Snell Advanced Media

User Instruction Manual

IQADBBG

Multi-standard Analog Black Burst Generator with Genlock

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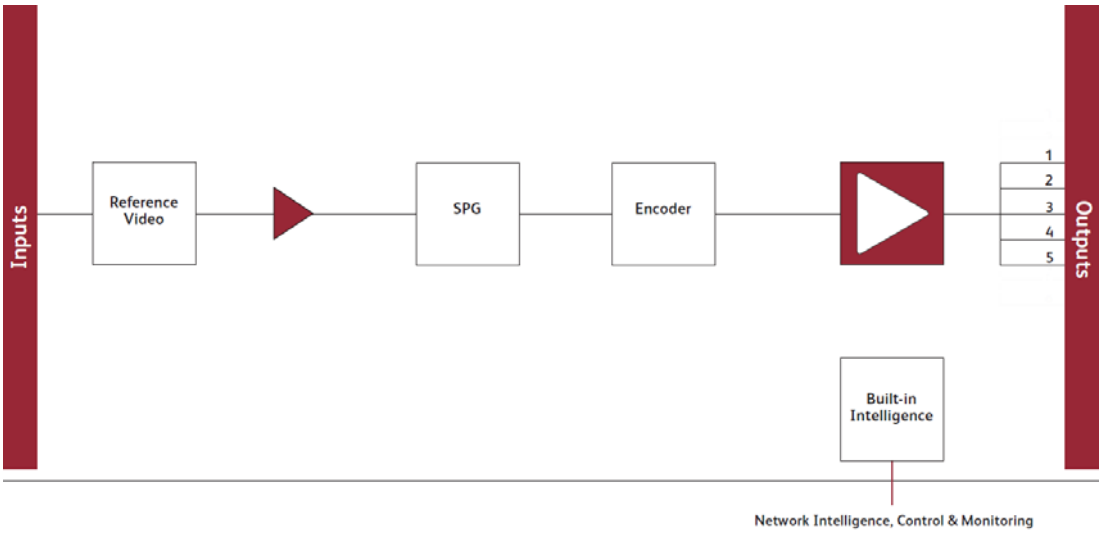
Contents

1. Introduction

1.1 Description

The IQADBBG can generate five precision black burst outputs in multiple standards.

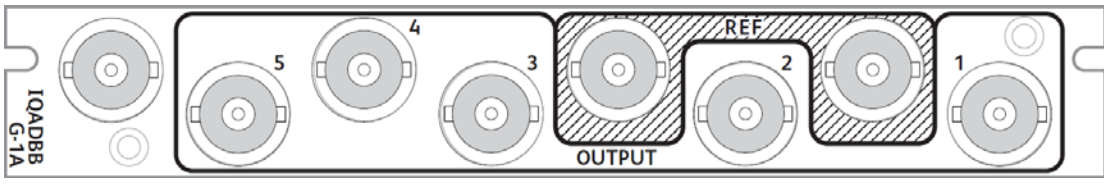
1.2 Block Diagram



1.3 Features

- Multi-standard Black Burst Generator
- PAL, PAL-N, PAL-M, NTSC
- Up to 5 composite outputs
- Full genlock with 0° ScH output
- Genlock phase controls with 0.1° resolution
- Up to 2 line genlock offset
- NTSC pedestal control
- 12-bit oversampled DAC
- Pattern generator
- VITS insertion

1.4 Rear Panel View



IQADBBG-1A

1.5 Enclosures

The module can be fitted into the enclosure types shown.

Important: Although IQ modules are interchangeable between enclosures, their rear panels are enclosure specific. An IQH3B enclosure accepts modules with either “A” or “B” order codes. An IQH3A or IQH1A enclosure accepts modules with “A” order codes only.

1.5.1 B-style Enclosure

Enclosure order codes: IQH3B-S-0, IQH3B-S-P

1.5.2 A-style Enclosures

Enclosure order code: IQH1A-S-P

Enclosure order codes: IQH3A-S-0, IQH3A-S-P

Enclosure order codes: IQH3A-E-0, IQH3A-E-P, IQH3A-0-0, IQH3A-0-P

Enclosure order code: IQH1A-S-P

2. Technical Specification

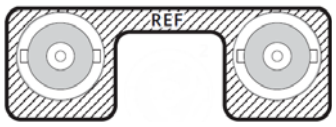
Inputs and Outputs	
Signal Inputs	
Reference input	Composite or black burst
Signal Outputs	
Analog composite	Up to 5 encoded
Card Edge and RollCall Controls	
Card Edge Controls (also available via RollCall)	
Standard	PAL, PAL-N, PAL-M, NTSC
Test pattern select	Black, Color bars, various test lines
VITS insert	On/Off
Genlock mode	Internal lock/Subcarrier lock
Genlock H-phase offset	±1.9 lines
NTSC pedestal	On/Off
Level adjust	±0.5 dB
Preset unit	Returns all controls to preset condition
Indicators	
Power supplies	OK
No reference ScH error	Reference ScH error >~20°
Specifications	
Signal Inputs	
Reference input standard	PAL, PAL-N, PAL-M, NTSC
Composite or black burst ref level	Standard level ±3 dB
Signal Outputs	
Output level error	<2% as supplied
Output return loss	Better than -35 dB to 5.8 MHz
ScH phase	0° ±2°
Free-run stability	±10 ppm typical
Power Consumption	
Module Power Consumption	3.1 W (A frames) 2.8 PR (B frames)

3. Connections

This section describes the physical input and output connections provided by the IQADBBG.

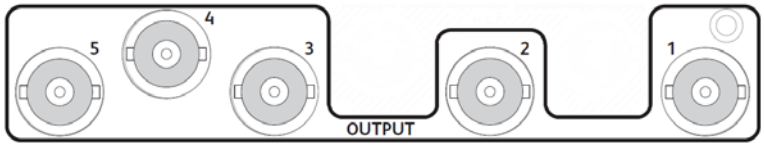
3.1 Reference Inputs

Black burst or composite video reference signal inputs are made via high-impedance loop-through BNC connectors.



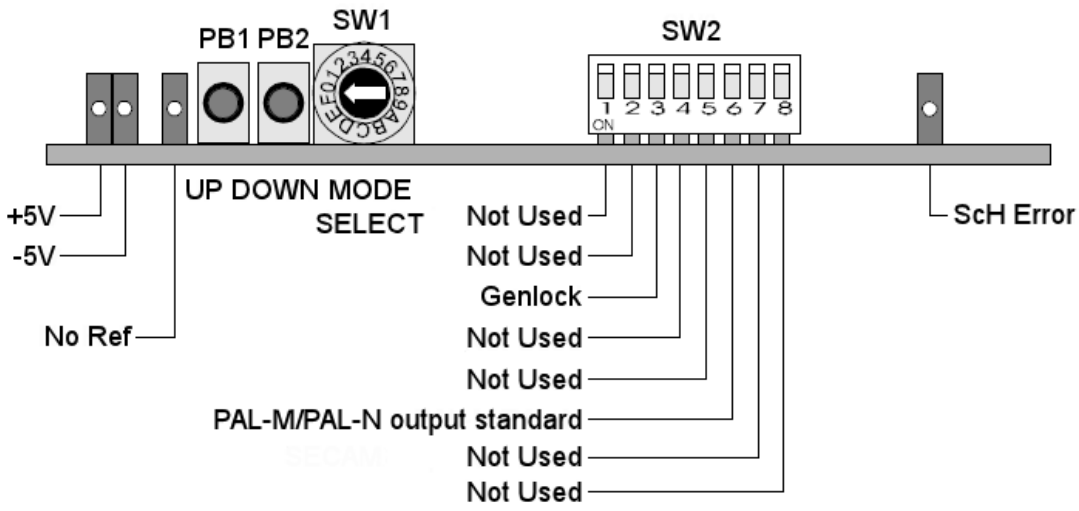
3.2 Black Burst Outputs

Black burst outputs from the unit are made via eight BNC connectors.



4. Card Edge Controls

The IQADBBG settings can be adjusted by using either the card edge controls and/or a more comprehensive remote control system via the RollCall Control Panel.



Note: The availability of some of the card edge controls will depend on the card version.

4.1 LED Indicators

LED	State	Indication
+5V	Illuminated	A positive power supply is present.
-5V	Illuminated	A negative power supply is present.
No Ref	Illuminated	No reference signal present.
	Flashing	The unit is configuring or re-configuring in the event of a standard change. The message "***please wait...***" will appear in the lower line of the Information Window during this operation.
ScH Error	Illuminated	An ScH error is detected in the reference signal.

4.2 Switches

Two push buttons (PB1 and PB2), a Hex switch (SW1), and an 8-way DIL switch (SW2) allow various functions and modes to be set.

SW1 selects a mode or variable parameter, and SW2 selects a particular function.

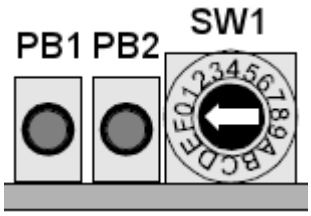
PB1 and PB2 allow the value of the selected function/parameter to be adjusted.

4.2.1 SW1 – Mode Select Switch

The Mode select switch (SW1) allows a mode or a parameter to be set.

The push buttons (PB1 and PB2) allow the value of the selected function/parameter to be adjusted.

Note that to select the preset value, buttons PB1 and PB2 should be pressed simultaneously.



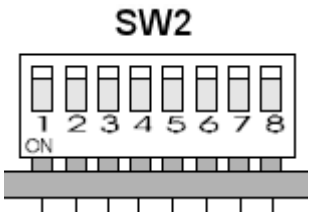
Function	Position	PB1 Action	PB2 Action
S/C Phase	0	Rotates vectors counterclockwise	Rotates vectors clockwise
H Phase	1	Moves output ahead of reference	Moves reference ahead of output
Pattern Select	2	Moves up through list of patterns	Moves down through a list of patterns
NTSC Pedestal	3	Turns pedestal OFF	Turns pedestal ON
Not Used	4		
VITS Insert	5	Removes VITS	Inserts VITS
Not Used	6		
Not Used	7		
Gain	8	Reduces gain	Increases gain
Standard*	9	Selects 625 PAL/PAL-N standard	Selects 525 NTSC/PAL-M standard
Preset Unit	F	Press PB1 and PB2 together to select all preset values	

**Only applicable if unit is operating in internal mode.*

Note: The availability of some of the above functions will depend on the operating mode of the module. For example, test patterns will be different for different line standards. Availability of phasing controls will depend on the genlock mode etc.

4.2.2 SW2 – DIL Switch

The DIL switch (SW2) selects a particular function.



ON = Down, OFF = Up.

Positions 3 is used to set the genlock mode. When set to OFF the genlock function (zero ScH lock) is enabled. When set to ON the genlock function is disabled and the unit will freerun (internal mode).

Positions 6 and 7 allow the output standard of the decoder to be set (see table below).

Output Std.	Position 6	Position 7	Genlock Mode	
			Ext Ref	Internal Mode (SW1 pos 9)
PAL-M	ON	OFF	525	Use PB2
PAL-N	ON	OFF	625	Use PB1
NTSC	OFF	OFF	525	Use PB2
PAL	OFF	OFF	625	Use PB1
NTSC	X	ON	525	Use PB2

If genlock is selected, the output line rate will follow the reference input.

SW2 positions 6 and 7 select which of the two output standards to choose from.

If the unit is internally locked (freerun mode), the output line rate can be selected by setting SW1 to position 9, then pressing either PB1 for 625 or PB2 for 525.

5. Operation Using the RollCall Control Panel

Note: SECAM options are shown in some menus but are not supported.

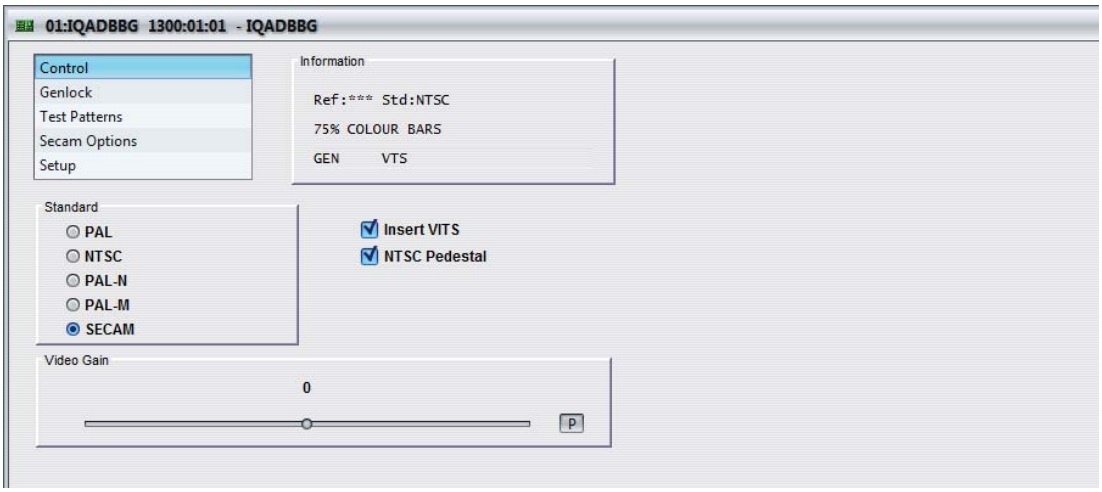
5.1 Information Window

The Information Window is displayed at the top of each screen and shows information about the status of the module and current selections.

Line	Information	Status	Description
Line 1	Ref:	OK	Signal OK.
		***	No signal received.
		SCE	Input subcarrier error.
	Std:	PAL PAL-N PAL-M NTSC NTSC-J	Shows the current output standard.
Line 2	75% COLOR BARS *(example)*		Shows the current selected pattern.
Line 3	GEN	Static	Genlock enabled. Unit is genlocked to the reference source.
		Flashing	Unit is attempting to genlock to the reference source.
	VTS		Insert VITS enabled.

5.2 Control

The Control screen allows the output standard to be selected, VITS inserted, pedestal added, and the output level adjusted.



5.2.1 Standard

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

The operating line standard will be determined by the following:

- If a 625 reference signal is connected. PAL, or PAL-N may be selected as the output standard.
- If a 525 reference standard is connected, NTSC or PAL-M may be selected as the output standard.
- If there is no reference signal connected, an operating standard may be selected from this menu. This allows the module to provide test signals in different standards.

Note: The operating standard is shown in the Information Window at all times.

5.2.2 Insert VITS

When this function is selected, the four standard VITS lines are inserted in the vertical interval. The letters VTS will appear in the lower line of the Information Window when enabled.

5.2.3 NTSC Pedestal (for NTSC output only)

This allows the pedestal to be ON (included) or OFF (removed) from the output signal.

When selected, the output standard will be shown as NTSC. When deselected the output standard will be shown as NTSC-J, the version of NTSC used in Japan.

Note: After changing the NTSC Pedestal selection, the output signal will be blanked for approximately five seconds to allow for reconfiguration.

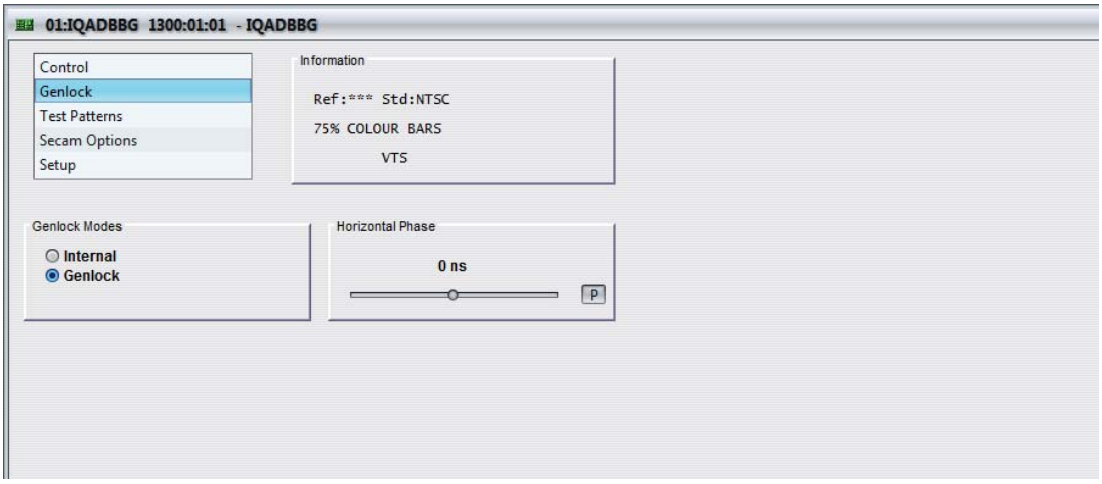
5.2.4 Video Gain

The overall output signal level may be adjusted with this function. The range of adjustment from standard level is +127 to -128 arbitrary units. The range of adjustment is approximately ±0.5 dB.

- To return the setting to its preset value (0), select **P**.

5.3 Genlock

This screen allows various modes of genlock to be enabled and adjusted.



5.3.1 Genlock Modes

- **Internal:** When selected, the output signal will be free-running and the phasing controls unavailable.

  In this mode the frequency accuracy will be ±10 ppm.

  Note: This mode should be selected if test patterns of a particular line standard (and different to the reference input) are required at the output.

- **Genlock:** In this mode the module locks to the reference subcarrier and will always produce a zero ScH (Subcarrier phase to H-Phase) output. The output H timing will be maintained as close as possible to the reference H timing in the correct color frame.

5.3.2 Horizontal Phase

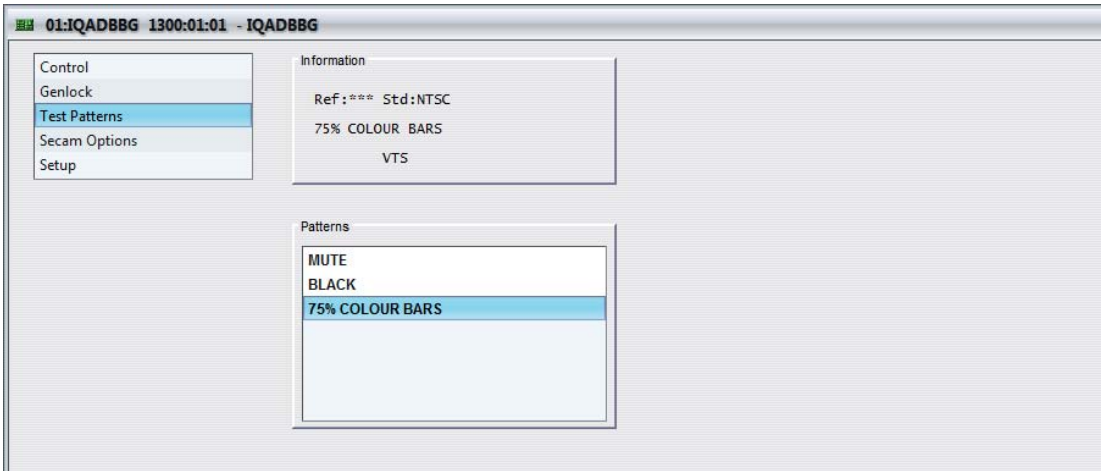
This allows the horizontal timing of the output signal relative to the reference sync signal to be adjusted.

The range is approximately ±1.9 lines in steps of one cycle of subcarrier (ensures the correct SC/H timing is maintained), and the value is shown in nanoseconds.

- To return the setting to its preset value (0), select **P**. (Output coincident with reference.)

5.4 Test Patterns

This screen allows the module to output test pattern signals in the unit's operating standard.



5.4.1 Patterns

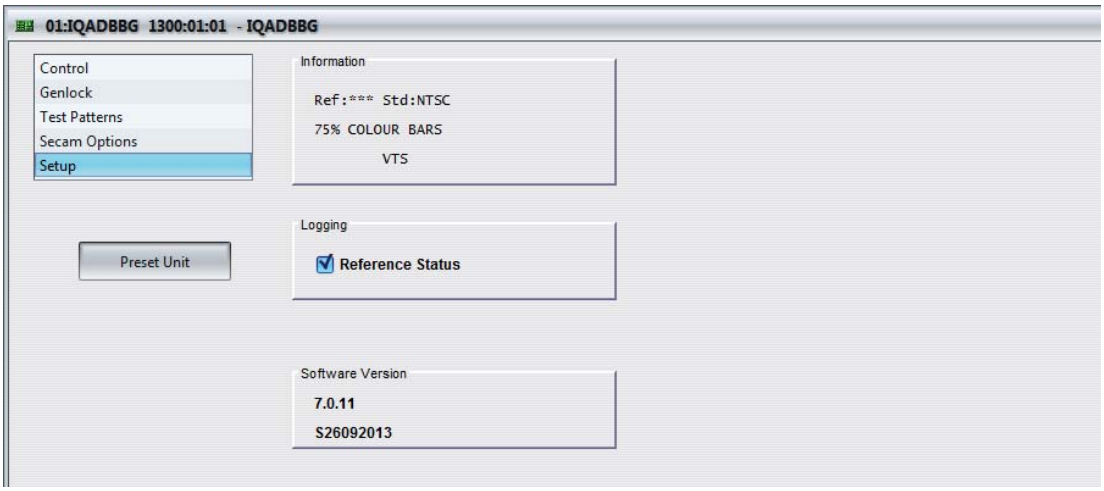
The following signals are available for selection:

Patterns PAL	Patterns NTSC
MUTE	MUTE
BLACK	BLACK
75% COLOUR BARS	75% COLOUR BARS
100% COLOUR BARS	100% COLOUR BARS
VITS-17	NTC7-1
VITS-18	FCC-MULTIBURST
VITS-330	NTC7-2
VITS-331	FCC-COMPOSITE

Note: When MUTE is selected, the unit will not produce a test pattern signal.

5.5 Setup

The Setup screen displays basic information about the module, such as logging options and the software version.



5.5.1 Preset Unit

The Preset Unit button presets various functions so that a signal is produced at the output even though some settings may be incompatible for the input signal. This is useful if some settings have been set in error and no output signal is being produced.

5.5.2 Logging

If a logging device is attached to the RollCall™ network, information about various parameters will be reported to the logging device assigned in the Remote Control Interface system.

- **Reference Status:** When selected, a loss of reference signal condition will be notified to any logging device.

5.5.3 Software Version

This item shows the version of the software fitted in the module followed by the serial number of the unit.

Appendix A. Genlock

The default genlock mode locks to the reference subcarrier and will always produce a zero ScH output. The output H timing will be maintained as close as possible to the reference H timing in the correct color frame. The ScH warning LED will light if the ScH of the reference is > ± 20° (approx.), indicating that color framing may be lost should the reference ScH error increase.

With no reference applied or internal lock selected, the output will freerun and the output ScH is guaranteed to be zero.

In reference genlock modes the subcarrier may be offset by up to 360°. H phase offset is limited to approx. ±1.9 lines.

Genlock limits: