



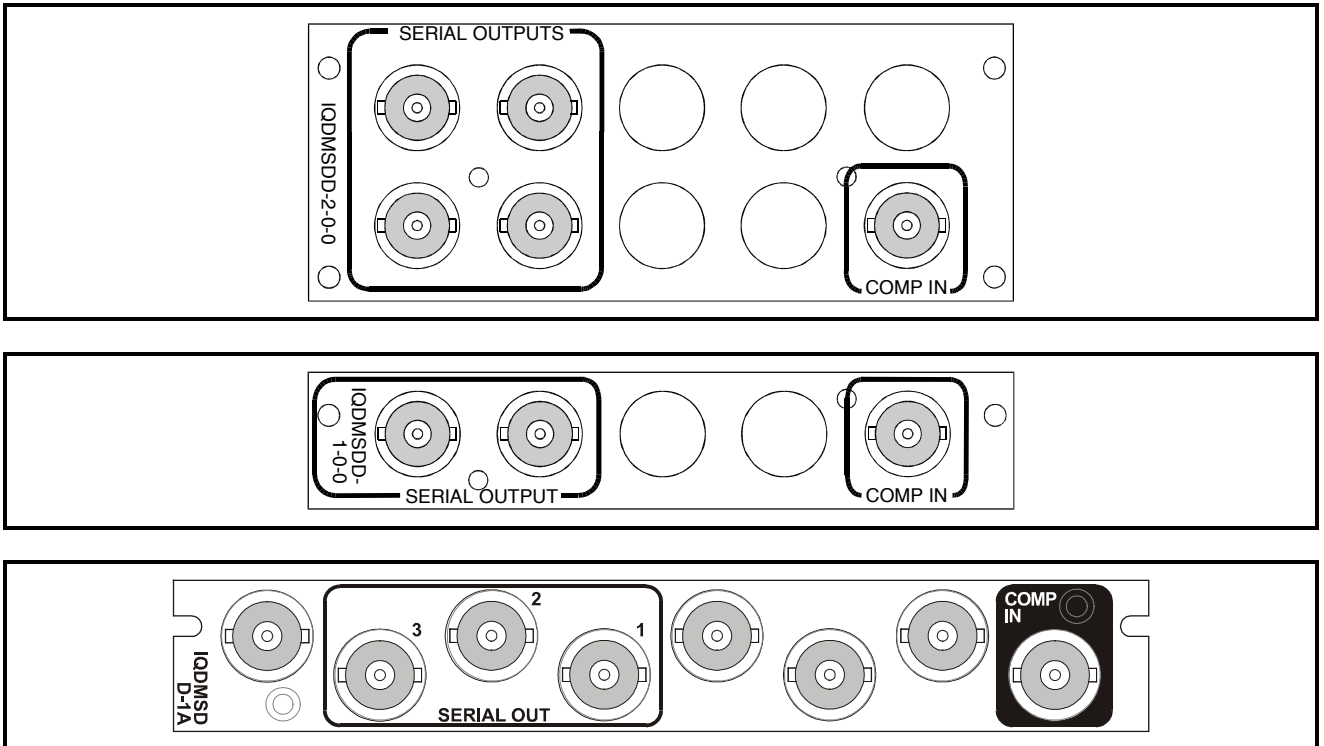
IQDMSDD Multi-standard Digital Decoder

Module Description

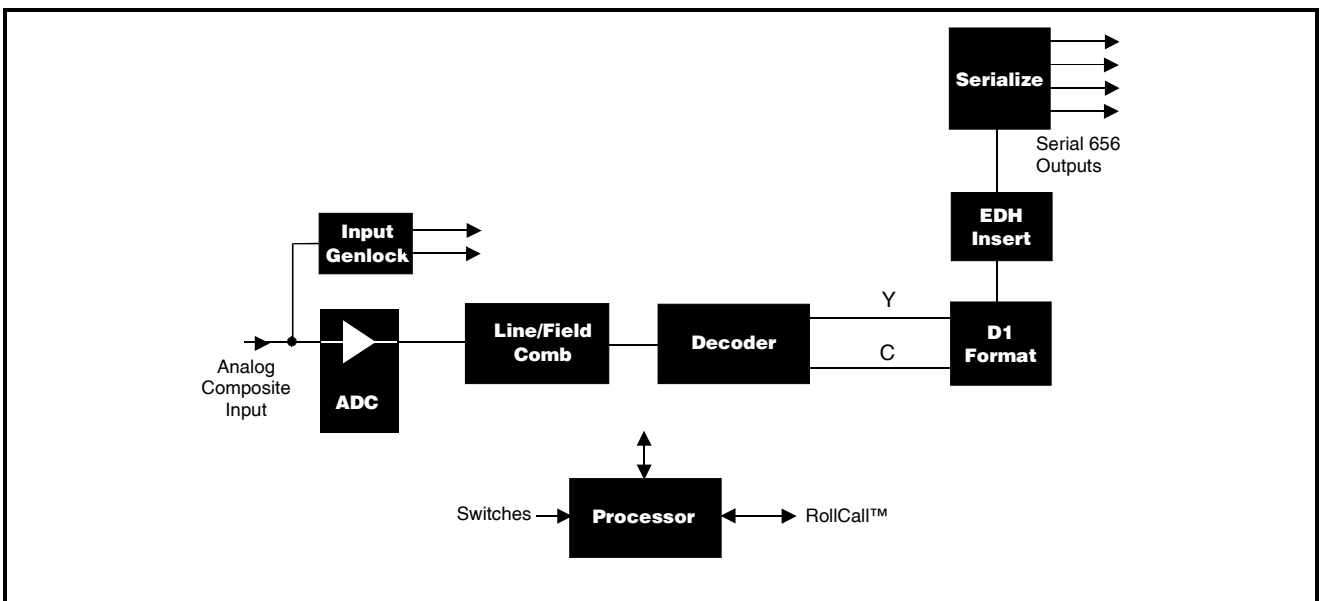
The IQDMSDD provides high quality adaptive decoding of PAL/NTSC/PAL-N/PAL-M composite signals which it digitizes to 10-bits

The IQDMSDD module accepts a composite input in any one of four standards (PAL/NTSC/PAL-N/PAL-M) which it digitizes to 10-bits

REAR PANEL VIEWS



BLOCK DIAGRAM



Versions of the module cards available are:

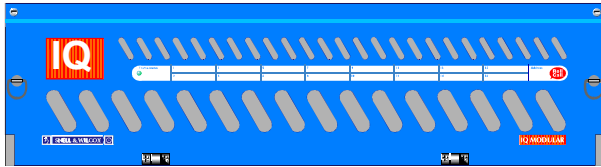
IQDMSDD-1-0-0	Single width module <i>For details refer to "Feature Variations" on page 5</i>
IQDMSDD-1A	Single width module
IQDMSDD-2-0-0	Double width module <i>For details refer to "Feature Variations" on page 5</i>

Note that this product will not be available after March 2005. Please contact your local Snell & Wilcox dealer or visit their web site at www.snellwilcox.com for details of alternatives.

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

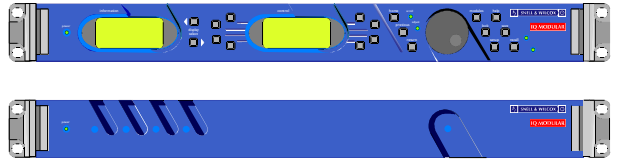
Rear panels **with** the suffix A may only be fitted into the 'A' style enclosure shown below.



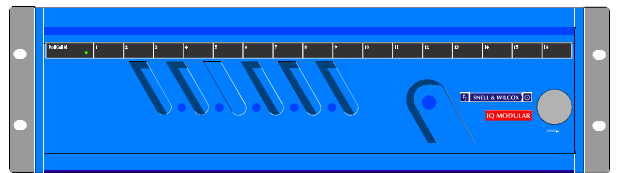
(Enclosure order codes IQH3A-E-O, IQH3A-E-P, IQH3A-N-O, IQH3A-N-P)

'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)

Features

- Multi-standard decoding of PAL/NTSC/PAL-M/PAL-N
- 10-bit sampling
- Multi-mode operation:
- Adaptive field comb
- Adaptive line comb
- Simple mode
- Full proc.amp controls
- 2 x or 4 x 10-bit serial D1 outputs
- Switchable EDH insertion
- RollCall™ compatible
- Test pattern generator
- 20-character caption generator
- 4 nameable user memories per standard

TECHNICAL PROFILE

Features

Signal Inputs

Composite Video 1 x Differential input
 Standards PAL/NTSC//NTSC-J/PAL-M /PAL-N

Signal Outputs

10-bit Serial Digital Up to 4 x SDI outputs
 Standards SMPTE 259M-C-1997

Specifications

Input Standard PAL/PAL-M/
 PAL-N/NTSC-M/NTSC-J /Auto
 Y Frequency Response..... 5.5 MHz ± 0.2 dB
 Signal/Noise Ratio Better than 63 dB Weighted
 PbPr Frequency Response 1.5 MHz -3 dB
 2T Pulse-Shape k- rating ... Better than 1%
 Y-C Timing Error..... Better than 25 ns
 Y non-linearity Error Better than 1%
 Subcarrier Rejection better than 46 dB (Test signal
 Modulated Staircase)
 Insertion Delay 9.1 µs (Field Comb)
 9.1 µs + 1 Line (Line Comb)
 Input Return Loss (Analog) Better than -35 dB at 5 MHz
 Output Return Loss (Digital) Better than -15 dB to 270 MHz

Power Consumption

Module Power Consumption
 8.2 W max

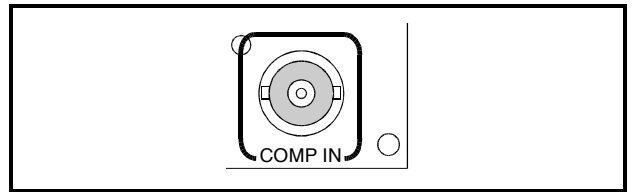
FEATURE VARIATIONS OF THE IQDMSD CARDS

FEATURE	IQDMSDP	IQDMSDA	IQDMSDN	IQDMSDD	IQDMSDS
Crystal lock for stable inputs	YES	YES	YES	YES	YES
Has VHS Mode	YES	YES			YES
Has frame synchroniser	YES	YES			YES
8 bit Decoding	YES	YES			YES
10 bit Decoding	YES	YES	YES	YES	YES
Has delay flag output (Frame Synchroniser)/RollTrack	YES	YES			YES
Decodes NTSC/PAL/PAL-M/PAL-N standards	YES	YES	YES	YES	YES
Decodes SECAM	YES	YES			YES
Decoder Mode: Adaptive Field Comb	YES	YES	YES	YES	
Decoder Mode: Adaptive Line Comb	YES	YES	YES	YES	YES
No reference input indication	YES	YES			YES
Recursive Noise Reducer	YES		YES		
Auto standard detect	YES	NO	YES	YES	NO
EDH Insertion	YES	YES	YES	YES	YES
Field Freeze	YES	YES			YES
Has user memories	YES	YES	YES	YES	YES
Caption Generator	YES	YES	YES	YES	YES

INPUTS AND OUTPUTS

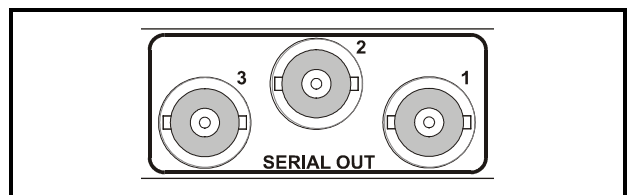
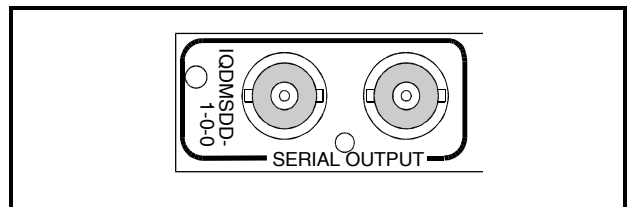
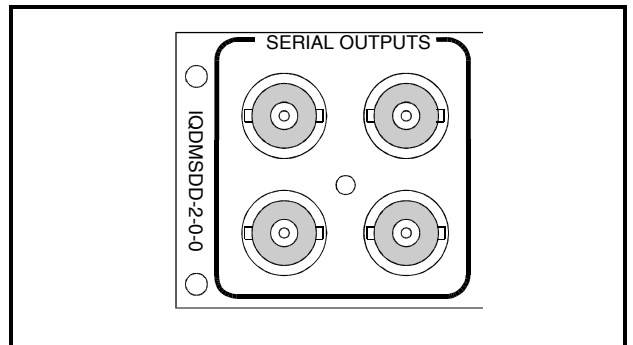
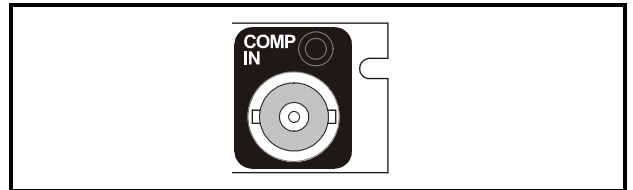
COMPOSITE INPUT

This connector is the composite video input to the decoder via a BNC connector terminated in 75 Ohms.
Nominal input level is 1V p-p.

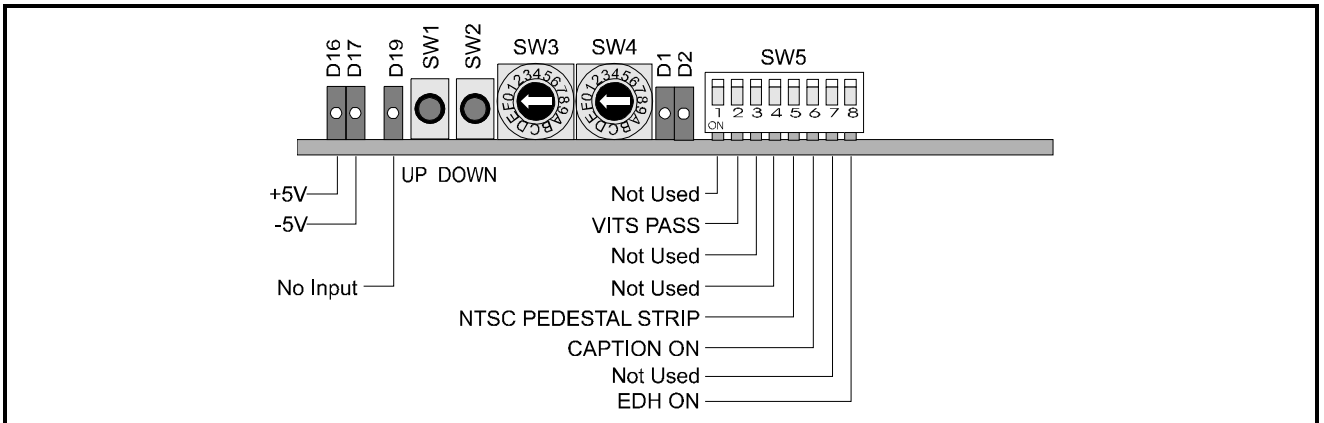


SERIAL OUTPUTS

These are the 2 (-1 version), 3 (-1A version) or 4 (-2 version) Serial Digital outputs of the unit via BNC connectors for 75 Ohms.



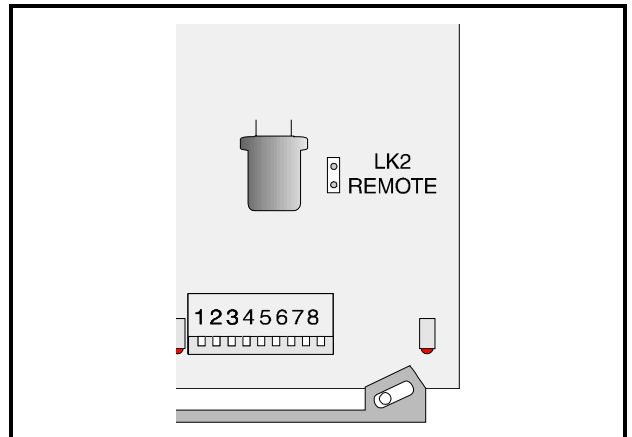
CARD EDGE CONTROLS



The unit will respond simultaneously to either remote RollCall commands or card-edge control settings. The current settings are saved in an on-board memory.

If the remote link (LK2) is fitted the saved control settings are used when the unit is powered-up.

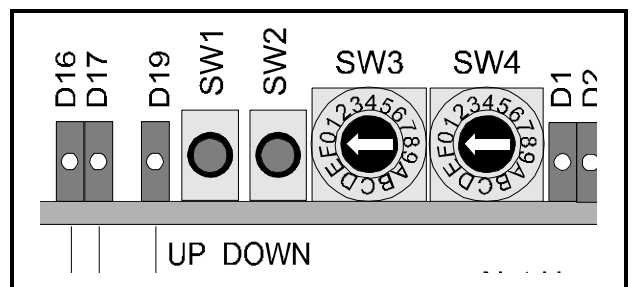
If the remote link (LK2) is not fitted the unit will take its control settings from the card edge switches where possible and otherwise will use the default settings.



LED INDICATORS D16, 17, & 19

When illuminated D16 indicates that the +5 V supply is present and D17 indicates that the -5 V supply is present.

When D19 is illuminated this indicates that the unit is not receiving a video input signal.



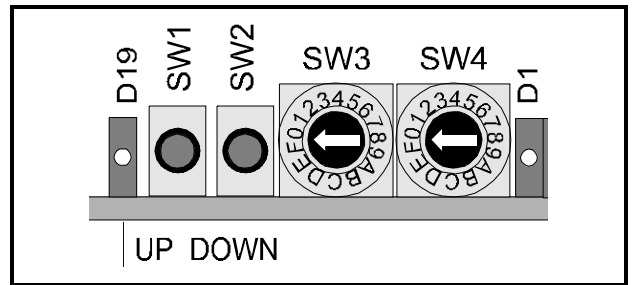
SW1, SW2, SW3 & SW4

These two push buttons and two Hex switches allow various functions and modes to be set.

SW3 selects a particular function and SW4 selects the mode or value of that function.

To change a function select the required function with SW3 and change the setting using SW4 or the push buttons SW1/SW2. The setting will be saved after the value remains unchanged for a few seconds.

To change another function setting use SW3 to select the new function.



The push buttons SW1 & 2 allow the value of the selected function to be adjusted.

SW1 (UP) increases the value and SW2 (DOWN) decreases the value; D1 and D2 indicate which direction away from the default position that is currently set.

Note that to select the default value both buttons should be pressed together. D1 and D2 will both be extinguished when the default position reached.

The various modes and selections made with SW3 & SW4 are detailed in the table below:

FUNCTION AND MODE SELECTIONS

SW3 SETTING		SW4 SETTING									
		0	1	2	3	4	5	6	7	8	9
0	Standard	Auto	PAL	NTSC	PAL-N	PAL-M					
1	Decode Mode	Field Comb	Line Comb	Simple							
2	Default Output	Black	100% Bars	75% Bars	Multiburst						
3	Pattern	Video	Black	100% Bars	75% Bars	Multiburst					
4	Video Gain	Use Buttons									
5	Black Level	Use Buttons									
6	Chroma Gain	Use Buttons									
7	NTSC Hue	Use Buttons									
8	Unused										
9	YC Delay	Use Buttons									
A	Unused										
B	Unused										
C	Picture Position	Use Buttons									
D	Unused										
E	Unused										
F	Preset	Press both buttons together to preset unit									

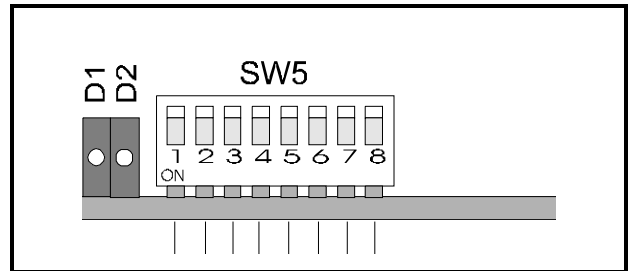
ADJUSTMENT RANGES

Video Gain	+6 dB to -3 dB	NTSC Hue	±30° in 1° steps
Chrominance Gain	±3 dB	YC Delay	-222 ns to +148 ns in 74 ns steps
Black Level	±75 units Overall range ±120 mV	Picture Position	±1924 ns in 148 ns steps

SW5 SWITCH FUNCTIONS

(Functions enabled when switch is set to ON)

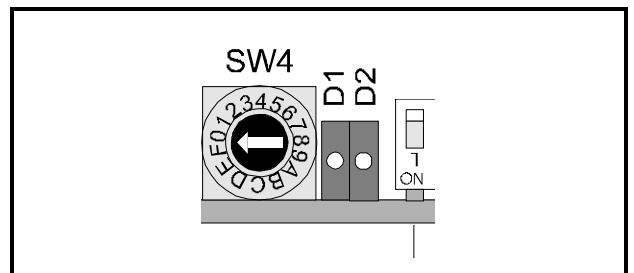
- Position 1 Not Used
- Position 2 VITS Pass
- Position 3 Not used
- Position 4 Not used
- Position 5 Pedestal strip (NTSC only)
- Position 6 Caption ON
- Position 7 Not Used
- Position 8 EDH ON

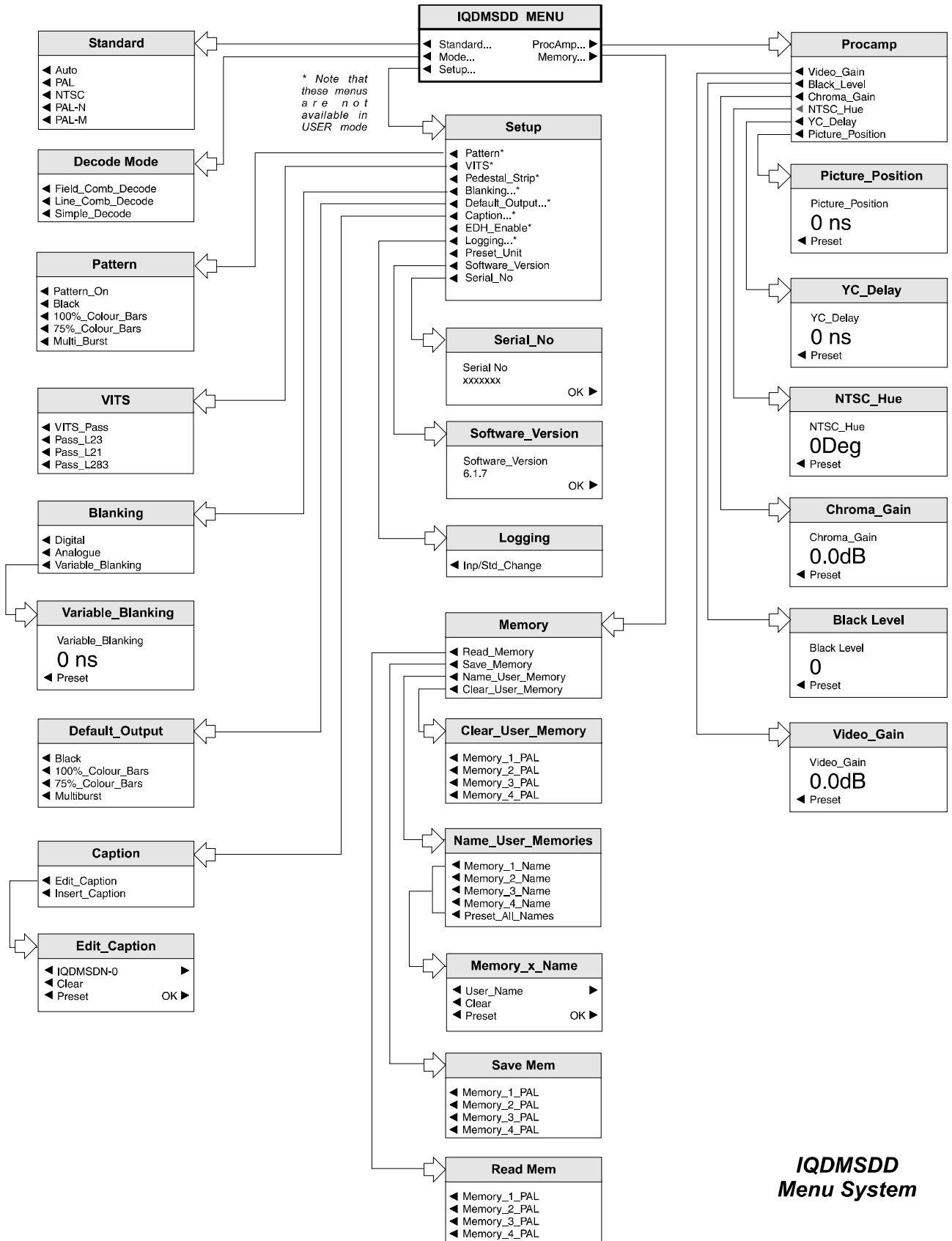


LED INDICATORS D1 and D2

These LED's will indicate the state of a selected function.

D1	D2	State of Variable
Off	Off	Default Value
Off	On	Above Default Value
On	Off	Below Default Value
On	On	N/A





OPERATION FROM AN ACTIVE CONTROL PANEL

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

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

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

MENU DETAILS

(see *IQDMSDD* Menu System Diagram)

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.

◀ STANDARD

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

◀ Auto

If this is selected the IQDMSDD will automatically select the decode standard based on the input line standard and by polling through the subcarrier frequencies appropriate to that input standard until a lock is obtained. Switching between standards in the Auto mode will take about 5 seconds before a lock is achieved. Mode and standard are displayed in the information menu.

◀ PAL

When PAL is selected the decoder will decode assuming the input is PAL.

◀ NTSC

When NTSC is selected the decoder will decode assuming the input is NTSC.

◀ PAL-N

When PAL-N is selected the decoder will decode assuming the input is PAL-N.

◀ PAL-M

When PAL-M is selected the decoder will decode assuming the input is PAL-M.

Note that if the detected input line standard is different to the forced line standard the output will be forced to become black.

PROCAMP ▶

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

◀ Video_Gain

This selection reveals a numerical readout display for the gain of the composite video signal.

The overall range of adjustment is from +6 dB to -3 dB.

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

◀ Black Level

This selection reveals a numerical readout display for the Y pedestal or black level. By rotating the spinwheel the pedestal may be adjusted by ± 75 units in steps of 1 unit.

Note that the overall range of adjustment is approximately ± 120 mV

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

◀ Chroma Gain

This selection reveals a numerical readout display for the gain of the chrominance signal. By rotating the spinwheel the gain may be adjusted by ± 3 dB

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

◀ NTSC_Hue

This selection reveals a numerical readout display for the Hue of an NTSC signal. By rotating the spinwheel the Hue may be adjusted by $\pm 30^\circ$ in steps of 1°

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

Note that when the standard is not NTSC, the NTSC Hue menu is not available.

◀ YC Delay

The relative timing between the luminance and the chrominance signals may be set using this function and rotating the spinwheel. The range is -222 ns to +148 ns in steps of 74 ns.

When viewing a picture, the chrominance will move to the right for positive values and to the left for negative values of shift.

Selecting Preset returns the setting to 0 ns.

◀ Picture_Position

This selection reveals a numerical readout display for the start position of the active picture. The position may be varied over a range of ± 1924 ns in 148 ns steps.

Selecting Preset returns the setting to 0 ns.

◀ MODE

The decoding mode may be selected using this sub-menu:

- ◀ Field_Comb_Decode** This is an adaptive field comb
- ◀ Line_Comb_Decode** This is an adaptive line comb
- ◀ Simple_Decode** Enables a lowpass/high pass band-split filter

MEMORY ►

This function reveals a sub-menu which allows control of the user memories.

◀ Read Memory

This function reveals a sub-menu which allows 4 different settings of Standard, ProcAmp and Mode items to be recalled from the 4 memory locations as saved in the Save_Mem function.

Note that there are 4 memory locations available for each of the operating standards, PAL, NTSC, PAL-N and PAL-M plus NTSC no-pedestal-strip. They can all be renamed using the Name_User_Memory menu.

◀ Read Memory

This function reveals a sub-menu which allows the settings of Standard, ProcAmp and Mode items to be saved. Up to 4 different set-ups may be saved in the 4 memory locations.

Note that there are 4 memory locations available for each of the operating standards, PAL, NTSC, PAL-N and PAL-M plus NTSC no-pedestal-strip. They can all be renamed using the Name_User_Memory menu.

◀ Name User Memory

This selection allows renaming of the Save 1, 2, 3 and 4 memory locations.

Note that there are 4 memory locations available for each of the operating standards, PAL, NTSC, PAL-N and PAL-M plus NTSC no-pedestal-strip. (This is designated as NTSC-J, the NTSC system used in Japan which has no pedestal; NTSC-M is used to define the normal NTSC system)

To rename a memory location when operating in a particular standard, select:

◀ Name_User_Memories to reveal the sub-menu.

Select the memory location to be renamed e.g.

◀ Memory_1_Names

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_NTSC-M** if operating in the normal NTSC standard.

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

Now, when the Read_Mem function is selected (and the unit is operating in the NTSC standard) Read_1 will now appear with the new name.

◀ Preset_All_Names

Selecting this function will reset all the memory names to their default names.

e.g. in NTSC-M memory x will become

Memory_x_NTSC-M

◀ **Clear User Memory**

This selection allows individual memory locations to be cleared and returned to their default (factory) settings.

◀ SETUP

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

* Note that these items will not be available in USER mode.

◀ Pattern*

This menu selection selects the type of pattern which will be available as the output signal when the Pattern_On item is enabled.

◀ Pattern_On

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

When unselected (text normal) the decoded video will become the output signal.

Note that this function will override the default output selection if the input signal is lost.

Patterns available are:

- | | |
|--------------------|---|
| ◀ Black | The output will be standard black. |
| ◀ 100% Colour_Bars | The output will be 100% colour bars. |
| ◀ 75% Colour_Bars | The output will be 75% colour bars. |
| ◀ Multiburst | The output will be a multiburst signal. |

VITS

This item will reveal a sub-menu that allows various actions to be applied to the VITS lines.

◀ VITS_Pass

When selected (text reversed) the unit will pass data (unprocessed) present on VITS lines, to the digital Y output.

The PbPr channels are always blanked during the vertical interval. When de-selected (text normal) all data in the vertical interval will be blanked.

When this item is selected the word VTS will appear on the bottom line in the information window.

VBI Operation (NTSC)

Setting	Effect on VITS lines			
	Lines 1-9, 263-272	Lines 10-20, 273 –282	Line 21	Line 283
VITS Pass OFF	Blanked	Blanked	Decoded	Decoded
VITS Pass ON Pass Line 21/283 OFF	Blanked	Passed flat	Decoded	Decoded
VITS Pass ON Pass Line 21 ON	Blanked	Passed flat	Passed flat	Decoded
VITS Pass ON Pass Line 283 ON	Blanked	Passed flat	Decoded	Passed flat

VBI Operation (PAL)

Setting	Effect on VITS lines			
	Lines 623-6, 311-318	Lines 7-22, 319-334	Line 23	Line 335
VITS Pass OFF	Blanked	Blanked	First half line blanked, second half line decoded	Blanked
VITS Pass ON Pass Line 23 OFF	Blanked	Passed flat	First half line blanked, second half line decoded	Decoded
VITS Pass ON Pass Line 23 ON	Blanked	Passed flat	Passed flat	Decoded

◀ Pass L23

When this item is selected and if a 625 line standard is present, the unit will pass line 23 flat through the luminance channel and will be blanked on the chrominance channel. Under any other conditions this line will be decoded.

◀ Pass L283

When this item is selected and if a 525 line standard is present, the unit will pass this line flat through the luminance channel and will be blanked on the chrominance channel. Under any other conditions this line will be decoded.

◀ Pass L21

When this item is selected and if a NTSC colour standard is present, the unit will pass this closed caption line, flat. Under any other conditions this line will be decoded.

◀ Pedestal Strip*

This toggle ON/OFF function allows the effect of any set-up on the input signal to be cancelled. This function only operates in NTSC but is always enabled in PAL-M mode.

◀ Blanking*

This menu allows control of the blanking width of the active picture.

Selections available are:

◀ Digital

This sets the active video to 720 pixels in length.

◀ Analogue

This sets the active video to 702 (625 line standard) or 714 (525 line standard) pixels in length. The blanking may be varied using the Variable Blanking function.

◀ Variable Blanking

This selection reveals a numerical readout display for the variation in blanking.

The overall range of adjustment is ± 1184 ns in 74 ns steps.

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

◀ Default_Output*

This menu allows a particular pattern to become the output signal if the input signal is lost.

Patterns available are:

- ◀ Black The output will be standard black.
- ◀ 100% Colour_Bars The output will be 100% colour bars.
- ◀ 75% Colour_Bars The output will be 75% colour bars.
- ◀ Multiburst The output will be a multiburst signal.

◀ Caption*

This selection allows text to be compiled which may be overlaid on the pattern or default pattern output signal when the

◀ Insert_Caption items are enabled.

◀ Insert_Caption

When enabled the caption overlaid on the pattern output signal.

To compile/edit the text the ◀ Edit_Caption function should be selected and the right ► and left ◀ buttons adjacent to the upper text line in the Caption menu 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 (card identification)

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

◀ EDH_Enable*

Selecting this item (appears as reversed text) enables the error detection system and the generation of EDH on the SDI output.

◀ 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. (See Section 1) The RCIF Menu System can be made available to such a device.

◀ Inp/Std_Change

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

◀ Preset_Unit

Selecting this function presets various functions such that some sort of signal is produced at the output even though some settings may be inappropriate for the input signal. This is useful if many settings have been set in error such that no output signal is being produced.

Note that this function does not clear the memories or the caption data.

◀ 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

