

digital keying modular
interface audio
converters analogue video

SW808

8 x 8 routing switch

USER MANUAL



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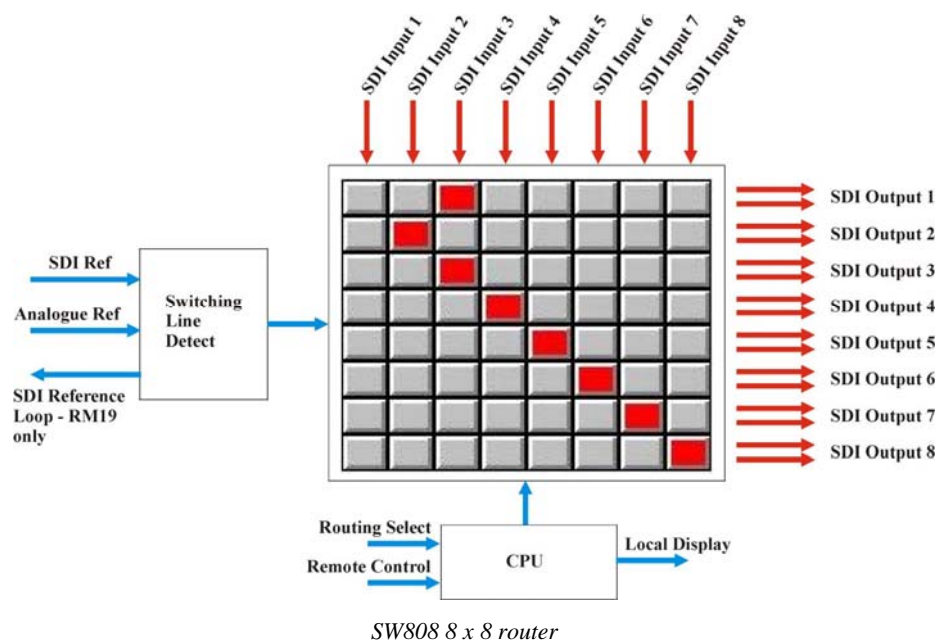
Revision 6	GPI connection information clarified, pages 35-36	28/11-07
Revision 7	Amended controller to frame wiring diagram, page 6	21/07/08
Revision 8	Source to output selection description amended, page 9	17/12/08

1 Introduction

The SW808 is an SDI and DVB-ASI compatible, 8 x 8 crosspoint routing switch.

Switch synchronisation is provided by either SDI or analogue references, allowing the SW808 to switch in the vertical blanking interval to avoid picture disturbance. The designated switching lines are 6 and 319 in 625 line systems and 10 and 273 in 525 line.

There is also provision to switch immediately for cases where there is no common reference.



Individual crosspoints can be set and multiple crosspoint salvos can be created to change a number of crosspoints at once. Up to 16 macros or custom routing table assignments may be stored and recalled and up to 16 snapshots of the router table may be captured as presets for later recall.

Control is available from the SW808 Controller panel, Statesman PC control Software, an active control panel or the card edge. Names may be assigned to inputs and outputs from Statesman and active control panels.

The main features are as follows:

- SDI 8 x 8 routing switch
- SDI or analogue reference
- Two feeds of each output
- Salvos, macros and router 'snapshot' presets
- Names may be assigned to inputs and outputs
- GPI selection of macros and presets
- Control and status monitoring via dedicated SW808 Controller, Statesman, frame/remote control panels or the card edge

The SW808 Controller

The SW808 Controller is a dedicated 1U panel designed to control a single SW808 8 x 8 routing switch, with dedicated buttons for each of the eight sources and eight destinations.



SW808 8 x 8 router panel

Control is quick and easy: select output, select input and press the 'take' button. Alternatively salvos can be created and stored to change a number of outputs at once.

GPI control of the first two destinations is provided with optional tally.

Rear connector options

The SW808 is a 'double decker' module that occupies two slots. It can be used in a 2U frame with the RM19 rear connector or in a 1U frame and Desk Top Box by using the RM20 rear connector.

When used with the four-slot RM19 rear connector all eight inputs and eight outputs are available. The RM19 will only fit into a 2U rackframe allowing up to three SW808 modules.

When used with the two-slot RM20 rear connector eight inputs and three outputs are available. Six modules will fit into a 2U rack frame, three in a 1U and one in a desktop box.

The RM19 rear module has both SDI and analogue reference inputs, with an SDI reference loop allowing a source to be wired as both a matrix signal input and a reference input. The RM20 offers one reference input, switch selectable between SDI and analogue.

Further details of the rear modules can be found in the Installation Chapter.

2 The SW808 Controller panel

The SW808 Controller panel is designed to control the SW808 8 x 8 routing switch using a RS422 serial link. The controller has dedicated buttons for each of the eight sources and eight destinations together with a TAKE button and Salvo SAVE and RECALL buttons.



SW808 Controller panel

2.1 Installing the Controller

The SW808 has a number of external control lines that can be configured for GPI or RS485 control. These control lines **MUST** be configured for RS485 to enable SW808 Controller communication as explained in section 6.5. It is **NOT** possible to retain GPI control when the controller panel is enabled. However, the SW808 panel has its own GPI control built in as described later in this chapter.

The panel communicates with Crystal Vision frames via a serial communication link using the 422 BUS port at the rear of the panel. Standard UTP patch cables may be used with an appropriate adaptor for the Crystal Vision frame remote connector.



SW808 Controller panel – rear view

The RJ45 422 BUS port is next to the GPI I/O connector. Other RJ45 connectors and the four-way DIP switch are **NOT** used.

Each card slot in a frame has its control lines brought out to different 26-way D-type frame remote connectors on the rear of the frame. The following tables show which remote connectors to use for different frames and frame slots:

SW808 card slots and frame remote connectors

RJ45	Slot 2	Slot 4	Slot 6	Slot 8	Slot 10	Slot 12
Indigo 2U frame	Rem 1	Rem 3	Rem 1	Rem 3	Rem 1	Rem 3
Indigo 1U frame	Rem 1	Rem 1	Rem 1	N/A	N/A	N/A
Desk Top Box	Rem 1	N/A	N/A	N/A	N/A	N/A

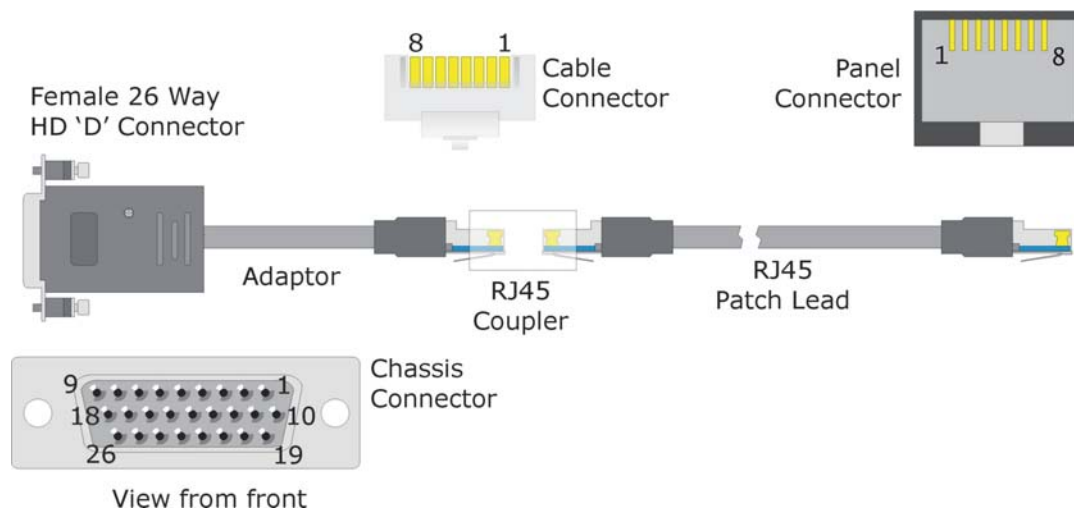
The appropriate remote connector(s) should be connected to the 422 Bus connector at the rear of the panel using an adaptor, as explained in the next section.

Note: The second serial port on the SW808 is used for controller communications allowing front panel and Statesman control at the same time as controller access.

Controller to frame remote wiring



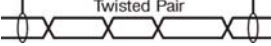
The connection from the control panel to the appropriate frame remote connector has a cable with a D-type plug at one end and an RJ45 connector at the other.

It is suggested that a short adaptor cable be made with a standard RJ45 patch lead and an in-line coupler used to make the required overall cable length.



Controller panel to frame adaptor and CAT5 patch lead

The following tables show how the required panel to frame adaptors should be wired.

CAT5	RJ45 plug		S2/R1	S6/R1	S10/R1
Colour			S4/R3	S8/R3	S12/R3
	Shell (GND)		6/Shell	6/Shell	6/Shell
Brown	8		7	4	10
W/Brown	7		16	14	11
Blue	4		17	13	19
W/Blue	5		25	23	20

Indigo 2U frame Remote 1

RJ45	Slot 2	Slot 6	Slot 10
Pin 8	Pin 7	Pin 4	Pin 10
Pin 7	Pin 16	Pin 14	Pin 11
Pin 4	Pin 17	Pin 13	Pin 19
Pin 5	Pin 25	Pin 23	Pin 20

Indigo 2U frame Remote 3

RJ45	Slot 4	Slot 8	Slot 12
Pin 8	Pin 7	Pin 4	Pin 10
Pin 7	Pin 16	Pin 14	Pin 11
Pin 4	Pin 17	Pin 13	Pin 19
Pin 5	Pin 25	Pin 23	Pin 20

Indigo 1U frame Remote 1

RJ45	Slot 2	Slot 4	Slot 6
Pin 8	Pin 7	Pin 4	Pin 10
Pin 7	Pin 16	Pin 14	Pin 11
Pin 4	Pin 17	Pin 13	Pin 19
Pin 5	Pin 25	Pin 23	Pin 20

Desk Top Box Remote 1

RJ45	Slot 1	Slot 2
Pin 8	Pin 8	Pin 7
Pin 7	Pin 9	Pin 16
Pin 4	Pin 18	Pin 17
Pin 5	Pin 26	Pin 25

Note: The RJ45 connector at the rear of Indigo frames should not be used to connect controller panels.

For the panel to work jumper links PL4-PL7 need to be fitted towards the rear of the board as explained in section 6.5 This will disable GPI control of the SW808 module, but controller GPIs will be available.

Using Controller GPIs

The Controller GPIs are provided to allow remote control of the first two destinations with optional tally outputs.

There are 18 GPI lines, which can be configured as inputs or outputs. When used as inputs they control source selection for destinations 1 and 2. They may also be used as tallies when configured as outputs.

GPIs 1 –8 control destination 1 and are enabled by GPI 17.

GPIs 9 – 16 control destination 2 and are enabled by GPI 18.

With GPIs 1 – 8 enabled, selecting GPI 1 will set destination 1 to source 1, pressing GPI 2 will set destination 1 to source 2 etc... The same applies for destination 2 with GPIs 9 – 16.

The GPIs will also give a tally output so that when destination 1 is connected to source 4, GPI 4 will be low. This tally will follow destinations 1 and 2, no matter from where the routing is updated.

The pinout for the 26 way 'D' connector at the rear of the SW808 Controller panel is as follows:

26-way D-type pin connections

Pin No.	Description	Pin No.	Description	Pin No.	Description
1	+5V	10	GPI_6	19	GPI_14
2	0V	11	GPI_7	20	GPI_15
3	GPI_1	12	GPI_8	21	GPI_16
4	GPI_2	13	GPI_9	22	GPI_17
5	0V	14	0V	23	GPI_18
6	GPI_3	15	GPI_10	24	GPI_19
7	GPI_4	16	GPI_11	25	GPI_20
8	GPI_5	17	GPI_12	26	0V
9	+5V	18	GPI_13		

Note: GPIs 19 and 20 are currently unassigned.

2.2 SW808 Controller operation

To use the SW808 Controller proceed as follows:

- Connect the SW808 Controller panel to a Crystal Vision frame with an SW808 module installed as explained in the previous section
- Power the Controller panel - the panel will automatically search for an SW808 module



SW808 Controller panel

Searching Mode

The panel indicates that it is in 'searching mode' by flashing the source and destination buttons and LEDs in a back and forth pattern. Button presses will have no effect whilst searching.

The panel will remain in 'searching mode' until it has established communications with a SW808 board. If communication with a SW808 is lost, it will return to 'searching mode'.

Panel LED	Meaning when lit	Comment
Ref	Reference present.	Composite/SDI reference selection cannot be made from the panel.
Comms	Comms OK	Illuminates to indicate communication with SW808.
Panel lock	Panel locked	All buttons are locked out. To toggle panel lock on and off hold down source 1 button and destination 8 button for approximately 3 seconds.
Input present	Shows which paths have signals	The eight LEDs under the source buttons show video in to the SW808, and the eight LEDs under the destination buttons show video out of the SW808 and are therefore routing dependent.

Changing crosspoint assignments

To change routing, first press the destination button and then the new source button. The new source button will flash and the TAKE button will light. Then press the TAKE button and the new routing will be updated on the SW808. Where the output selection remains unchanged any source may be selected and routed to that output by simply selecting the source and pressing TAKE.

Tip: Always assign sources to destinations by first selecting a destination followed by a source to route to that destination.

To undo routing that hasn't been 'taken' press the destination and then the original source. This will be the source button that is lit and not flashing.

Viewing crosspoint assignments

To see which source is connected to which destination, press the destination button and the source connected to it will light. One source can go to more than one destination.

Multiple routing

Multiple routing can be performed by creating the required destination-source pairs before pressing the TAKE button. The destination buttons will flash to show that they have routing waiting for a take. To confirm the routing press the TAKE button and the selected routing assignments will all be updated simultaneously.

This is similar to establishing a single crosspoint except that instead of pressing TAKE immediately, further destination-source pairs are created first.

Note: The last destination button pressed does not flash.

Setting up multiple routing:

- Press the destination and then the source for each crosspoint assignment required in turn – destination buttons flash
- Press TAKE to confirm the routing

Using salvos

Up to sixteen salvos may be recorded and recalled from the SW808, Statesman, the card edge control or by external GPIs. Like macros, salvos do not store board setup data, switching mode or reference selection.

Salvos can be created from the controller panel; by setting up multiple routing and pressing SAVE instead of TAKE. All the source and destination buttons will flash to indicate that a memory location needs to be selected. The source buttons 1 – 8 represent Salvos 1 – 8, and the destination buttons represent Salvos 9 – 16. Select a memory location and then press SAVE to confirm.

Creating a Salvo:

- Set up the required routing
- Press SAVE – all source and destination buttons flash
- Choose a source/destination button for the Salvo - SAVE will flash
- Press SAVE to confirm the choice

To recall a Salvo press RECALL, select a memory location and then press RECALL again to confirm, or any other button to cancel.

Recalling a Salvo:

- Press RECALL – all source and destination buttons flash
- Choose a source/destination button with a previously saved Salvo - RECALL will flash
- Press RECALL to confirm the choice

Notes: Salvos are similar to Macros in that only those crosspoints in the Salvo are changed. All other crosspoints will remain as they were before the Salvo was recalled.

The operation of the panel described here is based on panel software version 4.01.

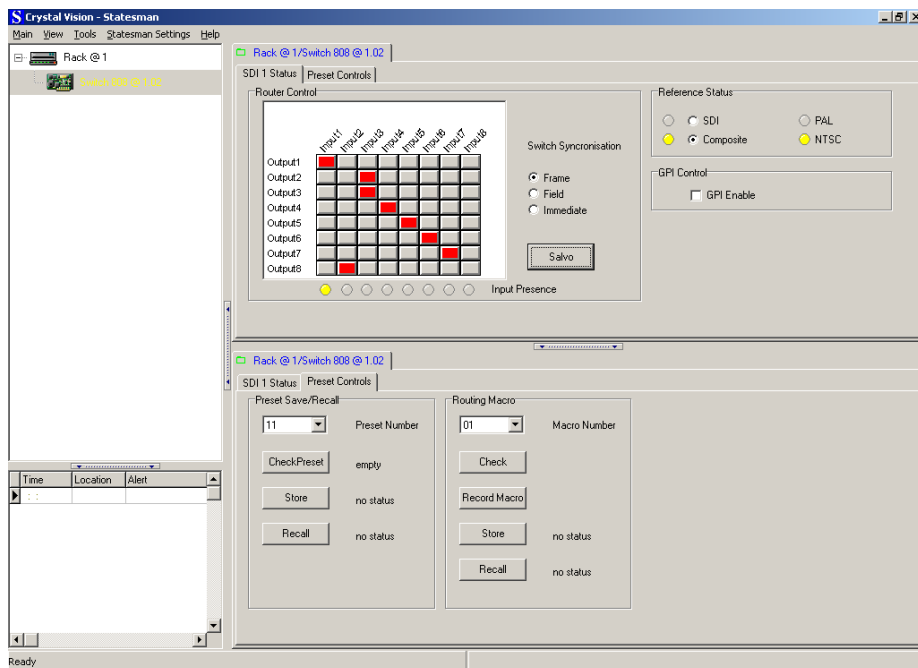
3 Statesman

The Crystal Vision Statesman PC control software is designed to control a range of Crystal Vision modules via serial control from a PC. Statesman provides a user friendly means of configuring and operating Crystal Vision modules with the benefit of “see-at-a-glance” status monitoring.

The main Statesman application communicates with each module in a frame through a Statesman capable or active control panel. An active panel or REMIND remote control panel must be fitted to allow for Statesman control.

3.1 Statesman operation

The initial view will show an Explorer style view of the connected frames and modules. Double clicking on a module will enable the display of the main application menus.



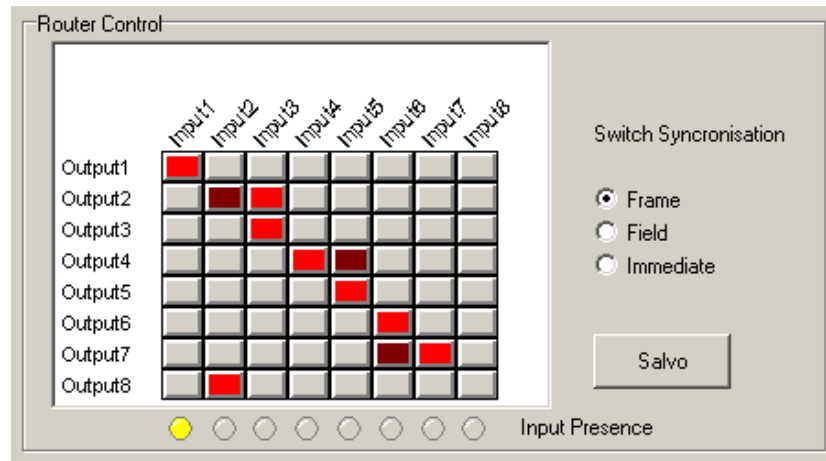
Statesman main application window

The two large control panes shown in the upper and lower halves of the window may display different menus for the same card, or controls for different cards. Click on the horizontal button-bar between the two panes to close the lower plane or drag the button to vary the size of the panes.

Note: For further details of Statesman configuration and operation please refer to the Statesman manual.

Routing video

Active crosspoints are always shown in red, and new crosspoint assignments not yet confirmed with the 'Salvo' button are shown in brown.



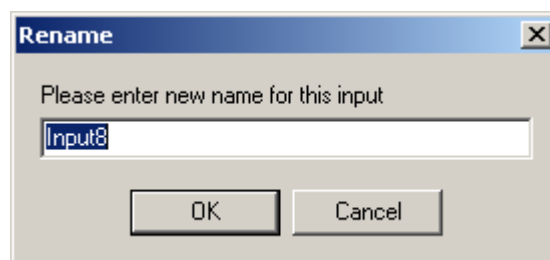
SW808 routing

Multiple routing is accomplished simply by selecting more than one cross point before clicking the Salvo button. Changed cross point assignments will turn brown until the 'Salvo' is actioned. The cross points will all change simultaneously when 'Salvo' is clicked.

Crosspoint changes can be made to occur in the frame or field vertical interval according to SMPTE RP168 or instantaneously. A valid SDI or analogue reference will be required for either field or frame switching. Check Frame, Field or Immediate as required.

Naming sources and destinations

To change the name of a source or destination click on the name and a change name dialogue will appear.



Rename inputs (or outputs)

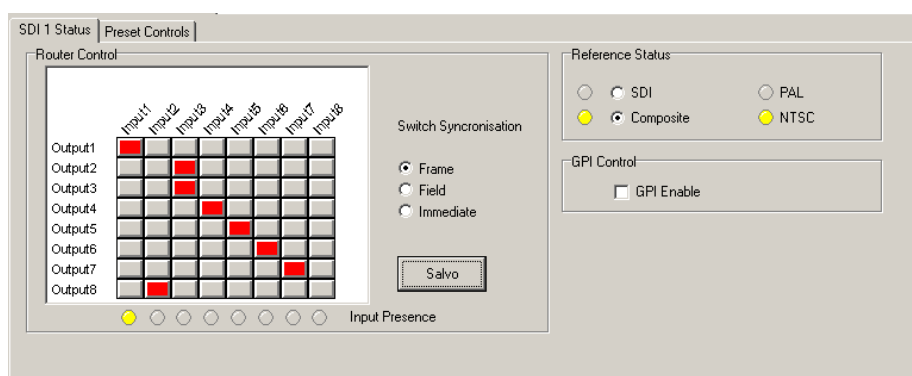
Type the new name and select OK. Note that more than 10 characters cannot be displayed.

Note: Names chosen here are not related to names assigned using an active panel.

Selecting the reference

The SW808 may be used with either an SDI or an analogue composite reference. The selection may be made using Statesman provided an RM19 rear connector is used. Select either SDI or Composite by checking the appropriate box.

When used with an RM20 connector, the reference selection must be made via a switch on the rear connector itself. Refer to the Installation chapter for more information.



SW808 Routing and Status

GPI control

The SW808 may be controlled via GPI lines connected to the rear of the frame in which the module is used. GPI control is limited to recalling Presets or Macros. GPI control cannot be used at the same time as the SW808 Controller panel as both use the same physical control lines. Please refer to the Installation chapter for more information on using GPIs.

To enable GPI control, check the GPI Enable box. It is not recommended to enable GPI control, if GPIs might be active whilst configuring Presets or Macros.

SW808 status

The main (status) Statesman tab can also be used to monitor the router table, switch synchronisation, GPI Control status, input presence and reference status when changes are made from any interface.

The reference selection (SDI/Composite) status is only valid when an RM19 rear connector is used.

Using presets

Up to sixteen routing setups may be stored and recalled from Statesman, the card edge control or by external GPIs. Presets do not store board setup data, switching mode or reference selection.

Preset Save/Recall		Routing Macro	
11	Preset Number	01	Macro Number
CheckPreset	empty	Check	
Store	no status	Record Macro	
Recall	no status	Store	no status
		Recall	no status

SW808 Routing and Status

To store a preset proceed as follows:

- Ensure 'GPI Enable' is unchecked
- Select an appropriate preset with the Preset Number drop-down menu
- Click on 'CheckPreset' to check if the preset is empty
- Click on 'Store' to save the preset

To recall a preset proceed as follows

- Ensure 'GPI Enable' is unchecked
- Select an appropriate preset with the Preset Number drop-down menu
- Click on 'Recall' to recall setup data from the selected preset

'GPI Enable' should not be checked whilst presets are being created or recalled by this menu to prevent inadvertent GPI operation. Enable 'GPI controls preset recall' when finished if required.

Note: Other interfaces such as the SW808 Controller, the card edge or an Active Control Panel may also interfere with saving or recalling presets.

Using macros

Up to sixteen macros may be recorded and recalled from Statesman, the card edge control or by external GPIs. Macros do not store board setup data, switching mode or reference selection.

To record a macro, proceed as follows:

- Ensure 'GPI Enable' is unchecked
- Select appropriate macro with the Macro Number drop-down menu
- Click on 'Check' to check if the macro is empty
- Perform the crosspoint changes in the order required
- Click on 'Store' to save the macro

To recall a macro proceed as follows

- Ensure 'GPI Enable' is unchecked
- Select an appropriate macro with the Macro Number drop-down menu
- Click on 'Recall' to recall the stored crosspoint assignments in the macro

'GPI Enable' should not be checked whilst macros are being created or recalled by this menu to prevent inadvertent GPI operation. Enable 'GPI controls preset recall' when finished if required.

Macros are similar to Salvos in that only those crosspoints in the Macro are changed. All other crosspoints will remain as they were before the Macro was recalled.

Note: Other interfaces such as the SW808 Controller, the card edge or an Active Control Panel may also interfere with saving or recalling macros.

4 Using the active control panel

This operational guide assumes that the panel has been set up according to the Panel setup procedure described in the Crystal Vision Controls Panel manual.

Note: It is **ESSENTIAL** that the Panel set up procedure is followed and any old or unknown passwords cleared prior to using the panel for the first time.

At power up, the two-line 20-character screen will display 'Crystal Vision' followed by the firmware version number for the control panel. All eight control panel key LEDs will illuminate.



The Crystal Vision control panel start up display

'Control Panel' then briefly replaces the version number display.



If the control panel firmware has been updated for Statesman control, Statesman Mode will be entered and the message, 'Press CAL to Exit' will be displayed and the CAL LED will light.



Statesman mode is entered by default

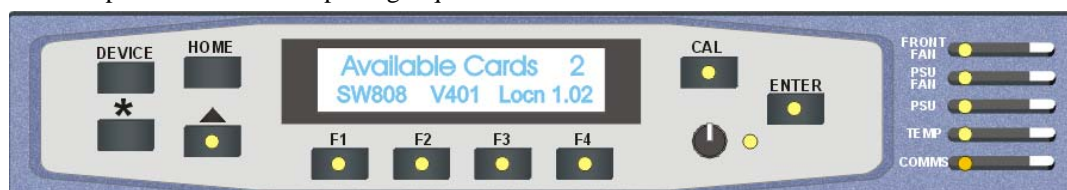
To continue with control panel operation or configuration, press the 'CAL' key once. A second press of the 'CAL' key will return to Statesman control.

The control panel will display the name of the card that first responds to the polling request together with its location number.

The location number consists of the frame number plus the card position in the frame.

Selecting the SW808

To select a particular card in a frame, press the DEVICE key to go to the Device menu. The top line of the display will show 'Available Cards X', where X is the number of cards that have responded so far to the polling request.

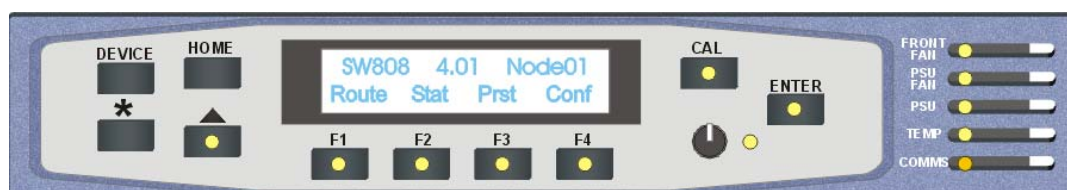


Control panel showing available cards

Rotate the shaft encoder and the bottom row will display the successfully polled cards by name and location or slot number.

In the example above, the card displayed is located in the first frame in slot number 2.

When the desired card is selected press the ENTER key to access that card's HOME menu.



SW808 home menu

Note: In all current Crystal Vision frames the node address is coded into the backplane giving a unique node address for each slot. The node address is typically one less than the location number. Refer to the Frame Manual for further information on using node addresses.

Enabling active panel control

Card-edge switch lever 2 must be in the ON (DOWN) position to enable an active control panel. If this lever is in the default local or UP position, card-edge control will be enabled.

4.1 Navigating the display

The functions assigned to control panel keys are dependent on the card selected for control, and the panel mode. The following list illustrates the functions when controlling the SW808:

- DEVICE – enters Device menu to select a card or card to control / enter Panel setup when held down during power up / shows frame status when pressed from Statesman mode
- CAL – Enter or leave Statesman mode / enter panel diagnostics mode when held down during power up
- Asterisk – enters board rename menu from the Device menu
- F1 to F4 – soft keys, function assigned within each menu
- HOME – moves the display to the home menu
- ENTER – enters selected card home menu from device list
- Upward arrow – used to move up the menu structure / enter lock panel menu from the Device menu
- Rotary control – shaft encoder used to select options or change assigned data values

Note: Please refer to the Crystal Vision Control Panel manual for details of the Panel Setup, Lock Panel and Diagnostic menus.

4.2 Updating the display

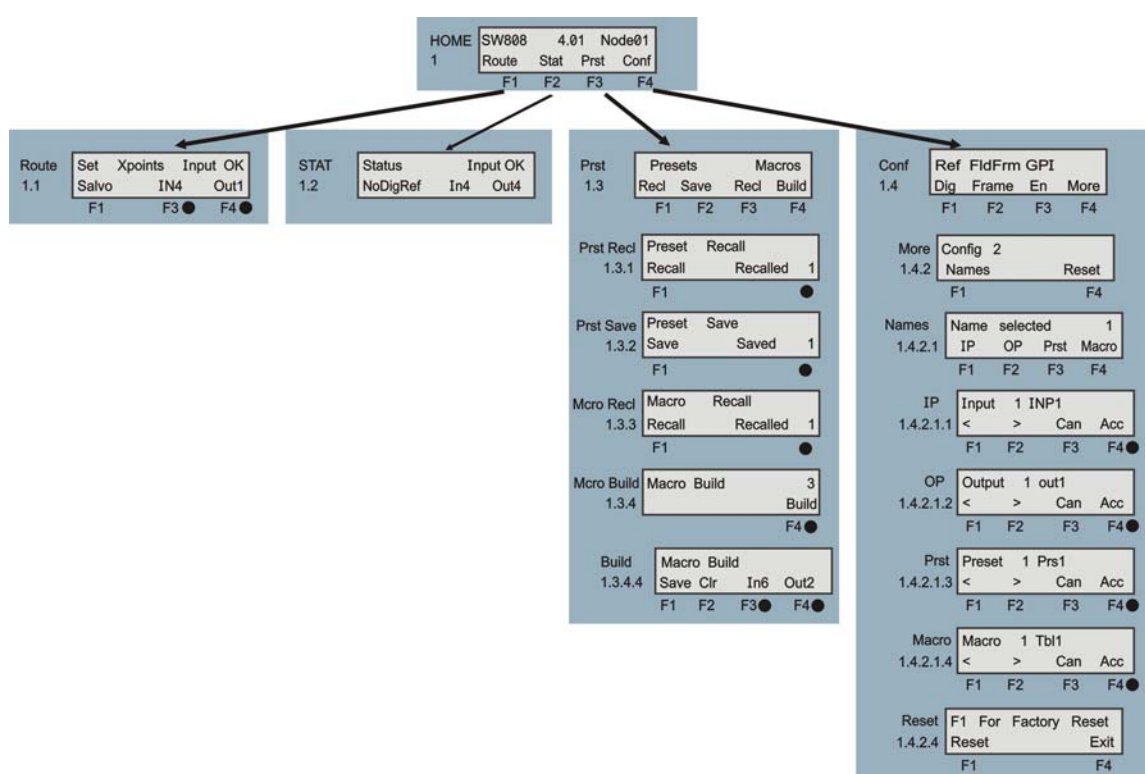
The values displayed on an active front panel are only updated when an adjustment is made and when changing menu level. If changes occur through the use of card edge controls or through automatic response to GPI signals, the text displayed on the active front panel will not be updated immediately. If necessary, use the upward arrow to leave and then re-enter a menu to update the display.

4.3 The SW808 menu structure

The main top-level menus for a module are obtained by pressing the F1, F2, F3 and F4 keys from that module's HOME menu. Menu keys are illuminated when active and when further menus are available. The four top-level menus are:

- Route (Salvo/Take functions) – press F1
- Stat (Status) – press F2
- Prst (Presets and Macros) – press F3
- Conf (Configure) – press F4

The following chart shows the available menus.



The SW808 menu tree

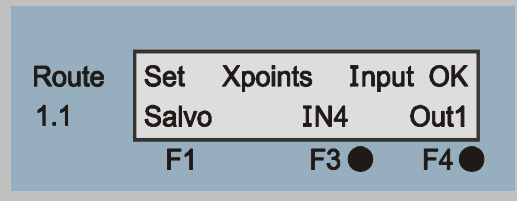
Note: Function keys and shaft encoder LEDs are illuminated when active. Menus or function keys associated with the shaft encoder for changing assigned values are shown with a black circle.

Menu numbering scheme

This manual uses a simple menu numbering convention based on the sequence of keys required to reach each menu from the top level home menu. For example, menu 1.1.2 is reached from the home menu by pressing F1, then F2. Menu 1.2.3 is reached by pressing F2 and then F3.

4.4 Salvo and take functions

Pressing F1 from the home menu will bring up the Route menu. The Route menu provides a Take function to set crosspoint assignments individually and a Salvo function to set multiple crosspoints at once.

Route menu structure	Description
	<p>Press F4 for shaft encoder to change output Press F3 for shaft encoder to select input Press F1 to 'take' the assignment immediately OR Continue to use F3 and F4 to set assignments Press F1 to 'fire' the assignments as a Salvo</p>

On entry to the Route menu, the shaft encoder will alter the output crosspoint displayed and the associated input will be shown. To view the routing table rotate the shaft encoder. To change an input connected to an output press the F3 key and set the required input with the shaft encoder. The change is done implicitly when another output is selected, or when the Salvo button is pressed.

If other crosspoint changes are required press the F4 key again to enable the shaft encoder to select another output. Repeat these steps until all crosspoints changes are stored.

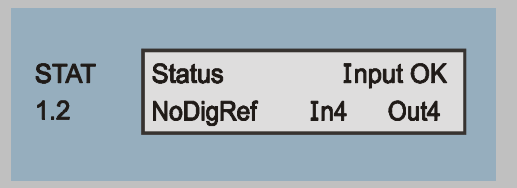
To preview the proposed changes, press the F4 key. This will allow the shaft encoder to control outputs and scroll through all crosspoint assignments. Finally, press the F1 key to 'fire' all changes as a Salvo.

4.5 Status

Pressing F2 from the home menu will bring up the Status menu.

The following information is shown:

- External reference status
- Input status
- Output status

Status menu structure	Description
	<p>External reference status may be NoDigRef, NoAnlRef, Dig or Anl Use shaft encoder to browse active crosspoints – input status will be Input OK or No Input</p>

Note: To leave a menu use the up-arrow key or press the Home key.
 The display is only updated when a button is pressed or the shaft encoder is moved.

4.6 Presets and macros

Pressing F3 from the home menu will bring up the presets menu. Use this menu to select presets or macro menus. Presets are snapshots of the entire routing table, whilst macros are custom built tables for selected crosspoints (similar to saveable Salvos).

The preset menu provides the following functions:

- Recall and save for 16 presets
- Build, save and recall for 16 macros

Presets and macros menu structure		Description										
Prst 1.3	<table border="1"> <tr> <td>Presets</td> <td>Macros</td> </tr> <tr> <td>Recl</td> <td>Save</td> </tr> <tr> <td>Recl</td> <td>Build</td> </tr> <tr> <td>F1</td> <td>F2</td> </tr> <tr> <td>F3</td> <td>F4</td> </tr> </table>	Presets	Macros	Recl	Save	Recl	Build	F1	F2	F3	F4	Use the F keys to select the required sub-menu
Presets	Macros											
Recl	Save											
Recl	Build											
F1	F2											
F3	F4											
Prst Recl 1.3.1	<table border="1"> <tr> <td>Preset</td> <td>Recall</td> </tr> <tr> <td>Recall</td> <td>Recalled</td> </tr> <tr> <td>F1</td> <td>1</td> </tr> </table>	Preset	Recall	Recall	Recalled	F1	1	F1 recalls preset selected by shaft encoder				
Preset	Recall											
Recall	Recalled											
F1	1											
Prst Save 1.3.2	<table border="1"> <tr> <td>Preset</td> <td>Save</td> </tr> <tr> <td>Save</td> <td>Saved</td> </tr> <tr> <td>F1</td> <td>1</td> </tr> </table>	Preset	Save	Save	Saved	F1	1	F1 saves preset selected by shaft encoder				
Preset	Save											
Save	Saved											
F1	1											
Mcro Recl 1.3.3	<table border="1"> <tr> <td>Macro</td> <td>Recall</td> </tr> <tr> <td>Recall</td> <td>Recalled</td> </tr> <tr> <td>F1</td> <td>1</td> </tr> </table>	Macro	Recall	Recall	Recalled	F1	1	F1 recalls macro selected by shaft encoder				
Macro	Recall											
Recall	Recalled											
F1	1											
Mcro Build 1.3.4	<table border="1"> <tr> <td>Macro</td> <td>Build</td> </tr> <tr> <td>Build</td> <td>3</td> </tr> <tr> <td>F4</td> <td>Build</td> </tr> </table>	Macro	Build	Build	3	F4	Build	F4 access the Macro Build menu for the Macro selected by the shaft encoder.				
Macro	Build											
Build	3											
F4	Build											
Build 1.3.4.4	<table border="1"> <tr> <td>Macro</td> <td>Build</td> </tr> <tr> <td>Save</td> <td>Clr</td> </tr> <tr> <td>In6</td> <td>Out2</td> </tr> <tr> <td>F1</td> <td>F2</td> </tr> <tr> <td>F3</td> <td>F4</td> </tr> </table>	Macro	Build	Save	Clr	In6	Out2	F1	F2	F3	F4	F3 selects input, F4 selects output, F2 clears any unsaved macro data, F1 saves the crosspoint assignments into the selected macro. F1 must be pressed separately for each crosspoint selected. To preview macro press F4 and rotate shaft encoder.
Macro	Build											
Save	Clr											
In6	Out2											
F1	F2											
F3	F4											

Note: Saved Macros can be used in a similar way to Salvos. Simply recall a Macro to set only those crosspoints actually in the Macro table. All other crosspoints will remain as they were before the Macro was recalled.
Assign 'No Ch' input to an output to ensure that output is not affected by a macro. It is strongly recommended to DISABLE GPIs when working on presets or macros to avoid the possibility of GPI inputs causing preset memory data to re-configure the SW808 at the same time as presets or macros are being updated.

4.7 Configuration

Pressing F4 from the home menu will bring up the Configuration menu. Use this menu to rename inputs and outputs or to recall factory settings.

Configuration menu structure		Description												
Conf 1.4	<table border="1"> <tr> <td>Ref</td> <td>Fld</td> <td>Frm</td> <td>GPI</td> </tr> <tr> <td>Dig</td> <td>Frame</td> <td>En</td> <td>More</td> </tr> <tr> <td>F1</td> <td>F2</td> <td>F3</td> <td>F4</td> </tr> </table>	Ref	Fld	Frm	GPI	Dig	Frame	En	More	F1	F2	F3	F4	<p>F1 selects Dig (digital) or Anl (analogue) reference F2 selects Frame, Field or Immediate timing F3 enables or disables GPIs F4 accesses further sub-menus</p>
Ref	Fld	Frm	GPI											
Dig	Frame	En	More											
F1	F2	F3	F4											
More 1.4.4	<table border="1"> <tr> <td>Config 2</td> <td></td> </tr> <tr> <td>Names</td> <td>Reset</td> </tr> <tr> <td>F1</td> <td>F4</td> </tr> </table>	Config 2		Names	Reset	F1	F4	<p>F1 selects the 'Names' sub-menu. F4 provides access to the Factory Reset menu.</p>						
Config 2														
Names	Reset													
F1	F4													
Names 1.4.4.1	<table border="1"> <tr> <td>Name selected</td> <td>1</td> </tr> <tr> <td>IP</td> <td>OP</td> <td>Prst</td> <td>Macro</td> </tr> <tr> <td>F1</td> <td>F2</td> <td>F3</td> <td>F4</td> </tr> </table>	Name selected	1	IP	OP	Prst	Macro	F1	F2	F3	F4	<p>Shaft encoder selects name (1 to 16) to change F keys to select the required name sub-menu</p>		
Name selected	1													
IP	OP	Prst	Macro											
F1	F2	F3	F4											
IP 1.4.4.1.1	<table border="1"> <tr> <td>Input</td> <td>1</td> <td>INP1</td> </tr> <tr> <td><</td> <td>></td> <td>Can</td> <td>Acc</td> </tr> <tr> <td>F1</td> <td>F2</td> <td>F3</td> <td>F4 ●</td> </tr> </table>	Input	1	INP1	<	>	Can	Acc	F1	F2	F3	F4 ●	<p>F3 deletes previous input name text F1 and F2 select the character for change Shaft encoder changes character F4 accepts the new name</p>	
Input	1	INP1												
<	>	Can	Acc											
F1	F2	F3	F4 ●											
OP 1.4.4.1.2	<table border="1"> <tr> <td>Output</td> <td>1</td> <td>out1</td> </tr> <tr> <td><</td> <td>></td> <td>Can</td> <td>Acc</td> </tr> <tr> <td>F1</td> <td>F2</td> <td>F3</td> <td>F4 ●</td> </tr> </table>	Output	1	out1	<	>	Can	Acc	F1	F2	F3	F4 ●	<p>F3 deletes previous output name text F1 and F2 select the character for change Shaft encoder changes character F4 accepts the new name</p>	
Output	1	out1												
<	>	Can	Acc											
F1	F2	F3	F4 ●											
Prst 1.4.4.1.3	<table border="1"> <tr> <td>Preset</td> <td>1</td> <td>Prs1</td> </tr> <tr> <td><</td> <td>></td> <td>Can</td> <td>Acc</td> </tr> <tr> <td>F1</td> <td>F2</td> <td>F3</td> <td>F4 ●</td> </tr> </table>	Preset	1	Prs1	<	>	Can	Acc	F1	F2	F3	F4 ●	<p>F3 deletes previous preset name text F1 and F2 select the character for change Shaft encoder changes character F4 accepts the new name</p>	
Preset	1	Prs1												
<	>	Can	Acc											
F1	F2	F3	F4 ●											
Macro 1.4.4.1.4	<table border="1"> <tr> <td>Macro</td> <td>1</td> <td>Tbl1</td> </tr> <tr> <td><</td> <td>></td> <td>Can</td> <td>Acc</td> </tr> <tr> <td>F1</td> <td>F2</td> <td>F3</td> <td>F4 ●</td> </tr> </table>	Macro	1	Tbl1	<	>	Can	Acc	F1	F2	F3	F4 ●	<p>F3 deletes previous macro name text F1 and F2 select the character for change Shaft encoder changes character F4 accepts the new name</p>	
Macro	1	Tbl1												
<	>	Can	Acc											
F1	F2	F3	F4 ●											
Reset 1.4.4.4	<table border="1"> <tr> <td>F1</td> <td>For</td> <td>Factory</td> <td>Reset</td> </tr> <tr> <td>Reset</td> <td></td> <td></td> <td>Exit</td> </tr> <tr> <td>F1</td> <td></td> <td></td> <td>F4</td> </tr> </table>	F1	For	Factory	Reset	Reset			Exit	F1			F4	<p>F1 applies a factory reset to the SW808 – all saved data will be erased. Exit leaves the menu without making any changes.</p>
F1	For	Factory	Reset											
Reset			Exit											
F1			F4											

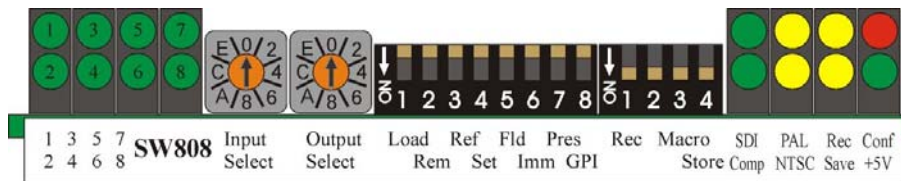
Factory reset clears all names, macros and presets, reference is set to digital, switch timing is set to frame, and GPI inputs are disabled. The routing table is initialised as IN1 set to OUT1, IN2 set to OUT2, IN3 set to OUT3 and so on to IN8 set to OUT8.

Note: Reference select is made manually with an RM20 rear connector- see Installation chapter.
Active panel names cannot be more than four characters in length for input or output names and ten characters for preset or macro names. Active panel names and Statesman names are independent of each other.

5 Card edge operation

Once the start-up initialisation procedure is complete, the SW808 card can be controlled or configured from the card edge, active control panel or the Statesman PC interface. This chapter will concentrate on the card edge controls.

The front edge of the card provides power rail monitoring, menu selection, rotary input and output selectors and an eight LED input status display.



SW808 card edge

The eight-way menu piano switch bank is used to select main functions whilst the four-way piano switch bank selects preset and macro functions. The input selector selects inputs 1 to 8, whilst the Output Selector selects outputs 1 to 8. The 0 or 'zero' positions of the 0 to 15 rotary HEX switches are not assigned.

Main menu functions






Select main functions with the 8-way piano switch bank levers as follows:

Menu switch	Menu
	• Default – all levers OFF (UP) –
	• Load: – lever 1 ON (DOWN) then OFF (UP) – stores data
	• Remote mode: – lever 2 ON (DOWN) –active control panel
	• EXT reference: Composite – lever 3 ON (DOWN); SDI – lever 3 OFF (UP)
	• Crosspoint Control: Set – lever 4 ON (DOWN); View – lever 4 OFF (UP)
	• Timing: Frame – lever 5 ON (DOWN); Field – lever 5 OFF (UP)
	• Take – lever 6 ON (DOWN); Timed – lever 6 OFF (UP)
	• Preset: Enabled – lever 7 ON (DOWN); Disabled – lever 7 OFF (UP)
	• GPI 2 Enabled – lever 8 ON (DOWN); Disabled – lever 8 OFF (UP)

Note: Card-edge switch (lever 2) must be in the UP position to enable card-edge control. Reference select (lever 3) only works with an RM19 rear connector. The reference selection must be done manually with an RM20 rear connector- see Installation chapter.

Preset/Macro menu functions

Select preset/macro functions with the 4-way piano switch bank levers as follows:

Menu switch	Function
	<ul style="list-style-type: none"> • Default – all levers ON (DOWN)
	<ul style="list-style-type: none"> • Preset or macro recall on low to high transition (UP then DOWN)
	<ul style="list-style-type: none"> • DO NOT USE, leave DOWN
	<ul style="list-style-type: none"> • Mode: Macro – lever 3 OFF (UP), Preset Lever 3 ON (DOWN)
	<ul style="list-style-type: none"> • Preset or Macro save on low to high transition (UP then DOWN)

5.1 Default mode – input status

With the main eight menu switches up and the four preset/macro switches down, the SW808 is in its default mode and the following functions are active:

- Operation is in Local mode
- View mode is active and input presence LEDs show presence of valid video inputs
- External reference format is SDI
- Crosspoint timing is set to Frame
- GPIs are disabled

The Inputs Present LEDs are assigned to inputs as shown in the SW808 front view diagram above.

5.2 Viewing the routing table

The status of all crosspoints can be found with all eight of the main menu levers in the UP position. The position of the 4-way piano switch levers will be ignored.

To view the routing table proceed as follows:

- Set all eight menu levers to the default UP position
- Rotate the Output Select HEX switch through positions 1 to 8
- The number of Inputs Present LEDs now show the input assigned to the selected output

Normally the Input Present LEDs, numbered 1 to 8, will indicate if an input is present. When viewing the current status of all crosspoints, the *number* of LEDs lit indicates the input currently assigned to the selected output.

5.3 Using 'interactive' mode

The interactive mode allows crosspoint assignments to be made individually.

To change crosspoint assignments immediately proceed as follows:

- Set menu lever 4 (Set) DOWN
- Set menu lever 1 (Load) DOWN to enable 'immediate take mode'
- Set the Input and Output Select switches for the desired connections

If necessary view the routing table to confirm that the required connections have been set.

Note: Crosspoints only change state in the vertical interval if an external reference is supplied.

5.4 Using salvos

Salvos enable one or more crosspoints to be changed at once. Store crosspoints set with the Input and Output Select switches with the 4th or 'Set' menu lever. The 1st menu lever (Load) can now act as a 'Fire Salvo' function.

To build a salvo table proceed as follows:

- Set the Input and Output Select switches for the first desired connection
- Set menu lever 4 (Set) DOWN and UP to store that connection
- Set the HEX switches for the next connection
- Set menu lever 4 (Set) DOWN again to store that connection
- Continue for all desired connections
- When all the connections have been entered, set menu lever 1 (Load) DOWN then UP to 'fire' the Salvo

If necessary view the routing table to confirm that the required connections have been set.

5.5 Saving and recalling presets

Unlike a Macro, a preset is a snapshot of the state of every crosspoint. Up to sixteen presets can be saved and recalled at any time.

To save a snapshot of all crosspoint assignments as a preset, proceed as follows:

- Select a preset using the output HEX switch (selections are 1 to 15, and 0 which selects 16)
- Set Preset/Macro menu lever 3 (MACRO) UP
- Set menu lever 7 (Preset) DOWN
- Set Preset/Macro menu lever 4 (Store) UP then DOWN
- Set menu lever 7 (Preset) UP
- Set Preset/Macro menu lever 3 (MACRO) DOWN

To recall a snapshot of all crosspoint assignments as a preset proceed as follows:

- Select a preset using the output HEX switch (selections are 1 to 15, and 0 which selects 16)
- Set Preset/Macro menu lever 3 (MACRO)UP
- Set menu lever 7 (Preset) DOWN
- Set Preset/Macro menu lever1 (Recall) UP then DOWN
- Set menu lever 7 (Preset) UP
- Set Preset/Macro menu lever 3 (MACRO)DOWN

If necessary view the routing table to confirm that the required connections have been set.

5.6 Saving and recalling macros

A Macro is a batch of crosspoint assignments, which are changed together.

To build a Macro, create a Salvo and save it in a chosen Macro number using Macro save as follows:

- Create a salvo:*
- Set the Input and Output Select switches for the first desired connection (Outputs that are set to input 9 are left unchanged when the Macro is recalled)
 - Set Menu lever 4 DOWN and UP again to store that connection
 - Set the HEX switches for the next connection
 - Set menu lever 4 DOWN and UP again to store that connection
 - Continue for all desired connections
- Now save the salvo:*
- Select a macro using the output HEX switch (selections are 1 to 15, and 0 which selects 16)
 - Set Menu lever 7 down
 - Set Preset/Macro menu lever 4 (Store) UP then Down
 - Set Menu lever 7 UP

To recall a Macro proceed as follows:

- Set menu lever 7 (Preset) DOWN
- Select a Macro using the output HEX switch (selections are 1 to 15 and 0 which selects 16)
- Set Preset/Macro menu lever 1 UP then DOWN
- Return menu lever 7 (Preset) to the UP position

If necessary view the routing table to confirm that the required connections have been set.

5.7 Factory reset

To reset all card parameters to their factory default, power the SW808 on with menu levers 2 and 6 only in the DOWN position.

6 Installation

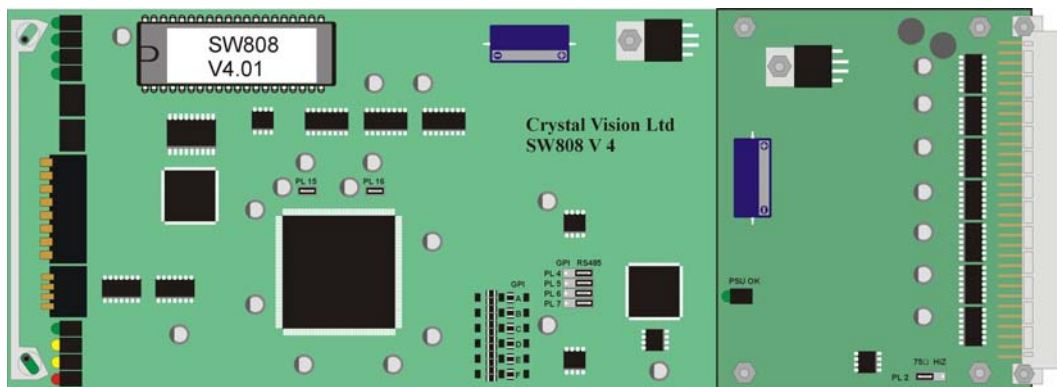
Up to six SW808 double slot modules may be fitted in a 2U frame depending on the choice of rear connector. Two types of rear connector provide system flexibility by allowing a mix between access to all connections and maximum module packing density.

6.1 Fitting the SW808 module

The SW808 consists of a standard 266mm x 100mm module with a factory fitted half-length daughter module. Each SW808 requires two slots.

To fit an SW808 module line up the module with the RM20 rear connector's two slots or the upper two slots when using the RM19 rear connector.

Push the two modules home firmly. It will never be necessary to separate the half-length daughter board from the main SW808 board to fit the unit in any frame.



SW808 with its half-length daughter board

6.2 Setting the reference termination

The reference input may be terminated with 75 Ω by moving jumper PL2 on the half-length expansion board to the 75 Ω position. This may be useful when the loop-through (RM19 only) is not connected or when an RM20 rear connector is used.

6.3 Rear modules and signal I/O

The RM19 full height rear connector allows access to all eight outputs and inputs but only three SW808 modules can be fitted in a 2U frame. The double slot RM20 accommodates six SW808 modules in a 2U frame, but only provides access to three outputs. The RM20 must be used in 1U frames or Desk Top Boxes.

All modules can be plugged in and removed while the frame is powered without damage.

The available rear connectors are as follows:

Rear Connectors (double-decker SW808)	Description
	<p>RM20</p> <ul style="list-style-type: none"> • 6 x SW808s per 2U frame, 3 per 1U frame and DTB • Only 3 Outputs available • 2nd SDI outputs not available • GPI lines available at frame remote connectors • Frame slots 1/2, 3/4, 5/6, 7/8, 9/10 and 11/12 can be used • Link selectable SDI or analogue reference input – no ref loop
	<p>RM19</p> <ul style="list-style-type: none"> • 3 x SW808s per 2 U frame • All 8 outputs available • 2nd SDI outputs available • SDI/Composite and REF loop • GPI lines available at the frame remote connectors • Frame slots 1/2, 5/6 and 9/10 used

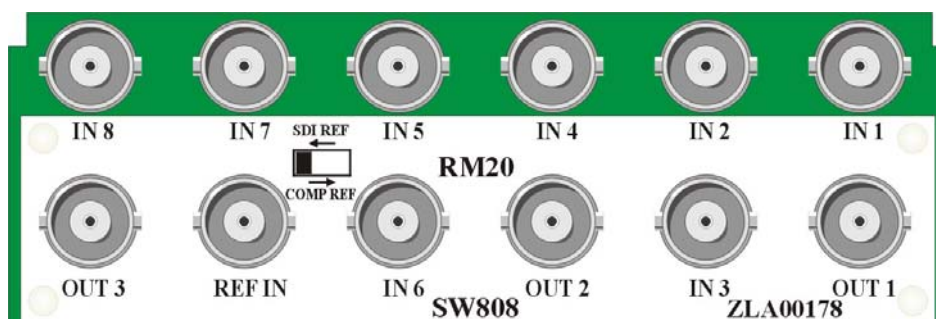
Note: The SW808 fits in the upper two slot positions for the RM19 and no card is fitted in the lower two slots.

The RM19 will only fit into a 2U rack frame allowing up to three SW808 modules.

For details of fitting rear connectors please refer to the appropriate frame manual.

6.4 Selecting the reference on the RM20

The RM20 rear connector only has one BNC for the reference input. To change between SDI and Composite reference inputs, the switch on the back of the RM20 must be used.

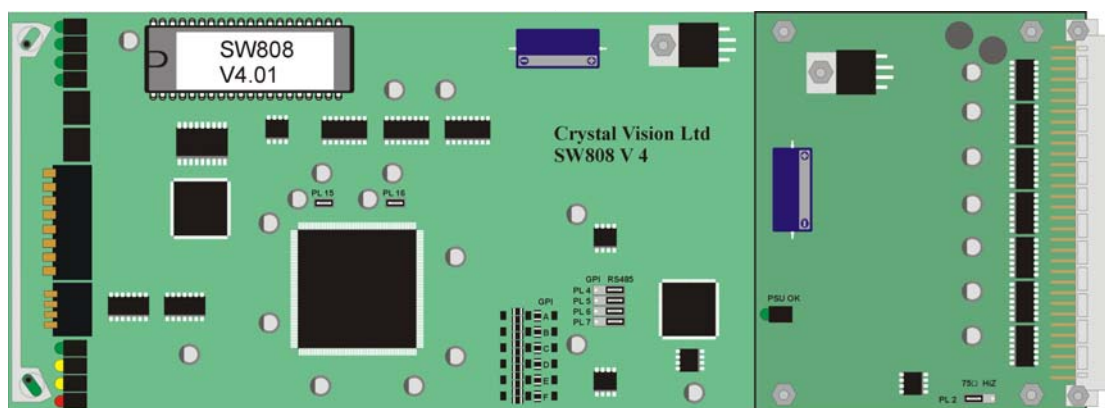


RM20 showing reference select switch

Move the switch towards the left for an SDI reference and move it towards the right for a Composite or Black and Burst input.

6.5 Enabling the SW808 Controller or GPI control

The SW808 control lines can be configured for either GPI control or serial control from a SW808 button panel. Jumper links determine which control interface is enabled.



SW808 showing configuration jumper links

RS485 control (SW808 Controller)

To enable SW808 Controller to use RS485 communications ensure that the four jumpers PL4, 5, 6 and 7 are all positioned *towards* the edge connector. Controller operation is explained in the SW808 Controller panel chapter.

GPI control

To enable GPI control, ensure that the four jumpers PL4, 5, 6 and 7 are all positioned *away* from the edge connector.

6.6 Using module GPIs

Each slot has an associated set of GPI connections for remote control and external status outputs on the frame rear-panel remote connectors. For convenience, GPI lines are associated with reference codes 'a' to 'f' in the connector pin-out tables for each frame.

The following table shows the binary weighted code required to recall presets or macros 1 to 16 according to the state of GPI 'e'. A '0' is an open GPI input and a '1' is a grounded GPI input.

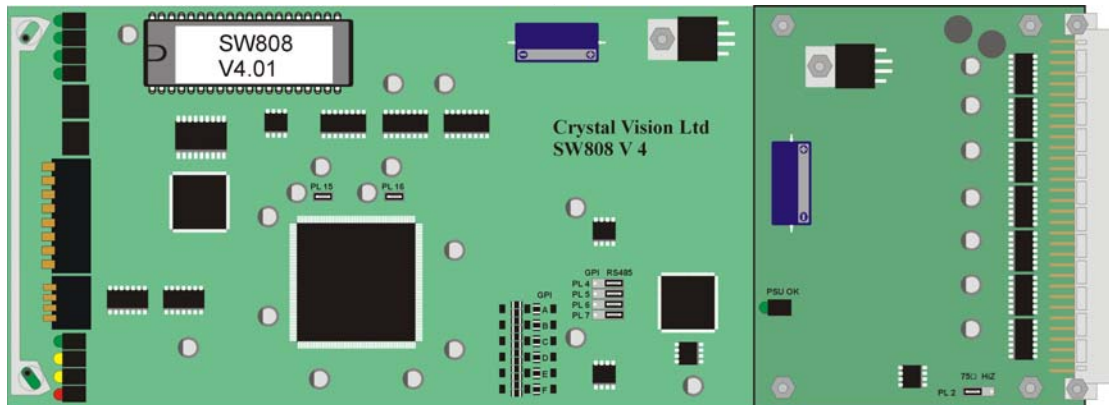
Recall Preset	No change	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
GPI 'a'	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
GPI 'b'	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
GPI 'c'	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
GPI 'd'	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

	OPEN (+5V)	GROUND
'a', 'b', 'c', 'd'	See table above	
'e'	Selects Stored Presets	Selects stored Macros
'f'	Not assigned	Not assigned

GPI input assignment

GPI input connections have 10k Ω pull-up resistors to +5V. Closed-contact switches or +5V to +24V logic levels can be used

GPI output connections (when provided) have 330Ω series resistors fitted to drive LEDs and 10k Ω pull-up to +5V (to drive a remote input). Bulbs rated from 5V to 24V can be used by changing the series resistors to 0Ω 0805-type. See illustration below.



Change the six resistors marked A, B, C, D, E, F to 0Ω 0805 type for external 5 - 24V bulbs

Note: GPI outputs are not currently provided for the SW808. Jumpers PL 4, 5, 6 and 7 should be left in the left hand GPI position to enable normal GPI operation and in the right hand position to enable RS485 comms for a SW808 Controller.

GPI connections

4U frame GPI Connections

GPI lines 'a' to 'f' of each card connect to one of eight rear remote connectors as follows:

Slot no.	'a' pin	'b' pin	'c' pin	'd' pin	'e' pin	'f' pin														
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)														
							4	7 (3)	16 (3)	17 (3)	25 (3)	10 (4)	11 (4)							
														6	4 (1)	14 (1)	13 (1)	23 (1)	3 (2)	4 (2)
														10	10 (1)	11 (1)	19 (1)	20 (1)	21 (2)	22 (2)
Slot no.	'a' pin	'b' pin	'c' pin	'd' pin	'e' pin	'f' pin														
2	7 (5)	16 (5)	17 (5)	25 (5)	10 (6)	11 (6)														
							4	7 (7)	16 (7)	17 (7)	25 (7)	10 (8)	11 (8)							
														6	4 (5)	14 (5)	13 (5)	23 (5)	3 (6)	4 (6)
														10	10 (5)	11 (5)	19 (5)	20 (5)	21 (6)	22 (6)

Table shows pin number (Remote number)

Note: Remote 1, Remote 3, Remote 5 and Remote 7 are 26 way high density D-Type female sockets and frame ground is pin 2 and +5V @500mA is pin 1 in each case.
Remote 2 and Remote 4 are 26 way high density D-Type male plugs and frame ground is pin 6 and +5V @500mA is pin 15 in each case.

2U Indigo GPI Connections

GPI lines 1 to 6 of each module are brought to one of the four remote connectors at the rear of the frame as follows:

Slot no.	'a' pin	'b' pin	'c' pin	'd' pin	'e' pin	'f' pin
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)
4	7 (3)	16 (3)	17 (3)	25 (3)	10 (4)	11 (4)
6	4 (1)	14 (1)	13 (1)	23 (1)	3 (2)	4 (2)
8	4 (3)	14 (3)	13 (3)	23 (3)	3 (4)	4 (4)
10	10 (1)	11 (1)	19 (1)	20 (1)	21 (2)	22 (2)
12	10 (3)	11 (3)	19 (3)	20 (3)	21 (4)	22 (4)

Table shows Pin number (Remote number)

Note: Remote (rem) 1 and Remote (rem) 3 are 26 way high density 'D' type female sockets and frame ground is pin 2 in each case.
Remote (rem) 2 and Remote (rem) 4 are 26 way high density 'D' type male plugs and frame ground is pin 6 in each case.

1U Indigo GPI connections

GPI lines 'a' to 'f' of each module connect to one of two rear remote connectors as follows:

Slot no.	'a' pin	'b' pin	'c' pin	'd' pin	'e' pin	'f' pin
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)
4	4 (1)	14 (1)	13 (1)	23 (1)	3 (2)	4 (2)
6	10 (1)	11 (1)	19 (1)	20 (1)	21 (2)	22 (2)

Table shows Pin number (Remote number)

Note: Remote 1: 26 way high density D-type socket. Frame ground is pin 2 and +5V @500mA is pin 1.
Remote 2: 26 way high density D-type plug. Frame ground is pin 6 and +5V @500mA is pin 15.

1U DT/DTA/DTS Indigo desktop box connections

GPI lines 'a' to 'f' of each module connect to one of two rear remote connectors as follows:

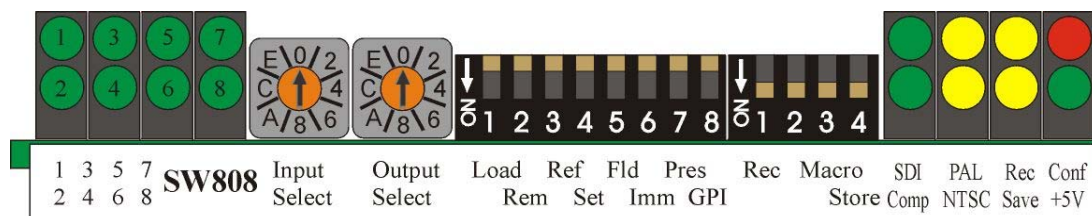
Slot no.	'a' pin	'b' pin	'c' pin	'd' pin	'e' pin	'f' pin
2	7 (1)	16 (1)	17 (1)	25 (1)	10 (2)	11 (2)

Table shows Pin number (Remote number)

Note: Remote 1: 26 way high density D-type socket. Frame ground is pin 2 and +5V @500mA is pin 1.
Remote 2: 26 way high density D-type plug. Frame ground is pin 6 and +5V @500mA is pin 15.

7 Problem solving

Board edge LEDs provide status reporting and may be useful when fault finding.



SW808 status LEDs

Inputs Present LED functions in default mode (all piano switch levers UP):

LED	Colour and function in normal mode
1	Input 1 present (top) - green
2	Input 2 present (bottom) - green
3	Input 3 present (top) - green
4	Input 4 present (bottom) - green
5	Input 5 present (top) - green
6	Input 6 present (bottom) - green
7	Input 7 present (top) - green
8	Input 8 present (bottom) - green

Inputs Present LED assignments

Status LED functions in default mode (all piano switch levers UP):

LED	Colour and function in normal mode
SDI	SDI reference detected (top) - green
Comp	Composite reference detected (bottom) - green
PAL	PAL/625 inputs detected (top) - yellow
NTSC	NTSC/525 inputs detected (bottom) - yellow
Rec	Preset/Macro recalled (top) - yellow
Save	Preset/Macro saved (bottom) - yellow
Conf	Configuration error (top) - red
+5V	Power OK (bottom) - green

Status LED assignments

Basic fault finding guide

The green Power OK LED is not illuminated

Check that the frame PSU is functioning – refer to the appropriate frame manual for detailed information

The red Conf (configuration error) LED is illuminated

Perform a power reset

There is no video output

Check that valid SDI or DVB-ASI input(s) are present and that any cabling is intact

The video output is not synchronous with other sources when switched

Check that all inputs are already synchronous and correctly timed as required by the overall system

Switching does not take place in the vertical interval

Check that a valid external reference is supplied and that either frame or field switching has been selected (card edge menu lever 6 in the UP position)

Remote operation from an active panel (not SW808 Controller) has failed

Check that the remote mode is selected with menu lever 2

Check the remote cable connections and remote control facilities

Re-setting the card

If required, the card may be reset by simply removing the rack power and re-applying power after a few seconds or by removing the card from the rack and then re-inserting the card

It is safe to reinsert the card whilst the rack is powered

Recalling factory settings

If required, the card may be reset to factory settings by setting card edge levers 2 and 6 down and simply removing the rack power and re-applying power after a few seconds or by removing the card from the rack and then re-inserting the card. Alternatively, the Factory Reset command can be given from an active front panel.

It is safe to reinsert the card whilst the rack is powered

How is the external reference changed with an RM20 rear connector?

The RM20 rear connector has a slide switch mounted on the rear connector itself to select between SDI or Composite reference.

How can a composite loop-through be obtained?

The loop-through is SDI by default. It is possible to modify the module for composite loop-through. Please contact Crystal Vision Technical Support for further information.

The SW808 Controller does not work

Check that that it is powered.

If necessary check the integral fuse in the IEC connector.

Is there a SW808 Controller LED test mode?

All LEDs and buttons should illuminate when the unit is first powered.

The SW808 Controller cannot find an SW808 module

Check that the panel is connected using the 422 Bus RJ45 connector to the appropriate Remote connector of a frame with a SW808 installed.

Check that the SW808 is configured so that its second serial port is active and not GPI control as explained in section 6.5.

8 Specification

General

Dimensions	100mm x 266 mm module with 2 x DIN 41612 connector
Weight	268g
Power consumption	10.5W

Inputs

8 x SDI /DVB-ASI	270Mb/s serial digital to EBU Tech 3267-E and SMPTE-259M DVB-ASI to EN 50083-9 Cable equalisation >200m Belden 8281 or equivalent (SDI). (Auto 625/525 line selection)
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Outputs

SDI/DVB-ASI	RM19: 8 independent ports each with 2 reclocked 270Mb/s serial digital outputs (A, B) per port to EBU Tech 3267-E and SMPTE-259M. All outputs are DVB-ASI compliant to EN 50083-9. RM20: 3 independent ports with 1 reclocked 270Mb/s serial digital output per port to EBU Tech 3267-E and SMPTE-259M. All outputs are DVB-ASI compliant to EN 50083-9. Each will drive >200m Belden 8281 or equivalent (SDI).
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SDI Reference Input

SDI	270Mb/s serial digital to EBU Tech 3267-E and SMPTE-259M Cable equalisation >200m Belden 8281 or equivalent (Auto 625/525 line selection) SDI reference loop-through with RM19
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Analogue Reference Input

Composite	Black and Burst or mixed syncs Sync amplitude 100mV to 4V Link selects 75Ω termination or high impedance (Auto 625/525 line selection) Analogue reference loop-through with RM19
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Switching

Timing	Frame or field vertical interval switching to SMPTE RP168 or instantaneous by card edge selection
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GPI inputs

Operation Active: connect to ground. Inactive: high impedance or 3 to 35 volts
Input current <500 μ A

SW808 Controller

Dimensions 482mm wide (19 inches), 44.5mm high (1U), 90mm deep
Weight 1.5 kg
Power Supply 110V/220V auto sensing – built in