IQDARCP Aspect Ratio Converter

C E

Module Description

The IQDARCP is a 10-bit, bi-directional broadcast quality aspect ratio converter with serial digital input and outputs. A comprehensive selection of fixed conversion modes is available with ultra-smooth adjustment of picture position both horizontally and vertically.

A proprietary vertical-temporal filter uses all picture lines to maximize the vertical resolution without motion artifacts. Full control of input and output blanking is available.

Video path features include full Proc Amp controls, background colour and Y/C clippers.

Aspect ratio control may be controlled remotely with both RollCall and external GPIs.

The unit automatically detects 525 and 625 line inputs. For added flexibility three SDI and three composite monitoring outputs are provided.
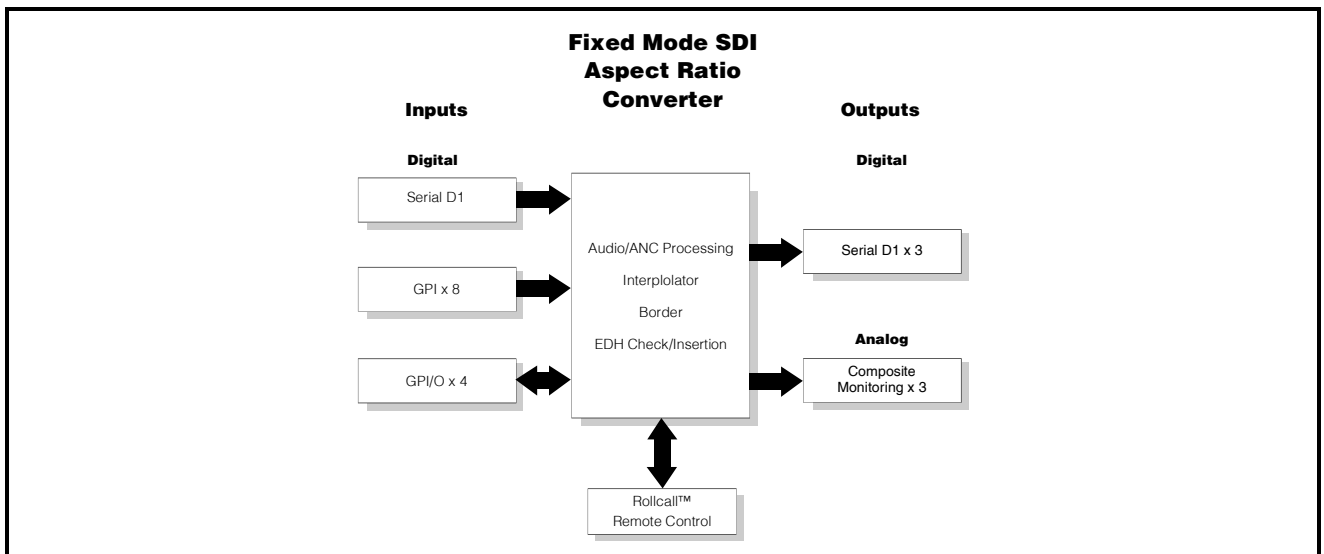
REAR PANEL VIEW
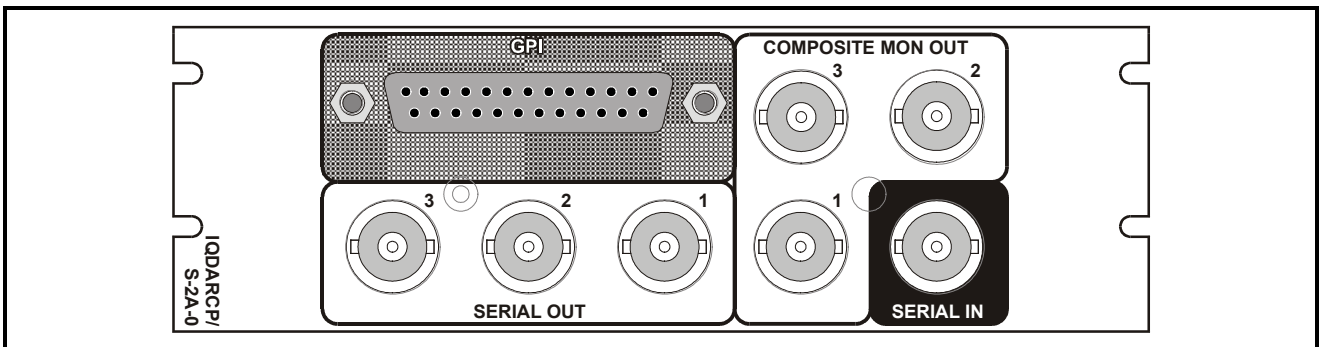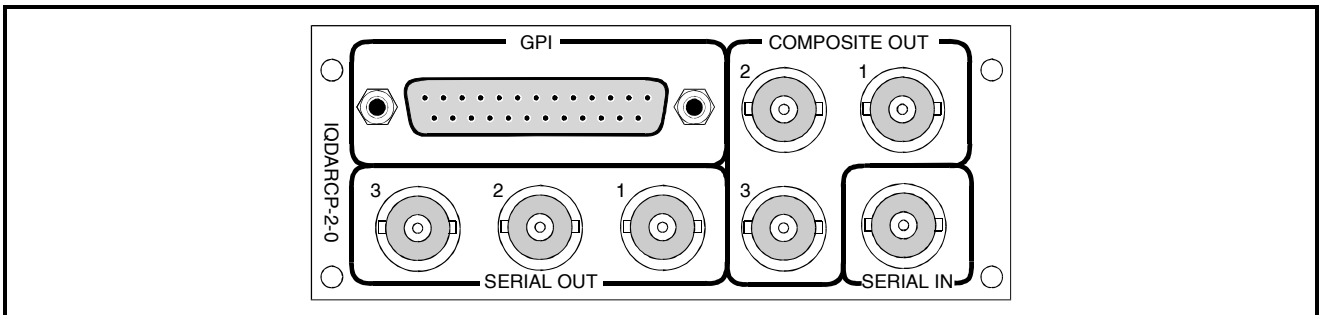
Versions of the module cards available are:

IQDARCP-2-0   Aspect Ratio Converter 3 serial and 3 composite outputs   Double width module
IQDARCP-2A-0   Aspect Ratio Converter 3 serial and 3 composite outputs   Double width module

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.

I/O DIAGRAM

**Fixed Mode SDI
Aspect Ratio
Converter**

Inputs   Outputs

Digital   **Digital**

| Serial D1 | → | Audio/ANC Processing

Interplolator

Border

EDH Check/Insertion | → | Serial D1 x 3 |

| GPI x 8 | → |

Analog

| GPI/O x 4 | ↔ | → | Composite
Monitoring x 3 |

↕

| Rollcall™
Remote Control |

Features

- Aspect ratio conversion using vertical-temporal filtering

- 8 fixed up and down conversion modes

- Ultra smooth dynamic pan & tilt

- Input and output blanking controls

- Composite monitoring outputs

- Fixed 1 frame or minimum delay modes, for easy installation

- Transparent to horizontal and vertical interval data

- Background colour control

- Auto field freeze on input loss

- Un-interruptable valid output

- Pattern generation

- 8 GPI inputs and 4 input/outputs for rapid control

- 16 user definable memories

- RollTrack™ audio delay tracking

- Automatic 625 & 525 operation

- EDH checking and insertion to SMPTE RP165

- RollCall™ remote control and monitoring

TECHNICAL PROFILE

Features

Signal Inputs

Serial Digital........................ 1 x SDI

Standards .... SMPTE 259M-C–1997 and
embedded audio SMPTE 272M-A-1994

Signal Outputs

Serial Digital........................ 3 x SDI

Composite Monitoring .... 3 x CVBS

Standards .... SMPTE 259M-C–1997 and
embedded audio SMPTE 272M-A-1994

Control Interface

GPI .... 8 Closing Contact style
4 Closing Contact Inputs/Outputs
via 25 way D connector

Card Edge Controls (also available via RollCall)

Conversion Mode Select Terms

AA...................................... Active image aspect
ratio with reference to 9
(4:3 is 12:9 = 12)

B .... Display Format
P for pillar-box
L for letter-box
F for full-frame

CC .... Raster aspect ratio with
reference to 9
(4:3 is 12:9 = 12)

Conversion Mode Select

Input → Output .... Comment (output)

12F12 → 12P16................. 16:9 pillar-box

12F12 → 14P16................. 16:9 pillar-box
vertically cropped

12F12 → 16F16 .... Full 16:9 picture

16L12 → 12F12 .... Side cropped

16L12 → 14L12 .... Side cropped 14:9
letterbox

16L12 → 16F16 .... Full 16:9 picture

16F16 → 12F12 .... Side cropped

16F16 → 14L12 .... Side cropped 14:9
letterbox

16F16 → 16L12 .... *16:9 letter box*

Pan control......................... Smooth adjustment across input
active picture

Tilt control .... Smooth adjustment across input
active picture

Input blanking..................... Smooth adjustment of top, bottom,
left and right

Output blanking.................. Smooth adjustment of top, bottom,
left and right

Auto Freeze .... Freeze on Input Loss (Default is
Pattern Output)

Minimum Delay mode .... On / Off

Background control .... Black, Blue, Red Magenta, Green,
Cyan, Yellow, White, Grey or 2
user Defined R, G, B

Pattern Select .... Off, Black, EBU Bars, 100% Bars,
Multiburst, Valid Ramp, Pulse and
Bar, Green

Monitoring Output .... Output Input and monitoring
information / Aspect ratio
converted output

Caption .... Off / On

Ratio Terminology .... WRT-9, PB/LB, Ratio

User Memories.................... 16 recall locations

Standard .... 525 / 625 / Auto

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

Functions available via RollCall only

Logging .... EDH, Input Loss, Input Standard,
Unit mode

User Memories.................... 16 save / recall

RollTrack............................ Video Delay, Input Present, Input
Missing, Input Standard

GPI configuration .... Select the function of each GPI
input and output from a predefined
list of options

Specifications

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

Maximum Input Cable length
>200 m (PSF1/2 or equiv. cable)

Serial Output Level............. 800 mV ±10%

Output Return Loss............ Better than -15 dB to 270 MHz

Output Overshoot............... <700 mV

Output Jitter .... < 0.2UI

Delay.................................. Normal: 1Frame plus approx. 37µS
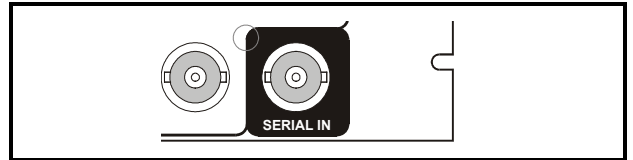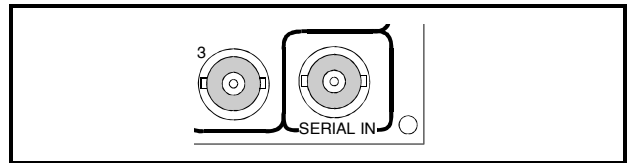or Min Delay: approx. 37µS

Power Consumption

Module Power Consumption   13.5W max

INPUT CONNECTIONS

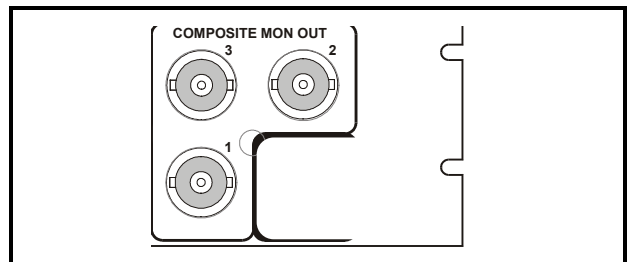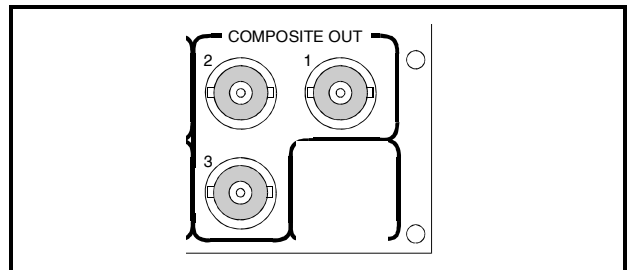**Serial Digital Video Input**

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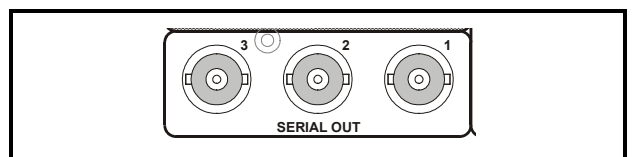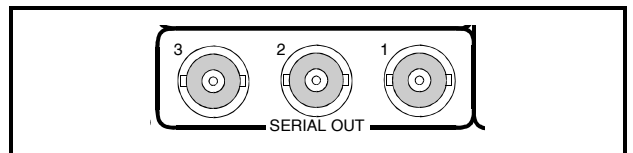
OUTPUT CONNECTIONS

Composite Monitoring Outputs 1 & 2 & 3

Three isolated monitoring quality composite outputs are available from these BNC connectors. Output level is standard 1V p-p into 75 Ohms.
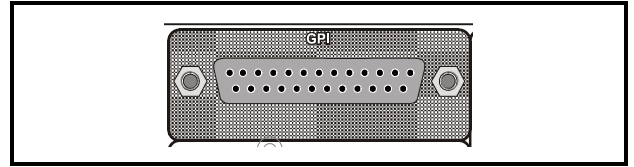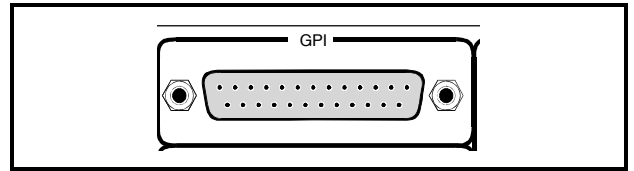
Serial Digital Video Outputs

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

GPI

The General Purpose Interfaces (GPI's) are accessed via a 25 way D type female connector. In the table GPI refers to inputs and GPO refers to outputs.

Pin Connections

PIN		NAME	DESCRIPTION
1		GPI1_RET	Return GPI 1
	14	GPI1	Signal GPI 1
2		GPI/O1_RET	Return GPI/O 1 (BNC 3)
	15	GPI2	Signal GPI 2
3		GPI/O1	Signal GPI/O 1 (BNC 3)
	16	GPI2_RET	Return GPI 2
4		GPI3_RET	Return GPI 3
	17	GPI3	Signal GPI 3
5		GPI/O2	Signal GPI/O 2 (BNC 4)
	18	GPI4	Signal GPI 4
6		GPI/O2_RET	Return GPI/O 2 (BNC 4)
	19	GPI4_RET	Return GPI 4
7		GPI/O4_RET	Return GPI/O 4
	20	GPI/O4	Signal GPI/O 4
8		GPI5_RET	Return GPI 5
	21	GPI5	Signal GPI 5
9		GPI6_RET	Return GPI 6
	22	GPI6	Signal GPI 6
10		GPI/O3	Signal GPI/O 3 (BNC 5)
	23	GPI7	Signal GPI 7
11		GPI/O3_RET	Return GPI/O 3 (BNC 5)
	24	GPI7_RET	Return GPI 7
12		GPI8	Signal GPI 8
	25	GPI8_RET	Return GPI 8
13		Ground	GND

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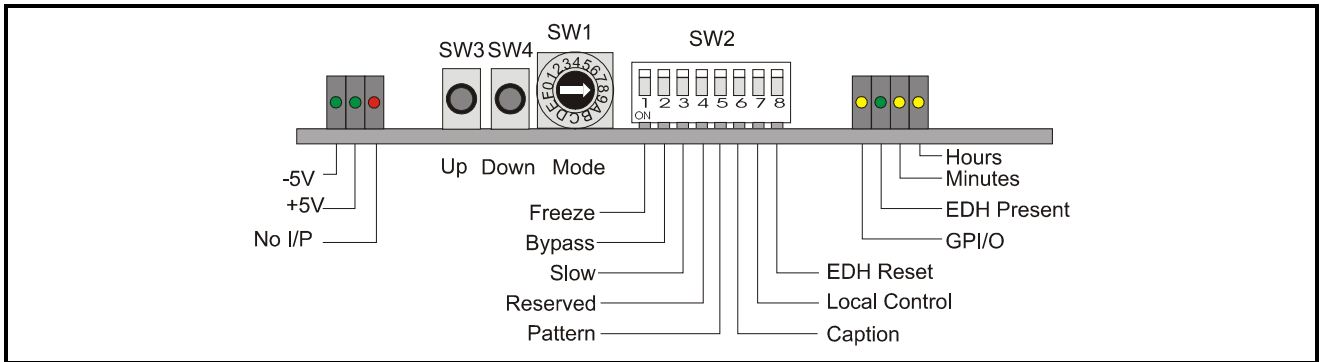
The unit will respond to both local and remote control, one system overriding the settings of the other. For cards using the RollCall™ remote control system, activating these switches will override the remote control settings. The RollCall™ control panel will then follow these settings.

LED INDICATORS

+5V and -5V

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

No I/P

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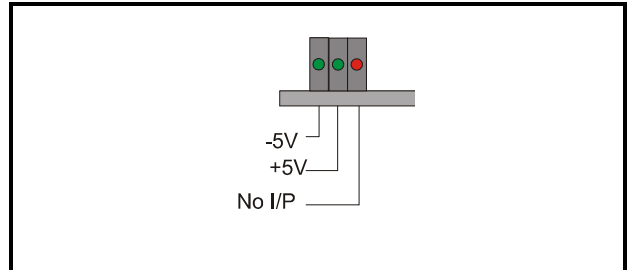
GPI/O

This LED will briefly flash upon every GPI input transition.

EDH Reporting

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

The **Hour** LED indicates that an error has occurred in the last hour and the **Minutes** LED indicates that an error has occurred in the last minute.

Note that SW2/8 resets these indicators.

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

SWITCHES

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

The DIL switch SW2 selects a particular function and the Hex switch SW1 selects a mode or variable parameter.

The push buttons SW3, SW4 allow the value of the selected function/parameter to be adjusted.

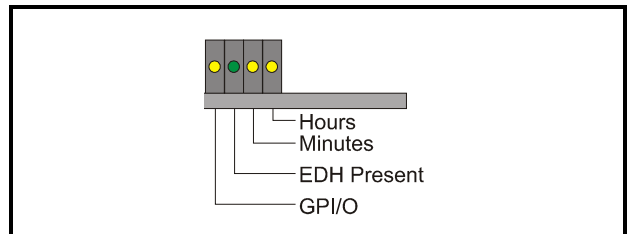The Mode select switch may select a mode or a parameter that may be adjusted.

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

FUNCTION AND MODE SELECTIONS

DIL SWITCH FUNCTIONS SW2

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

Position 1

This allows the freeze mode to be selected.

Position 2

Setting to ON selects the **Bypass** mode.

When enabled the input signal will pass through the electronics of the unit with everything at default settings.

Position 3

When the output picture size changes this function allows control over the way that the change of picture size occurs.

When selected the picture size will change smoothly to the new size.

When not selected the picture size will change instantly to the new size.

Position 4   This position is reserved
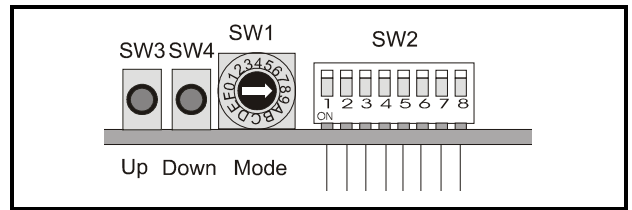
These switches allow the module to be operated when an active front panel is not available.

More detailed information about these functions will be found under *MENU DETAILS* starting on page 10.
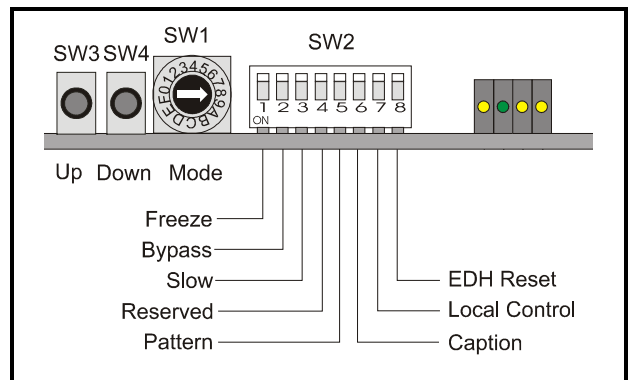
Position 5

Setting this to ON, the selected Test Pattern is switched to the output.

Note that if the caption is ON the pattern will be black.

The pattern selection is made using the hex switch SW1.

Position 6

Setting this to ON, the caption is enabled and will appear on the output picture.

Position 7

This position is reserved for future use.

Position 8

Setting this to ON, resets the EDH's Elapsed-Time count, as well as resetting the "Minute EDH" and "Hour EDH" LEDs.
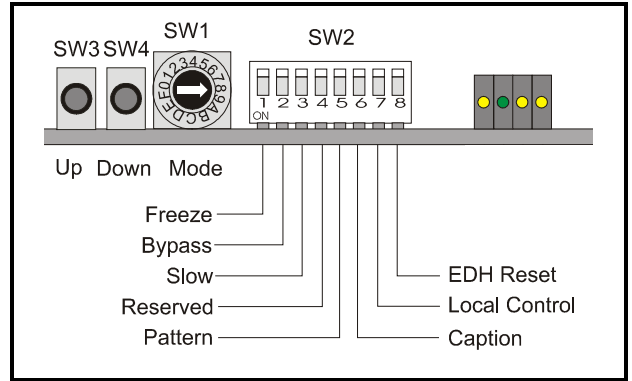
SW1

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

Position 0 Aspect Ratio

This allows a fixed aspect ratio to be selected from the following list and in this order.

Pass (Output the same as input aspect ratio)
12F12->12P16 .... 4:3 > 16:9 PB
12F12->14P16 .... 4:3 > 14:9 PB
12F12->16F16 .... 4:3 > 16:9 FH
16L12->12F12 .... 16:9 LB > 4:3
16L12->14L12 .... 16:9 LB > 14:9 LB
16F16->12F12 .... 16:9 FH > 4:3
16F16->14L12 ....16:9 FH > 14:9 LB
16F16->16L12 ....16:9 FH > 16:9 LB
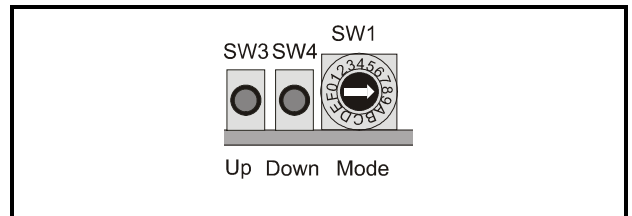
SW1 (cont)

Position 1 Pan

This selects the Pan function. This will adjust the horizontal position of the output image.

The range of adjustment is ±3700 in steps of 1.

Position 2 Tilt

This selects the Tilt function. This will adjust the vertical position of the output image.

The range of adjustment is ±3000 in steps of 1.

Position 3

This position has no function

Position 4

This position has no function

Position 5 Output Routing

This selects the Output Routing function that allows what type of signal that appears at the three Monitoring outputs. Selections are either Processed path or Unprocessed path.

Position 6 Input Standard

This selects the input standard.
Pressing the Down button (SW4) sets this to 525 and pressing the Up button (SW3) sets this to 625.
Default is both selected.

Positions 8 and 9 are not used.

Position A Pattern Select

When SW2/5 is selected the pattern that becomes the output can be chosen from this list.

Black
EBU Colour bars
100% Colour bars
Ramp
Multiburst
Pulse & bar
Green

Position B Border Colour

This function selects the Border Colour (the unused area outside the picture) to be selected.

Selections are:

Black
Blue
Red
Green
White
Grey
User_A
User_B

Positions C, D and E

These positions have no function.

Position F Preset Unit

In this position, pressing SW3 and SW4 together sets all parameters to the default/pre-set conditions.

IQDARCP MAIN MENU
◄ ARC...   Video... ►
◄ Mode...   Blanking... ►
◄ Bypass   Freeze... ►
◄ User Mem...   Setup... ►

ARC
◄ Pan   Tilt ►
◄ Preset...   Aperture... ►
◄ Min Delay...

Min Delay
◄ Pan
◄ Preset...

Preset
◄ Pass
◄ 12F12->12P16
◄ 16F16->12F12

Pan
Pan
60
◄ Preset

Aperture
◄ One field
◄ Two fields 1&2
◄ Two fields 2&1
► Three fields

Preset
◄ Pass
◄ 12F12->12P16
◄ 12F12->14F16
◄ 12F12->16F16
◄ 16L12->12F12
◄ 16L12->14L12
◄ 16F16->12F12
◄ 16F16->14L12
◄ 16F16->16L12

Pan
Pan
60
◄ Preset

Tilt
Tilt
1000
◄ Preset

Mode
◄ Manual
◄ MinDelay

User Mem
◄ Memory 1...
to
◄ Memory 16...

Memory 1 to 16
◄ Save   Recall ►
◄ Clear   Name ►

Name Memory
Name
◄ memory name   ►
◄ Clear
◄ Preset   OK ►

Border Colour
◄ Black   Blue ►
◄ Red   Green ►
◄ White   Grey ►
◄ User A   User B ►
◄ Set UsrA...   Set UsrB... ►

Set UsrA/B
◄ User A/B Red
◄ User A/B Green
◄ User A/B Blue

User A/B Red/Green/Blue
User A/B RGB
100
◄ Preset

Pattern & Caption
◄ Caption...
► Patterns...
◄ Insertion...

Insertion
◄ Processed Path
◄ Unprocessed Path

Pattern
◄ Enable Pattern
◄ Black
◄ EBU Colour Bars
◄ 100% Colour Bars
◄ Ramp
◄ Multiburst
◄ Pulse & Bar
◄ Green

Caption
◄ Edit Caption
◄ Caption Off
◄ Caption On
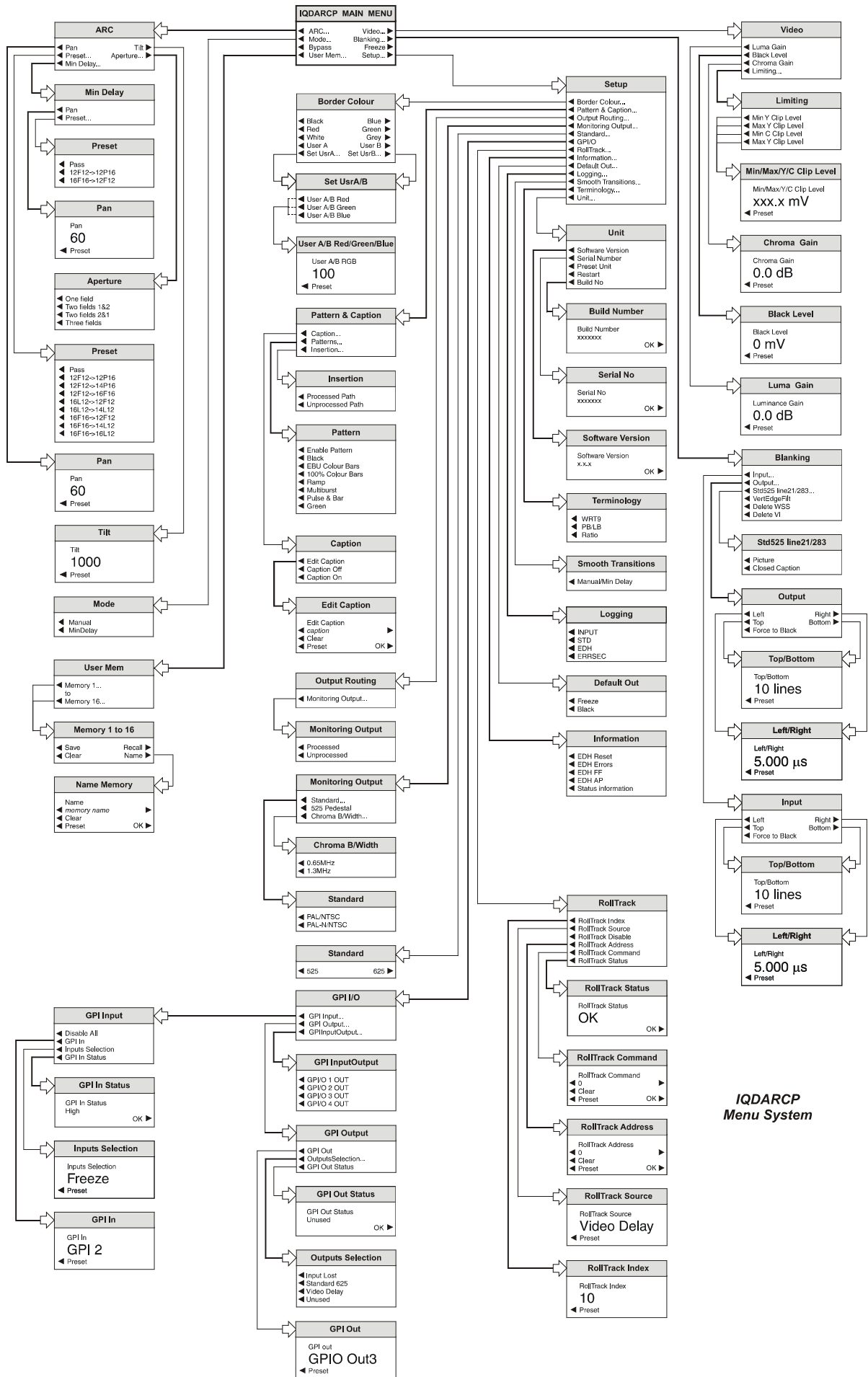
Edit Caption
Edit Caption
◄ caption   ►
◄ Clear
◄ Preset   OK ►

Output Routing
◄ Monitoring Output...

Monitoring Output
◄ Processed
◄ Unprocessed

Monitoring Output
◄ Standard...
◄ 525 Pedestal
◄ Chroma B/Width...

Chroma B/Width
◄ 0.65MHz
◄ 1.3MHz

Standard
◄ PAL/NTSC
◄ PAL-N/NTSC

Standard
◄ 525   625 ►

Setup
◄ Border Colour...
◄ Pattern & Caption...
◄ Output Routing...
◄ Monitoring Output...
◄ Standard...
◄ GPI/O
◄ RollTrack...
◄ Information...
◄ Default Out...
◄ Logging...
◄ Smooth Transitions...
◄ Terminology...
◄ Unit...

Unit
◄ Software Version
◄ Serial Number
◄ Preset Unit
◄ Restart
◄ Build No

Build Number
Build Number
xxxxxxx
OK ►

Serial No
Serial No
xxxxxxx
OK ►

Software Version
Software Version
x.x.x
OK ►

Terminology
◄ WRT9
◄ PB/LB
◄ Ratio

Smooth Transitions
◄ Manual/Min Delay

Logging
◄ INPUT
◄ STD
◄ EDH
◄ ERRSEC

Default Out
◄ Freeze
◄ Black

Information
◄ EDH Reset
◄ EDH Errors
◄ EDH FF
◄ EDH AP
◄ Status information

Video
◄ Luma Gain
◄ Black Level
◄ Chroma Gain
◄ Limiting...

Limiting
◄ Min Y Clip Level
◄ Max Y Clip Level
◄ Min C Clip Level
◄ Max Y Clip Level

Min/Max/Y/C Clip Level
Min/Max/Y/C Clip Level
xxx.x mV
◄ Preset

Chroma Gain
Chroma Gain
0.0 dB
◄ Preset

Black Level
Black Level
0 mV
◄ Preset

Luma Gain
Luminance Gain
0.0 dB
◄ Preset

Blanking
◄ Input...
◄ Output...
◄ Std525 line21/283...
◄ VertEdgeFilt
◄ Delete WSS
◄ Delete VI

Std525 line21/283
◄ Picture
◄ Closed Caption

Output
◄ Left   Right ►
◄ Top   Bottom ►
◄ Force to Black

Top/Bottom
Top/Bottom
10 lines
◄ Preset

Left/Right
Left/Right
5.000 µs
◄ Preset

Input
◄ Left   Right ►
◄ Top   Bottom ►
◄ Force to Black

Top/Bottom
Top/Bottom
10 lines
◄ Preset

Left/Right
Left/Right
5.000 µs
◄ Preset

RollTrack
◄ RollTrack Index
◄ RollTrack Source
◄ RollTrack Disable
◄ RollTrack Address
◄ RollTrack Command
◄ RollTrack Status

RollTrack Status
RollTrack Status
OK
OK ►

RollTrack Command
RollTrack Command
◄ 0   ►
◄ Clear
◄ Preset   OK ►

RollTrack Address
RollTrack Address
◄ 0   ►
◄ Clear
◄ Preset   OK ►

RollTrack Source
RollTrack Source
Video Delay
◄ Preset

RollTrack Index
RollTrack Index
10
◄ Preset

GPI I/O
◄ GPI Input...
◄ GPI Output...
◄ GPIInputOutput...

GPI InputOutput
◄ GPI/O 1 OUT
◄ GPI/O 2 OUT
◄ GPI/O 3 OUT
◄ GPI/O 4 OUT

GPI Output
◄ GPI Out
◄ OutputsSelection...
◄ GPI Out Status

GPI Out Status
GPI Out Status
Unused
OK ►

Outputs Selection
◄ Input Lost
◄ Standard 625
◄ Video Delay
◄ Unused

GPI Out
GPI out
GPIO Out3
◄ Preset

GPI Input
◄ Disable All
◄ GPI In
◄ Inputs Selection
◄ GPI In Status

GPI In Status
GPI In Status
High
OK ►

Inputs Selection
Inputs Selection
Freeze
◄ Preset

GPI In
GPI In
GPI 2
◄ Preset

IQDARCP
Menu System

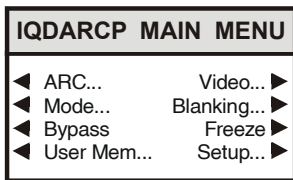MENU DETAILS   **Tilt ▶**

(See IQARCP Menu System drawing on previous page)

The system may be considered structured as a set of menus and sub-menus that are displayed in the LCD window.

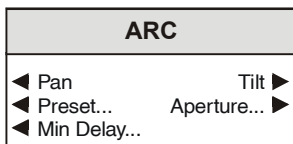A new menu is selected by pressing the appropriate dedicated function button.

If necessary a sub-menu may then be selected by pressing the push button adjacent to the arrowhead in the text line of the menu name.

This sub-menu will then be displayed in the window and will have the option of selecting another sub-menu in the same manner, or allow the adjustment of a particular parameter. Parameters enabled will appear as highlighted reverse text (white text on a black background)

```
┌─────────────────────────────┐
│   IQDARCP  MAIN  MENU        │
├─────────────────────────────┤
│ ◀ ARC...          Video... ▶ │
│ ◀ Mode...      Blanking... ▶ │
│ ◀ Bypass          Freeze ▶   │
│ ◀ User Mem...     Setup... ▶ │
└─────────────────────────────┘
```

◀ ARC

This screen allows settings to be made for the aspect ratio conversion parameters.

```
┌─────────────────────────────┐
│            ARC              │
├─────────────────────────────┤
│ ◀ Pan              Tilt ▶   │
│ ◀ Preset...   Aperture... ▶ │
│ ◀ Min Delay...              │
└─────────────────────────────┘
```

◀ Pan

This will adjust the horizontal position of the output image.

```
┌─────────────────────────────┐
│            Pan              │
├─────────────────────────────┤
│ Pan                         │
│ 60                          │
│ ◀ Preset                    │
└─────────────────────────────┘
```
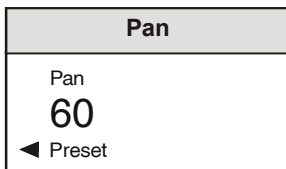
The range of adjustment is ±3700 in steps of 1.

This will adjust the vertical position of the output image.
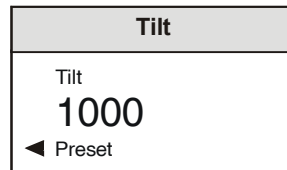
```
┌─────────────────────────────┐
│            Tilt             │
├─────────────────────────────┤
│ Tilt                        │
│ 1000                        │
│ ◀ Preset                    │
└─────────────────────────────┘
```

The range of adjustment is ±3000 in steps of 1.

◀ Preset
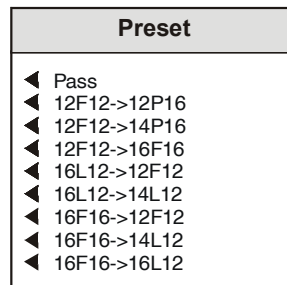
```
┌─────────────────────────────┐
│           Preset            │
├─────────────────────────────┤
│ ◀  Pass                     │
│ ◀  12F12->12P16             │
│ ◀  12F12->14P16             │
│ ◀  12F12->16F16             │
│ ◀  16L12->12F12             │
│ ◀  16L12->14L12             │
│ ◀  16F16->12F12             │
│ ◀  16F16->14L12             │
│ ◀  16F16->16L12             │
└─────────────────────────────┘
```

Preset values of aspect conversion may be chosen from the list:

Pass (Output the same as input aspect ratio)
12F12->12P16 4:3 > 16:9 PB
12F12->14P16 4:3 > 14:9 PB
12F12->16F16 4:3 > 16:9 FH
16L12->12F12 16:9 LB > 4:3
16L12->14L12 16:9 LB > 14:9 LB
16F16->12F12 16:9 FH > 4:3
16F16->14L12 16:9 FH > 14:9 LB
16F16->16L12 16:9 FH >16:9 LB

*The pan and tilt controls allow adjustments to be made to the selected **Preset** value.*
Note that when any of these settings are changed the Preset value will be deselected.
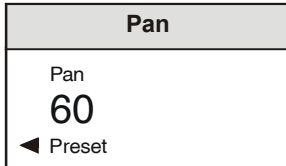
◄ **Min Delay**

This mode produces the minimum input/output delay by disabling vertical size changes; therefore only a reduced selection of preset aspect ratio conversions are available.

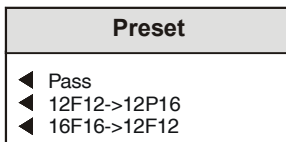When **Minimum Delay** mode is selected the aspect ratio conversion may be set by the following items:

Min Delay
◄ Pan
◄ Preset...

◄ **Pan**

This will adjust the horizontal position of the output image.

Pan
Pan
60
◄ Preset

The range of adjustment is ±3700 in steps of 1

◄ **Preset**

Preset
◄ Pass
◄ 12F12->12P16
◄ 16F16->12F12

Preset values of aspect conversion may be chosen from the list:

Pass (Output the same as input aspect ratio)
12F12->12P16 4:3 > 16:9 PB
16F16->12F12 16:9 FH > 4:3

Default setting is to Pass

Aperture ►

This function allows the fields used for interpolation to be chosen.
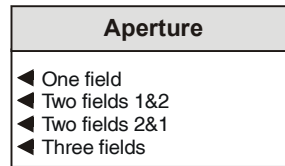
Aperture
◄ One field
◄ Two fields 1&2
◄ Two fields 2&1
◄ Three fields

◄ One Field

The two and three field apertures will produce better results than the one field aperture. However in some special cases (e.g. programme material containing DVE moves or scrolling captions) a one field aperture may be preferred.

◄ Two Fields 1&2

This aperture pairs fields 1 and 2 together as a set and applies a two field aperture to them.

◄ Two Fields 2&1

As Two Fields 1&2 above but pairs the set across the other field boundaries. i.e. field 2 of one frame and field 1 of the next.

◄ Three Fields (default)

This applies the best quality three field aperture to aspect ratio conversions.

Video ►

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

Video
◄ Luma Gain
◄ Black Level
◄ Chroma Gain
◄ Limiting...

◄ Luma Gain

This selection reveals a numerical readout display for the gain of the luminance signal.
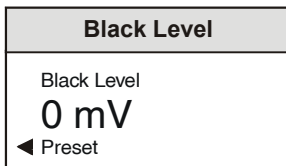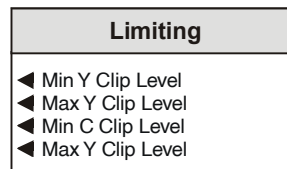
Luma Gain
Luminance Gain
0.0 dB
◄ Preset

By using the scroll bar the gain may be adjusted by ±6 dB in steps of 0.1 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.

Black Level
Black Level
0 mV
◄ Preset

By using the scroll bar the pedestal may be adjusted by ±100 mV in steps of 0.8 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.

Chroma Gain
Chroma Gain
0.0 dB
◄ Preset

By using the scroll bar the gain may be adjusted by ±6 dB in steps of 0.1 dB.

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

◄ Limiting

This function allows Y and C signal excursions to be limited by setting minimum and maximum clipping levels.

Limiting
◄ Min Y Clip Level
◄ Max Y Clip Level
◄ Min C Clip Level
◄ Max Y Clip Level

All adjustments are made in steps of 0.8 mV.

Min/Max/Y/C Clip Level
Min/Max/Y/C Clip Level
xxx.x mV
◄ Preset

◄ Min Y Clip level

The minimum clip level for the luminance signal may be set between –50 mV and +49.2 mV

Preset value is –50 mV

◄ Max Y Clip level

The maximum clip level for the luminance signal may be set between +635 mV and +764.6 mV

Preset value is +764.6 mV

◄ Min C Clip level

The minimum clip level for the chrominance signal may be set between –400 mV and -200 mV

Preset value is –400 mV

◄ Mode

This function allows the overall operating mode of the IQDARCP to be selected.

Mode
◄ Manual
◄ MinDelay

◄ Manual

The picture size will respond to the parameters set by the manual controls.

◄ Minimum delay

The picture size will respond to the parameters set by the Minimum Delay control settings.

Blanking ►

This function allows the left/right horizontal and the top/bottom blanking edges to be moved in both the input and output active picture.

Blanking
◄ Input...
◄ Output...
◄ Std525 line21/283...
◄ VertEdgeFilt
◄ Delete WSS
◄ Delete VI

◄ Input and ◄ Output

Input		Output	
◄ Left	Right ►	◄ Left	Right ►
◄ Top	Bottom ►	◄ Top	Bottom ►
◄ Force to Black		◄ Force to Black	

◄ Left/Right ►

The Left/Right edge may be moved from 0 to 13.172 µs in steps of 148 ns.

Left/Right
Left/Right
5.000 µs
◄ Preset

◄ Top/Bottom ►

The Top/Bottom edge may be moved from 0 to 200 lines in steps of 1 line.

Top/Bottom
Top/Bottom
10 lines
◄ Preset

◄ Std525_Line 21/283 (525 line systems only)

Std525 line21/283
◄ Picture
◄ Closed Caption

This allows the selection of line 21/283 as a video line or closed captioning.

◄ Picture

Selects line 21/283 as a video line.

◄ Closed_Caption

Selects line 21/283 as a closed caption line.
Note: When this option is selected the control of 'Input Blanking Top' should be manually set to be at least two lines to prevent closed caption appearing in the active picture.

◄ VertEdgeFilt

When selected a one line cross fade action is introduced on the horizontal edge transition between picture and blanking which helps to remove twitter.

◄ Delete WSS

When selected this will delete the input WSS line (line 23 625 only). When not selected the WSS data will be regenerated with the same information as the input.

◄ Delete VI

When selected this will delete the input Video Index signal.

◄ Bypass

This function allows the input signal to be passed through to the output without any processing.

Freeze ▶

When selected the output will become a frozen field picture.

◄ User Mem

This function allows a number of particular setups of the IQDARCP to be saved and recalled. There are 16 memory locations available.

```
        User Mem

◄ Memory 1...
        to
◄ Memory 16...
```
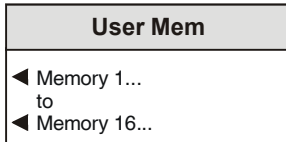
Selecting a memory location will reveal the memory display that allows the current settings to be saved to or recalled from that memory location. The memory location may also be given a specific name.

```
      Memory 1 to 16

◄ Save              Recall ▶
◄ Clear              Name ▶
```
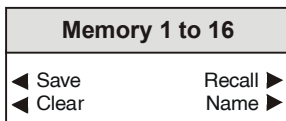
◄ Save

This item will save the current settings in the memory location.

Recall ▶

This item will recall the settings in the memory location.

◄ Clear

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

Name ▶

This selection allows renaming of the memory location.

```
      Name Memory

  Name
◄ memory name        ▶
◄ Clear
◄ Preset          OK ▶
```
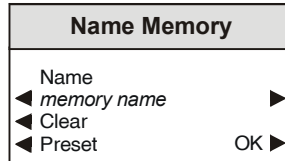
To compile/edit the text the right ▶ and left ◄ buttons adjacent to the upper text line in the menu should be used to select the character position in the text and the spinwheel used to select the character.

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

The ◄ **Preset** function loads the default text, for example **Memory 1.**
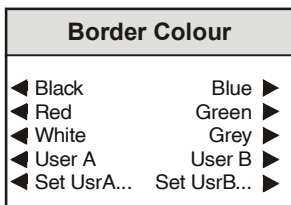
O.K. ▶ saves the caption text and returns to the main menu.

Setup ▶

This item allows various functions to be set up.

Setup
◀ Border Colour...
◀ Pattern & Caption...
◀ Output Routing...
◀ Monitoring Output...
◀ Standard...
◀ GPI/O
◀ RollTrack...
◀ Information...
◀ Default Out...
◀ Logging...
◀ Smooth Transitions...
◀ Terminology...
◀ Unit...

◀ Border Colour

Border Colour	
◀ Black	Blue ▶
◀ Red	Green ▶
◀ White	Grey ▶
◀ User A	User B ▶
◀ Set UsrA...	Set UsrB... ▶
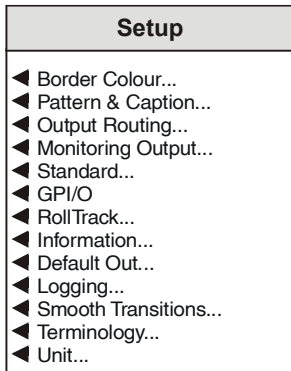
This allows the **Border Colour** (the blanked area outside the picture) to be selected.

Specific colours may be selected or two custom set-ups are available from User_A and User_B items.

Selections are:

Black
Blue
Red
Green
White
Grey
User_A
User_B
Set_Usr_A
Set_Usr_B

◀ User_A and User_B

This selects either User_A or User_B

◀ Set_Usr_A and Set_Usr_B

This function allows custom settings of red, green and blue to be adjusted.

Set UsrA/B
◀ User A/B Red
◀ User A/B Green
◀ User A/B Blue
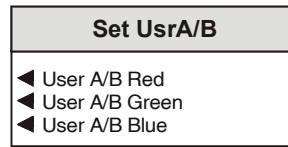
This function allows custom settings of red, green and blue to be adjusted using the spin wheel.

User A/B Red/Green/Blue
User A/B RGB
100
◀ Preset
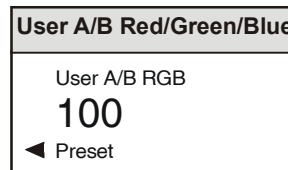
The range of control is from 0 to 255 units in steps of 1 unit.

Preset is to 0.
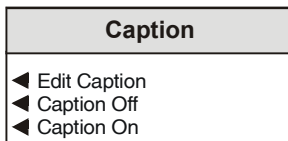
◄ Pattern & Caption

This item allows a pattern to be selected as the output, a caption to be setup and displayed.
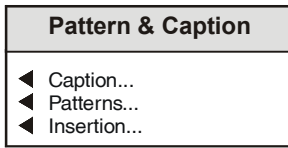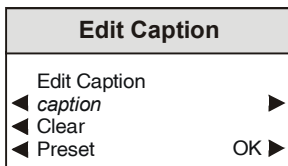
```
┌─────────────────────────────┐
│      Pattern & Caption      │
├─────────────────────────────┤
│ ◄ Caption...                │
│ ◄ Patterns...               │
│ ◄ Insertion...              │
└─────────────────────────────┘
```

Note that the picture behind the caption will appear at half amplitude luminance.

◄ Caption

```
┌─────────────────────────────┐
│           Caption           │
├─────────────────────────────┤
│ ◄ Edit Caption              │
│ ◄ Caption Off               │
│ ◄ Caption On                │
└─────────────────────────────┘
```

◄ Edit Caption

A 1 line caption of up to 19 characters may be set up by editing the text string.

```
┌─────────────────────────────┐
│         Edit Caption        │
├─────────────────────────────┤
│   Edit Caption              │
│ ◄ caption                ►  │
│ ◄ Clear                     │
│ ◄ Preset              OK ►  │
└─────────────────────────────┘
```

Preset is IQDARCP

The caption may be selected as

◄ Caption Off/On

This function will either enable or disable the insertion of a caption on the selected insertion path.

◄ Pattern

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

```
┌─────────────────────────────┐
│           Pattern           │
├─────────────────────────────┤
│ ◄ Enable Pattern            │
│ ◄ Black                     │
│ ◄ EBU Colour Bars           │
│ ◄ 100% Colour Bars          │
│ ◄ Ramp                      │
│ ◄ Multiburst                │
│ ◄ Pulse & Bar               │
│ ◄ Green                     │
└─────────────────────────────┘
```
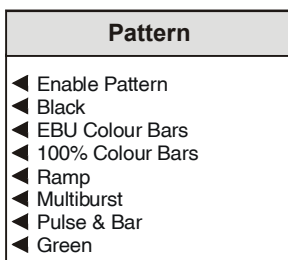
◄ Enable Pattern

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

Note: if patterns and caption are turned on at the same time then the pattern will default to black.

◄ Insertion

This item allows the pattern and caption to be inserted into either the Processed path or the Unprocessed path or both.
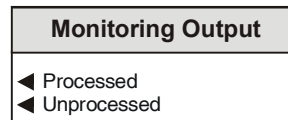
```
┌─────────────────────────────┐
│          Insertion          │
├─────────────────────────────┤
│ ◄ Processed Path            │
│ ◄ Unprocessed Path          │
└─────────────────────────────┘
```
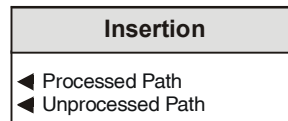
◄ Output Routing

This function allows what type of signal that appears at the three Monitoring outputs.

```
┌─────────────────────────────┐
│        Output Routing       │
├─────────────────────────────┤
│ ◄ Monitoring Output...      │
└─────────────────────────────┘
```

◄ Monitoring Output

```
┌─────────────────────────────┐
│      Monitoring Output      │
├─────────────────────────────┤
│ ◄ Processed                 │
│ ◄ Unprocessed               │
└─────────────────────────────┘
```
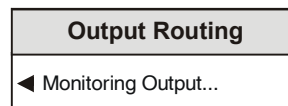
◄ Processed

The output signal will be the fully processed path with aspect ratio, Proc Amp, etc. controls enabled.

◄ Unprocessed

The output signal will be the unprocessed path without any aspect ratio changes, Proc Amp etc.

◄ **Monitoring Output**

This allows the characteristics of the composite monitoring output to be selected.

```
┌─────────────────────────────────┐
│      Monitoring Output          │
├─────────────────────────────────┤
│ ◄  Standard...                  │
│ ◄  525 Pedestal                 │
│ ◄  Chroma B/Width...            │
└─────────────────────────────────┘
```

◄ **Standard**

```
┌─────────────────────────────────┐
│           Standard              │
├─────────────────────────────────┤
│ ◄ PAL/NTSC                      │
│ ◄ PAL-N/NTSC                    │
└─────────────────────────────────┘
```

The output standard may be selected as either:

◄ PAL/NTSC   or   ◄ PAL-N/NTSC

◄ **525 Pedestal**

When selected a standard level pedestal will be applied to the output signal in 525 line standard only.

◄ **Chroma Bandwidth**

```
┌─────────────────────────────────┐
│        Chroma B/Width           │
├─────────────────────────────────┤
│ ◄ 0.65MHz                       │
│ ◄ 1.3MHz                        │
└─────────────────────────────────┘
```

The Chrominance bandwidth of the composite output may be selected as either:

◄ 0.66 MHz   or   ◄ 1.3 MHz

◄ **Standard (Input Standard)**

This allows the input standard to be selected.

```
┌─────────────────────────────────┐
│           Standard              │
├─────────────────────────────────┤
│ ◄ 525                   625 ►   │
└─────────────────────────────────┘
```

◄ 525

If only this item is selected the unit will be forced to only accept a 525 line standard

625 ►

If only this item is selected the unit will be forced to only accept a 625 line standard

If both 525 and 625 are selected the unit will automatically operate at the incoming line standard.
If neither of the items are selected the input will be detected as an error, but the output will remain in the standard of the last selection.

◄ **GPI/O**

This item allows the GPI connections to be configured.

```
┌─────────────────────────────┐
│         GPI I/O             │
├─────────────────────────────┤
│ ◄ GPI Input...              │
│ ◄ GPI Output...             │
│ ◄ GPIInputOutput...         │
└─────────────────────────────┘
```
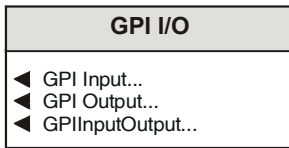
◄ **GPI Input**

This item reveals the GPI input configuration menu.

```
┌─────────────────────────────┐
│         GPI Input           │
├─────────────────────────────┤
│ ◄ Disable All               │
│ ◄ GPI In                    │
│ ◄ Inputs Selection          │
│ ◄ GPI In Status             │
└─────────────────────────────┘
```
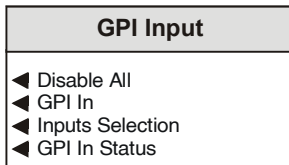
◄ Disable All

When selected the unit will ignore all GPI input changes.

◄ GPI In

The GPI input may be selected using this item.

```
┌─────────────────────────────┐
│          GPI In             │
├─────────────────────────────┤
│   GPI In                    │
│   GPI 2                     │
│ ◄ Preset                    │
└─────────────────────────────┘
```
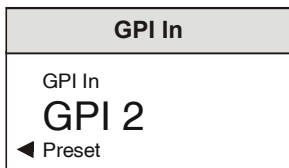
Selections available are:

GPI_1 to 8
GPIO_IN_1 to 4

◄ Inputs Selection

The GPI input functions that may be selected using this menu.

```
┌─────────────────────────────┐
│      Inputs Selection       │
├─────────────────────────────┤
│   Inputs Selection          │
│   Freeze                    │
│ ◄ Preset                    │
└─────────────────────────────┘
```
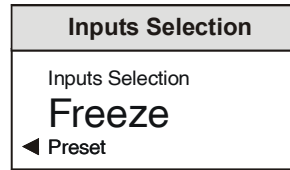
Selections available are:

Unused	The function not active. This is also the Preset Setting.
Pattern ON	The unit will produce a pattern output. Note that the caption function must be switched OFF.
Freeze	The unit will enter the freeze mode.
Memory 1 to 16	The unit will use the settings stored in the selected memory location.

◄ GPI In Status

This will display the current status of the selected GPI input.

```
┌─────────────────────────────┐
│       GPI In Status         │
├─────────────────────────────┤
│   GPI In Status             │
│   High                      │
│                    OK ►     │
└─────────────────────────────┘
```
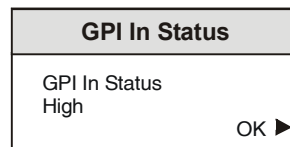
This may show either High (open circuit) or Low (closed circuit).

◄ **GPI Output**

This item reveals the GPI output configuration menu.

GPI Output
◄ GPI Out
◄ OutputsSelection...
◄ GPI Out Status
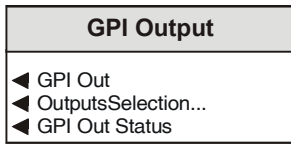
◄ GPI Out

The GPI output may be selected using this item.

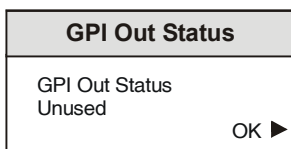| GPI Out |
| --- |
| GPI out |
| **GPIO Out3** |
| ◄ Preset |
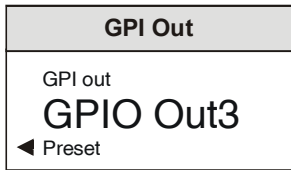
◄ Outputs Selection

The GPO may be configured to produce an output corresponding to one of the following conditions selected from this menu.

Outputs Selection
◄ Input Lost
◄ Standard 625
◄ Video Delay
◄ Unused
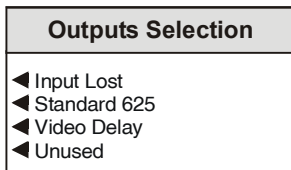
Input Lost — Produces a high TTL level output if the input signal is present

Standard 625 — Produces a high TTL level output if the operating line standard is 625

Video delay — Produces a high TTL level pulse the length of which corresponds to the video delay through the unit

Unused — The function is not active (Preset setting)

◄ GPI Out Status

This will display the current status of the selected GPI output.

GPI Out Status
GPI Out Status
Unused
OK ►

This may show either Unused, Input (configured to be an input), Open, Closed or Delay in ms

◄ GPI Input Output

GPI InputOutput
◄ GPI/O 1 OUT
◄ GPI/O 2 OUT
◄ GPI/O 3 OUT
◄ GPI/O 4 OUT
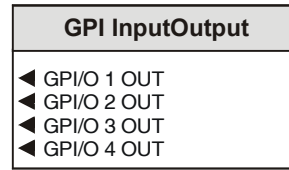
Four of the GPI inputs are configurable as GPI Outputs (GPI/O). When this is selected the corresponding GPI input is reconfigured as a GPI output.

◄ **RollTrack**

This function allows information to be sent, via the RollCall™ network, to other compatible units connected on the same network.

For example, it can enable 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. This allows 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.

RollTrack
◄ RollTrack Index
◄ RollTrack Source
◄ RollTrack Disable
◄ RollTrack Address
◄ RollTrack Command
◄ RollTrack Status

◄ **RollTrack Index**

RollTrack Index
RollTrack Index
10
◄ Preset

This item allows up to 16 destinations to be selected.

◄ **RollTrack Source**

This allows the source of information that triggers the transmission of data to be selected.

RollTrack Source
RollTrack Source
Video Delay
◄ Preset

Options are:
Unused (off) Preset
Video Delay
Input Present
Input Missing
Standard 525
Standard 625

◄ **RollTrack Disable**

When selected this will disable all the RollTracks being generated from this unit.

◄ **RollTrack Address**

RollTrack Address	
RollTrack Address	
◄ 0	►
◄ Clear	
◄ Preset	OK ►
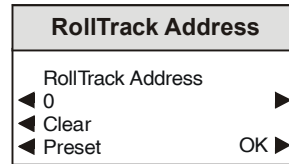
This item allows the RollTrack Address code to be set up using the adjacent push buttons to edit the text.

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 **RollTrack** address has four sets of numbers
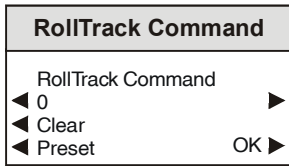
For example: 0000:10:01*99

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 (99) is a user settable ID number to help identify the sender in a multi-unit system

◄ **RollTrack Command**

```
    RollTrack Command
  ─────────────────────
    RollTrack Command
  ◄ 0                 ►
  ◄ Clear
  ◄ Preset         OK ►
```

The full **RollTrack** command has two sets of numbers.

For example: 84*156
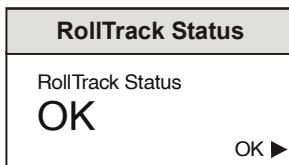
The first set (84) is the **RollTrack** command number

Note that only command numbers 14,15,16 and 17 should be used for audio delay

The second set (156) is the value sent with the **RollTrack** command number

*Note that when video delay is selected as the **RollTrack** source the value sent with the **RollTrack** command is the video delay value not the value set*

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

◄ **RollTrack Status**

```
    RollTrack Status
  ─────────────────────
    RollTrack Status
    OK
                   OK ►
```

This item will display the status of RollTrack.

◄ **Information**

```
       Information
  ─────────────────────
  ◄ EDH Reset
  ◄ EDH Errors
  ◄ EDH FF
  ◄ EDH AP
  ◄ Status information
```

This item allows the type of data shown in the information window, to be selected.

Options are:

EDH Reset	Resets EDH errors to zero
EDH Errors	Shows EDH Error seconds
EDH FF	Shows Full Field checksum
EDH AP	Shows Active Picture checksum
Active Picture	Shows Active Picture checksum
Status Information	Shows the status of the unit e.g. FRZ BYP MIN PAT

Where FRZ = Picture freeze
BYP= Unit in Bypass
MIN = Unit in Min Delay mode
PAT = Pattern On

◄ **Default Out**

Default Out
◄ Freeze
◄ Black

If the input signal fails the output may be configured to become either Freeze (a frozen picture) or Black.

Note that the default output for the unprocessed path will always be to black.

◄ **Logging**

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

Logging
◄ INPUT
◄ STD
◄ EDH
◄ ERRSEC

Items that may be selected are as follows:

INPUT   Reports a loss of input signal
STD   Reports the operating standard
EDH   Reports an EDH error
ERRSEC Reports the EDH error time in seconds

◄ **Smooth Transitions**

When the output picture size changes this function allows control over the way that the change of picture size occurs.

Smooth Transitions
◄ Manual/Min Delay

◄ Manual/Min delay

When selected the picture size will change smoothly to the new size.

When not selected the picture size will change instantaneously to the new size.

◄ **Terminology**

The notation used to express the aspect ratio may be chosen with this item.

Terminology
◄ WRT9
◄ PB/LB
◄ Ratio

◄ WRT9

Aspect ratio of active image area expressed as a two digit abbreviated numeric value where the comparison ratio is against a height of 9.
e.g. 12 is used for 4 by 3 (12 by 9).

◄ PB/LB

The visual effect of the image and display raster aspect ratios combined.
PB (Pillar Box) is full height but with black down the sides. LB (Letter Box) is full width with black top and bottom.

◄ Ratio

The aspect ratio expressed as a numerical ratio of width to height.

◄ **Unit**

This item allows information about the unit to be displayed and other functions to be activated.

Unit
◄ Software Version
◄ Serial Number
◄ Preset Unit
◄ Restart
◄ Build No

◄ Software Version

Software Version
Software Version
x.x.x
OK ►

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

◄ Serial No.

Serial No
Serial No
xxxxxxx
OK ►

This item shows the serial number of the module

◄ Build Number

Build Number
Build Number
xxxxxxx
OK ►

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

RollCall Control Templates for the IQDARCP

ARC

This screen allows settings to be made for the aspect ratio conversion parameters.

Bypass

This function allows the input signal to be passed through to the output without any processing.

Freeze

When selected the output will become a frozen field.

Mode

This function allows the overall operating mode of the IQDARCP to be selected.

Manual

The picture size will respond to the parameters set by the manual controls.

Minimum delay

The picture size will respond to the parameters set by the Minimum Delay control settings.

Smooth Transitions

When the output picture size changes this function allows control over the way that the change of picture size occurs.

Manual / Min Delay

When selected the picture size will change smoothly to the new size.

When not selected the picture size will change instantaneously to the new size.
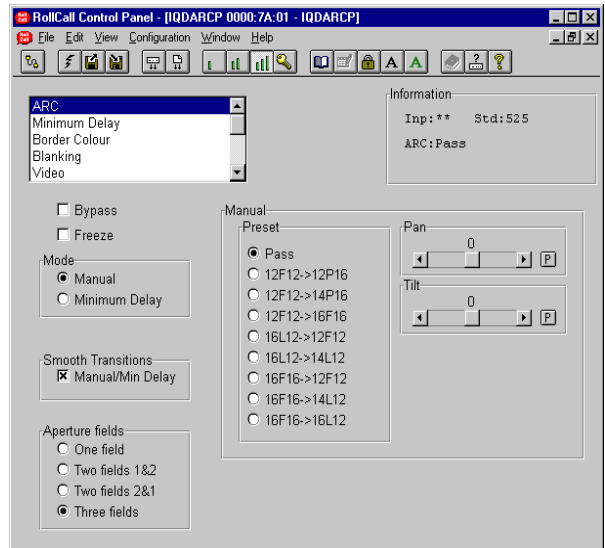
Note that for this and other screens the following applies:

The [P] 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 [P] will return the setting to the calibrated value of 0 for items on this screen.

Aperture Fields

This function allows the fields used for interpolation to be chosen.

One Field

The two and three field apertures will produce better results than the one field aperture. However in some special cases (e.g. programme material containing DVE moves or scrolling captions) a one field aperture may be preferred.

Two Fields 1&2

This aperture pairs fields 1 and 2 together as a set and applies a two field aperture to them.

Two Fields 2&1

As Two Fields 1&2 above but pairs the set across the other field boundaries. i.e. field 2 of one frame and field 1 of the next.

Three Fields (default)

This applies the best quality three field aperture to aspect ratio conversions.

Manual ARC

This function allows the input-to-output aspect ratio conversion to be set.

Preset

Preset values of aspect conversion may be chosen from the list:

Pass (Output the same as input aspect ratio)
12F12->12P16 4:3 > 16:9 PB
12F12->14P16 4:3 > 14:9 PB
12F12->16F16 4:3 > 16:9 FH
16L12->12F12 16:9 LB > 4:3
16L12->14L12 16:9 LB > 14:9 LB
16F16->12F12 16:9 FH > 4:3
16F16->14L12 16:9 FH > 14:9 LB
16F16->16L12 16:9 FH > 16:9 LB

Other values of aspect ratio conversion may be set up using the following controls:

The pan and tilt controls allow adjustments to be made to the selected **Preset** *value.*
Note that when any of these settings are changed the Preset value will be deselected.

Pan

This will adjust the horizontal position of the output image.

The range of adjustment is ±3700 in steps of 1.

Tilt

This will adjust the vertical position of the output image.

The range of adjustment is ±3000 in steps of 1.

Original Picture

Effect of a pan

Effect of Tilt

Minimum Delay

This mode produces the minimum input/output delay by disabling vertical size changes; therefore only a reduced selection of preset aspect ratio conversions are available.

When **Minimum Delay** mode is selected the aspect ratio conversion may be set by the following items:

Minimum Delay

Preset

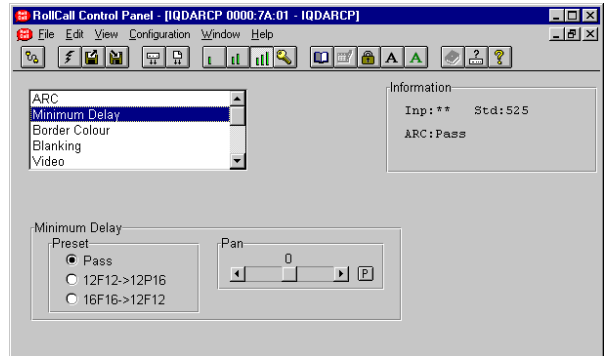Preset values of aspect conversion may be chosen from the list:

Pass (Output the same as input aspect ratio)
12F12->12P16 .... 4:3 > 16:9 PB
16F16->12F12 .... 16:9 FH > 4:3

Default setting is to Pass

Pan

This will adjust the horizontal position of the output image.

The range of adjustment is ±3700 in steps of 1.

CONVERSION DETAILS

Input		Transformation	Output	
4:3	**16:9**		**4:3**	**16:9**
①		Description: 4:3 to 16:9 PB Menu: **12F12 to 12P16** Ratios: V: 1 H: ¾		①
①		Description: 4:3 to 14:9 PB Menu: 12F12 **to 14P16** Ratios: V: 7/6 H: 7/8	Active image is vertically cropped	7/6
①		Description: 4:3 to 16:9 FH Menu: **12F12 to 16F16** Ratios: V: 4/3 H: 1		4/3
①		Description: 16:9 to 4:3 LB Menu: **16L12 to 12F12** Ratios: V: 4/3 H: 4/3	4/3	Active image is side cropped
①		Description: 16:9 to 14:9 LB LB Menu: **16L12** to **14L12** Ratios: V: 8/7 H: 8/7	8/7	Active image is side cropped
	①	Description: 16:9 to 4:3 FH Menu: **16F16 to 12F12** Ratios: V: 1 H: 4/3	①	Active image is side cropped
	①	Description: 16:9 to 14:9 FH LB Menu: **16F16 to 14L12** Ratios: V: 6/7 H: 8/7	6/7	Active image is side cropped
	①	Description: 16:9 to 4:3 FH LB Menu: **16F16 to 16L12** Ratios: V: ¾ H: 1	3/4	

Border Colour

This function allows the Border Colour (the blanked area outside the picture) to be selected.

Colour

Specific colours may be selected or two custom set-ups are available from the User A and User B items.

Set Colour selections are:

Black	Blue
Red	Green
White	Grey
User_A	User_B

Set User A, Set User B

This function allows custom settings of red, green and blue to be adjusted using the scroll bars.

The range of control is from 0 to 255 units in steps of 1 unit.
Preset is to 0.
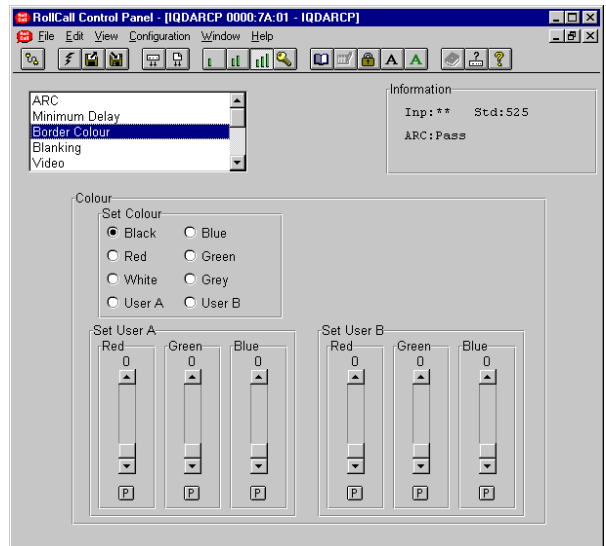
Blanking

This function allows the left/right horizontal and the top/bottom blanking edges to be moved in both the input and output active picture.

Std525_Line 21/283 (525 line systems only)

This allows the selection of line 21/283 as a video line or a VITS line (usually closed captioning).

Picture

Selects line 21/283 as a video line.

Closed_Caption

Selects line 21/283 as a vertical blanking line.
Note: When this option is selected the control of 'Input Blanking Top' should be manually set to be at least two lines to prevent closed caption appearing in the active picture.

Vert Edge Filter

When selected a one line cross fade action is introduced on the horizontal edge transition between picture and blanking which helps to remove twitter.

Force to Black (Input & Output)

Selecting this function will force the input (output) blanking to black therefore allowing the input (output) blanking to be black and the other to be a colour.

Delete WSS

When selected this will delete the input WSS line (line 23 625 only). When not selected the line 23 data will be regenerated with the same information as the input.

Delete VI

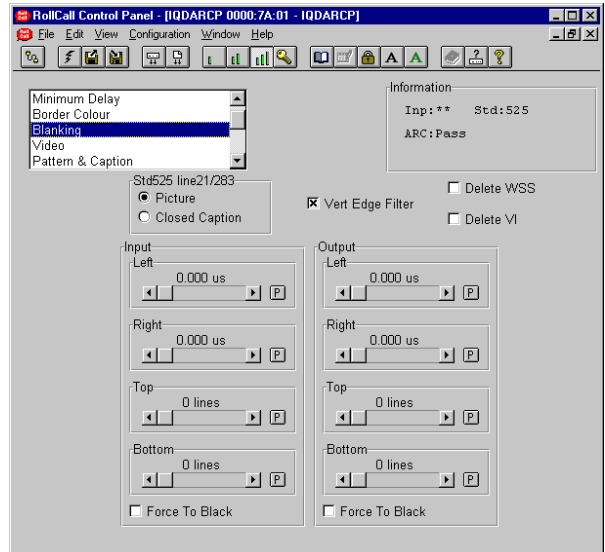When selected this will delete the input Video Index signal.

Input and Output

Left/Right

The Left/Right edge may be moved from 0 to 13.172 μs in steps of 148 ns.

Top/Bottom

The Top/Bottom edge may be moved from 0 to 200 lines in steps of 1 line.

Video

Proc Amp

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

Luma Gain

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

By using the scroll bar the gain may be adjusted by ±6 dB in steps of 0.1 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 using the scroll bar the pedestal may be adjusted by ±100 mV in steps of 0.8 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 using the scroll bar the gain may be adjusted by ±6 dB in steps of 0.1 dB.

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

Limiting

These functions allow Y and C signal excursions to be limited by setting minimum and maximum clipping levels. All adjustments are made in steps of 0.8 mV.
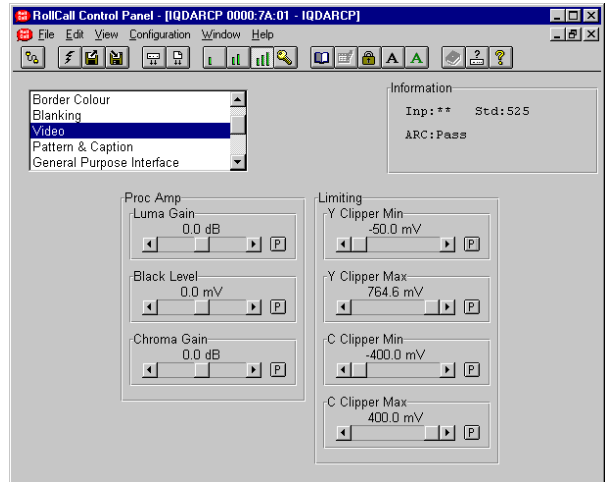
Y Clipper Min

The minimum clip level for the luminance signal may be set between –50 mV and +49.2 mV

Preset value is –50 mV

Y Clipper Max

The maximum clip level for the luminance signal may be set between +635 mV and +764.6 mV

Preset value is +764.6 mV

C Clipper Min

The minimum clip level for the chrominance signal may be set between –400 mV and -200 mV

Preset value is –400 mV

C Clipper Max

The maximum clip level for the chrominance signal may be set between +200 mV and +400 mV

Preset value is +400 mV

Pattern & Caption

This item allows a pattern to be selected as the output and a caption to be setup.

Note that the picture behind the caption will appear at half amplitude luminance.

Caption

Edit Caption

A 1 line caption of 19 characters may be set up by editing the text string.

Preset is IQDARCP

Select Caption

The caption may be selected as Caption Off / On

Insertion

This item allows the pattern and caption to be inserted into either the Processed path or the Unprocessed path or both.

Pattern

This function will allow various patterns to be used as the output signal.
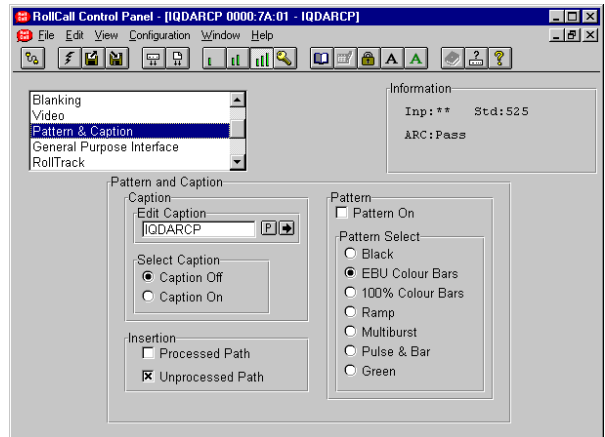
Pattern On

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

Note: if patterns and caption are turned on at the same time then the pattern will default to black.

Pattern Select

The pattern may selected from the following list:

Black
EBU Colour Bars
100% Colour bars
Ramp
Multiburst
Pulse & bar
Green

General Purpose Interface

This screen allows the GPI connections to be configured.

GPI_in

The ARC may be configured to respond to a GPI input in a manner corresponding to one of the following conditions:

GPI_1 to 8
GPIO_IN_1 to 4

Input Functions

The GPI input functions that may be selected are as follows:

|	
Unused	The function not active. This is also the Preset Setting.
Pattern ON	The unit will produce a pattern output. Note that the caption function must be switched OFF.
Freeze	The unit will enter the freeze mode.
Memory 1 to 16	The unit will use the settings stored in the selected memory location.

GPI In Status

This will display the current status of the selected GPI input.

This may show either High (open circuit) or Low (closed circuit).

Disable Inputs

When selected the unit will ignore all GPI input changes.
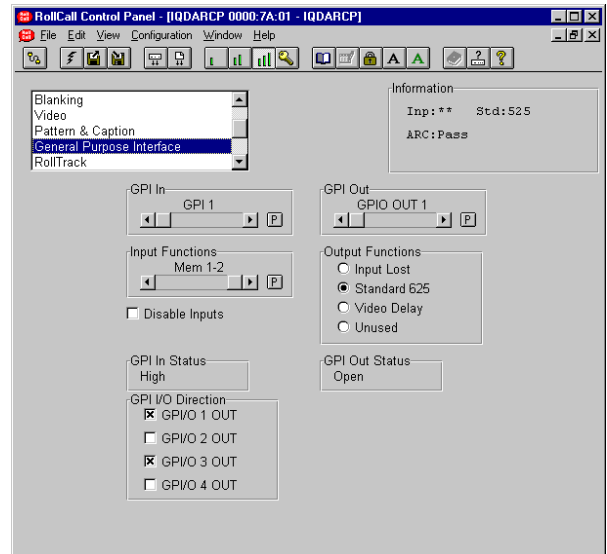
GPI/O Direction

Four of the GPI inputs are configurable as GPI Outputs (GPI/O).
When selected the corresponding GPI input is reconfigured as a GPI output.

GPI out

Each one of the four GPI outputs can be configured to respond to one of the output functions.

Output Functions

The GPO may be configured to produce an output corresponding to one of the following conditions:

Input Lost	Produces an output if the input signal is lost.
Standard 625	Produces an output if the operating line standard is 625.
Video delay	Produces a high output signal corresponding to the video delay through the unit.
Unused	The function is not active (Preset setting).

GPI Out Status

This will display the current status of the selected GPI output.

This may show either Unused, Input (configured to be an input), Closed, Open or Delay in ms

RollTrack

This function allows information to be sent, via the RollCall™ network, to other compatible units connected on the same network.

For example, it can enable 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. This allows 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.

RollTrack Index

This item allows up to 16 destinations to be selected.

RollTrack Source

This allows the source of information that triggers the transmission of data to be selected. Options are:

Unused (off) Preset
Video Delay
Input Present
Input Missing
Standard 525
Standard 625

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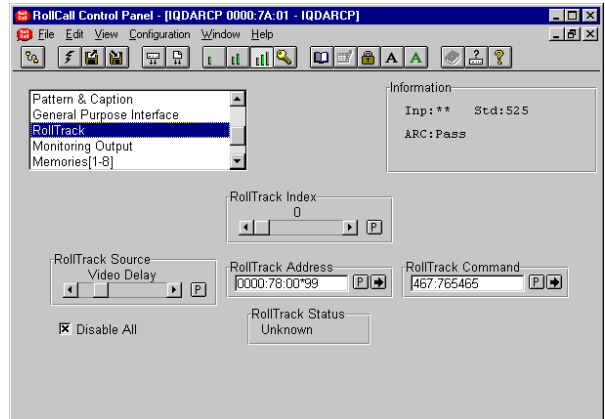
RollTrack Address

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 icon] (return)

![P icon] (Preset) returns to the default destination

Disable All

When selected this will disable all the RollTracks being generated from this unit.

The full **RollTrack** address has four sets of numbers.

For example: 0000:10:01*99

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 (99) is a user settable ID number to help identify the sender in a multi-unit system

RollTrack Command

The full **RollTrack** command has two sets of numbers.

For example: 84*156

The first set (84) is the **RollTrack** command number

Note that only command numbers 14,15,16 and 17 should be used for audio delay

The second set (156) is the value sent with the **RollTrack** command number

*Note that when video delay is selected as the **RollTrack** source the value sent with the **RollTrack** command is the video delay value not the value set*

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

RollTrack Status

This item will display the status of RollTrack.

Monitoring Output

This allows the characteristics of the composite monitoring output to be selected.

Standard

The output standard may be selected as either:

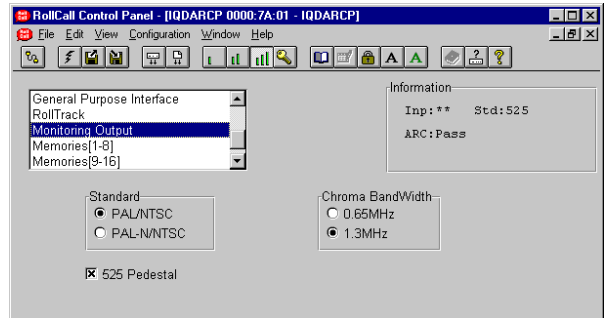PAL/NTSC   or   PAL-N/NTSC

Chroma Bandwidth

The Chrominance bandwidth of the composite output may be selected as either:

0.66 MHz   or   1.3 MHz

525 Pedestal

When selected a standard level pedestal will be applied to the output signal in 525 line standard only.

Memories 1-8 and 9-16

This function allows a number of particular setups of the IQDARCP to be saved and recalled. There are 16 memory locations available.

To change the name of a memory location type the new name in the text area and then select ▶ (return)

P (Preset) returns the name to the default name.

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

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

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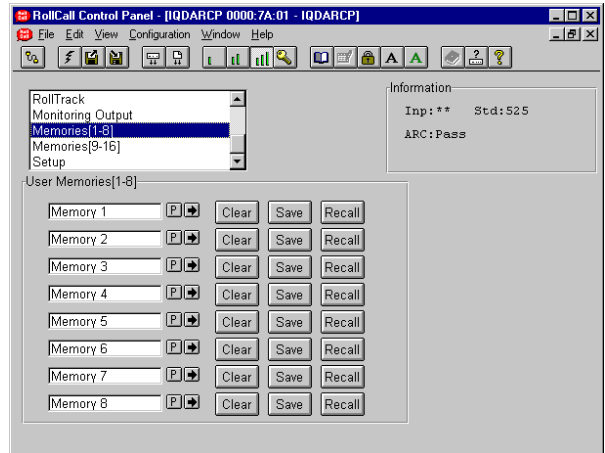
Setup

This item allows various basic functions to be set up.

Input Standard

525   If only this item is selected the unit will be forced to only accept a 525 line standard

625   If only this item is selected the unit will be forced to only accept a 625 line standard

If both 525 and 625 are selected the unit will automatically operate at the incoming line standard.

If neither of the items are selected the input will be detected as an error, but the output will remain in the standard of the last selection.

Terminology

The notation used to express the aspect ratio may be chosen with this item.

WRT9   Aspect ratio of active image area expressed as a two digit abbreviated numeric value where the comparison ratio is against a height of 9.
e.g. 12 is used for 4 by 3 (12 by 9).

PB/LB The visual effect of the image and display raster aspect ratios combined.
PB (Pillar Box) is full height but with black down the sides. LB (Letter Box) is full width with black top and bottom.

Ratio   The aspect ratio expressed as a numerical ratio of width to height.

Logging

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

Items that may be selected are as follows:

INPUT   Reports a loss of input signal
STD   Reports the operating standard
EDH   Reports an EDH error
ERRSEC   Reports the EDH error time in seconds
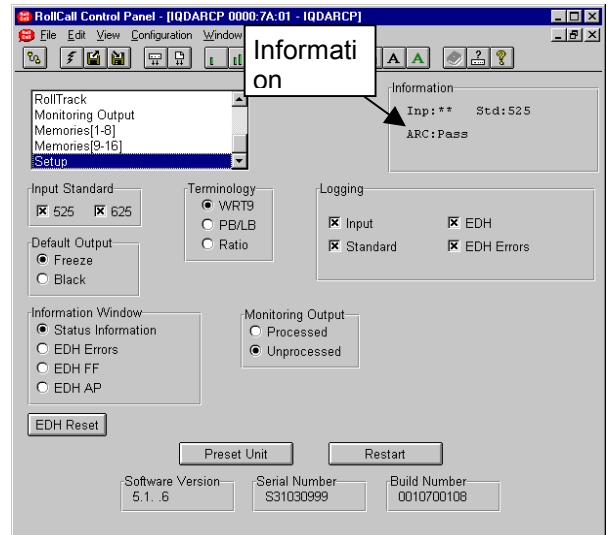
Default output

If the input signal fails the output may be configured to become either Black or Freeze (a frozen picture)

Note that the default output for the unprocessed path will always be to black.

Information Window

This item allows the type of alternative data shown in the information window on the second and third lines, to be selected.

Options are:

EDH Errors   Shows EDH Error seconds

EDH FF   Shows Full Field checksum

EDH AP   Shows Active Picture
                      checksum

Status Information   Shows the status of the unit
                      e.g. FRZ   BYP   MIN PAT

                Where FRZ = Picture freeze
                      BYP= Unit in Bypass
                      MIN = Unit in Min Delay mode
                      PAT = Pattern On
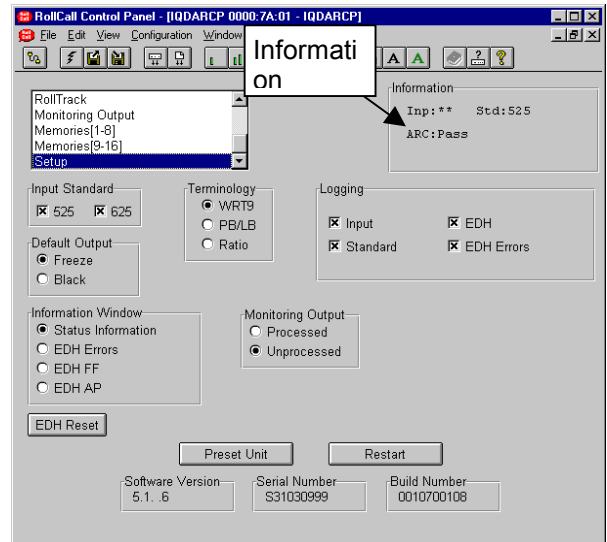
Setup (cont)

Monitoring Output

This function allows what type of signal that appears at the Monitoring outputs.

Processed   The output signal will be the fully processed path with aspect ratio, Proc Amp, etc. controls enabled.

Unprocessed   The output signal will be the unprocessed path without any aspect ratio changes, Proc Amp etc.

This will reset the EDH error counter to zero.

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

Note that this is a momentary action.

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

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

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.

RollTrack Audio Delay Tracking

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

RollTrack Audio Delay Tracking enables Snell & Wilcox RollCall™ compatible audio delay products to track delay introduced by RollCall™ compatible video processing products.
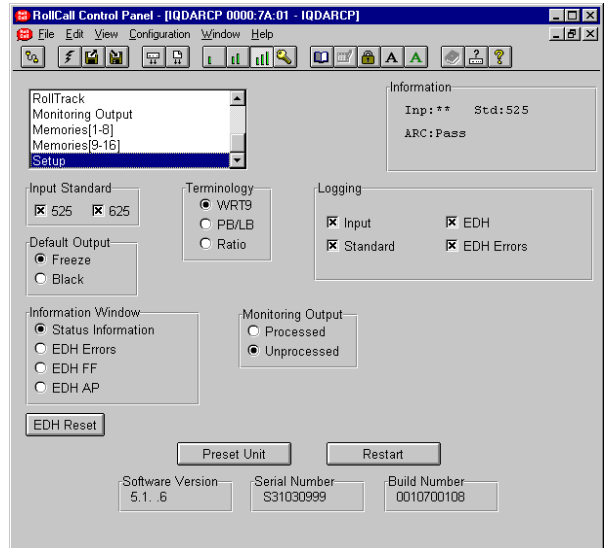
The current products that implement RollTrack Audio Delay Tracking are:

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

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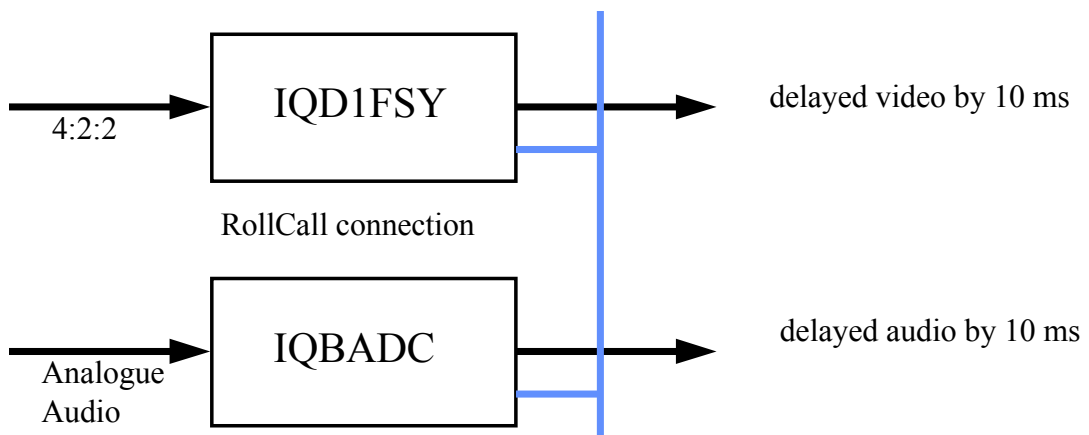
The next level of configuration is where there are multiple Frame Synchronizers (for example) each connected through RollCall™ to their own tracking Audio Delay. (It is worth stating that the synchronizers and audio delays do not have to be in the same enclosure; the addressing scheme, discussed later,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

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

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

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

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

Box	Output
IQD1FSY (input 4:2:2)	delayed video by 10 ms *changes to 20 ms*
IQBADC (input Analogue Audio)	delayed audio by 10 ms *tracks to 20 ms*
IQBAAD (input Analogue Audio)	delayed audio by 10 ms *tracks to 20 ms*

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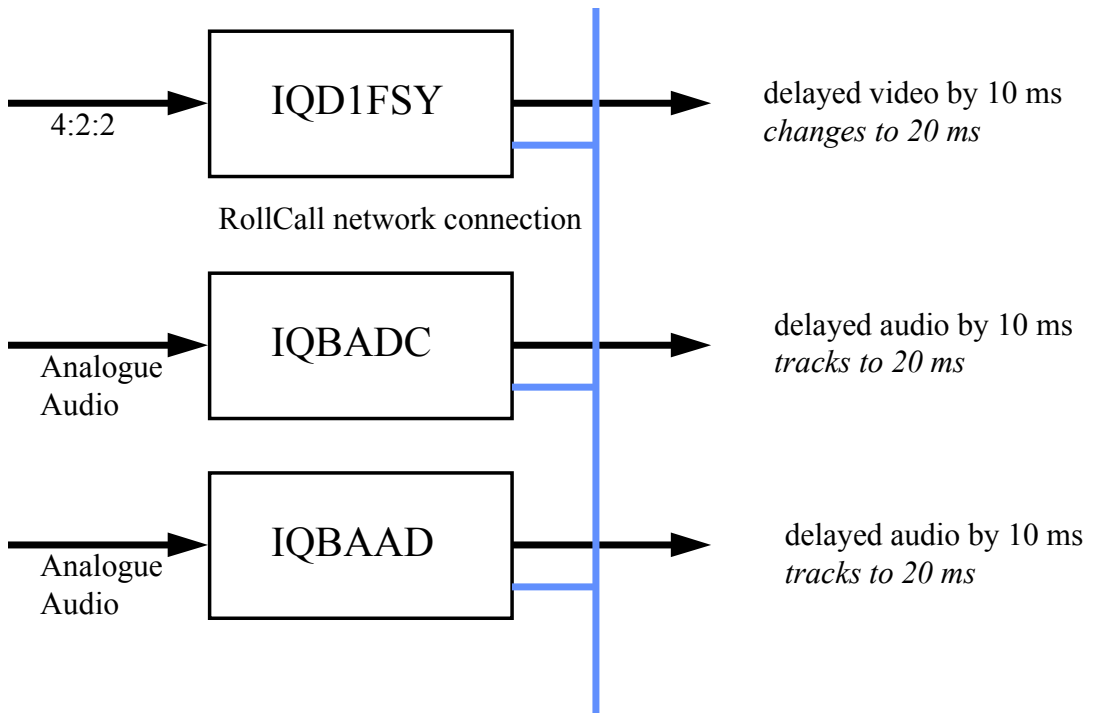
From one to eight audio delay products can be connected via RollCall™ to a single frame synchronizer, for example. If the synchronizer delay changes, then however many audio delays are connected will track the delay. The audio delays can also have a manual delay which will be added to the RollTrack delay.

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

IQDMSDA Δ_1 — IQD1FSY Δ_2 — IQD1FSY Δ_3 — IQD1FSY Δ_4

RollCall network connection

IQBADC

Δ_m (= manual delay set in the BADC)

Total delay:

$\Delta_T = \Delta_{1-4} + \Delta_m$
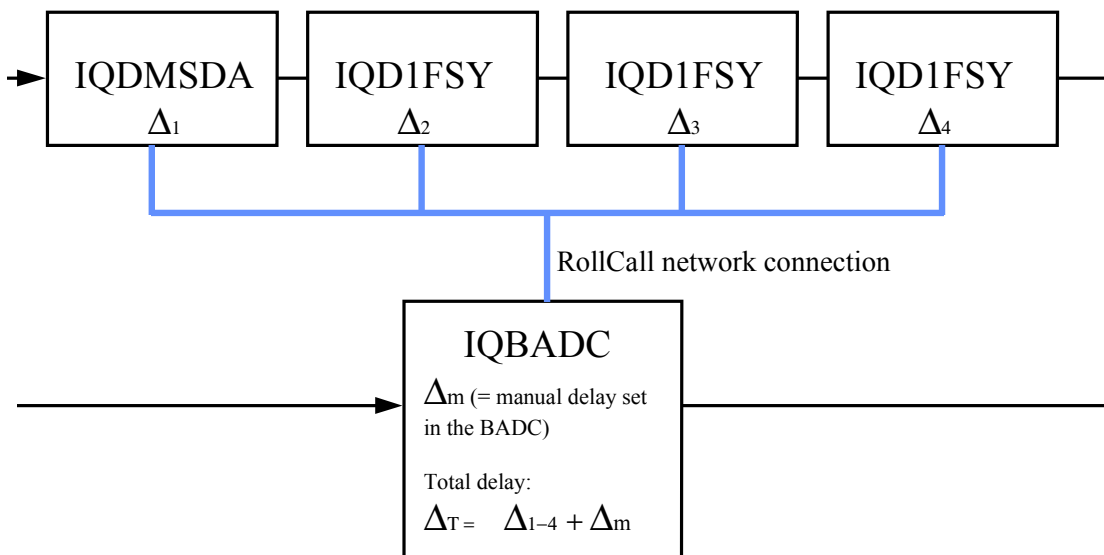
The total delay time through the audio delay is then the sum of the individual delays introduced by the video units plus the manual delay of the audio unit. The manual delay can be set to compensate for any fixed propagation delay in the video path or may be set to zero.

The next level of complexity is a *matrix delay cluster* where each audio delay (up to eight) can track up to four video units. This configuration is in effect a four by eight matrix of video units and audio delay units. The total delay time through the audio delay units is then the sum of the individual delays introduced by the video units plus the manual delay of the audio unit.
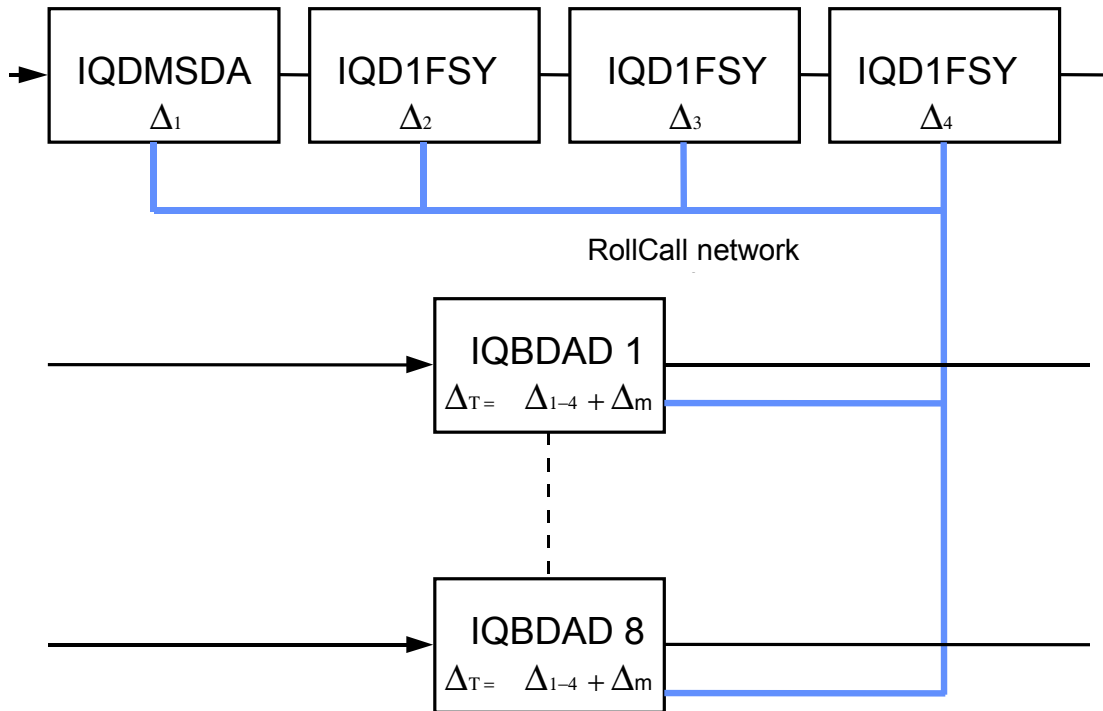
As any of the delay times change in the video path so will the audio delay time track this delay.
A virtual connection is made between from, say, an IQD1FSY to an IQBDAD by:

> selecting the *Setup...* Menu of the IQD1FSY
> then selecting the *Audio_Delay...* Menu
> then choosing from *Unit_1* to *Unit_8*
> then entering the unique network address of the IQBDAD in the form *nnnn:xx:yy*z*d*
> where *nnnn* = network address and in most cases will be 0000(hex);
>> *xx* = IQ enclosure address (hex);
>> *yy* = slot address of the IQBDAD (hex)
>> *z* = the connection (or channel) number (decimal) - see table below.
>> d = the unique identification of the destination unit (decimal) The ID entered must match the

receiving units own ID or else the command will be ignored. If the ID value is set to 00, the receiving unit does
> not perform an ID match and will always accept the incoming command
> then selecting the *Delay...* Menu of the IQBDAD
> then selecting *RollTrack*

Example of Network Addresses with Channel Numbers and ID Numbers

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

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

Video Input

Video Out Delayed by 10+13+19+5=47 ms

IQD1FSY.....1 Delay = 10 ms

IQD1FSY.....2 Delay = 13 ms

IQD1FSY.....3 Delay = 19 ms

IQD1FSY.....4 Delay = 5 ms

Set Destination RollCall address (Network Code, Unit Code, Slot Location & Channel Allocation Number)

Setup Menu
▼ Audio_Delay

Audio Delay
▼ Unit_1.....8

Audio Delay
Unit_7
▼ 0000:10:05*14*54 OK▶ ▲ ▲

Audio Delay
Unit_7
▼ 0000:10:05*15*54 OK▶ ▲ ▲

Audio Delay
Unit_7
▼ 0000:10:05*16*54 OK▶ ▲ ▲

Audio Delay
Unit_7
▼ 0000:10:05*17*54 OK▶ ▲ ▲

Note that units 1 to 8 are the particular audio delay units which the IQD1FSY will connect to.

NETWORK

ID (Identification) Code
This is the unique identification of the destination unit (a decimal number)

Network Code
This is the Network segment address (in Hex code) (in most csaes 0000)

Enclosure Code
This is a number (in Hex code) identifying the specific IQ enclosure

Slot Number
This is the slot number allocation (in Hex code) in the enclosure i.e. 1 to 6 in a 1U frame 1 to 16 in a 3U frame

Channel Number
Use Nos. 14, 15, 16 and 17 for Audio Delay Cards
e.g.
IQBAAD
IQBADC
IQBDAC
IQBDAD

Destination Address 0000:10:05
Module fitted e.g. IQBDAD

Gateway

Ch 14	Delay
Ch 15	10 ms
Ch 16	13 ms
Ch 17	19 ms
	5 ms

Delay due to RollTrack = 47 ms

Manual Delay

Total Delay =Manual Delay+ 47 ms

Audio Input

Delayed Audio Out

RollTrack Audio/Video Tracking System

Example showing four IQD1FSY units controlling an IQBDAD Audio delay module whose network address is 0000:10:05 and will be designated as Unit 7 from the IQD1FSY module.

RollTrack Audio/Video Tracking System

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

Manual Revision Record

Date	Version No.	Issue No.	Change	Comments
160902	1	1		First Issue released
090403	1	2	Power consumption added to techspec	New manual issued
050104	1	3	SDI monitoring outputs removed	New manual issued
210105	1	4	Not available note added	New manual issued
250105	1	5	1Frame plus approx. *2µS* to *37µs*	New manual issued