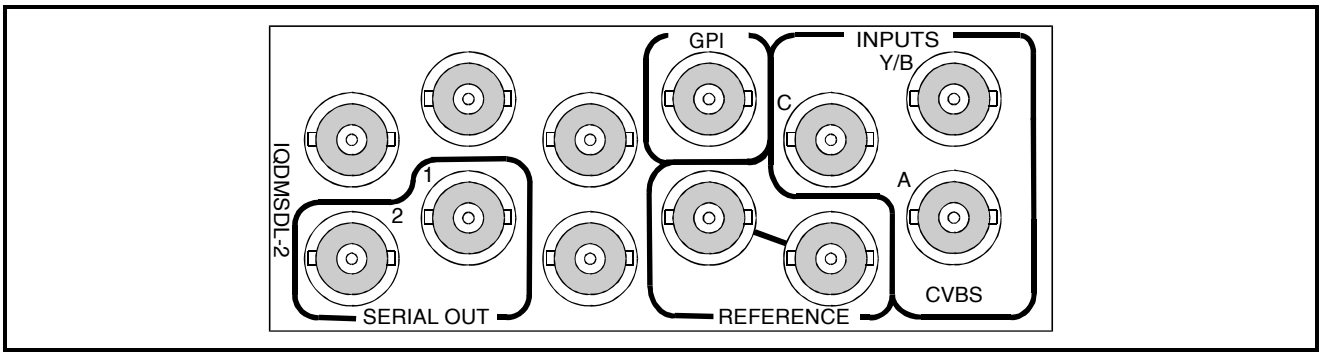
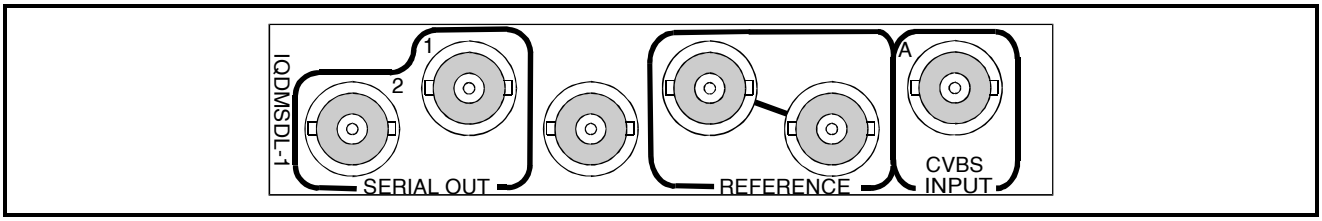
IQDMSDL Multi-standard Decoder with Synchronizer and Noise Reduction

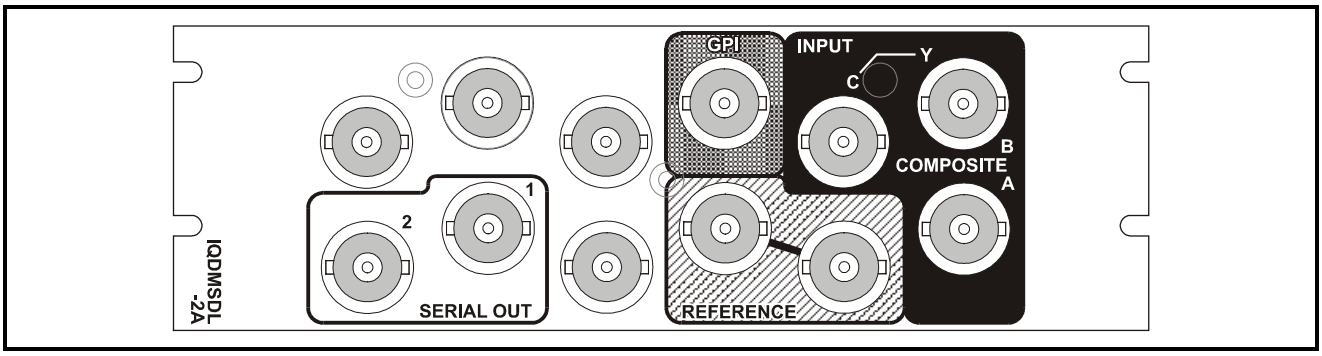
Module Description

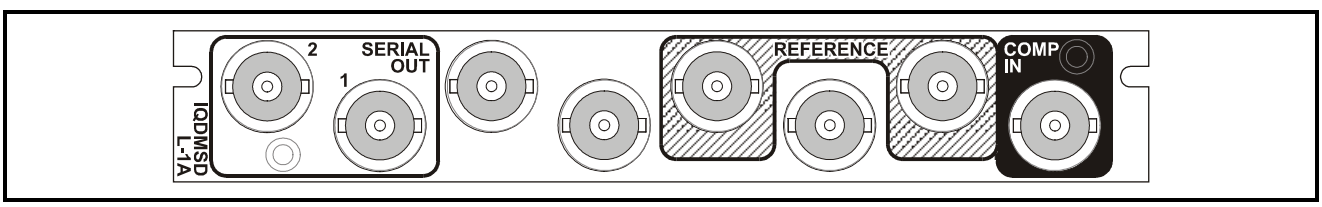
The IQDMSDL provides multi-standard decoding and frame synchronization of Y-C or composite video. The selected input is sampled and decoded using an adaptive line comb filter to ensure optimum decoding performance. Signal correction features include video, luminance and chrominance gain, black level, NTSC hue, Y-C horizontal timing, linear horizontal enhancer and picture position. In addition a powerful frame recursive noise reducer is able to automatically eliminate much background noise. A motion detector switches off the noise reduction in moving picture areas. Rugged sync and clock recovery ensures reliable operation with unstable and noisy inputs.

REAR PANEL VIEW









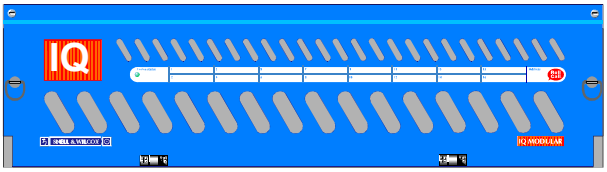
Versions of the module cards available are:

IQDMSDL-2-0	Multi-standard Decoder/Synchronizer and Noise Reduction	Double width module
IQDMSDL-2A	Multi-standard Decoder/Synchronizer and Noise Reduction	Double width module
IQDMSDL-1A	Multi-standard Decoder/Synchronizer and Noise Reduction	Single 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

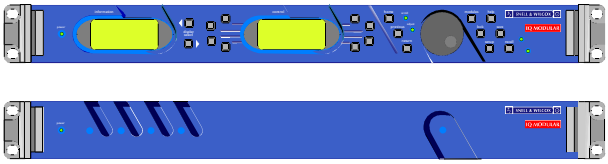
Rear panels ***with*** the suffix A may only be fitted into the 'A' style enclosure shown below.



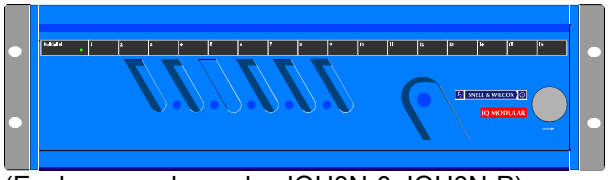
(Enclosure order codes IQH3A-E-0, IQH3A-E-P, IQH3A-0-0, IQH3A-0-P)

'O' Style Enclosures

Rear panels ***without*** the suffix A may only be fitted into the '0' style enclosures shown below.



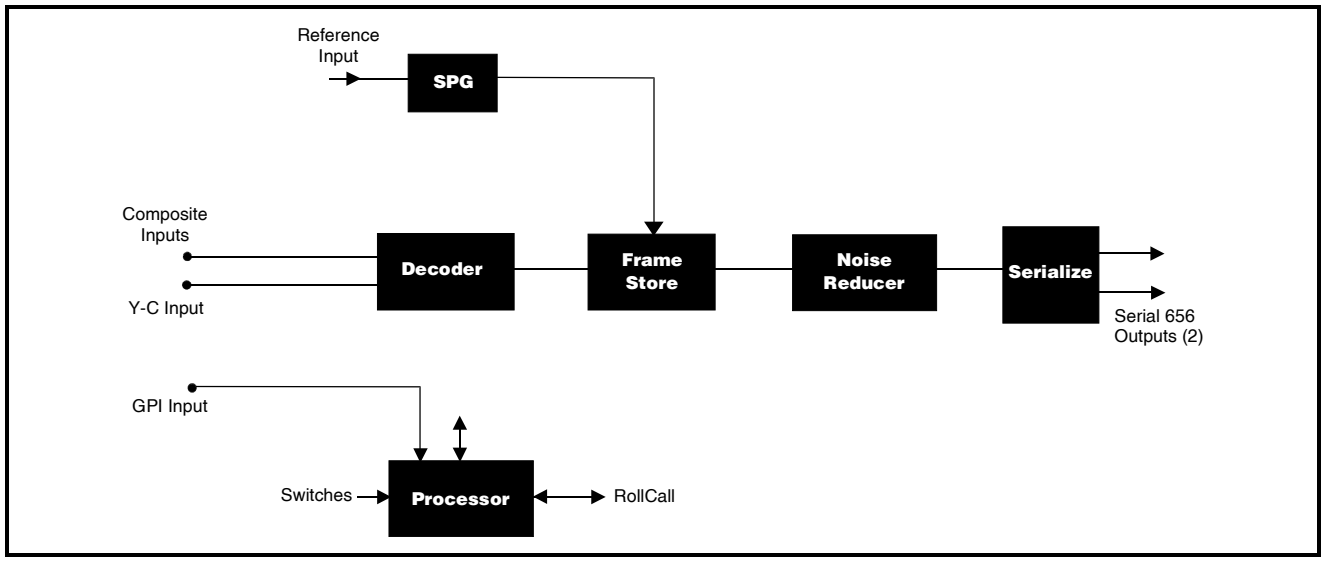
(Enclosure order codes IQH1S-RC-0, IQH1S-RC-AP, IQH1U-RC-0, IQH1U-RC-AP, Kudos Plus Products)



(Enclosure order codes IQH3N-0, IQH3N-P)

(Enclosure order codes IQH3U-RC-0, IQH3U-RC-P)

BLOCK DIAGRAM



Features

4:2:2 frame synchronizer with H phase control

- Input standards - PAL, NTSC, NTSC-J, PALN, PALM, N4.43 and SECAM
- 2 Composite and 1 Y/C inputs (1 composite input only on single width rear panels)
- 2 serial 4:2:2 SDI outputs
- Auto standards detection
- Adaptive line comb decoder
- Handles VHS feature modes
- PAL Hanover bar suppression
- Test signal generator (100/75% color bars, multi-burst, black)
- Adjustment of video gain, black level, chroma gain, NTSC hue and horizontal timing
- Motion adaptive recursive noise reducer with automatic noise floor measurement
- Linear horizontal enhancer
- Frame freeze, black or input pass through on loss of input
- Vertical information passed or blanked
- PAL Line 23 and NTSC Line 21 process, pass or blank
- Selectable Automatic Gain Control
- Selectable Automatic Chroma Control referenced to color burst
- Delay Flag (GPI/O port) output and RollTrack for audio tracking
- Programmable GPI/O port
- 8 programmable memories
- Full RollCall remote control

TECHNICAL PROFILE

Features

Signal Inputs

Composite Video ..... 2 x Differential via BNC connectors (1 on single width)

Y-C ..... 1 via BNC connectors (Double width only)

Standards ..... PAL/NTSC//NTSC-J/PAL-M /PAL-N/SECAM/N4.43

Reference ..... 1 Loop through via BNC connectors

Signal Outputs

Serial Digital..... 2 x SDI via BNC connectors

Standards ..... SMPTE 259M-C-1997

Control Interface

RollCall (Available as an upgrade) S&W RollCall via BNC connector

Remote (Available as an upgrade) S&W 'RollCall RS485' or RS422 @ 38 KBaud via 9 way D connector

GPI/O..... Closing contact input/output via BNC connector

Card Edge Controls

Input select ..... Composite A, composite B, YC

Pedestal..... Switches between NTSC and NTSCJ inputs

Freeze ..... On / Off

Pattern ..... On / Off

Luminance Gain..... ± 3 dB in 0.1dB steps

Chroma Gain ..... ± 3 dB in 0.1 dB steps

Black Level ..... ±102.4 mV in 1.6 mV steps

Genlock ..... On/Off

Indicators

Power OK

Input Loss

Input Error

Reference Loss

Additional Controls via RollCall™ Remote Control System

Input Standard ..... PAL, PALN ,SECAM ,NTSC ,PALM, NTSCJ, N4.4

NTSC Hue..... 360 deg in 1 deg steps

Luminance Noise Reduction Off / [On: Low, Medium, High]

Chrominance Noise Reduction Off / [On: Low, Medium, High]

Enhance..... Off / [On: De, Low, Medium, High]

Automatic Gain Control ..... On / Off (Automatic Range +0.5 dB to -6 dB)

Automatic Chroma Gain Control On / Off

Pass vertical data..... On / Off

PAL Line 23 ..... Process As video / Pass / Blank

NTSC Line 21 & 283 ..... Process As video / Pass / Blank

Noise Reduction Split screen Off / Top Bottom split, Left Right split

Pattern Select ..... Black, Multi-burst, 75% color bars, 100% color bars

Y/C Timing ..... ±1036 ns in 148 ns steps

Picture Position..... ±1036 ns in 148 ns steps

Genlock ..... Enable

Genlock H Phase 625 ..... ±113 µs in 225 ns steps.

Genlock H Phase 525 ..... ±114 µs in 279 ns steps.

Default Output..... Input, Pattern, Freeze, Stable Input

Logging (via RollCall) ..... Reference, Input State, Input Standard

GPI action ..... Memories 1 to 8, Pattern, Freeze

GPO ..... Off, [On: Delay Flag, Input Loss, polarity high/low]

RollTrack Setup ..... Enable Unit 1..8

8 User Memories..... [Save / Name / Recall / Clear]

Preset Unit ..... Returns all unit settings to factory defaults

Restart Unit ..... Implements a full restart without the need to power down and power up

Specifications

Internal Processing 4:2:2

Y Frequency Response..... 5 MHz +0.2 dB, -0.5 dB

PbPr Frequency Response 1.5MHz -3dB typ

Signal / Noise..... Better than -60dB (Weighted, ramp)

K-2T..... Better than 1%

Subcarrier Rejection ..... Better than 46dB (PAL, NTSC), Modulated Staircase

Input Return Loss(analog).. Better than -35dB at 5MHz

Output Return Loss (digital) Better than -15dB at 270MHz

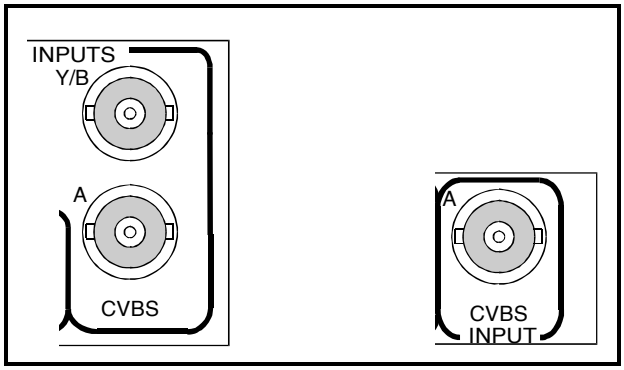
Power Consumption

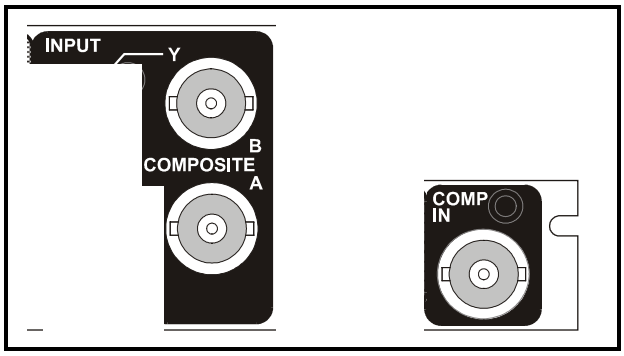
Module Power Consumption 9W max

INPUT CONNECTIONS

CVBS A and B

These are the 2 (1 on the single width versions) Composite video inputs to the decoder module via BNC connectors. Nominal input level is 1 V p-p terminated in 75 Ohms.

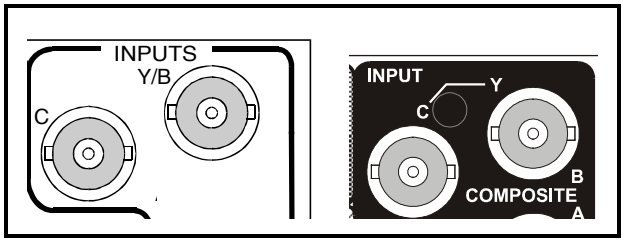




Separated Y C

A Y-C (S-VHS, Hi-8 etc.) input signal may be connected to the unit via 2 BNC connectors marked Y and C. This is available on double width versions only.

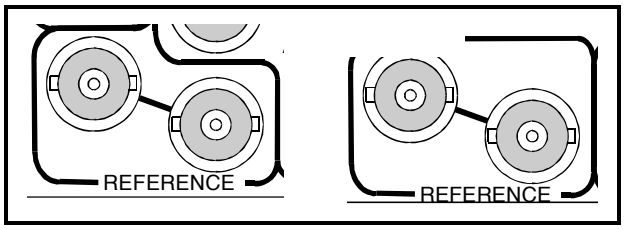
Y input level is a nominal 1V p-p into 75 Ohms.
C input is nominal colour burst level into 75 Ohms.

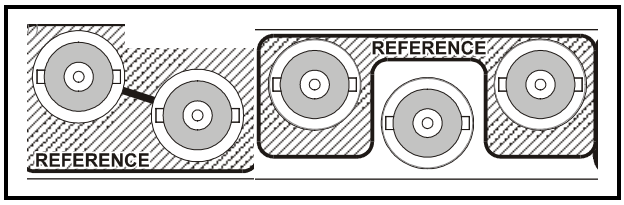


Reference Input

When suitable signals are connected to this input, the video output of the unit will be fully synchronised to the reference signal source when the genlock function is selected. If no signal is present the unit will automatically revert to internal free-running operation.

BNC loop-through connectors are provided and the signal may be black burst or composite video at standard level.

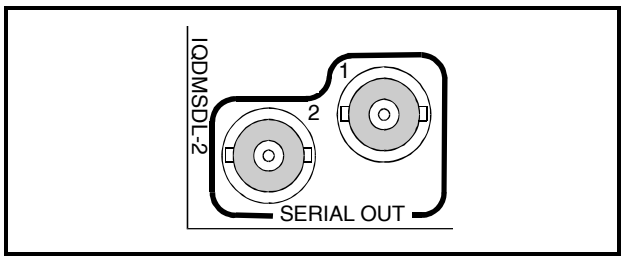


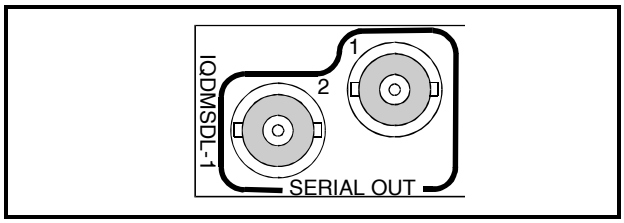


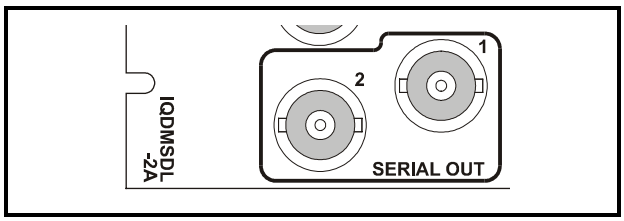
OUTPUT CONNECTIONS

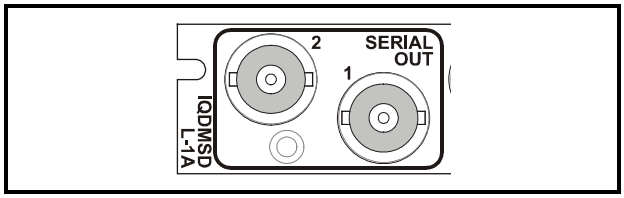
SERIAL OUT 1 & 2

Two isolated SDI outputs are available from these BNC connectors at standard level.







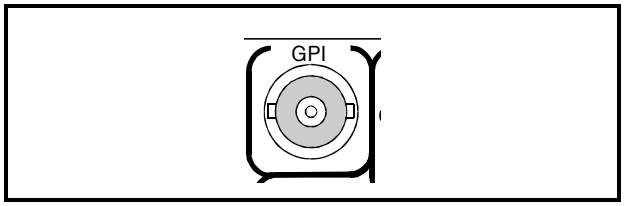


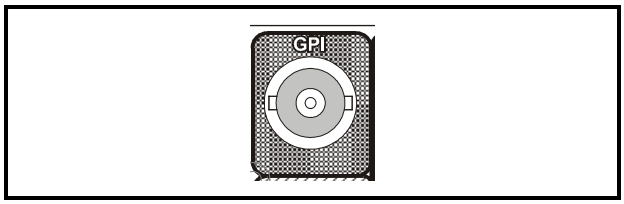
GPI

This BNC connector provides GPI input and output control for the module. Available on double width versions only.

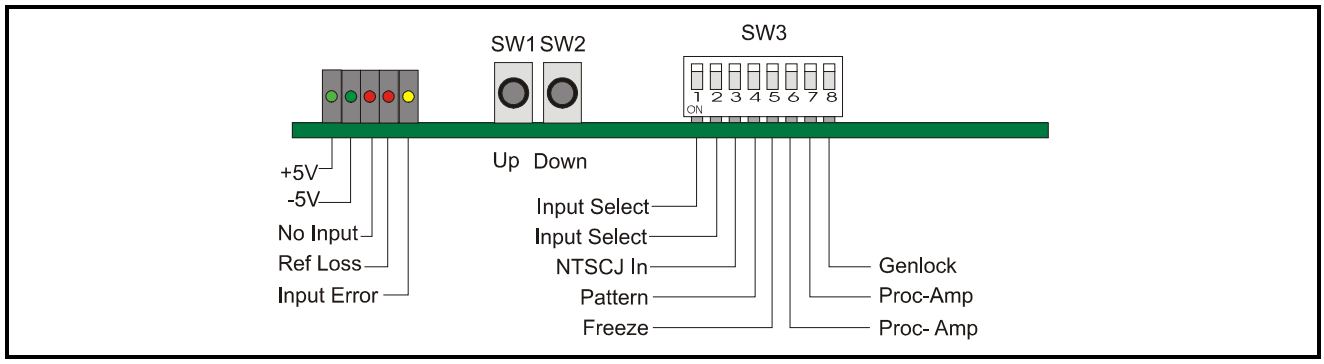
Input Functions Selects pattern as output.
Recalls memory.
Selects freeze function.

Output Functions Provides a flag representing the video delay through the unit.
Indicates a loss of input signal.





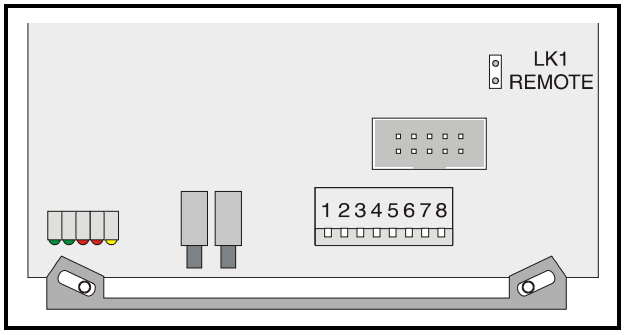
CARD EDGE CONTROLS



The unit will respond simultaneously to either remote RollCall commands or card-edge control settings 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.

The current settings are saved in an on-board memory.

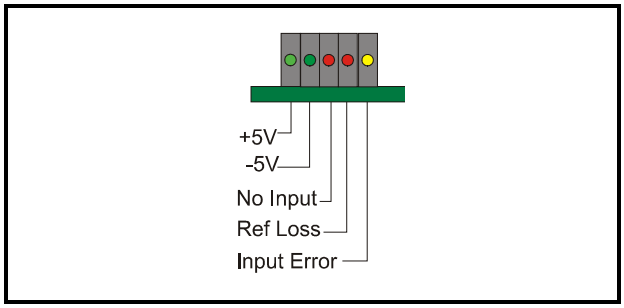
If the remote link (LK1) is fitted the saved control settings are used when the unit is powered-up.
If the remote link (LK1) is not fitted the unit will take its control settings from the card edge switches where possible and otherwise will use the default settings.



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 I/P** LED will be continuously illuminated when the unit is not receiving an input signal.

Ref Loss

This LED will be continuously illuminated if the unit is not receiving a valid Reference signal.

Input Error

This LED will flash if the unit is receiving an invalid input signal.

SWITCHES

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

The DIL switch SW3 selects a particular function.

The push buttons SW1, SW2 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.

FUNCTION AND MODE SELECTIONS

DIL SWITCH FUNCTIONS SW3

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

(Down is ON and Up is OFF)

Position 1 and Position 2

These two positions allow the input to be selected.

Input	Position 1	Position 2
CVBS A	OFF	OFF
CVBS B	ON	OFF
YC	ON	ON

Position 3

Setting this to ON the decoder will correctly process a NTSCJ signal (an NTSC signal without pedestal)

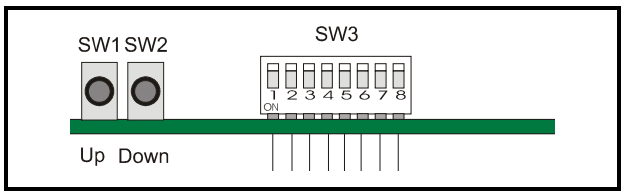
Position 4

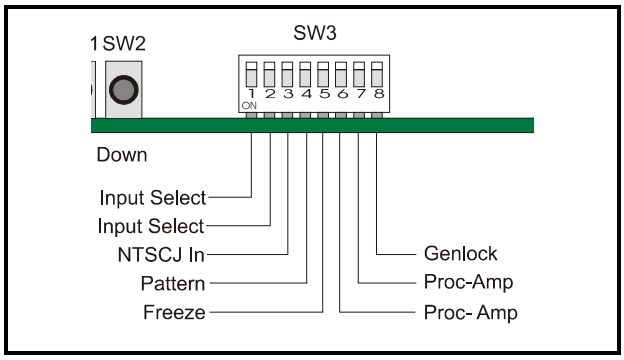
When set to ON this allows the unit to produce a **test pattern** signal as an output.
When the test pattern is selected the ProcAmp functions are bypassed.

The pattern list (Black, 75% Color Bars, 100% Color Bars and Multiburst) will be cycled through by operating the push buttons SW1 and SW2

Position 5

When set to ON the output will become a frozen picture of the last frame.





Position 6 and Position 7

These two positions allow the ProcAmp functions to be enabled and adjustments made to selected parameters.

Parameter	Position 6	Position 7
No functions enabled	OFF	OFF
Luminance Gain	ON	OFF
Black Level	ON	ON
Chrominance Gain	OFF	ON

Luminance Gain
Using the push buttons SW1, SW2 the gain may be adjusted by ±3 dB in steps of 0.1 dB.
Preset setting is to the calibrated value of 0 dB.

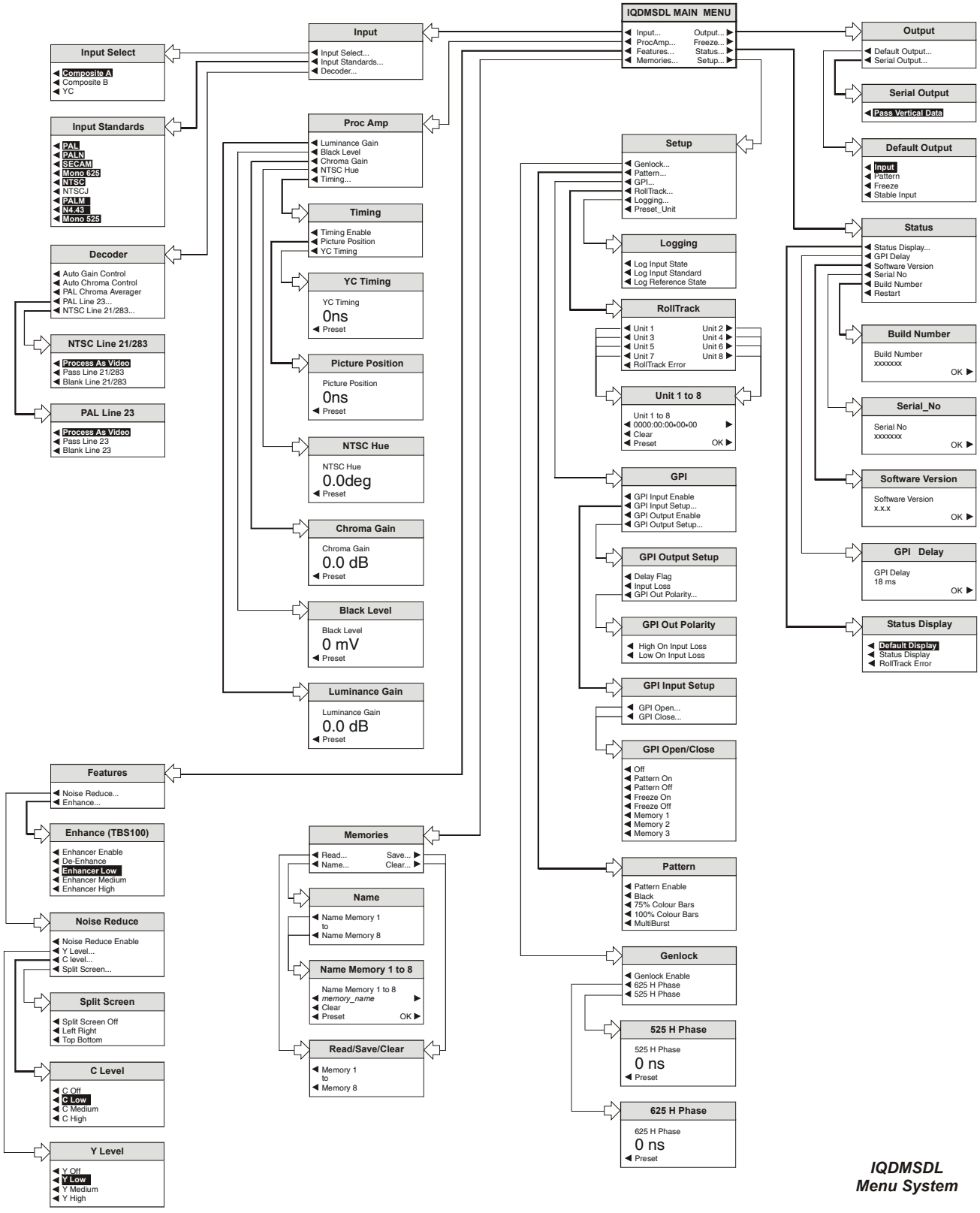
Black Level
Using the push buttons SW1, SW2 the black level may be adjusted by ±102.4 mV in steps of 1.6 mV.

Chrominance Gain
Using the push buttons SW1, SW2 the gain may be adjusted by ±3 dB in steps of 0.1 dB.
Preset setting is to the calibrated value of 0 dB.

Position 8

When set to ON the unit will lock to an incoming valid reference signal

When set to OFF the output signal will be free-running. In this mode the frequency accuracy will be ±10 ppm.



IQDMSDL 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.

◄ Input…

This function allows the input parameters to be set.

Input
◄ Input Select...
◄ Input Standards...
◄ Decoder...

◄ Input Select

This allows any of the three sources of video input signal to be selected for processing.

Input Select
◄ **Composite A**
◄ Composite B
◄ YC

◄ Input Standards

The decoder employs an auto standard detection system. It will auto detect any of the standards that are checked in the list of standards.

Input Standards
◄ **PAL**
◄ **PALN**
◄ **SECAM**
◄ **Mono 625**
◄ **NTSC**
◄ NTSCJ
◄ **PALM**
◄ **N4.43**
◄ **Mono 525**

In the example above it will auto detect all standards except NTSCJ. Any number (greater than one) of standards may be selected. For example, in a given situation where it is known that only PAL and NTSC input signals are expected, only the PAL and NTSC standards should be checked.

The decoder will then only auto detect between PAL and NTSC standards. Other standards will not be decoded and will produce an unstable lock.

To force the unit to decode only one standard, check that standard and uncheck all others.

Note that at least one standard must be selected; if an attempt is made to uncheck all items the last standard selected will remain checked and become the only standard to be decoded.

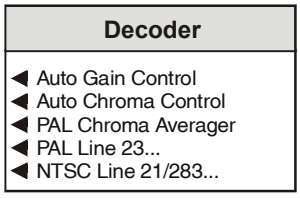
For NTSC signals either NTSC ***or*** NTSCJ may be checked, but it is not possible to check both NTSC ***and*** NTSCJ.

The output ***line*** standard will be the same as the detected input standard. i.e. the output signal will be at a line rate of 625 if the detected input signal has a line rate of 625; similarly the output signal will be at a line rate of 525 if the detected input signal has a line rate of 525.

NTSCJ When this function is enabled the decoder will correctly process a NTSCJ signal (an NTSC signal without pedestal)

◄ Decoder

This function allows settings to be made to the decoder section.



◄ Auto Gain Control

When this item is enabled the input gain will vary relative to the input peak white amplitude.
This will maintain the output signal at a normalised level even though the input signal level may be above or below standard level. The control will be effective over an input level range of +0.5 dB to -6 dB.

◄ Auto Chroma Control

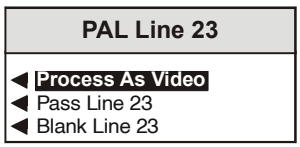
When this item is enabled the chrominance gain will vary relative to the input burst amplitude. This will maintain correct colour saturation regardless of changes in subcarrier amplitude.

◄ PAL Chroma Averager

When selected this will provide PAL Hanover bar suppression.

◄ PAL Line 23

This item allows various options to be applied to line 23 of the PAL input signal.



◄ Process As Video

When enabled line 23 of the PAL input signal will be processed as active picture and the ProcAmp controls will effect Line 23.

◄ Pass Line 23

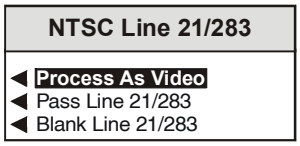
When selected (text reversed) the first half line of line 23 is passed unprocessed, the second half line is blanked and the ProcAmp controls will not effect Line 23.

◄ Blank Line 23

When enabled line 23 of the PAL input signal will be blanked.

◄ NTSC Line 21/283

This item allows various options to be applied to line 21/283 of the NTSC input signal.



◄ Process As Video

When enabled line 21/283 of the NTSC input signal will be processed and the ProcAmp controls will effect Line 21/283.

◄ Pass Line 21/283

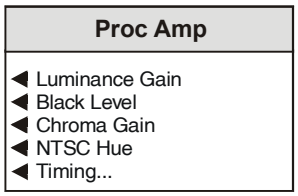
When selected (text reversed) lines 21/283 are passed unprocessed and the ProcAmp controls will not effect Line 21/283.

◄ Blank Line 21/283

When enabled line 21/283 of the NTSC input signal will be blanked.

◄ ProcAmp…

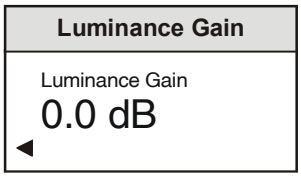
This item allows various adjustments to be made to the video signal.



◄ Luminance Gain

This item will reveal a numerical readout display for the gain of the luminance signal.

By rotating the spinwheel the gain may be adjusted by ±3 dB in steps of 0.1 dB.

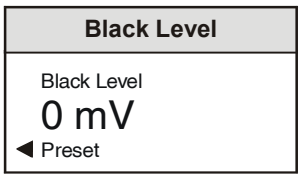


Selecting Preset returns the setting to the calibrated value of 0.

◄ Black Level

This item will reveal a numerical readout display for the or black level.

By rotating the spinwheel the black level may be adjusted by ±102.4 mV in steps of 1.6 mV.

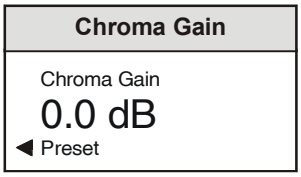


Selecting Preset returns the setting to the calibrated value of 0.

◄ Chroma Gain

This item will will reveal a numerical readout display for the gain of the chrominance signal.

By rotating the spinwheel the gain may be adjusted by ±3 dB in steps of 0.1 dB.



Selecting Preset returns the setting to the calibrated value of 0.

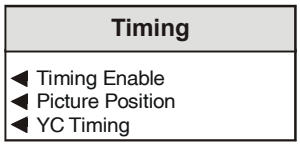
◄ NTSC Hue

This item will reveal a numerical readout display for the Hue of NTSC signals. By using the spinwheel the Hue may be adjusted by +179 ° to -180 ° in steps of 1°.

Selecting Preset returns the setting to the calibrated value of 0°

Note that this function will only be available for NTSC and NTSCJ signals.

◄ Timing

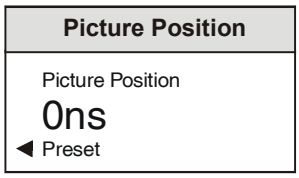


◄ Timing Enable

When this item is selected (text highlighted) the timing values will be enabled.

◄ Picture Position

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

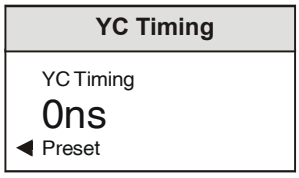


Range is from ±1036 ns in 148 ns steps.

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

◄ YC Timing

Selecting this item will reveal 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.

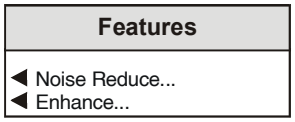


Range is from ±1036 ns in 148 ns steps.

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

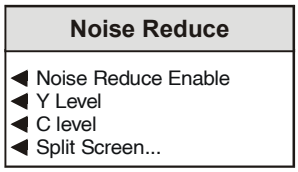
◄ Features…

This item allows noise reduction and enhancement to be applied to the signal.



◄ Noise Reduce

This item allows Recursive noise reduction with automatic threshold to be applied to the Luminance and Chrominance channels.

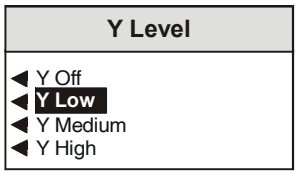


◄ Noise Reduce Enable

When this item is selected (text highlighted) the Y noise reduction function will be enabled. This function will toggle the Noise Reduce function On or Off.

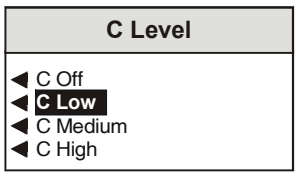
◄ Y level

When this item is selected a menu will be revealed that allows the amount of Y noise reduction applied may be chosen.



◄ C level

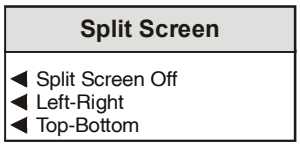
When this item is selected a menu will be revealed that allows the amount of C noise reduction applied may be chosen.



*Note that the Preset Unit function in the **Setup** menu turns the Noise Reduce function OFF and returns the Y and C Noise Reduce Level values to Low.*

◄ Split Screen

To enable the effects of noise reduction to be easily seen this function allows the screen to be split into 2 halves either left/right or top/bottom. One half will show the picture with noise reduction and the other half without noise reduction.



◄ Split Screen Off

When this item is selected (text highlighted) this will disable the split screen function.

◄ Left-Right

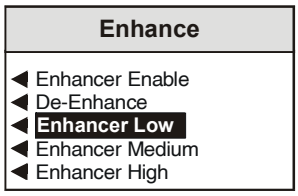
When enabled the screen will be split into two equal sections separated by a vertical white line.
The processed picture will occupy the left hand section of the screen and the unprocessed picture will occupy the right hand side section.

◄ Top-Bottom

When enabled the screen will be split into two equal sections separated by a horizontal white line.
The processed picture will occupy the top section of the screen and the unprocessed picture will occupy the bottom section.

◄ Enhance

This item will reveal a menu that allows various levels of enhancement to be applied to the signal.



This function allows Horizontal enhancement to be applied to the processed signal. The non-linear process prevents enhancement of low amplitude signals typical of noise.

◄ Enhance Enable

When this item is selected (text highlighted) the enhancement value selected in the above menu will be applied.

Note that the De Enhance selection will de-enhance the signal. This setting is useful when processing signals that may have been previously over-enhanced.

Preset Unit is Enhance Low.

◄ Memories…

Memories	
◄ Read...	Save... ►
◄ Name...	Clear... ►

This function allows a number of particular setups of the IQDMSDL to be saved, recalled, cleared and re-named.
There are 8 memory locations available.

◄ **Read** (a memory location number)

This will reveal a list of the memory locations.

Read/Save/Clear
◄ Memory 1
to
◄ Memory 8

Selecting a memory location will recall the settings stored in the selected memory location and apply them to the unit.

◄ **Save** (a memory location number)

This will reveal a list of the memory locations.

Read/Save/Clear
◄ Memory 1
to
◄ Memory 8

Selecting a memory location will save the settings and store them in the selected memory location.

◄ **Clear** (a memory location number)

This will reveal a list of the memory locations.

Read/Save/Clear
◄ Memory 1
to
◄ Memory 8

This item will return the contents of the selected memory location to the default (factory) values.

◄ **Name** (a memory location)

This will reveal a list of the memory locations and allow the naming of the selected memory location.

Name
◄ Name Memory 1
to
◄ Name Memory 8

◄ Name Memory 1 to 8

Selecting a memory location will reveal the following item that allows the naming of the selected memory location.

Name Memory 1 to 8	
Name Memory 1 to 8	
◄ *memory_name*	►
◄ Clear	
◄ Preset	OK ►

To compile/edit the text the right ► and left ◄ buttons adjacent to the upper text line in the menu should be used to select the character position in the text and the spinwheel used to select the character.

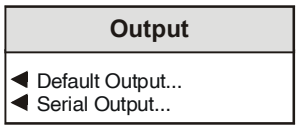
The ◄ **Clear** function blanks out the selected character.

The ◄ **Preset** function loads the default text, for example, Memory_1.

O.K. ► saves the caption text and returns to the previous menu.

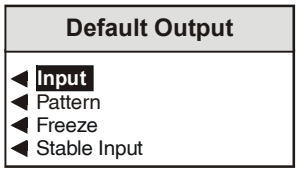
Output… ►

This item allows settings to be made to the output signal.



◄ Default Output…

If the input signal fails the output may be configured to become one of the items in this menu.



If the input signal fails this function allows the output to be configured to become one of the following:

Input — The output will be the unprocessed input signal.

Pattern — The output will become the test pattern as selected from the Control/Pattern menu.

Freeze — The output will become a frozen picture of the last frame.

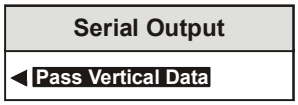
Stable Input — When the Freeze function is chosen the quality of the frozen picture will depend on the stability of the input signal.
If the input signal is known to be from a stable source this box should be checked as this will give the best quality frozen picture. If the input signal is not from a stable source this box should be unchecked.

◄ Serial Output

This item allows a setting to be made to the serial output of the unit.

◄ Pass Vertical Data

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



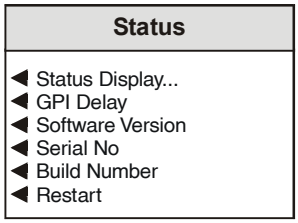
When de-selected (text normal) all data in the vertical interval will be blanked.

Freeze ►

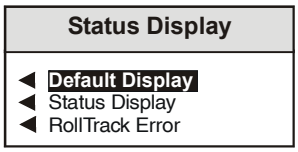
This function toggles between a normal picture and a frozen picture.

Status… ►

This menu allows various information about the status of the unit to be displayed.

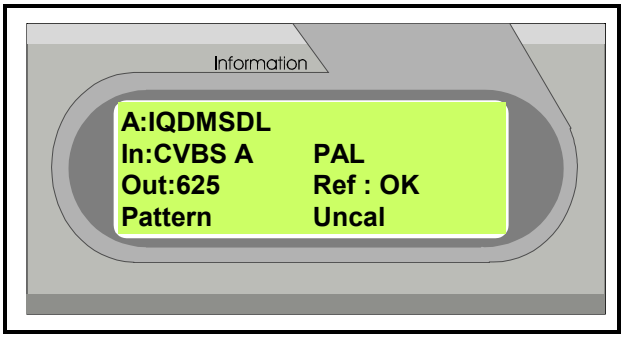


◄ Status Display…



◄ Default Display (Toggles with ◄ Status Display)

When this item is selected the display window will show details about the Input Signal, Reference signal and the output as shown in the example below.



The first line will show the name of the module.

The second line will show which input has been selected and the detected standard of the input signal.

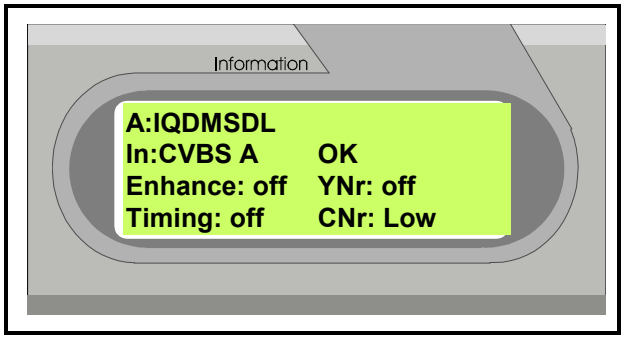
The third line shows standard of the output signal and the genlock status.

The fourth line will show the status of the output signal and the state of the ProcAmp controls. The output signal status may be **Nothing**, (output is processed picture), **Pattern** or **Freeze**.
Note that if Pattern or Freeze has been forced because of an input signal failure the words will be prefixed by an asterisk e.g ***Pattern** or ***Freeze**.

The word **Uncal** will displayed if the ProcAmp controls are not at their preset values.

◄ Status Display (Toggles with ◄ Status Display)

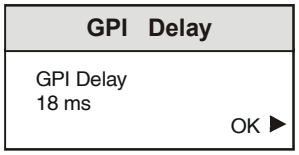
When this item is selected the display window will show details about the Input Signal and some of the processing controls as shown in the example below.



◄ RollTrack Error

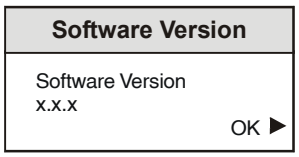
When this item is selected error messages from other connected units will be shown in the display.
e.g. If a message is sent to a unit and an acknowledgement is not received an error message will appear.

◄ GPI Delay



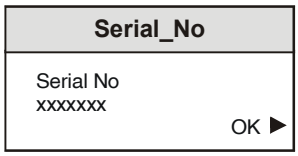
This function will display the total video delay through the unit in milliseconds.

◄ Software Version



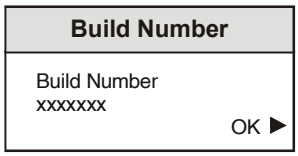
Selecting this item reveals a display showing the version of the software fitted in the module. Select OK to return to the Status Menu.

◄ Serial No.



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

◄ Build Number



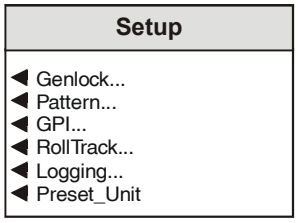
This will indicate the factory build number. This number defines all parameters of the unit (software versions, build level etc.) for identification purposes.

◄ Restart

This function allows the unit to reboot and all power-up settings to be enabled.
This is an easier method than switching the mains power off and then on again.

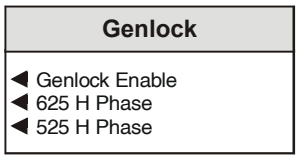
Setup… ►

This item will reveal a menu that allows various system parameters to be set.



◄ Genlock…

This item will reveal a menu that allows genlock phase adjustments to be made.



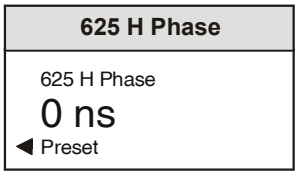
◄ Genlock Enable

When this item is selected (text highlighted) the genlock function will be enabled and the unit will lock to an incoming reference signal.

When not enabled the output signal will be free-running.
In this mode the frequency accuracy will be ±10 ppm.

◄ 625 H Phase

For 625 line output signals this item allows adjustment of the horizontal timing of the output signal relative to the reference sync signal, in nanoseconds.



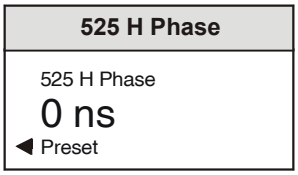
The range is approximately ±113 µs in steps of 225 ns.

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

Note that the Preset_Unit function in the Setup menu will not change this setting.

◄ 525 H Phase

For 525 line output signals this item allows adjustment of the horizontal timing of the output signal relative to the reference sync signal, in nanoseconds.



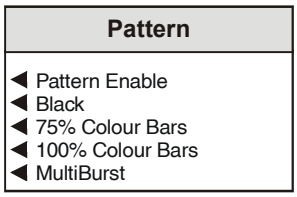
The range is approximately ±114 µs in steps of 279 ns.

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

Note that the Preset_Unit function in the Setup menu will not change this setting.

◄ Pattern…

This item will reveal a menu that allows various patterns to be selected from the list below and used as the output signal.



◄ Pattern Enable

When this item is selected (text highlighted) the selected pattern will become the output.

◄ GPI…

The GPI connection may be configured as an input (from mechanical switch contacts, relay contacts etc.) as an output or be completely disabled.

These configurations may be setup using this menu.

GPI
◄ GPI Input Enable ◄ GPI Input Setup... ◄ GPI Output Enable ◄ GPI Output Setup...

Selecting the GPI Function

Function	Selection
Disabled	**GPI Input Enable**
Configured as an Input	**GPI Input Enable**
Disabled	**GPI Output Enable**
Configured as an Output	**GPI Output Enable**

Note that the GPI may be configured as an input ***or*** as an output but not as both; however it may be disabled as an input ***and*** disabled as an output.

◄ GPI Input Setup…

When configured as an input to the unit the GPI will respond to either a closed to open transition (Open) or an open to closed transition (Close).

GPI Input Setup
◄ GPI Open... ◄ GPI Close...

This item allows these two functions to be selected.

◄ GPI Open/GPI Close…

GPI Open/Close
◄ Off ◄ Pattern On ◄ Pattern Off ◄ Freeze On ◄ Freeze Off ◄ Memory 1 ◄ Memory 2 ◄ Memory 3

The resulting action that the unit takes on receipt of a valid GPI input may be selected from this menu.

◄ Off

When this item is selected no action will occur.

◄ Pattern On

On receipt of a valid GPI input the output will become the pattern that has been selected via the Pattern menu.

◄ Pattern Off

On receipt of a valid GPI input the pattern signal will be turned Off.

◄ Freeze On

On receipt of a valid GPI input the output will become a frozen picture.

◄ Freeze Off

On receipt of a valid GPI input the output picture will become unfrozen.

◄ Memory 1, 2, 3

One of the three memory locations may be selected. On receipt of a valid GPI input the settings stored in the selected memory location will recalled.

◄ GPI Output Setup…

When the GPI is configured as an output the unit the GPI will produce an output signal.

GPI Output Setup
◄ Delay Flag ◄ Input Loss ◄ GPI Out Polarity...

This item allows the type of output signal to be selected.

◄ Delay Flag

When enabled the output will be a pulse. The pulse length will represent the total video delay through the unit.

◄ Input Loss

When enabled the output will change when a loss of the selected input signal occurs.

◄ GPI Out Polarity…

This menu allows the polarity of the GPI output signal to be chosen.

GPI Out Polarity
◄ High On Input Loss ◄ Low On Input Loss

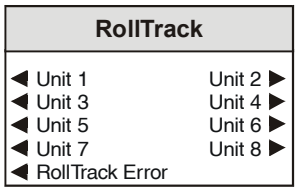
◄ RollTrack…

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.

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

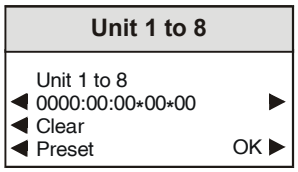
Selecting **RollTrack** provides a sub-menu that allows up to 8 audio delays to be selected as a destination.



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

◄ Unit 1 to 8

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



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 right ► and left ◄ 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 of this manual.

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.

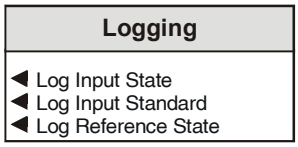
◄ RollTrack Error

When this item is enabled an error message will appear in the information window if an acknowledgement is not received from the RollTrack destination.

◄ 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 to be made available for logging.



◄ Log Input State

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

◄ Log Input Standard

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

◄ Log Reference State

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

RollCall Control Templates for the IQDMSDL

Control

Input Select

This allows any one of the three sources of video input signal to be selected for processing.

Pattern

This function will allow various patterns to be used as the output signal when the pattern Enable function is selected.

Feature Select

Freeze

The output will become a frozen picture of the last frame.

Pattern Enable

The output will become the pattern selected above.

Y Noise Reduce Enable

This will enable the luminance noise reduction.
The level of noise reduction is set via the Setup screen.

C Noise Reduce Enable

This will enable the chrominance noise reduction.
The level of noise reduction is set via the Setup screen.

Enhance Enable

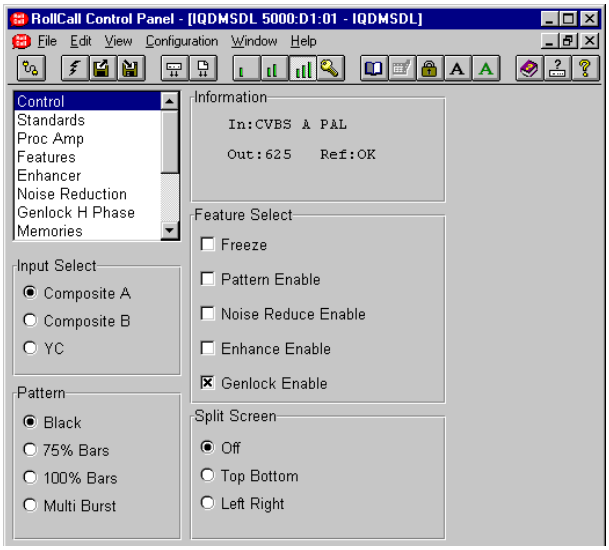
This will enable the enhancement function.
The level of enhancement is set via the Setup screen.

Genlock Enable

This will enable the genlock function.

Split Screen

To enable the effects of noise reduction to be easily seen this function allows the screen to be split into 2 halves either left/right or top/bottom. One half will show the picture with noise reduction and the other half without noise reduction.



Off

This will disable the split screen function.

Top Bottom

When enabled the screen will be split into two equal sections separated by a horizontal white line. The processed picture will occupy the top section of the screen and the unprocessed picture will occupy the bottom section.

Left Right

When enabled the screen will be split into two equal sections separated by a vertical white line.
The processed picture will occupy the left hand section of the screen and the unprocessed picture will occupy the right hand side section.

Standards

Input Standards

The decoder employs an auto standard detection system. It will auto detect any of the composite or Y/C standards that are checked in the list of Input Standards.

In the example above it will auto detect all standards except NTSC. Any number (greater than one) of standards may be selected. For example, in a given situation where it is known that only PAL and NTSC input signals are expected, only the PAL and NTSC standards should be checked.

The decoder will then only auto detect between PAL and NTSC standards. Other standards will not be decoded and will produce an unstable lock.

To force the unit to decode only one standard, check that standard and uncheck all others.

Notes Concerning Input Standard Selection

At least one standard must be selected; if an attempt is made to uncheck all items the last standard selected will remain checked and become the only standard to be decoded.
For NTSC signals either NTSC ***or*** NTSCJ may be checked, but it is not possible to check both NTSC ***and*** NTSCJ.

The output ***line*** standard will be the same as the detected input standard. i.e. the output signal will be at a line rate of 625 if the detected input signal has a line rate of 625; similarly the output signal will be at a line rate of 525 if the detected input signal has a line rate of 525.

NTSCJ

When this function is enabled the decoder will correctly process a NTSCJ signal (an NTSC signal without pedestal)

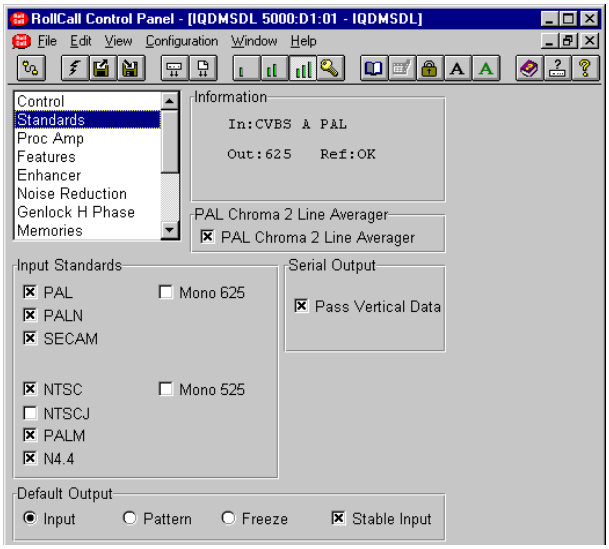
Default Output

If the input signal fails this function allows the output to be configured to become one of the following:

Input — The output will be the unprocessed input signal.

Pattern — The output will become the test pattern as selected from the Control/Pattern menu.

Freeze — The output will become a frozen picture of the last frame.



Stable Input When the Freeze function is chosen the quality of the frozen picture will depend on the stability of the input signal.
If the input signal is known to be from a stable source this box should be checked as this will give the best quality frozen picture. If the input signal is not from a stable source this box should be unchecked.

Serial Output

Pass Vertical Data

When selected the decoder will pass data (unblanked) present in the vertical blanking interval, to the output.
All vertical blanking interval lines of an 525 signal from 11 and 274 onwards are unblanked with the exception of lines 21 and 283
All vertical blanking interval lines of a 625 signal from 7 and 320 onwards are unblanked with the exception of the half lines 23 and 623.
When de-selected all data in the vertical blanking interval will be blanked.

PAL Chroma 2 Line Averager

When selected this will provide PAL Hanover bar suppression.

Proc Amp

Note that for this and other screens the following applies:

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

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

The numerical value will be shown above the scroll bars and selecting Preset  will return the setting to the calibrated value of 0 for items on this screen.

This screen will allow the settings of the Chroma Gain, Black Level, NTSC Hue, Luma Gain, Y/C Timing and Picture position to be adjusted. AGC and ACC may also be enabled.

Luminance Gain

This item allows the gain of the luminance signal to be adjusted.
By using the scroll bar the gain may be adjusted by ±3 dB in steps of 0.1 dB.

Black Level

This item allows the black level to be adjusted.
By using the scroll bar the pedestal may be adjusted by ±102.4 mV in steps of 1.6 mV.

Chroma Gain

This item allows the gain of the chrominance signal to be adjusted.
By using the scroll bar the gain may be adjusted by ±3 dB in steps of 0.1 dB.

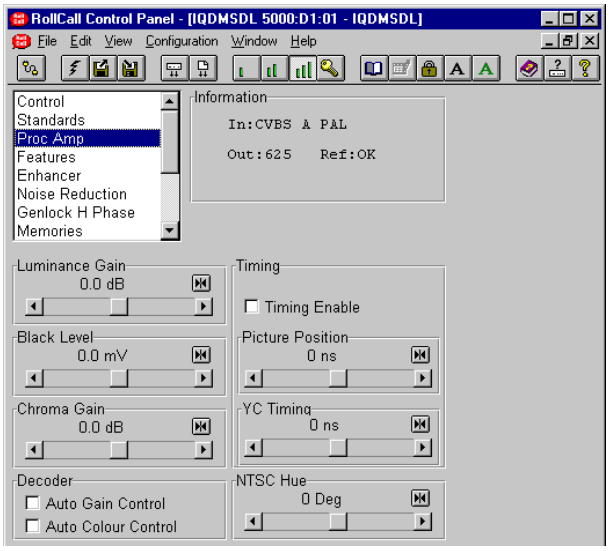
Timing

Timing Enable

Selecting this item will enable the Picture Position and YC Timing functions.

Picture Position

This item allows the timing of the picture position relative to the normal value, to be adjusted.
By using the scroll bar the timing may be adjusted by ±1036 ns in 148 ns steps



YC Timing

This item allows the timing of the chrominance signal relative to the luminance signal to be adjusted, (i.e. Y to Cb/Cr timing) in nanoseconds. By using the scroll bar the timing may be adjusted by ±1036 ns in 148 ns steps.
.

NTSC Hue

This item allows the Hue of NTSC signals to be adjusted. By using the scroll bar the Hue may be adjusted by +179 ° to -180 ° in steps of 1°.
.

Decoder

This function allows automatic level controls to be enabled.

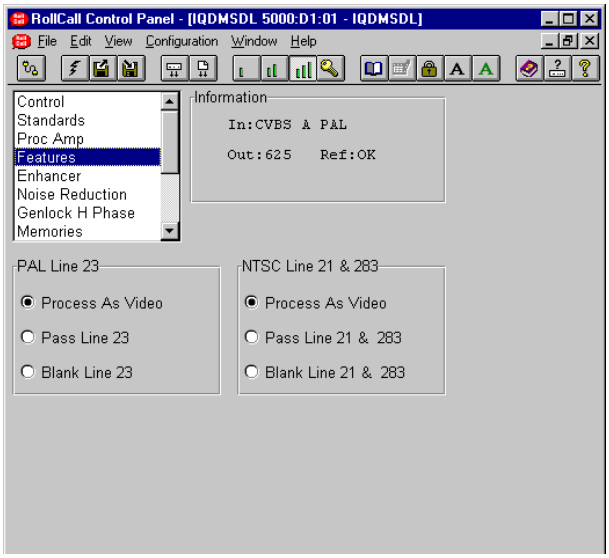
Auto gain Control

When this item is enabled the input gain will vary relative to the input peak white amplitude.
This will maintain the output signal at a normalised level even though the input signal level may be above or below standard level.
The control will be effective over an input level range of +0.5 dB to –6 dB.

Auto Color Control

When this item is enabled the chrominance gain will vary relative to the input burst amplitude. This will maintain correct colour saturation regardless of changes in subcarrier amplitude.

Features



PAL Line 23

Process As Video

When enabled line 23 of the PAL input signal will be processed as active picture and the ProcAmp controls will effect Line 23.

Pass Line 23

When selected the first half line of line 23 is passed unprocessed, the second half line
is blanked and the ProcAmp controls will not effect Line 23.

Blank Line 23

When enabled line 23 of the PAL input signal will be blanked.

NTSC Line 21 & 283

This item allows various options to be applied to line 21 and line 283 of an NTSC signal.

Process As Video

When enabled line 21/283 of the NTSC input signal will be processed and the ProcAmp controls will effect Line 21/283.

Pass Line 21 & 283

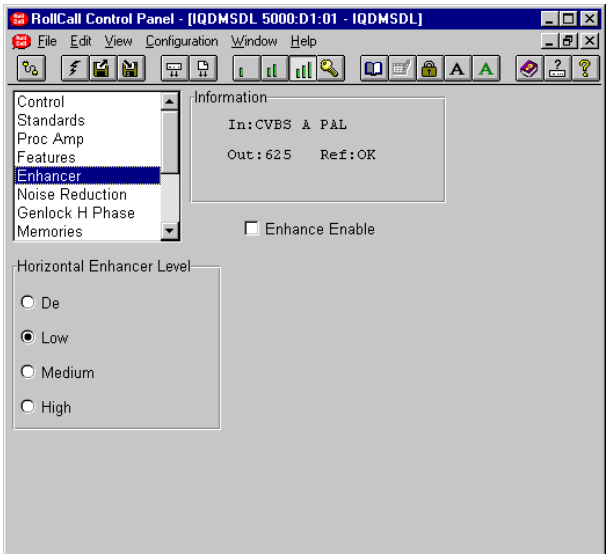
When selected lines 21 & 283 are passed unprocessed and the ProcAmp controls will not effect Line 21/283.

Blank Line 21 & 283

When enabled line 21 & 283 of the NTSC input signal will be blanked.

Note that the first half of line 283 on the composite (NTSC) output is always blanked.

Enhancer



This screen allows horizontal and vertical enhancement to be applied to the picture.

Enhance Enable

Selecting this item will enable the Enhance functions.

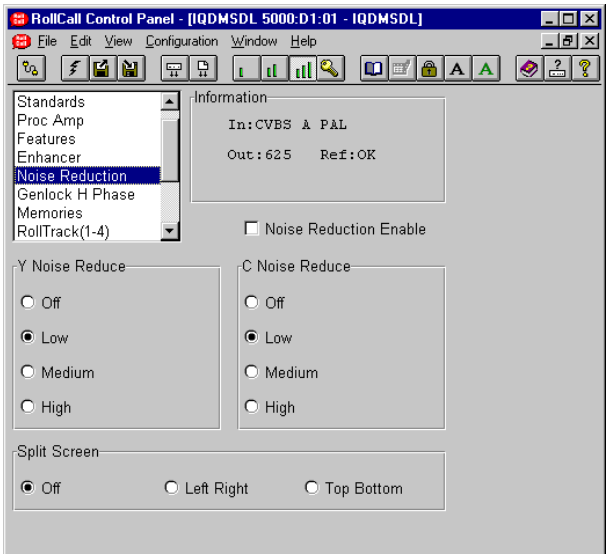
Horizontal Enhance Level

This function allows Horizontal enhancement to be applied to the processed signal. The non-linear process prevents enhancement of low amplitude signals typical of noise.

The level of enhancement may set to Off, Low, Medium and High.

Preset is to Low.

Noise Reduction



This screen allows noise reduction to be applied to the signal.

Noise Reduction Enable

Selecting this item will enable the noise reduction functions.

Y Noise Reduce

This item allows Recursive noise reduction to be applied to the luminance channel.

The range of level adjustment is Off, Low, Medium and High. Preset is to Low.

C Noise Reduce

This item allows Recursive noise reduction to be applied to the Chrominance channel.

The range of level adjustment is Off, Low, Medium and High. Preset is to Low.

Split Screen

To enable the effects of noise reduction to be easily seen this function allows the screen to be split into 2 halves either left/right or top/bottom. One half will show the picture with noise reduction and the other half without noise reduction.

Off

This will disable the split screen function.

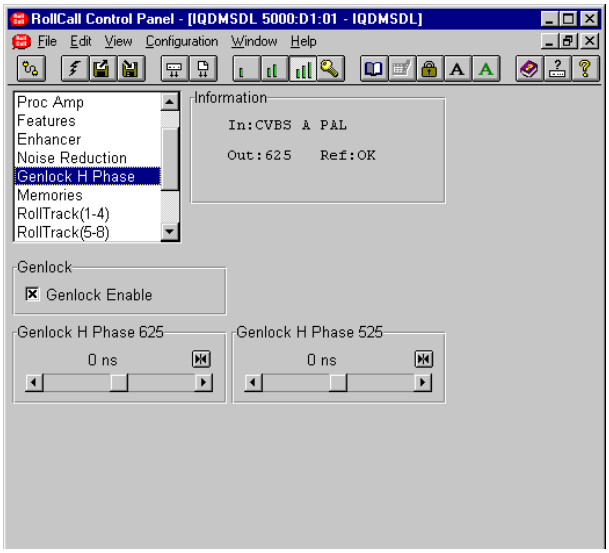
Left Right

When enabled the screen will be split into two equal sections separated by a vertical white line. The processed picture will occupy the left hand section of the screen and the unprocessed picture will occupy the right hand side section.

Top Bottom

When enabled the screen will be split into two equal sections separated by a horizontal white line. The processed picture will occupy the top section of the screen and the unprocessed picture will occupy the bottom section.

Genlock



Genlock

This screen allows the genlock function to be enabled and phasing adjustments to be made.

Genlock Enable

When selected the unit will lock to an incoming valid reference signal with parameters set using this screen. When not enabled the output signal will be free-running.
In this mode the frequency accuracy will be ±10 ppm.

Genlock H Phase 625

This item allows adjustment of the horizontal timing of the output signal relative to the reference sync signal, in nanoseconds.

The range is approximately ±113 µs in steps of 225 ns.

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

Note that the Preset Unit function in the Memories and Logging and Preset screen will not change this setting.

Genlock H Phase 525

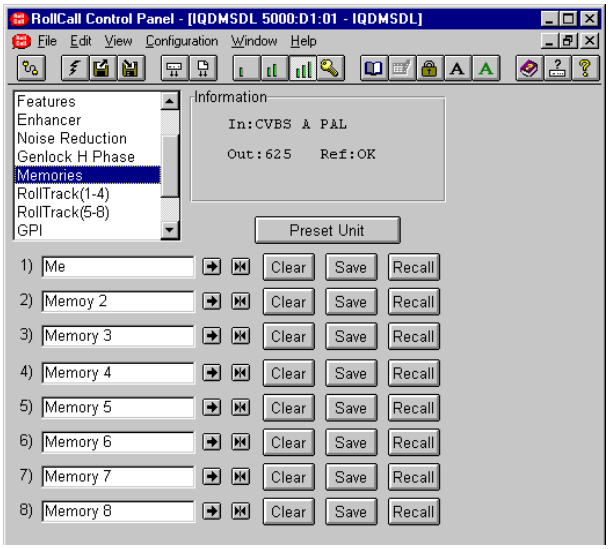
This item allows adjustment of the horizontal timing of the output signal relative to the reference sync signal, in nanoseconds.

The range is approximately ±114 µs in steps of 279 ns.

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

Note that the Preset Unit function in the Memories and Logging and Preset screen will not change this setting.

Memories



This function allows a number of particular setups of the IQDMSDL to be saved and recalled. There are 8 memory locations available.

To change the memory name, type the new name in the text area and then select  (return)

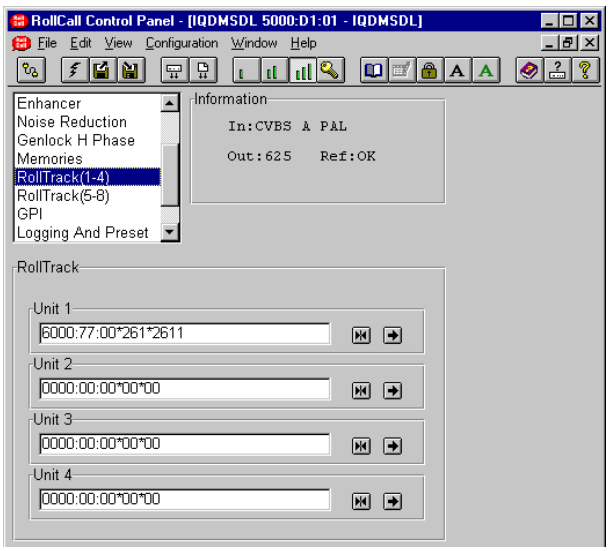
The  symbol represents the Preset function and will return the function to the default name.

This item allows the memory location to be cleared and returned to the default (preset) setting.

This function allows the settings of all items to be saved at the memory location.

This function allows the settings saved at the memory location to be recalled.

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



RollTrack 1-4
RollTrack 5-8

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:

Unit 1-4 and Unit 5-8

This item allows the address of the selected destination unit to be set.

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

 (Preset) returns to the default destination

For details of the RollCall command numbers for specific units please contact your local Snell & Wilcox agent.

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.

GPI

This screen allows the GPI to be configured as and its action defined.

GPI Input Setup

When configured as an input the GPI connection may be used for accepting GPI information (from mechanical switch contacts, relay contacts etc.) The resulting action that the unit takes may be selected using this item.

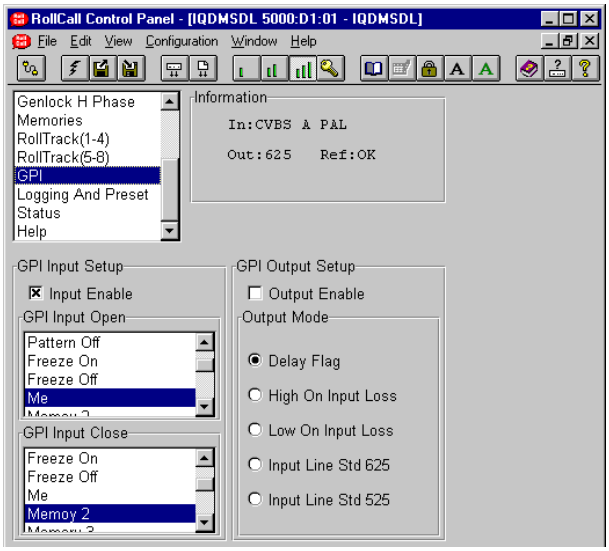
Input Enable

When selected the GPI connection will be configured as an Input.
Note that this function will toggle with the Output Enable function.

GPI Input Open

This function determines what happens when the selected GPI input condition changes from closed to open.

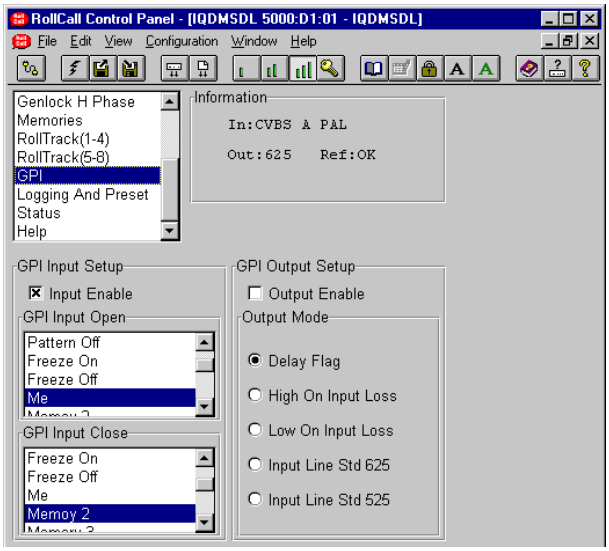
Off	No action
Pattern On	The output will become the selected pattern signal.
Pattern Off	The output will become the normal output signal.
Freeze On	The output will become a frozen picture.
Freeze Off	The output will become unfrozen and return to normal.
Memory 1 to 8	The unit will revert to the setup stored in the selected memory location



GPI Input Close

This function determines what happens when the selected GPI input condition changes from open to closed.

Off	No action
Pattern On	The output will become the selected pattern signal.
Pattern Off	The output will become the normal output signal.
Freeze On	The output will become a frozen picture.
Freeze Off	The output will become unfrozen and return to normal.
Memory 1 to 8	The unit will revert to the setup stored in the selected memory location



GPI Output Setup

This function allows the GPI connection to be configured as an output and its action defined.

Output Enable

When selected the GPI connection will be configured as an Output.
Note that this function will toggle with the Input Enable function.

Output Mode

When the GPI connection is configured as an Output this item allows the type of output signal to be selected.

Delay Flag

When enabled the output will be a pulse. The pulse length will represent the total video delay through the unit.

Input Loss

When enabled the output will change when a loss of the selected input signal occurs.

Input Loss Option

This item allows the polarity of the GPI output signal to be changed under input loss conditions.

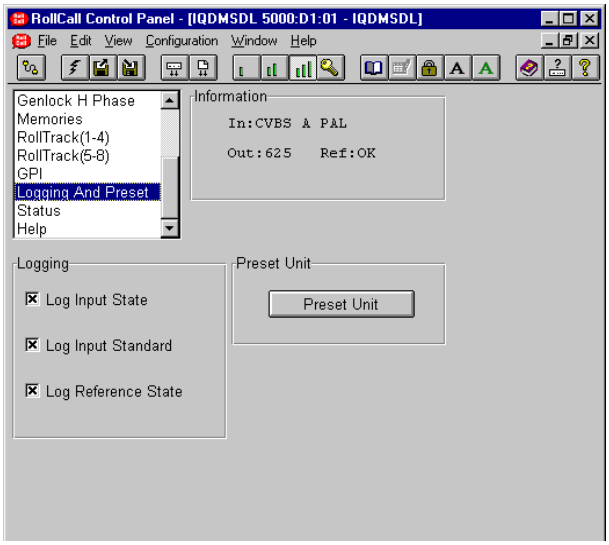
High on Input Loss

When selected the GPI output will go high if the input signal is lost

Low on Input Loss

When selected the GPI output will go low if the input signal is lost.

Logging And Preset



Logging

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

This screen allows information about the **Input State, Input Standard** and the **Reference State** to be made available for logging by selecting the appropriate box or boxes.

Preset Unit

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

Note that this function will not change any genlock phase adjustment settings.

ROLLCALL LOG FIELDS

Log Field	Log Value	Description
INPUT=	LOST	No input signal.
	OK	Valid input signal
	LOST	Invalid input signal
STD=	<string> PAL	Input standard description.
	PAL_M	
	PAL_N	
	NTSC	
	NTSCJ	
	SECAM	
	N443	
	625	
	525	
	UNKNOWN	Input Lost
	STDERR	Not a selected input standard
EXTREF=	N/A	Genlock not selected.
	OK	Output same standard as Reference
	LOST	Reference lost or not same
SN=	<string>	Serial Number of unit.
FAULT=	FAIL:LOCAL_MODE	Module is in Local mode

Status

GPI Delay

This function will display the total video delay through the unit in milliseconds.

Software Version

This item shows the version of the software fitted in the module.

Serial Number

This item shows the serial number of the module.

Restart

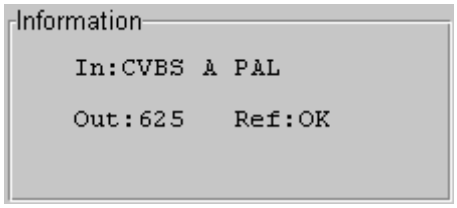
This will reboot the unit simulating a power-down power-up cycle restoring power-up settings.

Display Information

This item allows the type of data that is displayed in the Information area to be chosen.

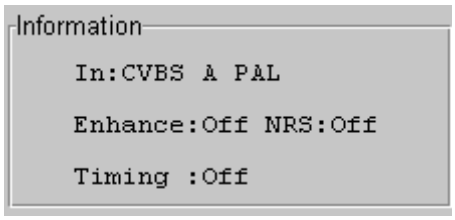
Default

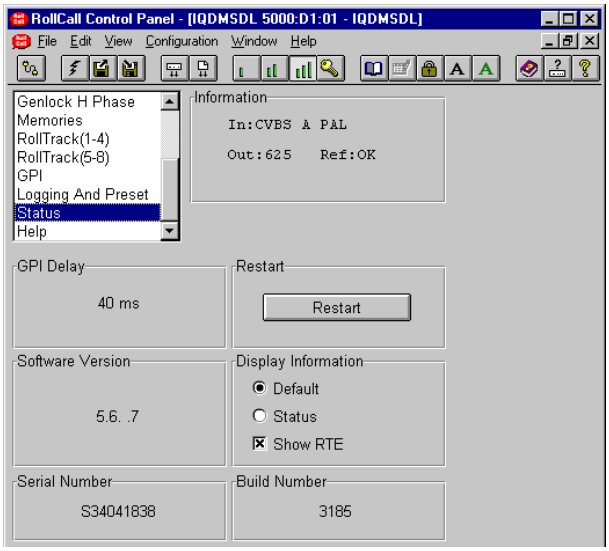
When this item is selected the display window will show details about the Input Signal, Reference signal and the output as shown in the example below.



Status

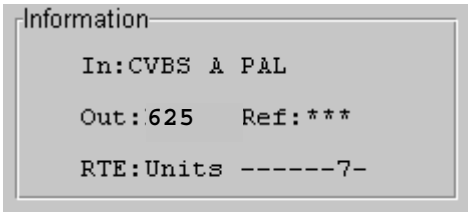
When this item is selected the display window will show details about the Input Signal and some of the processing controls as shown in the example below.





Show RTE (RollTrack Errors)

When this item is enabled an error message will appear in the information window if an acknowledgement is not received from the RollTrack destination controls as shown in the example below.



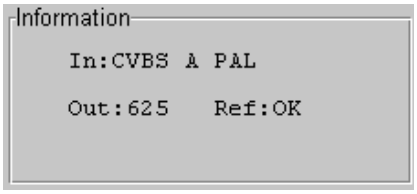
Build Number

This will indicate the factory build number. This number defines all parameters of the unit (software versions, build level etc.) for identification purposes.

Help

Information Window Definitions

This area will show abbreviated data about the status of the unit.



Abbreviations used are as follows:

First Line

Item 1: **In** (Input Selection)

In: CVBS A	Composite input A selected.
In: CVBS B	Composite input B selected.
In: YC	YC input selected.

Item 2:Detected input signal standard

***	No input or invalid signal detected
525	Input is a 525 line monochrome signal
625	Input is a 625 line monochrome signal
PAL	Input is a PAL composite signal
PALN	Input is a PAL-N composite signal
SECAM	Input is a SECAM composite signal
NTSC	Input is a NTSC composite signal
NTSCJ	Input is a NTSC-J composite signal
PALM	Input is a PAL-M composite signal

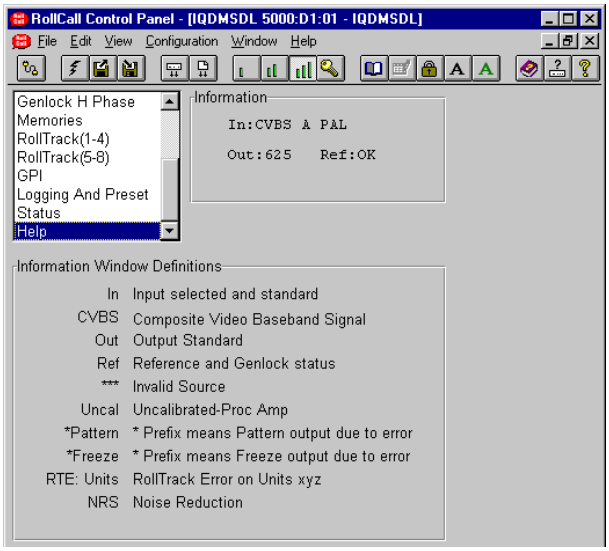
Second Line

Item 1 **Out:** *(Output line standard***)**

625	Output is a 625 line signal (same as input rate)
525	Output is a 525 line signal (same as input rate)

Item 2 **Ref:** *(Reference signal information)*

OK	Reference signal is valid the unit is genlocked.
Error	A reference signal error or no reference has been detected while trying to genlock.
***	No reference or invalid reference
Off	Genlock is Off



Third Line

The third line will show the status of the output signal and the state of the ProcAmp controls.

Item 1 (Output Signal)

(Nothing)	Output is processed picture.
Pattern	Output is a pattern
Freeze	Output is a frozen picture

Note that if Pattern or Freeze has been forced because of an input signal failure the words will be prefixed by an asterisk e.g ***Pattern** or ***Freeze**.

Item 2 (ProcAmp Controls)

The word **Uncal** will displayed if the ProcAmp controls are not at their preset values.

IQMSDL RollCall Commands

User Level

Command No. Hex	Dec	Command Name	Values
0001	1	Serial Number	Static Display (no control)
0002	2	Software Version	Static Display (no control)
0003	3	<Logging>	1=Preset Unit
0009	9	<Input Select>	0=Composite A 1=Composite B 2=YC
0018	24	<Pattern>	0=Black 1=75% Colour Bars 2=100% Colour Bars 3=MultiBurst
0021	33	Pattern Enable	clear=0 set=1 (toggle=2)
0027	39	Genlock Enable	clear=0 set=1 (toggle=2)
0028	40	Freeze	clear=0 set=1 (toggle=2)
0029	41	Y NR Enable	clear=0 set=1 (toggle=2)
002A	42	C NR Enable	clear=0 set=1 (toggle=2)
002D	45	Enhancer Enable	clear=0 set=1 (toggle=2)
0034	52	<Split Screen>	0=Split Screen Off 1=Top Bottom 2=Left Right
0037	55	<Memory Read>	1=Memory 1 2=Memory 2 3=Memory 3 4=Memory 4 5=Memory 5 6=Memory 6 7=Memory 7 8=Memory 8
0047	71	RollTrack Errors	clear=0 set=1 (toggle=2)
0074	116	<Status Display>	0=Default Display 1=Status Display
0075	117	GPI Delay	Static Display (no control)
0078	120	Build Number	Static Display (no control)
007B	123	Noise Reduce Enable	clear=0 set=1 (toggle=2)Engineering Level

Engineering Level

Command No. Hex	Dec	Command Name	Values
0001	1	Serial Number	Static Display (no control)
0002	2	Software Version	Static Display (no control)
0003	3	<Logging>	1=Preset Unit
0004	4	<Status Display>	1=Restart
0009	9	<Input Select>	0=Composite A 1=Composite B 2=YC
000A	10	Input Standard PAL	clear=0 set=1 (toggle=2)
000B	11	Input Standard NTSC	clear=0 set=1 (toggle=2)
000C	12	Input Standard PALN	clear=0 set=1 (toggle=2)
000D	13	Input Standard PALM	clear=0 set=1 (toggle=2)
000E	14	Input Standard SECAM	clear=0 set=1 (toggle=2)
000F	15	Input Standard NTSCJ	clear=0 set=1 (toggle=2)
0010	16	Input Standard N4.43	clear=0 set=1 (toggle=2)
0011	17	Input Standard Mono 625	clear=0 set=1 (toggle=2)
0012	18	Input Standard Mono 525	clear=0 set=1 (toggle=2)
0015	21	Auto Gain Control	clear=0 set=1 (toggle=2)
0016	22	Auto Chroma Control	clear=0 set=1 (toggle=2)
0017	23	<Enhance>	0=De-Enhance 1=Enhancer Low 2=Enhancer Medium 3=Enhancer High
0018	24	<Pattern>	0=Black 1=75% Colour Bars 2=100% Colour Bars 3=MultiBurst
0019	25	<PAL Line 23>	0=Process As Video 1=Pass Line 23 2=Blank Line 23
001A	26	<NTSC Line 21 & 283>	0=Process As Video 1=Pass Line 21 & 283 2=Blank Line 21 & 283
001B	27	Log Reference State	clear=0 set=1 (toggle=2)
001C	28	Log Input State	clear=0 set=1 (toggle=2)
001D	29	Luminance Gain	min=-30 max=30 Step=1 Div=10 Units=dB
001E	30	Chroma Gain	min=-30 max=30 Step=1 Div=10 Units=dB
001F	31	Black Level	min=-1024 max=1024 Step=16 Div=10 Units=mV
0020	32	NTSC Hue	min=-180 max=179 Step=1
0021	33	Pattern Enable	clear=0 set=1 (toggle=2)
0022	34	<Y Level>	0=Y Off 1=Y Low 2=Y Medium 3=Y High
0023	35	<Default Output>	3=Pattern 4=Freeze 5=Input
0024	36	<C Level>	0=C OFF 1=C Low 2=C Medium 3=C High
0025	37	YC Timing	min=-1036 max=1036 Step=148
0026	38	Picture Position	min=-1036 max=1036 Step=148
0027	39	Genlock Enable	clear=0 set=1 (toggle=2)
0028	40	Freeze	clear=0 set=1 (toggle=2)
0029	41	Y NR Enable	clear=0 set=1 (toggle=2)
002A	42	C NR Enable	clear=0 set=1 (toggle=2)
002B	43	Pass Vertical Data	clear=0 set=1 (toggle=2)
002C	44	PAL Chroma Averager	clear=0 set=1 (toggle=2)
002D	45	Enhancer Enable	clear=0 set=1 (toggle=2)
0034	52	<Split Screen>	0=Split Screen Off 1=Top Bottom 2=Left Right
0036	54	<Memory Save>	1=Memory 1 2=Memory 2 3=Memory 3 4=Memory 4 5=Memory 5 6=Memory 6 7=Memory 7 8=Memory 8
0037	55	<Memory Read>	1=Memory 1 2=Memory 2 3=Memory 3 4=Memory 4 5=Memory 5 6=Memory 6 7=Memory 7 8=Memory 8
0038	56	<Memory Clear>	1=Memory 1 2=Memory 2 3=Memory 3 4=Memory 4 5=Memory 5 6=Memory 6 7=Memory 7 8=Memory 8

0039	57	Name Memory 1	Edit String
003A	58	Name Memory 2	Edit String
003B	59	Name Memory 3	Edit String
003C	60	Name Memory 4	Edit String
003D	61	Name Memory 5	Edit String
003E	62	Name Memory 6	Edit String
003F	63	Name Memory 7	Edit String
0040	64	Name Memory 8	Edit String
0047	71	RollTrack Errors	clear=0 set=1 (toggle=2)
0047	71	Show RollTrack Err	clear=0 set=1 (toggle=2)
0048	72	RollTrack Unit 1	Edit String <Address>*<Command>*<ID>
0049	73	RollTrack Unit 2	Edit String <Address>*<Command>*<ID>
004A	74	RollTrack Unit 3	Edit String <Address>*<Command>*<ID>
004B	75	RollTrack Unit 4	Edit String <Address>*<Command>*<ID>
004C	76	RollTrack Unit 5	Edit String <Address>*<Command>*<ID>
004D	77	RollTrack Unit 6	Edit String <Address>*<Command>*<ID>
004E	78	RollTrack Unit 7	Edit String <Address>*<Command>*<ID>
004F	79	RollTrack Unit 8	Edit String <Address>*<Command>*<ID>
0051	81	<GPI Open>	0=Off 1=Memory 1 2=Memory 2 3=Memory 3 4=Memory 4 5=Memory 5 6=Memory 6 7=Memory 7 8=Memory 8 9=Freeze On 10=Freeze Off 11=Pattern On 12=Pattern Off
0052	82	<GPI Close>	0=Off 1=Memory 1 2=Memory 2 3=Memory 3 4=Memory 4 5=Memory 5 6=Memory 6 7=Memory 7 8=Memory 8 9=Freeze On 10=Freeze Off 11=Pattern On 12=Pattern Off
0053	83	GPI Input Enable	clear=0 set=1 (toggle=2)
0054	84	GPI Output Enable	clear=0 set=1 (toggle=2)
0057	87	625 H Phase	min=-505 max=505 Step=1
0058	88	525 H Phase	min=-410 max=410 Step=1
0073	115	<GPI Output Setup>	0=Delay Flag 1=High On Input Loss 2=Low On Input Loss 3=Input Line Std 625 4=Input Line Std 525
0074	116	<Status Display>	0=Default Display 1=Status Display
0075	117	GPI Delay	Static Display (no control)
0076	118	Timing Enable	clear=0 set=1 (toggle=2)
0078	120	Build Number	Static Display (no control)
007B	123	Noise Reduce Enable	clear=0 set=1 (toggle=2)
0082	130	Log Input Standard	clear=0 set=1 (toggle=2)
0085	133	Stable Input	clear=0 set=1 (toggle=2)

Supervisor Level

Command No. Hex	Dec	Command Name	Values
0001	1	Serial Number	Static Display (no control)
0002	2	Software Version	Static Display (no control)
0003	3	<Logging>	1=Preset Unit
0004	4	<Status Display>	1=Restart
0009	9	<Input Select>	0=Composite A 1=Composite B 2=YC
000A	10	Input Standard PAL	clear=0 set=1 (toggle=2)
000B	11	Input Standard NTSC	clear=0 set=1 (toggle=2)
000C	12	Input Standard PALN	clear=0 set=1 (toggle=2)
000D	13	Input Standard PALM	clear=0 set=1 (toggle=2)
000E	14	Input Standard SECAM	clear=0 set=1 (toggle=2)
000F	15	Input Standard NTSCJ	clear=0 set=1 (toggle=2)
0010	16	Input Standard N4.43	clear=0 set=1 (toggle=2)
0011	17	Input Standard Mono 625	clear=0 set=1 (toggle=2)
0012	18	Input Standard Mono 525	clear=0 set=1 (toggle=2)
0015	21	Auto Gain Control	clear=0 set=1 (toggle=2)
0016	22	Auto Chroma Control	clear=0 set=1 (toggle=2)
0017	23	<Enhance>	0=De-Enhance 1=Enhancer Low 2=Enhancer Medium 3=Enhancer High
0018	24	<Pattern>	0=Black 1=75% Colour Bars 2=100% Colour Bars 3=MultiBurst
0019	25	<PAL Line 23>	0=Process As Video 1=Pass Line 23 2=Blank Line 23
001A	26	<NTSC Line 21 & 283>	0=Process As Video 1=Pass Line 21 & 283 2=Blank Line 21 & 283
001B	27	Log Reference State	clear=0 set=1 (toggle=2)
001C	28	Log Input State	clear=0 set=1 (toggle=2)
001D	29	Luminance Gain	min=-30 max=30 Step=1 Div=10 Units=dB
001E	30	Chroma Gain	min=-30 max=30 Step=1 Div=10 Units=dB
001F	31	Black Level	min=-1024 max=1024 Step=16 Div=10 Units=mV
0020	32	NTSC Hue	min=-180 max=179 Step=1
0021	33	Pattern Enable	clear=0 set=1 (toggle=2)
0022	34	<Y Level>	0=Y Off 1=Y Low 2=Y Medium 3=Y High
0023	35	<Default Output>	3=Pattern 4=Freeze 5=Input
0024	36	<C Level>	0=C OFF 1=C Low 2=C Medium 3=C High
0025	37	YC Timing	min=-1036 max=1036 Step=148
0026	38	Picture Position	min=-1036 max=1036 Step=148

0027	39	Genlock Enable	clear=0 set=1 (toggle=2)
0028	40	Freeze	clear=0 set=1 (toggle=2)
0029	41	Y NR Enable	clear=0 set=1 (toggle=2)
002A	42	C NR Enable	clear=0 set=1 (toggle=2)
002B	43	Pass Vertical Data	clear=0 set=1 (toggle=2)
002C	44	PAL Chroma Averager	clear=0 set=1 (toggle=2)
002D	45	Enhancer Enable	clear=0 set=1 (toggle=2)
0034	52	<Split Screen>	0=Split Screen Off 1=Top Bottom 2=Left Right
0036	54	<Memory Save>	1=Memory 1 2=Memory 2 3=Memory 3 4=Memory 4 5=Memory 5 6=Memory 6 7=Memory 7 8=Memory 8
0037	55	<Memory Read>	1=Memory 1 2=Memory 2 3=Memory 3 4=Memory 4 5=Memory 5 6=Memory 6 7=Memory 7 8=Memory 8
0038	56	<Memory Clear>	1=Memory 1 2=Memory 2 3=Memory 3 4=Memory 4 5=Memory 5 6=Memory 6 7=Memory 7 8=Memory 8
0039	57	Name Memory 1	Edit String
003A	58	Name Memory 2	Edit String
003B	59	Name Memory 3	Edit String
003C	60	Name Memory 4	Edit String
003D	61	Name Memory 5	Edit String
003E	62	Name Memory 6	Edit String
003F	63	Name Memory 7	Edit String
0040	64	Name Memory 8	Edit String
0047	71	RollTrack Errors	clear=0 set=1 (toggle=2)
0047	71	Show RollTrack Err	clear=0 set=1 (toggle=2)
0048	72	RollTrack Unit 1	Edit String <Address>*<Command>*<ID>
0049	73	RollTrack Unit 2	Edit String <Address>*<Command>*<ID>
004A	74	RollTrack Unit 3	Edit String <Address>*<Command>*<ID>
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0085	133	Stable Input	clear=0 set=1 (toggle=2)

Manual Revision Record

Date	Version No.	Issue No.	Change	Comments
020801	1	1		First Issue
140302	1	2	Correction to bullets	New issue released
280302	1	3	Now includes information for the 3A enclosure modules	New issue released
290103	1	4	Luma response to 5 MHz ±3 dB	New manual issued
110203	1	5	Linearity specification	New manual issued
170303	1	6	Techspec Y Response 5 MHz +0.2 dB, -0.5 dB	New manual issued
100403	1	7	Power consumption added to techspec	New manual issued
190504	1	8	Stable Input item added	New manual issued
160904	1	9	RollCall Log fields and RollCall commands added.	New issue released