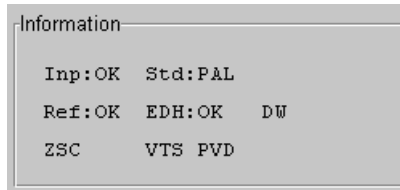
Software Version

This item shows the version of the software fitted in the module followed by the serial number of the unit.



Information Window

The status of the unit is shown in abbreviated form in the information window.



The first item of the first line will show the status of the input. It may show:

Inp: OK A valid input has been detected.

Inp: ERR An input error has been detected.

Inp: ** No input signal has been detected.

The second item of the first line will show the line standard of the input. It may show:

Std:PAL A PAL standard has been detected.

Std:NTSC An NTSC standard has been detected.

Std:SECAM A SECAM standard has been detected.

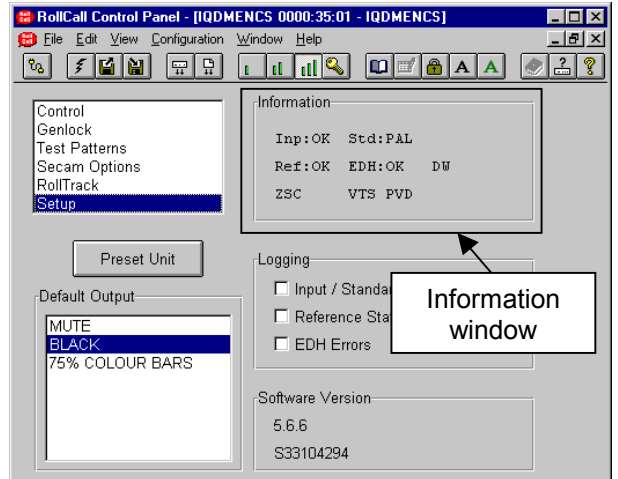
Std:Unknown The standard is unknown

The first item of the second line will show the status of the reference input. It may show:

REF: OK A valid reference input has been detected.

REF: ** No reference input signal has been detected.

REF: SCE A subcarrier error has been detected. e.g. a Sch error of >20°.



The second item of the second line will show EDH statistics. It may show:

EDH:NONE A valid reference input has been detected.

EDH:Fail A valid reference input has been detected.

EDH:OK A valid reference input has been detected.

EDH:OK DW This may be followed by a warning that the synchronizer delay has exceeded 1 ms. DW = Delay Warning.

Line three will display setup messages:

ZSC Genlock Zero SC/H Lock enabled

If the text is static (not flashing) this indicates that the unit has successfully genlocked to the reference source.

If the text is flashing this indicates that the unit is attempting to genlock to the reference source.

GEN SECAM Genlock

VTS Insert VITS enabled

PVD Pass Vertical Data enabled

PAT Pattern ON enabled

Appendix 1

Genlock

The genlock will operate in one of two modes. The default mode (switches off), locks to the reference subcarrier and will always produce a zero ScH output. The output H timing will be maintained as close as possible to the reference H timing in the correct color frame.

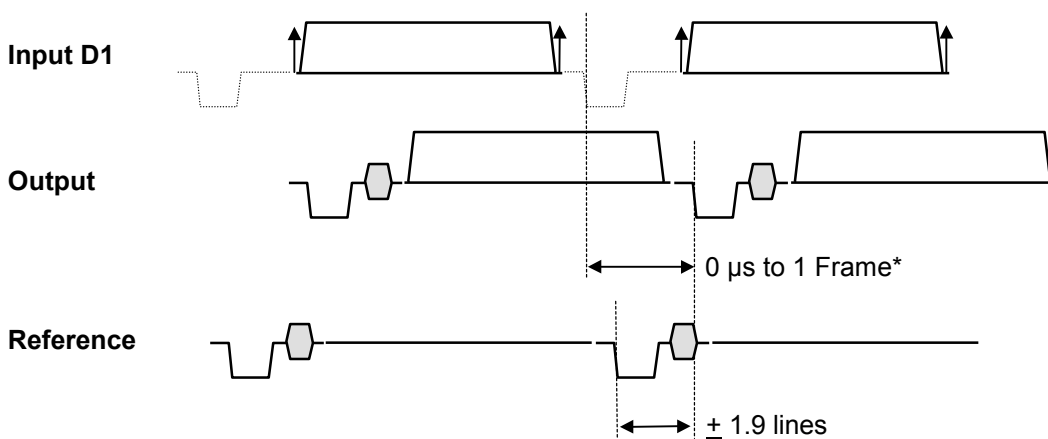
The ScH warning LED will light if the ScH of the reference is $> \pm 20^\circ$ (approx.), indicating that color framing may be lost should the reference ScH error increase significantly.

With no reference applied or internal lock selected the output will lock to the input D1 with the buffer delay set to a minimum. Incoming jitter will be suppressed and the output ScH is guaranteed to be zero.

In the event of conflicting standards being applied to the reference and the D1 input the output will default to black burst in the reference standard. With no input or reference the output will also be black burst (or any available pattern) in a user selectable standard. In this mode the frequency accuracy will be $\pm 10\text{ppm}$.

In reference genlock modes the subcarrier may be offset by up to 360° . H phase offset is limited to approx. ± 1.9 lines.

Genlock and delay limits (without comb option):



*An input to output delay of less than $3 \mu\text{s}$ will result in a frame of delay being inserted. The output will still be valid but audio delay compensation may be required. The delay warning (DW) message will appear if the overall input to output delay is between 1 ms and 1 frame.

RollTrack Audio Delay Tracking

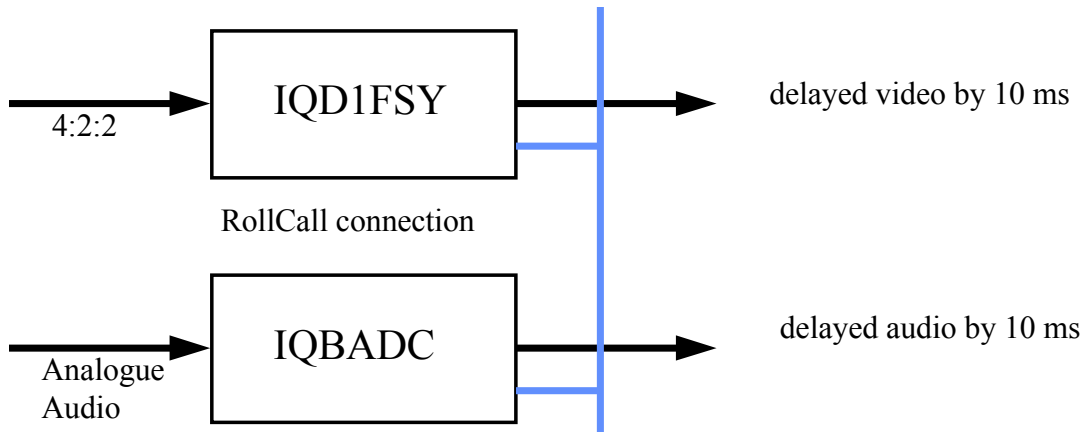
RollTrack is a feature of RollCall™ (Snell & Wilcox's proprietary remote control system), that allows devices to communicate across the RollCall network with no direct user intervention.

RollTrack Audio Delay Tracking enables Snell & Wilcox RollCall™ compatible audio delay products to track delay introduced by RollCall™ compatible video processing products.

The current products that implement RollTrack Audio Delay Tracking are:

Audio Delay Modules	Video Modules	Other Products	
IQBAAD	IQD1FSY	ALCHEMIST	MDD3000
IQBADC	IQDMSDS	CPP100	MDD550
IQBDAC	IQDAFS	CPP200	MDD560
IQBDAD	IQDMSDS	NRS500	MDD570
IQBSYN	IQDMSDP	HD5050	MDD2000
IQBADCD	IQDSYN		

The simplest configuration is a single video unit and a single audio delay in a RollCall™ system. The audio delay will have the same delay as through the video path. If the delay changes the audio delay will track.



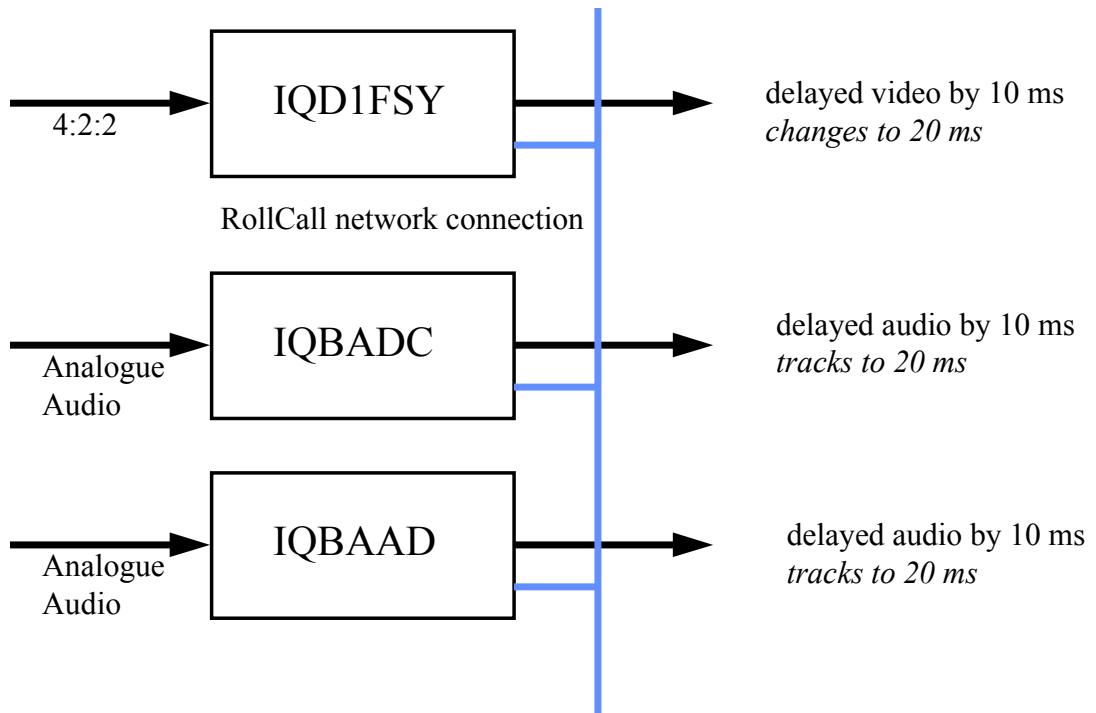
The next level of configuration is where there are multiple Frame Synchronizers (for example) each connected through RollCall™ to their own tracking Audio Delay. (It is worth stating that the synchronizers and audio delays do not have to be in the same enclosure; the addressing scheme, discussed later, allows for the units to be positioned anywhere in the RollCall™ domain.)

The maximum number of video units and audio delays in a RollCall™ system is set by the maximum limit of the number of modules in a RollCall™ network and is currently 3840 on a single network without bridges.

The unique identification of the destination unit (a decimal number) for various modules is as follows:

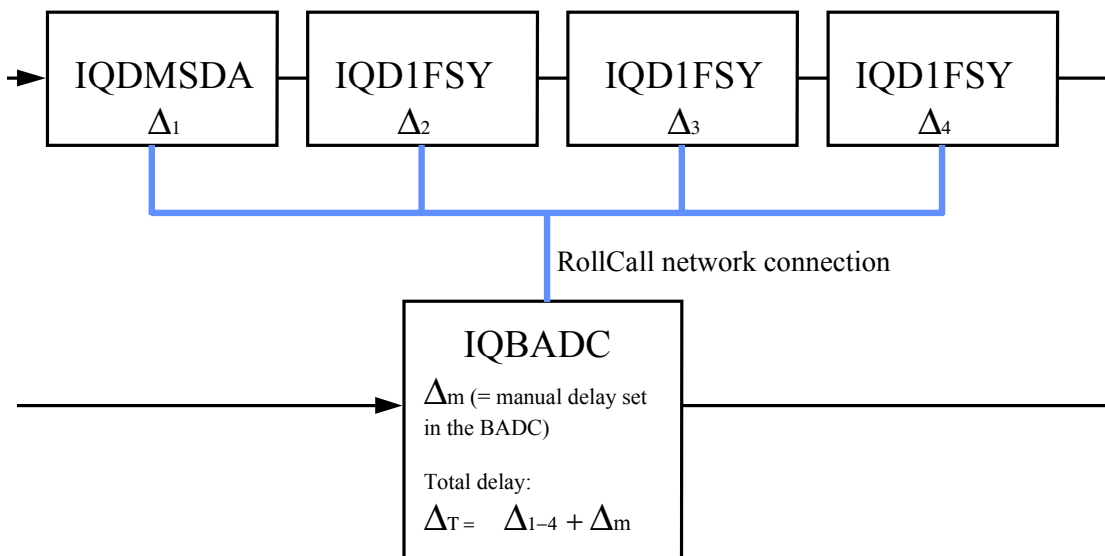
Module	ID
IQBADC	51
IQBDAC	52
IQBAAD	53
IQBDAD	54
IQBSYN	89
IQBADCD	107

The next level of complexity is a *vertical delay cluster* where a video unit can have up to eight audio delays tracking - of the same or different types.



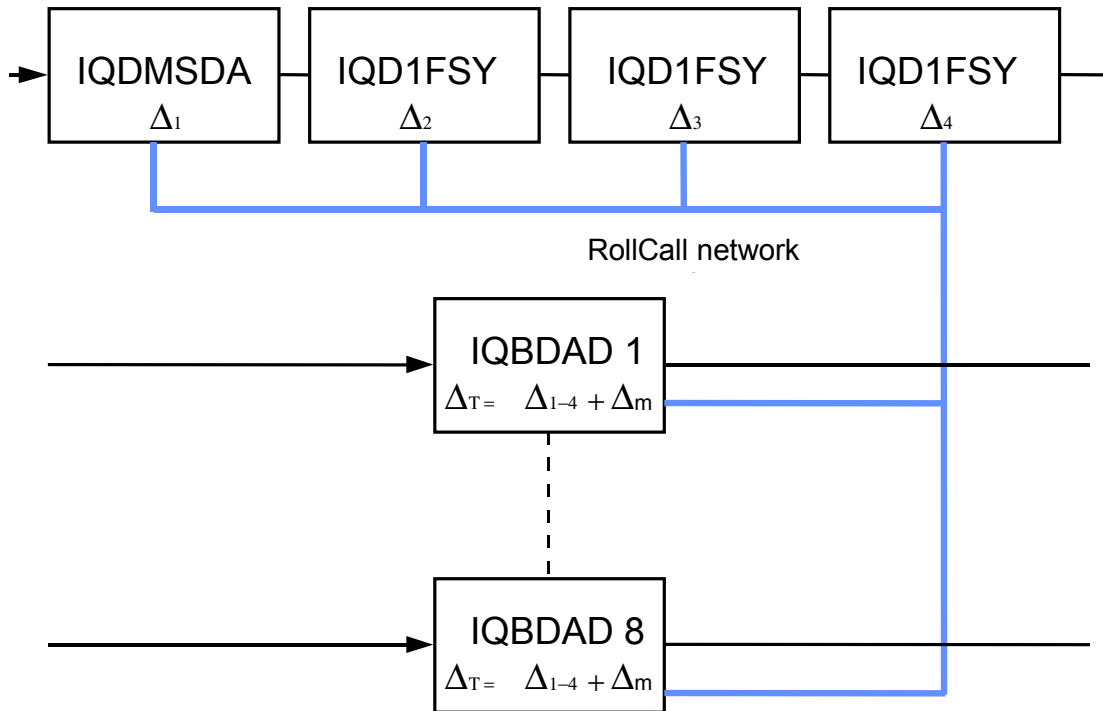
From one to eight audio delay products can be connected via RollCall™ to a single frame synchronizer, for example. If the synchronizer delay changes, then however many audio delays are connected will track the delay. The audio delays can also have a manual delay which will be added to the RollTrack delay.

The next level of complexity is a *horizontal delay cluster* where an audio delay can track up to four video units.



The total delay time through the audio delay is then the sum of the individual delays introduced by the video units plus the manual delay of the audio unit. The manual delay can be set to compensate for any fixed propagation delay in the video path or may be set to zero.

The next level of complexity is a *matrix delay cluster* where each audio delay (up to eight) can track up to four video units. This configuration is in effect a four by eight matrix of video units and audio delay units. The total delay time through the audio delay units is then the sum of the individual delays introduced by the video units plus the manual delay of the audio unit.



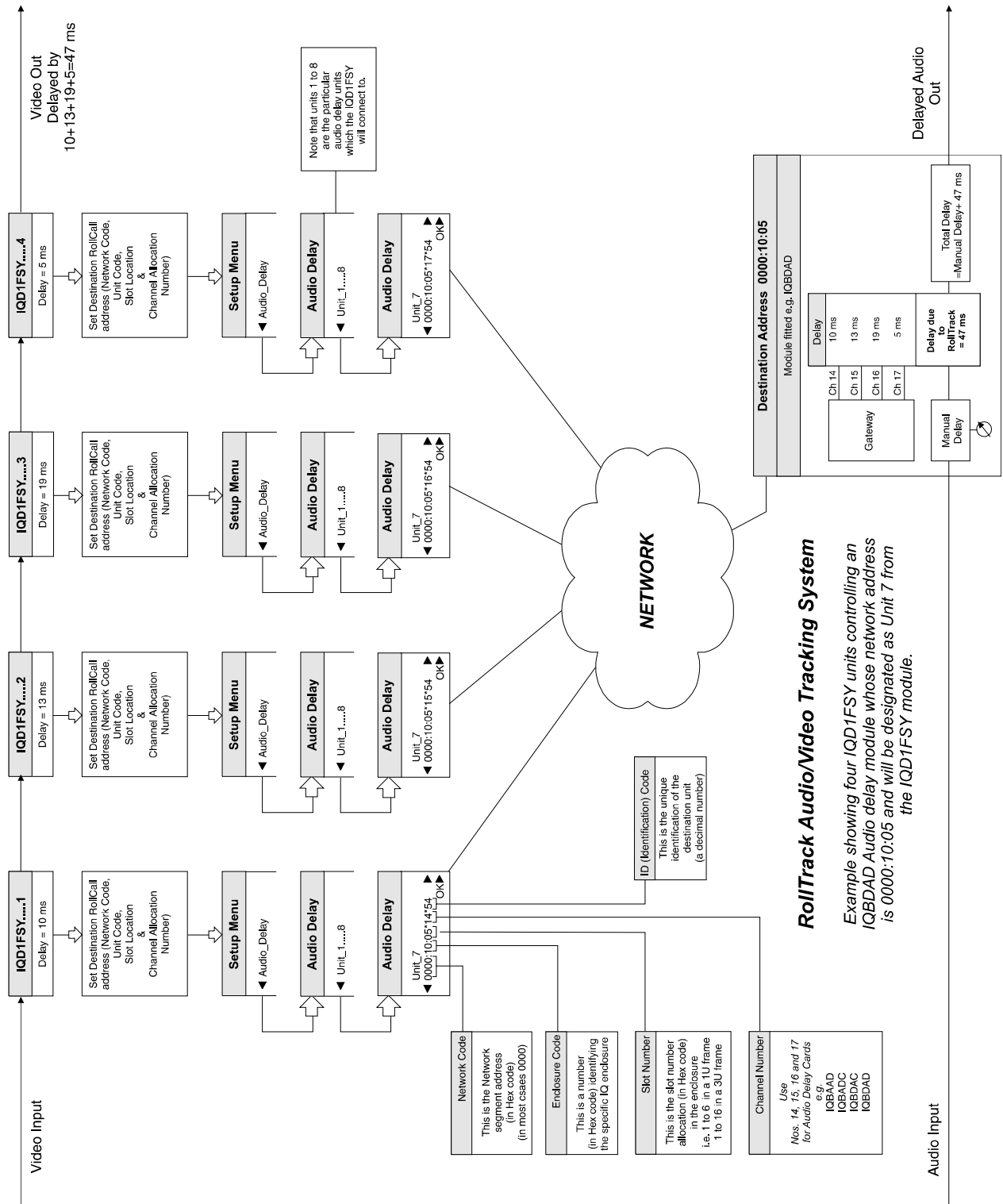
As any of the delay times change in the video path so will the audio delay time track this delay. A virtual connection is made between from, say, an IQD1FSY to an IQBDAD by:

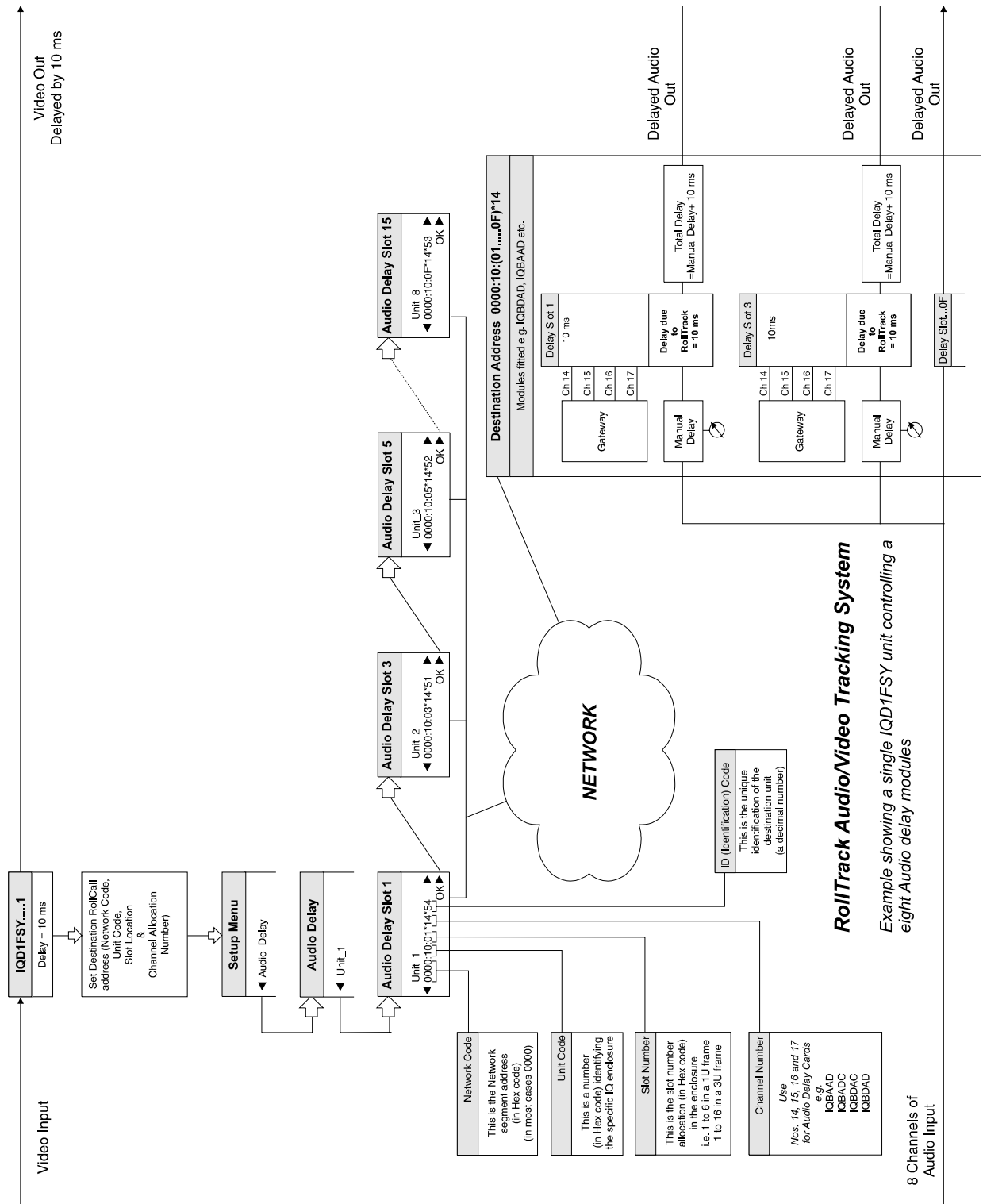
- selecting the *Setup...* Menu of the IQD1FSY
- then selecting the *Audio_Delay...* Menu
- then choosing from *Unit_1* to *Unit_8*
- then entering the unique network address of the IQBDAD in the form *nnnn:xx:yy*z*d*
- where *nnnn* = network address and in most cases will be 0000(hex);
- xx* = IQ enclosure address (hex);
- yy* = slot address of the IQBDAD (hex)
- z* = the connection (or channel) number (decimal) - see table below.
- d* = the unique identification of the destination unit (decimal) The ID entered must match the receiving units own ID or else the command will be ignored. If the ID value is set to 00, the receiving unit does not perform an ID match and will always accept the incoming command
- then selecting the *Delay...* Menu of the IQBDAD
- then selecting *RollTrack*

Example of Network Addresses with Channel Numbers and ID Numbers

	D1FSY 1	D1FSY 2	D1FSY 3	D1FSY 4
Audio delay 1	0000:10:01*14*54	0000:10:01*15*54	0000:10:01*16*54	0000:10:01*17*54
Audio delay 2	0000:10:03*14*54	0000:10:03*15*54	0000:10:03*16*54	0000:10:03*17*54
Audio delay 3	0000:10:05*14*54	0000:10:05*15*54	0000:10:05*16*54	0000:10:05*17*54
Audio delay 4	0000:10:07*14*54	0000:10:07*15*54	0000:10:07*16*54	0000:10:07*17*54
Audio delay 5	0000:10:09*14*54	0000:10:09*15*54	0000:10:09*16*54	0000:10:09*17*54
Audio delay 6	0000:10:0B*14*54	0000:10:0B*15*54	0000:10:0B*16*54	0000:10:0B*17*54
Audio delay 7	0000:10:0D*14*54	0000:10:0D*15*54	0000:10:0D*16*54	0000:10:0D*17*54
Audio delay 8	0000:10:0F*14*54	0000:10:0F*15*54	0000:10:0F*16*54	0000:10:0F*17*54

The most complex system would be an array of matrix delay clusters





RollTrack Audio/Video Tracking System

Example showing a single IQD1FSY unit controlling a eight Audio delay modules

Manual Revision Record

Date	Version No.	Issue No.	Change	Comments
030400	1	1		First Issue
280302	1	2	Now includes information for the 3A enclosure modules	New manual issued
160502	1	3	Changes/additions to rear panels	New manual issued
271102	1	4	-2A-S rear panel added	New manual issued
100403	1	5	Power consumption added to techspec	New manual issued
040304	1	6	For version 5.6.6 Pass Line 23, default output, mute added.	New manual released