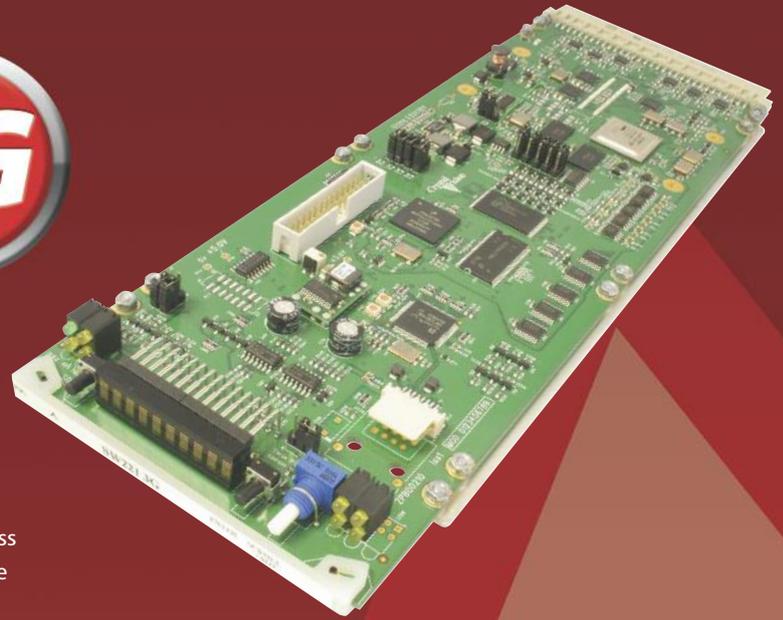


Crystal Vision

SW221 3G

3G/HD/SD 2 x 2 switch



The SW221 3G provides simple 2 x 2 switching between two 3Gb/s, HD or SD signals, making it ideal for use either as an emergency transmission switch to avoid broken equipment or to manually bypass products requiring maintenance on a 24 hour station. Where a single point of failure is involved you need something that you know will always work. Broadcasters choose the SW221 3G because of its functionality, its price and because they trust it for this critical task.

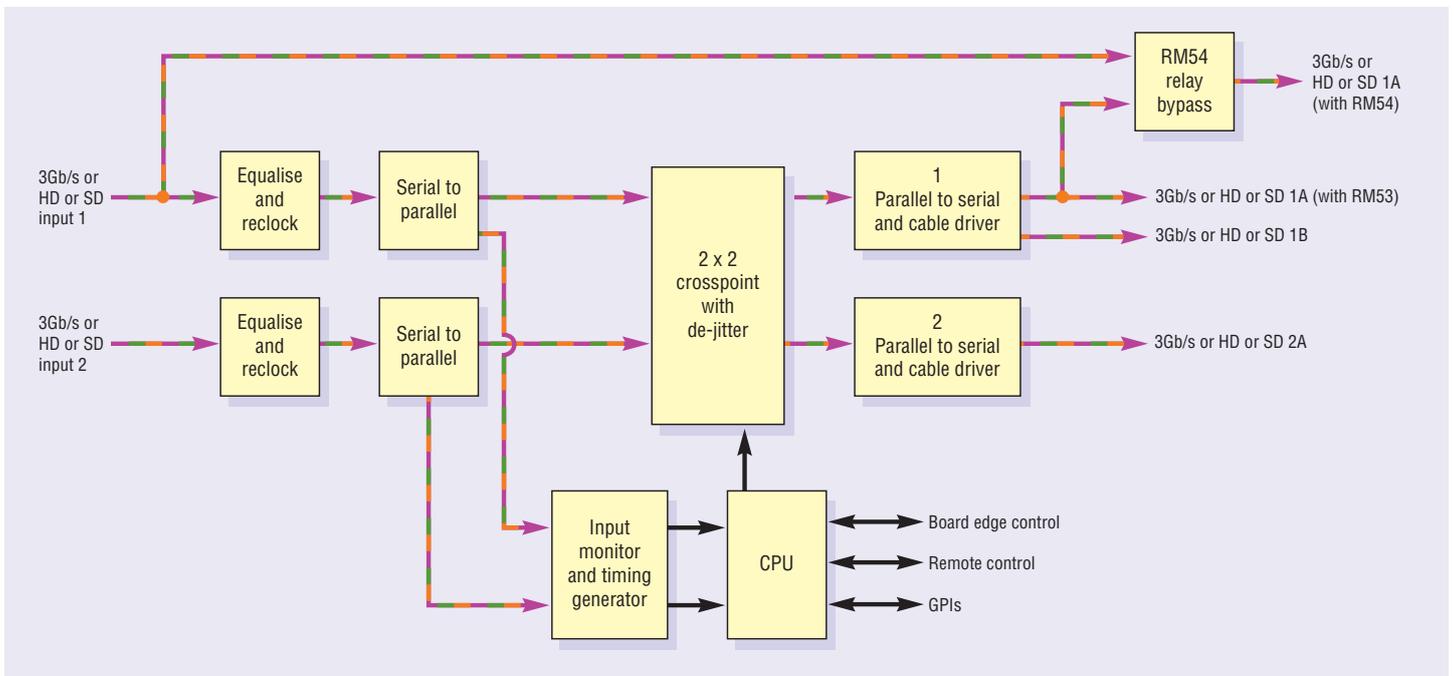
The SW221 3G is ideal for switching between the main and backup feeds of a television station, and offers independent control of the two outputs. With manual switching there is the choice of switching between the two feeds either immediately or in the vertical blanking period, with the SW221 3G detecting the video standard and switching at the appropriate point to enable a cleaner switch. The SW221 3G provides two outputs of the first switched signal, along with one output of the other – with the secondary signal output ideal for previewing both the main and the backup feeds.

An automatic switch away from a faulty source is triggered immediately on loss of input or invalid video, determined by loss of the sync word structure. A single format can be set as valid, allowing the SW221 3G to automatically switch away from inputs that are legal but not the correct format. Switching back can either be automatic or by user intervention. When set to automatic the board will switch back if the original input returns to a valid state, with a programmable delay ensuring that the previously faulty input remains good for the selected time period. When set to user activated it will stay on the new selection until the routing is changed by the operator, or the new input becomes invalid.

The SW221 3G will save you rack space, with this 100mm x 266mm module fitting in Crystal Vision's standard frames and allowing easy integration with any products from the range. The inputs and outputs are accessed by using the RM53 and RM54 frame rear modules. The RM54 includes relay bypass protection on power failure or board removal, giving that extra layer of security and preventing signal loss. SW221 3G's flexible control options give you the choice of board edge switches, front and remote panels, SNMP, GPIs, PC software or your web browser.

The SW221 3G is a product that broadcasters can rely on.

- 2 x 2 switch which works with 3Gb/s, HD and SD
- Can be used as emergency switch or to bypass products requiring maintenance
- Manually switch either immediately or in vertical blanking
- Automatic switching on detection of missing input, invalid signal or invalid format
- Switch back automatically or by user intervention, and use the programmable delay to ensure you've got a stable input
- Save yourself a DA in your system, with two outputs of the first switched signal
- Give yourself extra peace of mind with relay bypass protection available on RM54 rear module
- Space-saving: 100mm x 266mm module allows 12 SW221 3G in 2U (six in 1U and two in desk top box)
- Flexible control, including board edge, front and remote panels, SNMP, GPIs, PC software and web browser



SPECIFICATION

MECHANICAL

Standard Crystal Vision module 266mm x 100mm
Weight: 155g
Power consumption: 11 Watts

VIDEO INPUTS

Two 3Gb/s, HD or SD inputs (1 and 2)
270Mb/s or 1.5Gb/s or 3Gb/s serial compliant to EBU 3267-E, SMPTE 259M, SMPTE 292M and SMPTE 424M
The video formats supported are 625, 525, 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94, 1080i60, 1080p50, 1080p59.94 and 1080p60
3Gb/s cable equalisation up to 80m using Belden 1694A. HD cable equalisation up to 140m with Belden 1694A or equivalent (approx. 100m with Belden 8281). SD cable equalisation >250m Belden 8281 or equivalent
Input return loss: -15dB for 50MHz to 1.5GHz
Auto 50/59.94/60Hz and video format selection

VIDEO OUTPUTS

Two independent ports with two outputs of the first input and one output of the second using RM53 and RM54 frame rear modules
270Mb/s or 1.5Gb/s or 3Gb/s serial compliant to EBU 3267-E, SMPTE 259M, SMPTE 292M and SMPTE 424M.
Output follows the input format
The RM54 frame rear module provides relay bypass protection. An electromechanical relay switch needs power to hold the switch in one state and will revert to the other state (board bypass) on loss of power. It prevents signal loss by mechanically connecting input 1 of the SW221 3G to its main output 1 on complete frame power failure or board removal

DELAY THROUGH BOARD

10us max

SWITCHING

The switch timing can be either immediate or timed and will apply to both outputs
Timed switching as defined in SMPTE RP168-2002 or immediate switching if input missing
A timed switch will occur in the correct time period according to the reference input (input 2 if valid)
The outputs of the switch can be

configured to automatically switch away from a missing input or non-valid signal. A single format can be set as valid, so that the SW221 3G automatically switches away from inputs that are legal but not the correct format
The SW221 3G can be set to switch back automatically or by user intervention
Automatically: the board will switch back if the original input returns to a valid state.
A programmable delay can be added to ensure the previously faulty input remains good for the selected time period
User intervention: if the board auto switches away from an invalid input it will stay on the new selection until the routing is changed by the user, or the new input becomes invalid

LED INDICATION OF:

Power supplies
Configuration progress
Input 1 valid
Input 2 valid
Main output source
Secondary output source

GPI OUTPUT LEVELS

Active pull to ground, pulled up to +5V through 4700 ohm

GPI OUTPUT LEVELS

Electrically: Open collector transistors 48V, 270 ohm current limit resistors. Pulled up to +5V through 6800 ohm

GPI INPUTS

Four GPI inputs
Used to control input selection/routing, plus tally out
GPI control allows for direct connection to lamps and switches or to an automation system

GPI OUTPUTS

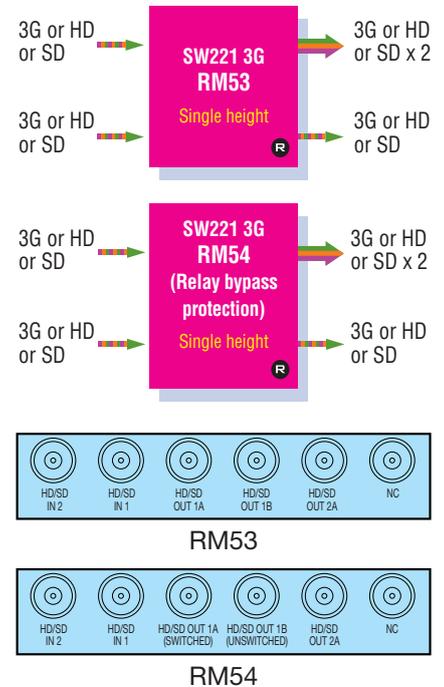
Two GPI outputs
Used as input present indications

LOCAL CONTROL

Intuitive board edge interface with two select buttons, shaft encoder and ten character alphanumeric display

REMOTE CONTROL

Control from integrated control panel on AE frames and remote panel
Statesman Lite allows control from any PC on a network
VisionWeb Control is available via the web server on the frame and allows operation using a standard web browser on a PC or tablet
SNMP monitoring and control available as a frame option



ORDERING INFORMATION

SW221 3G	3G/HD/SD 2 x 2 routing switch
Indigo 2AE	2U frame with active front panel featuring smart CPU and integrated control panel for up to 12 Crystal Vision modules
Indigo 2SE	2U frame with active front panel featuring smart CPU for up to 12 Crystal Vision modules
Indigo 1AE	1U frame with active front panel featuring smart CPU and integrated control panel for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1AE-DP
Indigo 1SE	1U frame with active front panel featuring smart CPU for up to six Crystal Vision modules. Power supply redundancy available with Indigo 1SE-DP
Indigo DT	Desk top box with passive front panel for up to two Crystal Vision modules
Indigo DTSE	Desk top box with active front panel featuring smart CPU for up to two Crystal Vision modules
RM53	Single slot frame rear module. Allows maximum number of SW221 3G in frame (12 in 2U, six in 1U, two in desk top box). Gives access to two 3Gb/s, HD or SD inputs with two outputs of the first signal and one output of the second
RM54	Single slot frame rear module. Allows maximum number of SW221 3G in frame (12 in 2U, six in 1U, two in desk top box). Provides relay bypass protection of the input. Gives access to two 3Gb/s, HD or SD inputs with two outputs of the first signal and one output of the second
VisionPanel	3U Ethernet remote control panel with touch screen
VisionWeb Control	VisionWeb web browser control included within frame software
Statesman Lite	PC Control System
SNMP	SNMP monitoring and control

Performance and features are subject to change. Figures given are typical measured values. SW2213G0215