LYNXTechnik AG

Broadcast Television Equipment

Reference Manual

PTG 5610 B/D

Multi-format SD/HDSDI Video and AES Audio Test Generator

Revision 1.0
February 2008

This Manual Supports Device Revisions:	
PTG 5610B/D Firmware Revision	235.4.17
Control System GUI Release	4.1.2

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Contents

RoHs Conformity

The RoHS Directive stands for "the restriction of the use of certain hazardous substances in electrical and electronic equipment". This Directive bans the placing on the EU market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

This product conforms to EU RoHS Directives 2002/95/EC

Warranty

LYNX Technik AG warrants that the product will be free from defects in materials and workmanship for a period of two (2) year from the date of shipment. If this product proves defective during the warranty period, LYNX Technik AG at its option will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, customer must notify LYNX Technik of the defect before expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by LYNX Technik, with shipping charges prepaid. LYNX Technik shall pay for the return of the product to the customer if the shipment is within the country which the LYNX Technik service center is located. Customer shall be responsible for payment of all shipping charges, duties, taxes and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure, or damage caused by improper use or improper or inadequate maintenance and care. LYNX Technik shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than LYNX Technik representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of non LYNX Technik supplies; or d) to service a product which has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty servicing the product.

THIS WARRANTY IS GIVEN BY LYNX TECHNIK WITH RESPECT TO THIS PRODUCT IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. LYNX TECHNIK AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. LYNX TECHNIK`S RESPONISIBILITY TO REPAIR AND REPLACE DEFECTIVE PRODUCTS IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. LYNX TECHNIK AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTIAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER LYNX TECHNIK OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Regulatory information

Europe

Declaration of Conformity

We LYNX Technik AG
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Germany

Declare under our sole responsibility that the product

TYPE: **P TG 5610 B/D**

To which this declaration relates is in conformity with the following standards (environments E1-E3):

EN 55103-1 /1996
EN 55103-2 /1996
EN 60950 /2001

Following the provisions of 89/336/EEC and 73/23/EEC directives.

Winfried Deckelmann

Weiterstadt, February 2008

Place and date of issue *Legal Signature*

USA

FCC 47 Part 15

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense

Getting Started

Most CardModules are installed into the rack frames and system tested in the factory. If this is an upgrade part or service exchange item then the module is supplied in a padded cardboard carton which includes the CardModule, rear connection plate and mounting screws.

Packaging

The shipping carton and packaging materials provide protection for the module during transit. Please retain the shipping cartons in case subsequent shipping of the product becomes necessary. Do not remove the module from its protective static bag unless observing adequate ESD precautions. Please see below.

ESD Warning

This product is static sensitive. Please use caution and use preventative measures to prevent static discharge or damage could result to module.

Preventing ESD Damage

Electrostatic discharge (ESD) damage occurs when electronic assemblies or the components are improperly handled and can result in complete or intermittent failure.

Do not handle the module unless using an ESD-preventative wrist strap and ensure that it makes good skin contact. Connect the strap to any solid grounding source such as any exposed metal on the rack chassis or any other unpainted metal surface.

Caution

Periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 Megohms.

Product Description

The P TG 5610 B/D is a multi-rate digital SD/HD SDI video and AES test generator which can generate video test signals in 525/625 plus a selection of HDTV formats.

(Module is fully programmable and additional formats / features can be added via firmware updates if and when available)

The module provides 2 independent SDI video outputs with 4 channels of external AES audio plus embedded AES audio. The integrated Audio generator provides adjustable frequency, gain, and phase with a selectable momentary pause for all 8 mono audio channels. The complete embedded SDI audio payload is 16 channels of audio and the module can be configured to embed audio into all 16 channels if needed (duplicating AES group 1 and 2 into AES group 3 and 4)

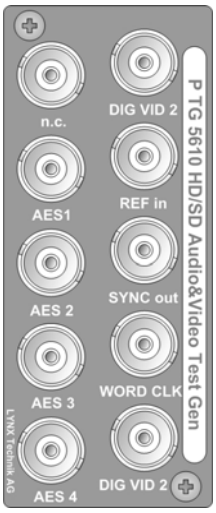
The module also has support for dynamic (moving) patterns and includes a dynamic zone plate generator, EBU Tec 3305 audio synchronization pattern and LCD persistence pattern which are all dynamic in nature.

Additional test patterns can be loaded via the compact flash slot (required option code to activate) and even user defined using the standard DPX file format. Each video output has a user defined character overlay function.

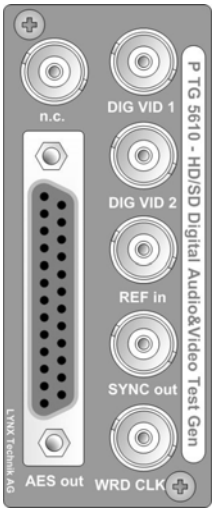
Flexible genlock capability permits locking to SD bi-level or HD tri-level sync with full cross lock capability. One frame of adjustable timing allows for precise test signal insertion into any part of a system.

An analog reference sync output (bi-level or Tri-level) is provided, plus a 48 kHz audio Word clock - both frequency locked to the reference input. Without an external reference the module can function as a basic sync pulse generator.

***Note**. Two versions of the P TG 5610 are available and should be selected depending on your external AES audio connectivity preferences.*



P TG 5610 B
Provides connections for AES3id (unbalanced) audio on 4 x 75 Ohm BNC connectors



P TG 5610 D
Provides connections for AES3 (balanced) audio on a 15 pin female SubD connector

Key Features List

- Multi-format operation from SDTV to H (DTV).
- Integrated library of static and dynamic test patterns.
- Includes dynamic EBU AV Sync (audio sync) test pattern.
- 4 x external AES outputs and embedded audio.
- AES audio outputs transformer coupled.
- 8 channel audio generator, each channel fully adjustable.
- Adjustable AES tone frequency (20Hz to 20kHz in 1Hz steps))
- Selectable left / right channel pause.
- Adjustable gain level. (0dB FS to -60dB FS)
- 2 simultaneous video test pattern outputs (user selectable).
- Character overlay for each video output - color and position user definable.
- Genlock capability with one frame of adjustable timing (in pixels and lines)
- Analog Bi-level or tri-level Genlock input with cross lock capability.
- Bi-level or tri-level analog sync output.
- 48 KHz Word Clock reference output.
- EDH Insertion into SDI outputs.
- Compact Flash option allowing user defined patterns to be loaded. (DPX Files)
- Flash ram automatically stores settings through power cycles and long term storage.

Supported Video Formats

The P TG 5610 is a multi-format and multi-rate device designed to support standard definition (SDTV) video formats and 19 of the new H (DTV) digital video formats in a single module. Outputs are SDI (Digital) in 270Mbit or 1.485 Mbit depending on the selected format.

SDTV Formats

System Nomenclature	Pixels/ Line	Lines / frame	Frame Rate	Scanning format
525 / 59.94 Hz	720	486	60/1.001	Interlaced
625 / 50 Hz	720	576	50	Interlaced

HDTV Formats

System Nomenclature	Pixels/ Line	Lines / frame	Frame Rate	Scanning format
1080P / 24Hz	1920	1080	24	Progressive
1080P / 23.98Hz	1920	1080	24/1.001	Progressive
1080P / 25Hz	1920	1080	25	Progressive
1080PSF / 24Hz	1920	1080	24	Segmented Frame
1080PSF / 23.98Hz	1920	1080	24/1.001	Segmented Frame
1080PSF / 25Hz	1920	1080	25	Segmented Frame
1080P / 30Hz	1920	1080	30	Progressive
1080P / 29.97Hz	1920	1080	30/1.001	Progressive
1080i / 59.94Hz	1920	1080	30/1.001	Interlaced
1080i / 50Hz	1920	1080	25	Interlaced
1080i / 60Hz	1920	1080	30	Interlaced
720P / 24Hz	1280	720	24	Progressive
720P / 23.98Hz	1280	720	24/1.001	Progressive
720P / 25Hz	1280	720	25	Progressive
720P / 30Hz	1280	720	30	Progressive
720P / 29.97Hz	1280	720	30/1.001	Progressive
720P / 59.94Hz	1280	720	60/1.001	Progressive
720P / 50Hz	1280	720	50	Progressive
720P / 60Hz	1920	720	60	Progressive

***Note**. Support for additional formats may be provided and will be made available as a firmware upgrade, but this module hardware can never support 1080P/59.94Hz, 1080P/60Hz or 1080P/50Hz due to the high bit rate requirements of these formats (2.97GHz).*

Audio System

The P TG 5610 includes an integrated 8 channel audio test generator. The 8 channels are arranged into 4 x AES streams which are available as external AES signals. Audio can also be embedded into both video outputs.

Each of the 8 mono audio channels has separate adjustments for:

Gain Level:	**0 to - 60dB FS**
Tone Frequency:	**20Hz to 20 KHz** (1 Hz increments)
Phase:	**0 to 359 degrees** (1 degree increments)
Pause:	**Momentary pause ON/OFF**
Bit Depth per AES:	**20 or 24 bit**

The 8 Mono audio channels are assigned as follows: (Sample rate is 48 kHz)

Channel 1 (left)	**AES 1**	**AES Group 1**
Channel 2 (right)		
Channel 3 (left)	**AES 2**	
Channel 4 (right)		
Channel 5 (left)	**AES 3**	**AES Group 2**
Channel 6 (right)		
Channel 7 (left)	**AES 4**	
Channel 8 (right)		

The first 8 channels can also be embedded into AES Group 3 and 4 which is the full SDI embedded payload (16 channels of audio = 8 AES) assignment below:

Channel 1 (left)	**AES 5**	**AES Group 3**
Channel 2 (right)		
Channel 3 (left)	**AES 6**	
Channel 4 (right)		
Channel 5 (left)	**AES 7**	**AES Group 4**
Channel 6 (right)		
Channel 7 (left)	**AES 8**	
Channel 8 (right)		

With a valid reference sync input all audio is frequency locked to reference (Including the 48KHz word clock output).

System Timing

The P TG 5610 can be genlocked, and using the “Timing Lock” mode precisely timed into a system environment using the two available timing adjustments.
Note: *Delay adjustments do not function if in “Frequency Lock” or Genlock OFF modes*

Sync Timing

With a valid reference input the analog output sync has an adjustable delay relative to the reference input. Adjustment range is one full video frame (in the selected standard) in pixel and line increments.

Video Delay

The video delay adjustment will delay both SDI video outputs relative to the analog sync input. The video output can be delayed up to one full frame in pixel and line increments.

Analog Sync Output / Genlock

The P TG 5610 has very flexible Sync output capabilities with the ability to free run or genlock to an external reference. In all cases the selected SDI video format is the master setting. Selecting a given SDI video format will [by default] deliver an analog sync signal in the same standard. Flexibility is provided by allowing the user to change the default to an alternative sync signal (synchronous to the selected SDI output) in a completely different format to the SDI video output.

The P TG 5610 can provide Bi-Level SDTV analog sync or Tri level HDTV sync outputs, and the reference input will accept Bi-Level or tri-Level sync and auto detect the connected sync signal [format and standard]

There are three primary modes of operation:

Free Run (no external reference selected)

In this mode the P TG 5610 operates in standalone mode, and can be used as an SPG (sync pulse generator) delivering SDI video, analog sync outputs and 48 KHz Word Clock reference signals.

In terms of the supported combinations of selected SDI outputs and selected output SYNC standards the formats can be selected into two groups shown below. The selected SDI output format and the sync output format must be in the same group. (The groups basically correspond to European and North American format groupings).

Group 1 (European Markets)	**Group 2** (North American Markets)
625 / 50Hz (SDTV)	525 / 59.94Hz (SDTV)
720P / 60Hz	720P / 59.94Hz
720P / 50Hz	720P / 29.97Hz
720P / 30Hz	720P / 23.98Hz
720P / 25 Hz	1080i / 59.94Hz
720P / 24 Hz	1080P / 29.94Hz
1080i / 60Hz	1080P / 23.98Hz
1080i / 50Hz	1080PSF/ 23.98Hz
1080P / 30Hz	
1080P / 25Hz	
1080P / 24Hz	
1080PSF/25Hz	
1080PSF/24Hz	

While in Free Run mode the Analog Sync output is V-locked to the SDI output. Sync timing can be delayed relative to the SDI output using the sync delay controls. Adjustment range is 1 frame total, adjustable in line and pixel increments.

Please refer to the table below. V-lock (and adjustable sync timing) in free run mode is only valid for the selections marked. In all other cases analog sync will be generated in the selected standard BUT NOT v locked to the selected test pattern SDI output.

Sync Output Standard

Selected P TG 5610 SDI Standard	525	625	720p60	720p59	720p50	720p30	720p29	720p25	720p24	720p23	1080i60	1080i59	1080i50	1080p30	1080p29	1080p25	1080p24	1080p23	1080psf25	1080psf24	1080psf23
525	✓			✓								✓									
625		✓			✓								✓						✓		
720p60			✓								✓										
720p59	✓			✓								✓									
720p50		✓			✓								✓						✓		
720p30			✓			✓					✓			✓							
720p29	✓			✓			✓					✓			✓						
720p25		✓			✓			✓					✓			✓			✓		
720p24									✓								✓			✓	
720p23										✓								✓			✓
1080i60			✓								✓										
1080i59	✓			✓								✓									
1080i50		✓			✓								✓						✓		
1080p30			✓			✓					✓			✓							
1080p29	✓			✓			✓					✓			✓						
1080p25		✓			✓			✓					✓			✓			✓		
1080p24									✓								✓			✓	
1080p23										✓								✓			✓
1080psf25		✓			✓								✓						✓		
1080psf24																				✓	
1080psf23																					✓

Genlock (Cross Lock + Frequency lock)

In this mode the same group combinations are possible in terms of SDI output and Sync output as in free run mode, but a genlock signal can be connected to frequency lock the SDI video and selected SYNC output to the connected reference. P TG 5610 supports flexible cross locking capabilities and the reference input can be any of the formats in the same group.

Note: *The Sync and Video Delay adjustment is not active in this mode (refer to timing lock mode)*

Genlock (Cross Lock + Timing Lock)

In this mode it's possible to genlock and adjust the output timing of the SDI video output and the analog Sync video output **relative the reference input**. Two independent timing adjustments are provided for Sync and Video with one frame of adjustment in lines and pixel increments. This mode is particularly useful if you need to time the test signal into your facility, or you have the need to delay sync relative to studio reference (or the SDI video output).

The combinations for timing lock are limited compared to free run and frequency lock mode. Please refer to the table below for the selection possibilities. One again the SDI output format is the master and the default analog output sync signal will be the same as the selected SDI video standard (shown in green)

Selected SDI Output Standard

Reference Input Standard

	525	625	720p60	720p59	720p50	720p30	720p29	720p25	720p24	720p23	1080i60	1080i59	1080i50	1080p30	1080p29	1080p25	1080p24	1080p23	1080psf25	1080psf24	1080psf23
525	✓			✓								✓									
625		✓			✓								✓						✓		
720p60			✓								✓										
720p59	✓			✓								✓									
720p50		✓			✓								✓						✓		
720p30			✓			✓					✓			✓							
720p29	✓			✓			✓					✓			✓						
720p25		✓			✓			✓					✓			✓			✓		
720p24									✓								✓			✓	
720p23										✓								✓			✓
1080i60			✓								✓										
1080i59	✓			✓								✓									
1080i50		✓			✓								✓						✓		
1080p30			✓			✓					✓			✓							
1080p29	✓			✓			✓					✓			✓						
1080p25		✓			✓			✓					✓			✓			✓		
1080p24									✓								✓			✓	
1080p23										✓								✓			✓
1080psf25		✓			✓								✓						✓		
1080psf24																				✓	
1080psf23																					✓

Find the SDI output format the P TG 5610 is set to in the vertical column, and then read across for the supported sync formats. The connected reference signal and the output sync can be different formats – as long as they are shown as available in the selected row For example the P TG 5610 could be set to 720P/59.94Hz, the reference could be 525/59.94Hz and the analog sync output could be 1080i/59.94Hz. All would be genlocked and the SDI video output and Analog sync output independently timed using the video and sync delay adjustments.

Note. *It is necessary to select the "timing lock" mode and set the P TG 5610 to "lock to reference". Please refer to the section covering control and settings.*

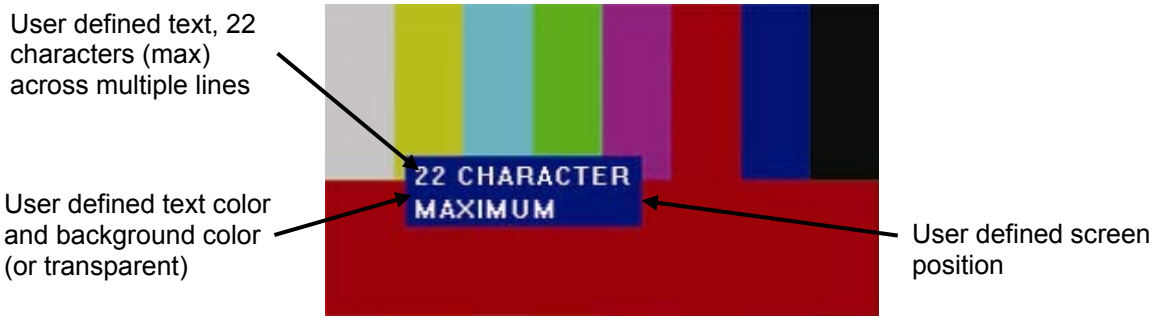
Character Overlay

The Module has an integrated character generator, which can provide independent user defined character overlay for each SDI output.

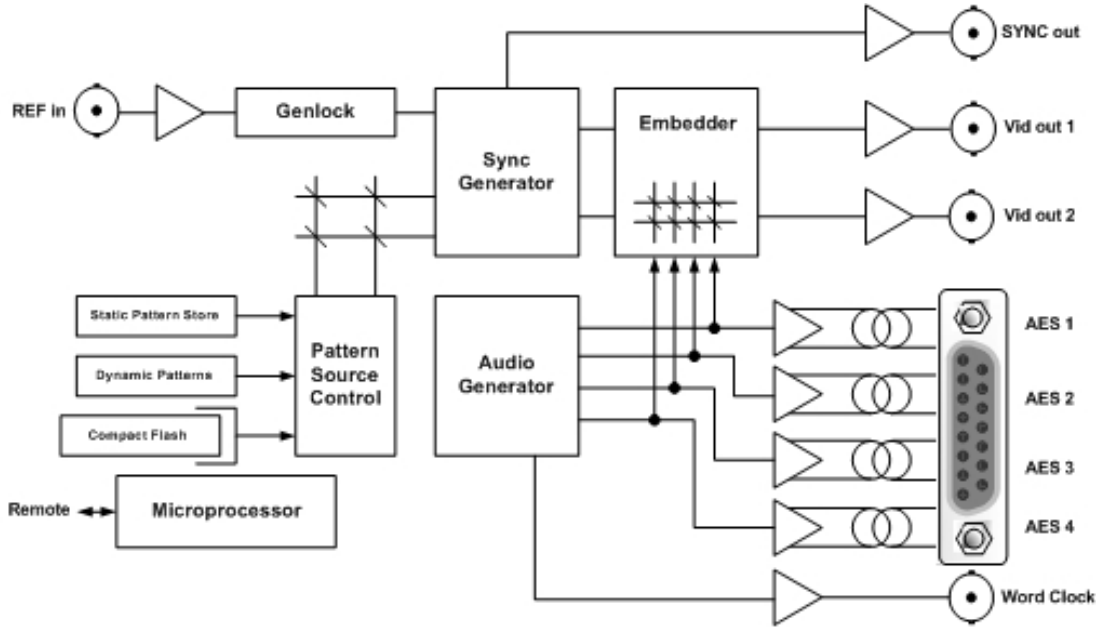
Basic features:

- Independent generators for each output.
- 22 characters max, across multiple lines (incl. carriage return and spaces).
- User defined text color
- User defined background color (or transparent)
- User defined screen position
- All output formats supported
- ON / OFF selection
- All character generator setup info automatically stored in internal flash ram, and will survive power cycles and long term storage.

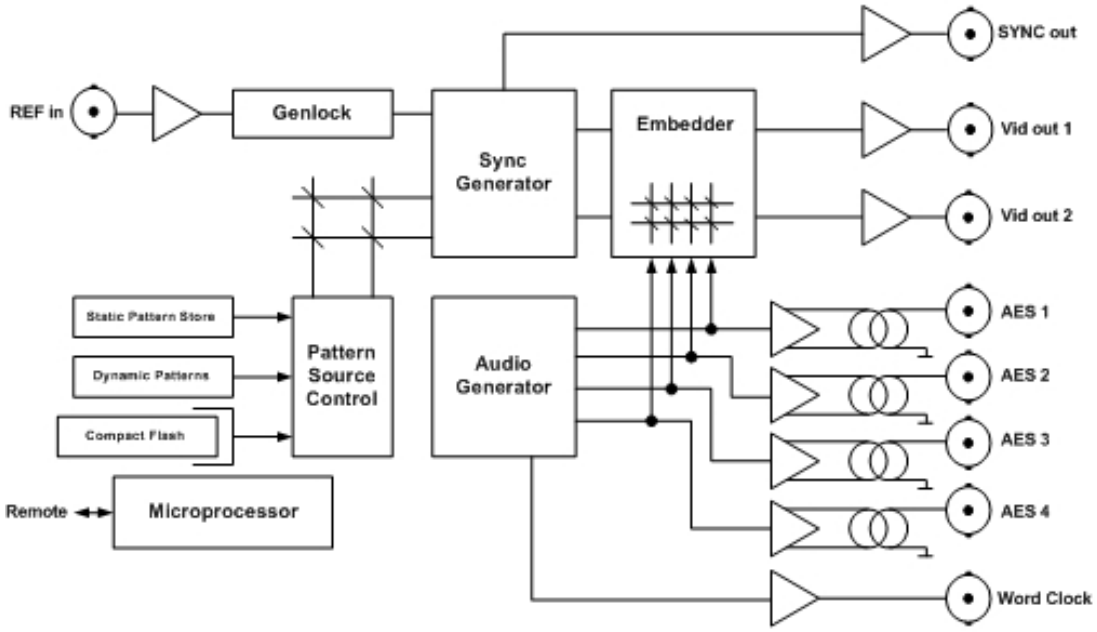
The character generator can be accessed / configured and set via the local display menu or via the PC GUI if using the RCT 3002 Service adapter or the LYNX control system.



Functional Diagrams

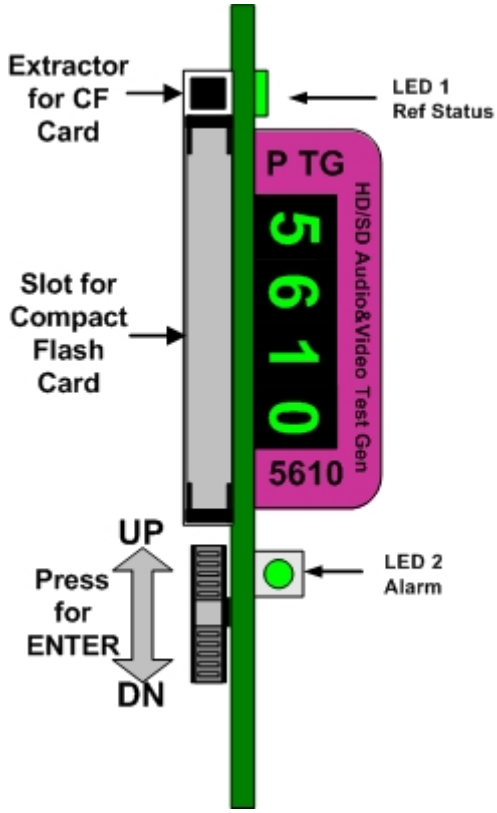


P TG 5610 D

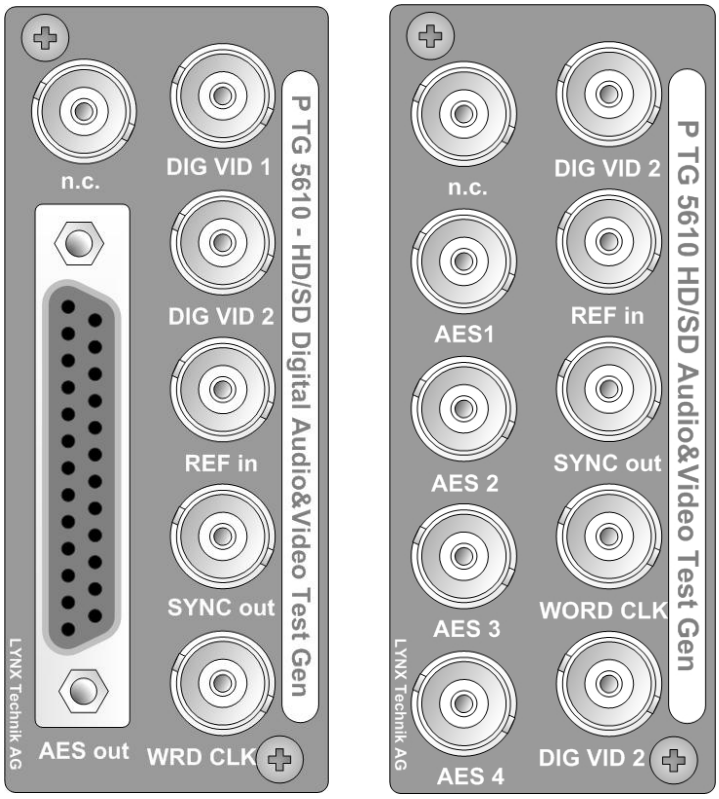


P TG 5610 B

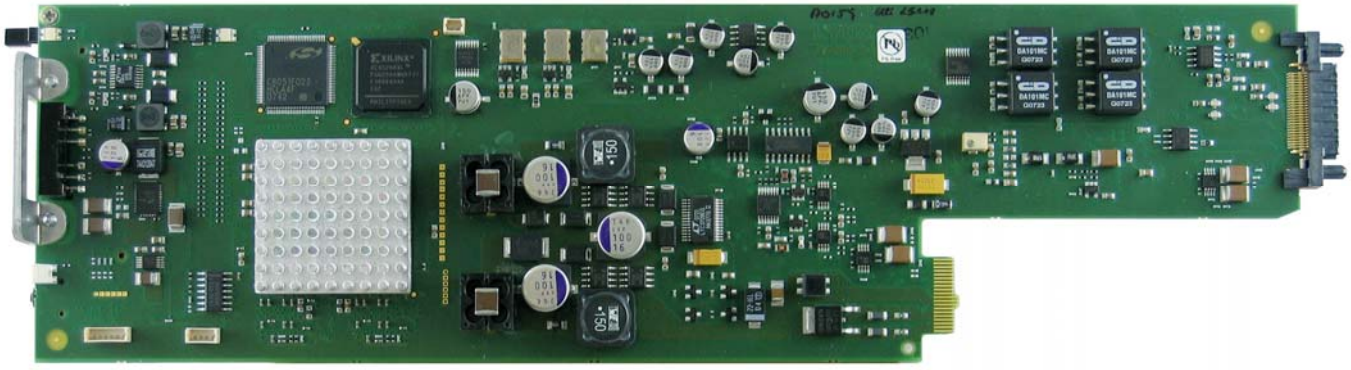
Module Layout



Module Front Panel



Module Rear Termination Panels



CardModule Layout

Connections

Video

The P TG 5610 use standard 75 Ohm BNC connectors. We recommend the use of high quality video cable for digital video connections to reduce the risk of errors due to excessive cable attenuation. Max cable lengths the module will support are shown below.

SDTV = 250m Belden 8281 (270Mbits/s)
HDTV = 140m Belden 1694A (1.4Gbits/s)

> ***Note.*** *Due to the compact design of the connection plate it will be necessary to use a connection tool to secure the BNC video connectors.*

Audio

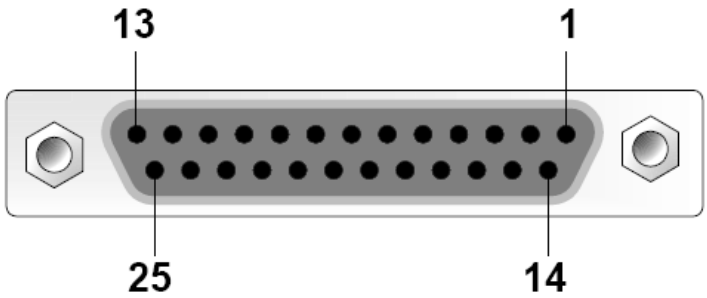
Unbalanced AES 3id

If using the "B" suffix module then this is provided with a rear connection plate with standard 75 Ohm BNC connections for AES audio. Connection is self explanatory.

Balanced AES3

If using the "D" Suffix module then this is provided with a rear connection plate with a 25 pin female SubD connection for balanced AES 3 audio signals. Connector wiring is shown below.

Pin Number	Connection	Pin Number	Connection
1	n.c.	20	n.c.
2	n.c.	21	n.c.
3	n.c.	22	n.c.
4	n.c.	23	n.c.
5	n.c.	24	n.c.
6	n.c.	25	n.c.
7	AES4 +	20	AES 4 -
8	AES 4 GND	21	AES3 +
9	AES3 -	22	AES3 GND
10	AES 2 +	23	AES2 -
11	AES 2 GND	24	AES 1 +
12	AES1 -	25	AES 1 GND
13	n.c.		



View looking INTO connector as seen on module

We recommend you use high quality screened (twisted pair) cable for the balanced audio connections. LYNX has an optional audio breakout cable which will bring out all audio connections to in line XLR connectors. Model number **R AC M25-8**

Video / Sync Connections

The P TG 5610 is configured with standard 75 Ohm BNC connectors. Connection is self-explanatory. We recommend the use of high quality video cable for digital video connections to reduce the risk of errors due to excessive cable attenuation.
Max cable lengths the module will support are shown below.

SDTV = 250m Belden 8281 (270Mbits/s)
HDTV = 140m Belden 1694A (1.4Gbits/s)

Note. *Due to the compact design it may be necessary to use a BNC connector insertion and removal tool to make some of the video / audio connections to the P TG 5610*

Installation

If this module was supplied as part of a system it is already installed in the rack enclosure. If the module was supplied as a field upgrade please follow the installation procedure below.

NOTE *Observe static precautions when handling card. Please see ESD warnings on Page 5.*

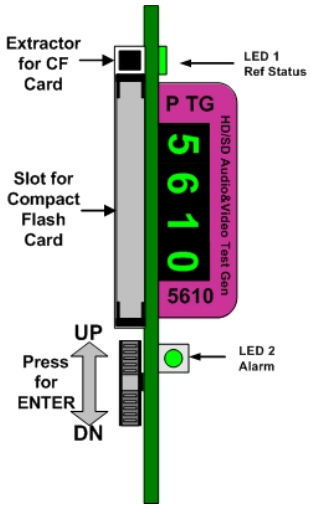
Each Card Module is supplied with a rear connection panel and two mounting screws. Please follow the following procedure for installation of the card module into the Series 5000 Card Frame.

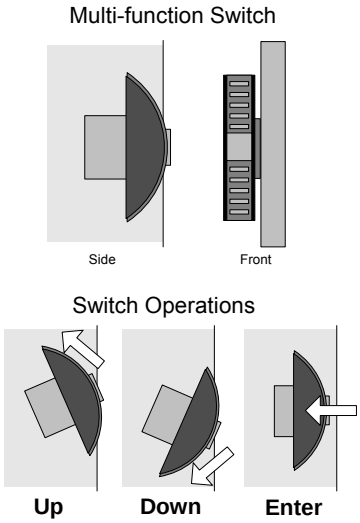
1. Select a slot in the card frame where the CardModule will be located.
2. Remove the blank connection panel from the rear of the rack (if fitted)
3. Install the rear connection panel using the screws supplied. Do not tighten the screws fully
4. Slide the card module into the card frame and carefully check the CardModule connects to the rear connection plate. The card should fit easily and should not require excessive force to insert, if you feel any resistance, there could be something wrong with the rear connection panel location. Do not try and force the connection this may damage the connectors. Remove the rear connection panel and check alignment with the CardModule.
5. Insert and remove the CardModule a few times to ensure correct alignment and then tighten the two screws to secure the rear connection plate.

Settings and Control

The module has an integrated micro-controller, which enables the module to be configured and controlled locally using the multifunction switch and 4 character dot matrix display (or from remote using a GUI interface when using one of the optional controllers and control software).

Once set, all settings are automatically saved in non-volatile internal memory. (Flash RAM) The module will always recall the last used settings.





Multi Function Switch

The CardModule is equipped with a multi-function switch located on the front bottom edge of the card. (See above)

Using the Local Display Menu**s**

Making local adjustments to the module is done using the multifunction switch and the integrated 4-character dot matrix display. The menu system is layered, and navigation through the system is done using the **UP** and **DOWN** functions of the switch. **ENTER** is used to move between menu levels and also enter a selection.

Switch Function	Operation
UP	Move UP within a level
DOWN	Move down within a level
ENTER	Change levels / Make selection

Menu Structure

The Menu structure is defined in the next table, and should be used when navigating through the system.

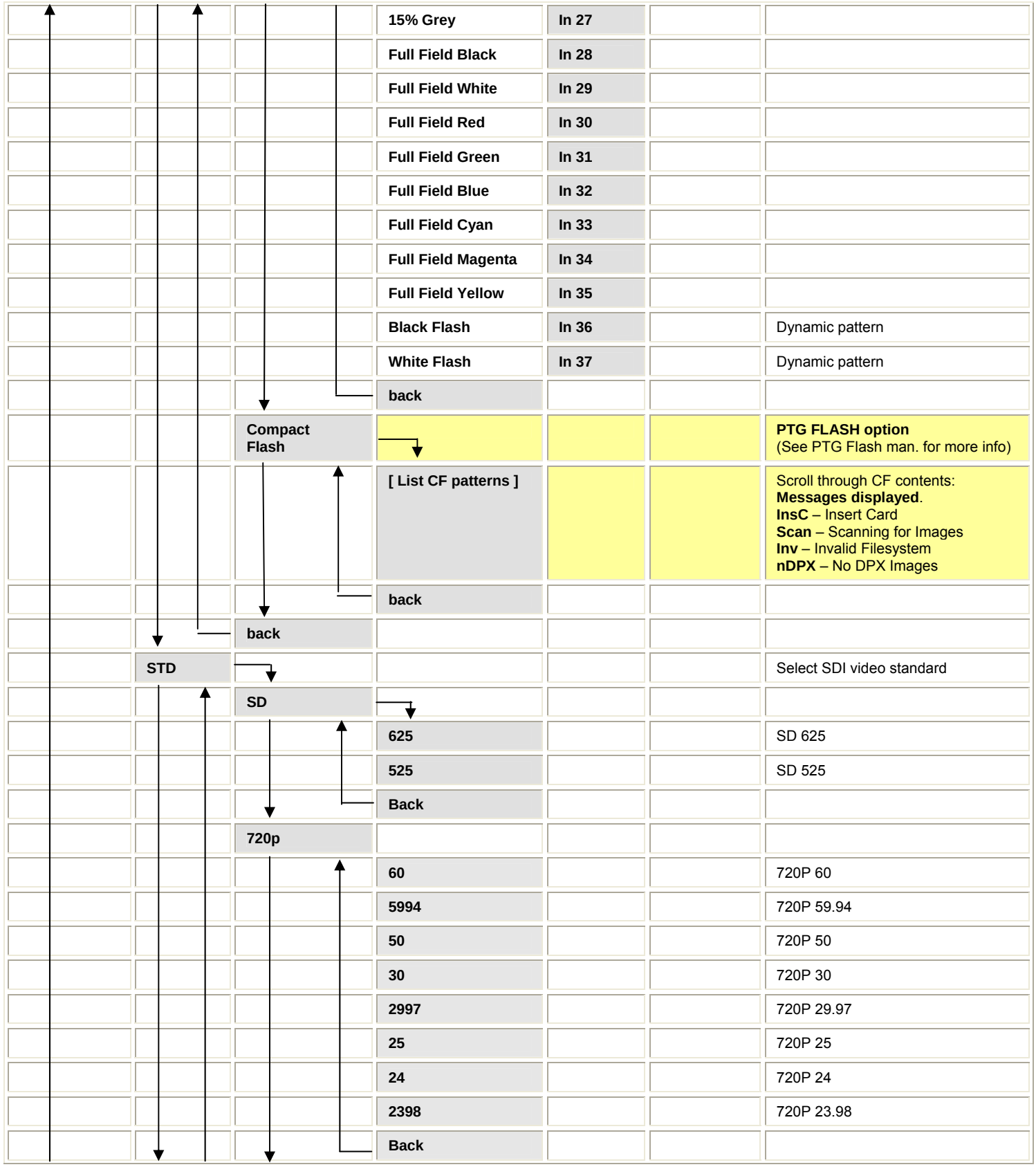
ENTER moves between levels, **UP/DOWN** moves between items within the level
When you enter a new setting the system will jump back one level in the menu system.

- The “back” selection in the menu structure will take you back one level when selected.
- When an item is selected which has several setting possibilities the first value displayed will be the value currently stored in the system. The order of the available settings for any menu item in the table supplied does not represent the order the settings will actually be displayed.

- If left unattended, the menu will default to the root display after a preset timeout.

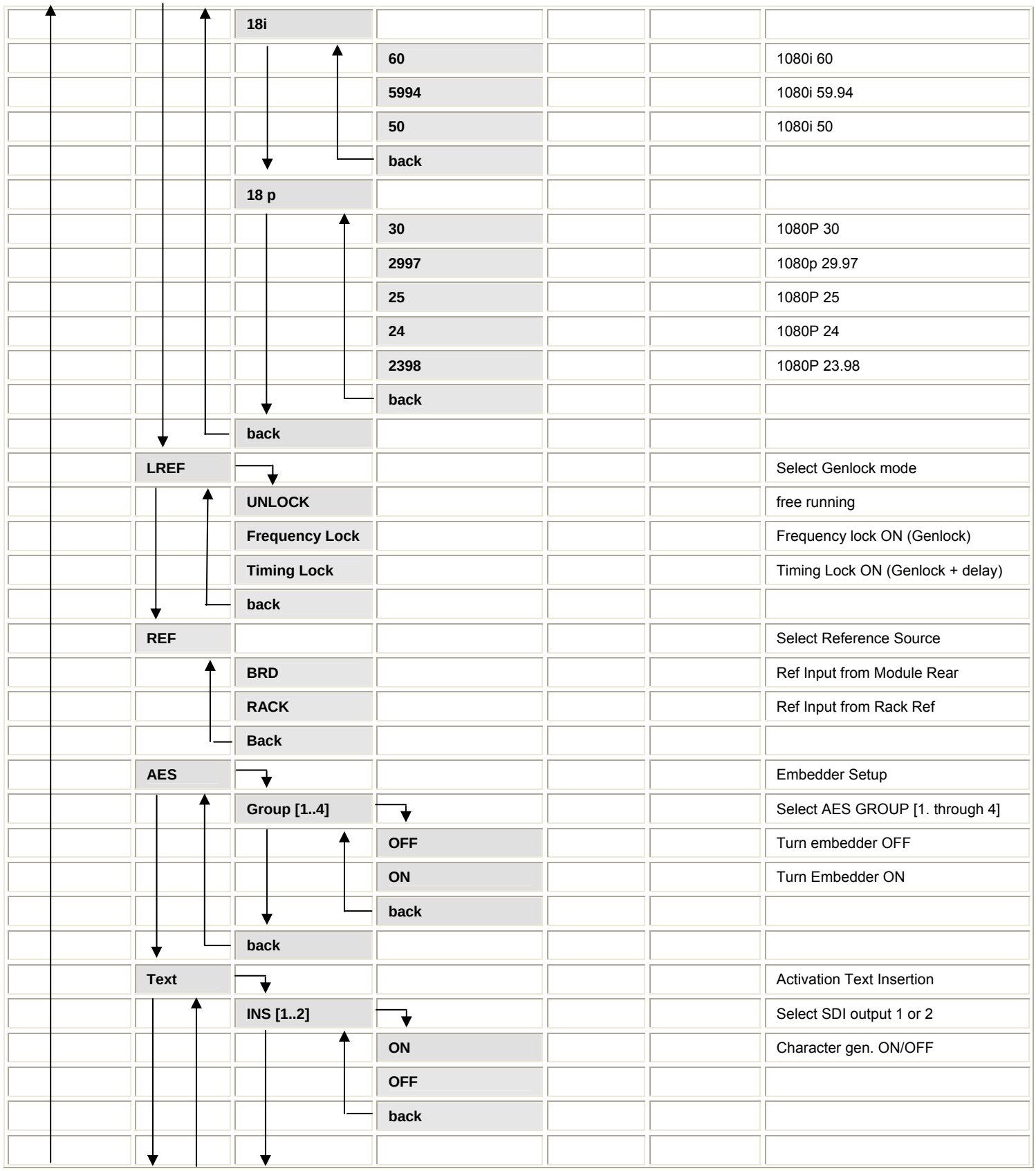
*** Note. The Adjustable Video Delay and Sync delay adjustments are qualified by the Genlock mode the P TG 5610 is set to and the connected reference. These selections will not be visible in the menu for certain modes of operation. Please refer to the “Analog Sync Output / genlock Section of the manual.*

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Notes
LYNX PTG 5610						Root Display (on power up) 10 seconds
	Output Pattern 1/2					Select between output 1/ output 2
		Internal (with CF Card option active)				Internal Pattern selections
			SMPTE-Colorbar	**In 0**		
			SMPTE219 Colorbar	**In 1**		
			75% Colorbar	**In 2**		
			75% Bars over Red	**In 3**		
			100% Colorbar	**In 4**		
			EBU AV Sync	**In 5**		Dynamic pattern (audio sync)
			Staircase	**In 6**		
			Multiburst	**In 7**		
			Frequency Sweep	**In 8**		
			Center Sweep	**In 9**		
			Zoneplate	**In 10**		
			Moving Zoneplate	**In 11**		
			4 Level Pluge	**In 12**		
			Convergence Grille	**In 13**		
			Color Temp	**In 14**		Y Window with pluge
			Persistence Test	**In 16**		Dynamic Pattern
			Field Test Cbar & Red	**In 17**		One field color bars, other red
			Field Test Red & Cbar	**In 18**		One field red, other colorbars
			Y-Ramp Up	**In 19**		
			Y-Ramp Down	**In 20**		
			CB-Ramp Up	**In 21**		
			CR-Ramp Up	**In 22**		
			YCBCR-Ramp Up	**In 23**		
			Pathalogical EQ	**In 24**		
			Pathalogical PLL	**In 25**		
			Path EQ/PLL	**In 26**		



			15% Grey	**In 27**		
			Full Field Black	**In 28**		
			Full Field White	**In 29**		
			Full Field Red	**In 30**		
			Full Field Green	**In 31**		
			Full Field Blue	**In 32**		
			Full Field Cyan	**In 33**		
			Full Field Magenta	**In 34**		
			Full Field Yellow	**In 35**		
			Black Flash	**In 36**		Dynamic pattern
			White Flash	**In 37**		Dynamic pattern
			back			
		Compact Flash				**PTG FLASH option** (See PTG Flash man. for more info)
			[List CF patterns]			Scroll through CF contents: **Messages displayed**. **InsC** – Insert Card **Scan** – Scanning for Images **Inv** – Invalid Filesystem **nDPX** – No DPX Images
			back			
		back				
	STD					Select SDI video standard
		SD				
			625			SD 625
			525			SD 525
			Back			
		720p				
			60			720P 60
			5994			720P 59.94
			50			720P 50
			30			720P 30
			2997			720P 29.97
			25			720P 25
			24			720P 24
			2398			720P 23.98
			Back			

		18i				
			60			1080i 60
			5994			1080i 59.94
			50			1080i 50
			back			
		18 p				
			30			1080P 30
			2997			1080p 29.97
			25			1080P 25
			24			1080P 24
			2398			1080P 23.98
			back			
		18ps				
			25			1080PSF 25
			24			1080PSF 24
			2398			1080PSF 23.98
			back			
		back				
	Sync Standard				Set the analog sync output (available selections qualified by the SDI output format selected)	
		SD				
			625			SD 625
			525			SD 525
			Back			
		720p				
			60			720P 60
			5994			720P 59.94
			50			720P 50
			30			720P 30
			2997			720P 29.97
			25			720P 25
			24			720P 24
			2398			720P 23.98
			Back			



		18i				
			60			1080i 60
			5994			1080i 59.94
			50			1080i 50
			back			
		18 p				
			30			1080P 30
			2997			1080p 29.97
			25			1080P 25
			24			1080P 24
			2398			1080P 23.98
			back			
		back				
	LREF					Select Genlock mode
		UNLOCK				free running
		Frequency Lock				Frequency lock ON (Genlock)
		Timing Lock				Timing Lock ON (Genlock + delay)
		back				
	REF					Select Reference Source
		BRD				Ref Input from Module Rear
		RACK				Ref Input from Rack Ref
		Back				
	AES					Embedder Setup
		Group [1..4]				Select AES GROUP [1. through 4]
			OFF			Turn embedder OFF
			ON			Turn Embedder ON
			back			
		back				
	Text					Activation Text Insertion
		INS [1..2]				Select SDI output 1 or 2
			ON			Character gen. ON/OFF
			OFF			
			back			

	Factory Reset					Reset module to factory defaults (will also erase any char generator text and settings)
		YES				Yes to reset
		NO				
		Back				
	back					

Factory Default [Reset] Settings

The P TG 5610 is delivered preset to the following settings. These settings can be recalled anytime by using the “Factory Reset” function:

SDI Standard:	**1080i / 50Hz**
Sync Output:	**1080i / 50Hz**
Video Pattern 1:	**75% Color Bars**
Video Pattern 2:	**75% Color bars**
Pattern Settings	
Color Temp Level	**100%**
Persistence speed:	**5**
Persist FG Level	**50%**
Persist BG Level	**40%**
Zoneplate Aspect:	**SD 4:3**
Zoneplate Y/C:	**LUMA (luminance)**
H Freq:	**100%**
V Freq:	**100%**
AES 1 through 4	
Full Scale Level:	**-9dbFS**
Frequency:	**1 KHz**
Phase:	**0 degrees**
Pause:	**AES RIGHT: Continuous (no pause)** **AES LEFT: Paused**
Bits:	**24**
Embedder:	**Group 1,2,3,4 ON**
Reference Mode	**Reference unlock**
Display:	**Text + pattern 1**
Text overlay1:	**OFF / no text**
Text overlay2:	**OFF / no text**
Video Timing Delay:	**0 lines, 0 pixels**
Sync timing Delay:	**0 lines, 0 pixels**

LED Status Indicators

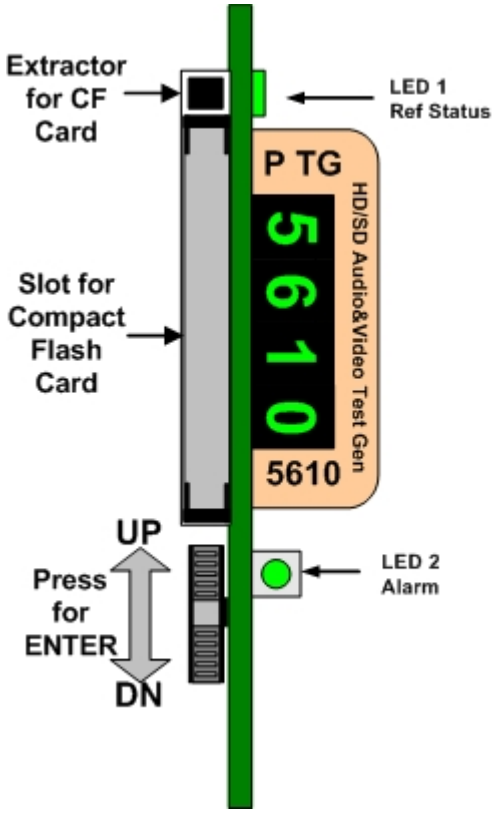
The P MX 5262, P MX 5264and P MX 5268 has LED indicators on the edge of the card that serve as alarm and status indication for the module. Function is described below.

Status LED 1

LED Color	Indication
Green ●	Reference detected, Frequency or Timing lock mode selected and no standard mismatch
Yellow ●	Reference detected, but standard mismatch or no Frequency or Timing lock mode selected
Red ●	Reference signal missing

Alarm LED 2

LED Color	Description
Green ●	Reference detected, Frequency or Timing lock mode selected and no standard mismatch or no lock mode selected
Yellow ●	Pattern not available in selected format
Red ●	Could not lock to reference (*when in frequency lock or Timing Lock modes*) or, Over Temperature **



***** Note***

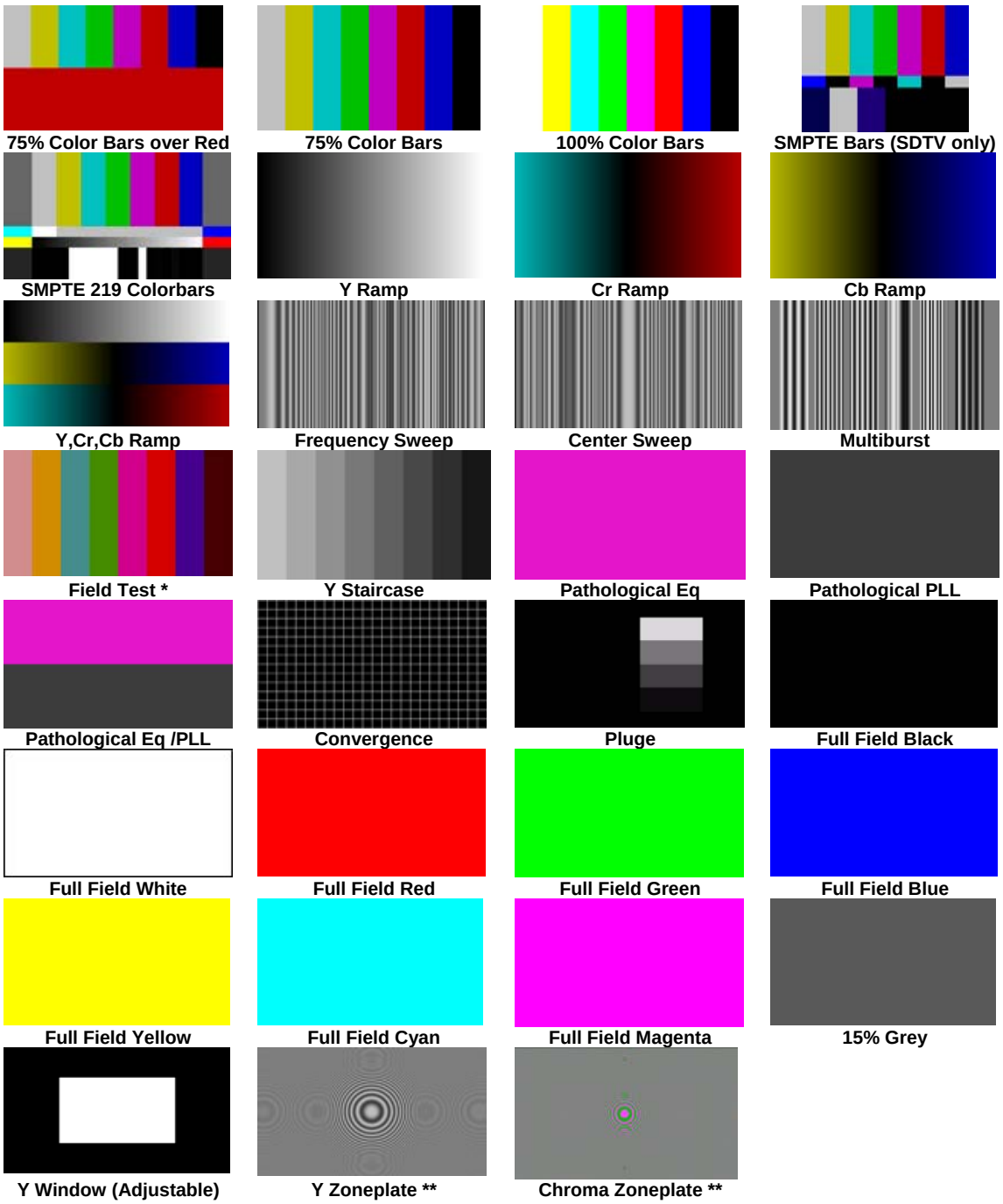
The Alarm LED will occasionally flash yellow during normal operation (black then a quad yellow flash). This is indicating the module is updating the stored settings in flash ram and is normal. No error condition exists and this function does not effect normal module operation.

Using the "Locate" function from the module GUI in the control system can also cause the Alarm LED to flash yellow (black then a triple yellow flash) this is used as a tool to physically locate a module in a system and does not indicate a fault condition.

Test Patterns

The standard library of test patterns supplied with P TG 5610 is detailed below.

Static Test Patterns



***Note.** The Field test pattern has one field as color bars and the other as full field red. This can be used for testing freeze modes on frame stores (fields / field 1 / field 2 / field repeat etc). This pattern is only available for interlaced formats (not selectable for 720P)*

***Note.** The Zoneplate can be preset to 4:3 or 16:9 (SDTV), Luminance or Chrominance and the H and V center frequency can be changed - this is set in the "Pattern Preferences" sub menu.*

Frequency Sweeps

The P TG 5610 produces a number of frequency test patterns. As the unit supports HD ad well as SD formats the frequency sweeps are configured differently depending on the format selected. The tables below define the frequency sweeps in more detail.

Multi-burst

The multi-burst waveform has 6 frequency bands in SDTV and 12 bands in HDTV. Frequency is shown below

STD	1	2	3	4	5	6	7	8	9	10	11	12
SDTV	600KHz	1MHz	2MHz	3MHz	4MHz	5MHz						
HDTV	2.5MHz	5MHz	7.4MHz	10MHz	12.5MHz	15MHz	18MHz	20MHz	22MHz	25MHz	28.5MHz	33MHz

Frequency Sweep

The continuous frequency sweep waveform min and max frequencies are shown below for the specified formats

Standard	Min Frequency	Max Frequency
525	500KHz	5MHz
625	500KHz	5MHz
720	1MHz	12.5MHz
1080	2MHz	25MHz

Center Sweep

Min and Max Frequencies are shown below for the center sweep waveform

Standard	Min Frequency	Max Frequency
525	600KHz	5MHz
625	600KHz	5MHz
720	1MHz	12.5MHz
1080	1MHz	12.5MHz

Zoneplate

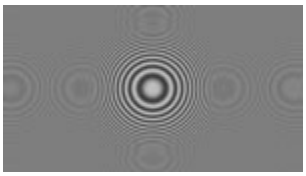
The min max frequencies for the Zoneplate generator are shown below. Not the center frequency is adjustable 0-100%, the figures below assume 100% settings

Standard	Min Frequency	Max Frequency
525	650KHz	5MHz
625	550KHz	5MHz
720 + 1080	2MHz	25MHz

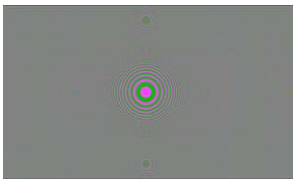
Dynamic (moving) test patterns

P TG 5610 supports dynamic test patterns and there are several patterns included which are animated. Patterns shown below

Zone Plate



Luminance Zoneplate



Chrominance Zoneplate

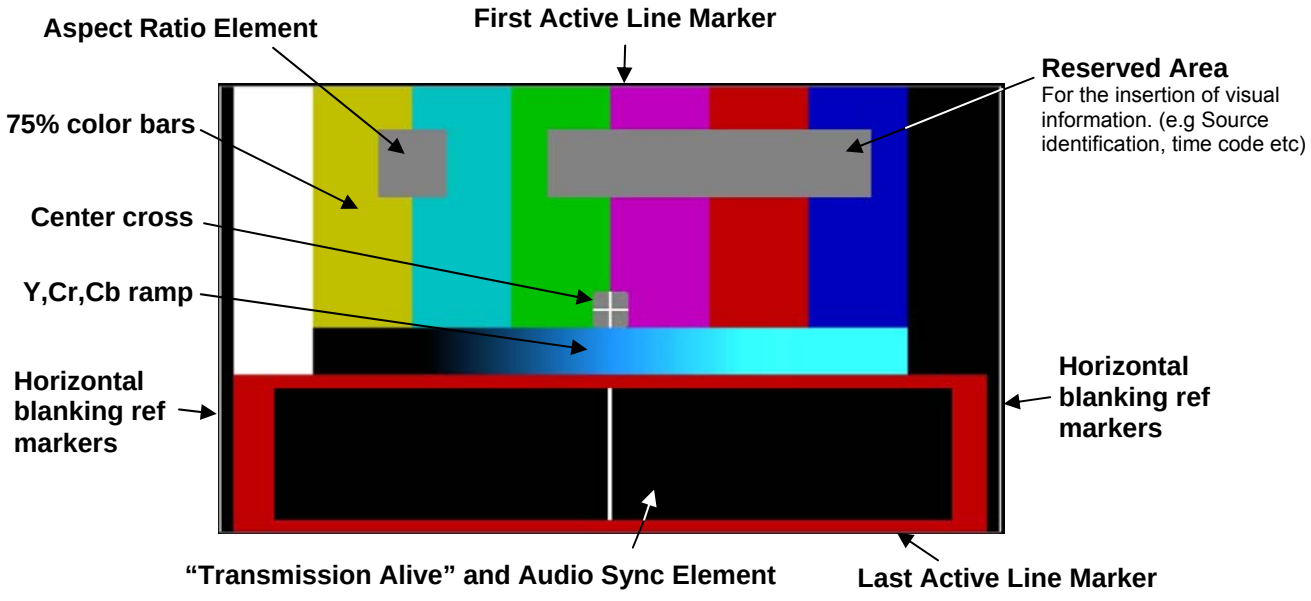
The P TG 5610 includes a real time zone plate generator. Using the “Pattern Preferences” setting it’s possible to select between a Luminance Zoneplate and a chrominance Zoneplate and preset the aspect ratio (4:3 or 16:9 in SDTV). H and V center frequency can also be independently changed. This pattern is useful for checking aliasing, and any conversion function performed in digital signal processing. Artifacts manifest themselves as small circles.

> ***Note.*** *Changing the pattern preferences for the dynamic Zoneplate will also change the static Zoneplate. Pattern preferences are stored in flash ram and will Survive power cycles.*

EBU AV Sync Pattern

This dynamic pattern is particularly useful for checking a number of audio and video parameters. The pattern includes a number of static elements and some motion elements which can be used for “Transmission Alive” checking and also audio sync (lip sync) verification.

Pattern elements are shown below:



Various elements in the pattern can be user configured. The available settings and defaults are shown below:

Aspect Ratio Element: ON / OFF *(default ON)*

Reserved Area Element: ON / OFF *(default ON)*

Ramp Mode: Luma Ramp / Chroma Ramp *(default Chroma Ramp)*

Motion Sequence: Transmission Alive + AV Sync Test *(default)* or,
Transmission Alive ONLY or,
AV Sync Test ONLY

Audio Sequence: Three Level Test Tone *(default)* or,
Adjustable Sinewave Generator

NOTE. Please refer to the annex in the rear of this manual ***"EBU Digital AV Sync and Operational Test Pattern"*** this will provide detailed information on the pattern composition and uses.

LCD Panel Persistence Test

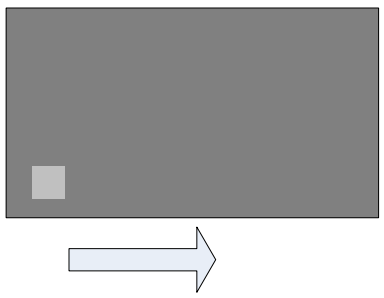
This pattern is useful for checking for persistence (or smearing) problems on the newer LCD panel displays and consists of a small light grey square moving across a light grey background.

The background and foreground levels are user adjustable (0-100%) default values are foreground 50% Y level and background 40% Y level. The speed of the moving square is also user adjustable (default level is 5 where 0 = still and 127 = max)

For checking CRT Phosphor persistence on Tube style displays then the settings should be changed to a 100% white foreground square moving on a 0% white background, adjust the speed of the moving square to observe persistence or “lag” in the phosphor.

LCD panels are susceptible to a “smearing” artifact when there is a small change in level between pixels which [on real images] tends to compromise subtle detail in when motion is present. To test for this artifact this pattern has a (default) grey background with a slightly lighter grey square in motion left to right. Narrowing the foreground / background level difference (using the user controls) and adjusting the velocity of the moving square can help highlight the problem.

The small square moves from left to right and then up the screen one row at a time. When it reaches the top – the sequence repeats. Using “Pattern Preferences” its possible set the foreground and background luminance level, the velocity of the grey square and also the aspect ratio to 4:3 or 16:9 (incorrect aspect ratio setting will make the square a rectangle)



Most LCD panels will exhibit some smearing with motion; it is the fundamental nature of LCD panel technology. Try different background and foreground levels and velocity settings to highlight the problem.

This pattern provides a means to visually quantify the degree of smearing present when comparing and evaluating different displays. Some newer high end display panels (designed for broadcast and post production) which employ active [pulsed] backlights will tend to perform best.

This test functions best if used in a progressive display format on LCD panels

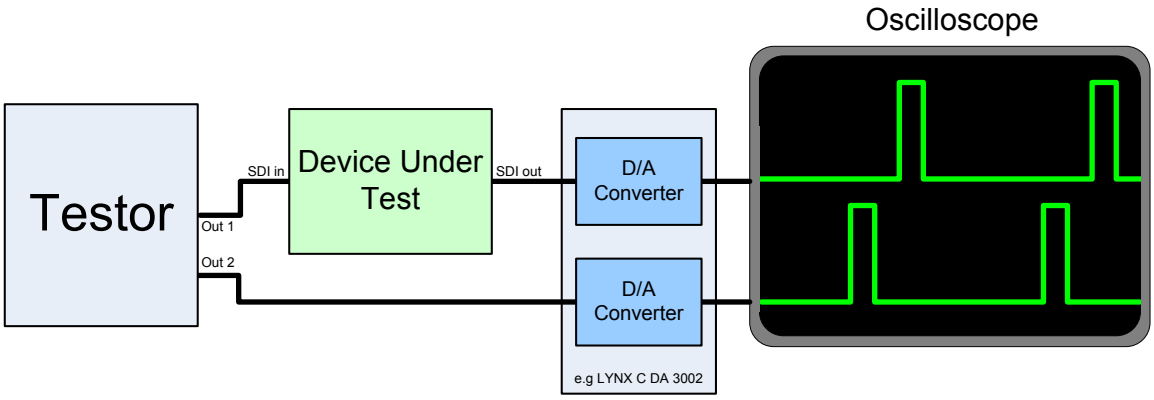
White Flash and Black Flash Patterns

Two patterns are provided for the purpose of video delay testing and measurements. These are “White flash” and Black Flash”

The White Flash pattern is 7 frames of black and 1 frame of white
The Black Flash pattern is 7 frames of white and 1 frame of black

Typical application is shown below. Measurement is taken on an Oscilloscope comparing the device under test to the input signal. The latent video delay is measured on the oscilloscope.

> ***Note.*** *The application below shows using both outputs of the P TG 5610 with outputs set to output the same pattern; (in this case it’s the white flash signal). If a SDI distribution amplifier is available then a single P TG 5610 output can be used.*

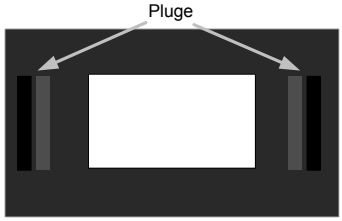


Typical application showing measurement of video delay through a device using the “white flash” pattern on both P TG 5610 outputs.

Color Temperature Test

This pattern consists of a window (25% display area) centered on a black background. This type of pattern is typically used to calibrate color displays with a color temperature probe (not supplied)

The Y level of the window is user adjustable in the pattern settings menu and can be set anywhere from 0-100% in level) Default is 100%



100% Y Window

Typically, the window is firstly set to 100% and the display brightness adjusted so the two vertical pluge bars are just visible on the monitor. (Setting the correct black level). A color temperature probe is attached to the center of the Y window on the display screen surface and the color temperature can be measured with the probe (and adjusted if necessary using the display controls).

The Y window is then set to a low value (typically 20%) and a second reading is taken using the probe to check display cutoff chromaticity.

Note. *The P TG 5610 is only providing the pattern which is commonly used with color temperature probes. Please refer to your probe and display documentation for the correct color temperature measurement and adjustment procedures.*

GUI Operation

All LYNX CardModules support a computer interface which allows setting the modules parameters using a simple GUI interface. Access to all standard features (and in some cases) extended features is possible using this interface.

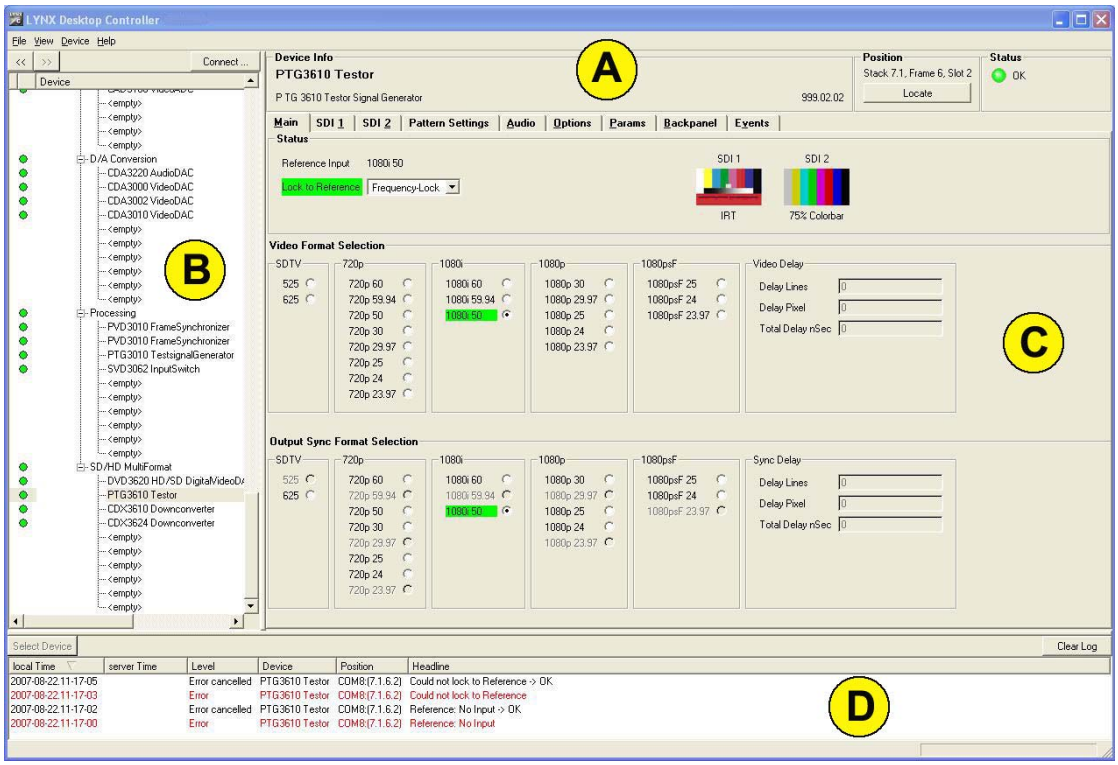
Access to the GUI requires the use of the optional LYNX control system

> ***Note.*** *Any settings made using the control system overrides any local settings made on the module. All settings are stored in internal flash ram and will survive power cycles and long term storage.*

The GUI screenshots below show the settings and adjustments possible for the P TG 5610.

GUI Main Components

Below you can see the primary GUI structure which will be displayed when the P TG 5610 is plugged into the service adapter, or the module is accessed via the integrated USB ports on the Hard Case options. (The Same GUI is also used in the centralized control system).



A - Module Header

Device Info -This top area of the GUI displays the device info, Model number, product description and module firmware revision number to the left (example 999.02.02 shown for illustration purposes only)

Position -The position area shown the physical location of the module (only applicable in system using the central control system) this will show the rack name and the position (slot) the module is located.

Locate Button - This button is designed for large system installations to asset in the visual physical location of a specific LYNX device in a system. Clicking the locate button will flash the alarm LED yellow. This does not effect normal module operation.

Status Indicator – This area is basically a mirror of the module Alarm LED and has three states Red / Yellow and Green. When an alarm condition occurs the status will change color and the specific error message will be displayed below the indicator. The error message is also time stamped and logged in the error report (section D). The Status indicator is also replicated next to the device in the Device tree.

B – Device Tree

This area is primarily used for larger systems with multiple racks / locations. This provides a hierarchical representation of the system structure to assist in navigation and system overview. Clicking on a device will bring up the associated control GUI.

If using the Service Adapter (RCT 3002) or one of the Hard Case options with integrated USB port then there will only be the entry for the “Service Adapter” and under this the P TG 5610 device will be displayed. The P TG 5610 is auto detected and entered into the Device Tree automatically. (Note: Module discovery will take a few seconds after you plug in the Service Adapter or USB connection)

Modules can be hot plugged (no need to power down the AC supply)

C - Device Specific Control GUI

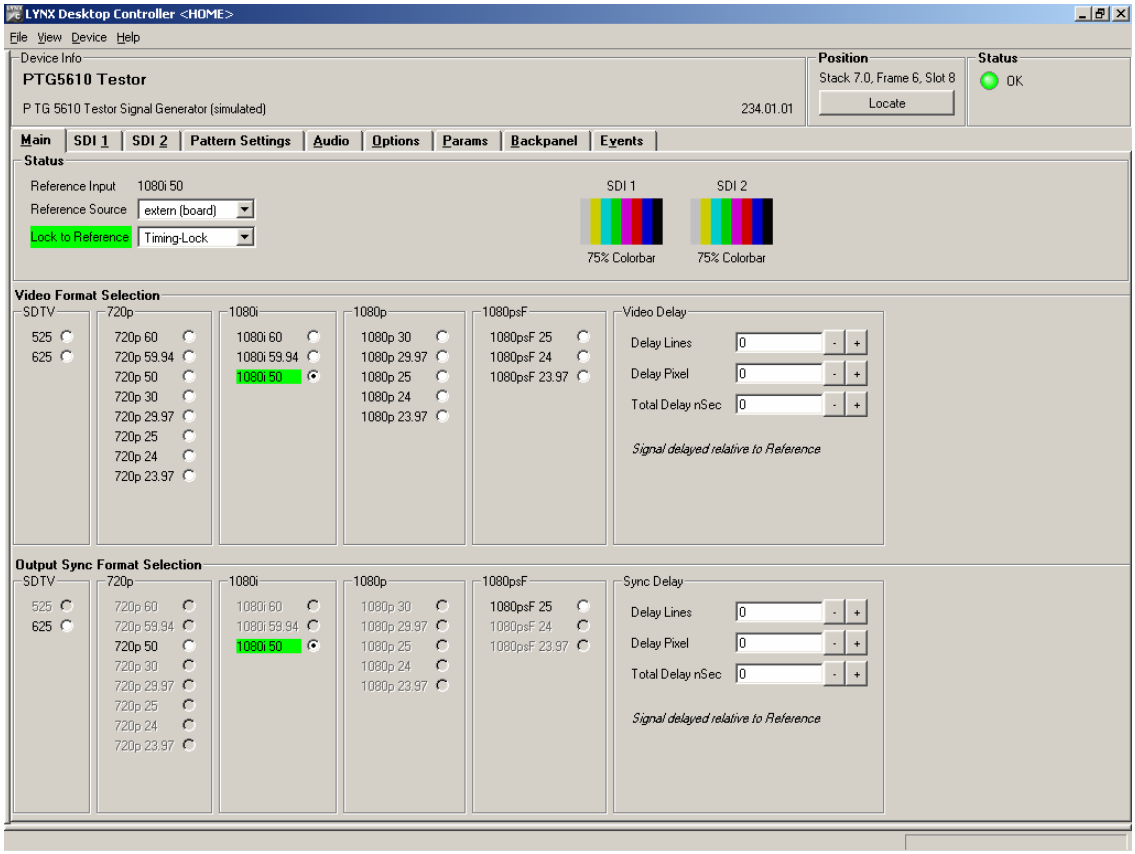
This is the primary area for the monitoring and control of the device. Each device has a unique GUI design. The GUI is split into tabs which group primary function, and the MAIN tab is always the first displayed when the device is selected.

D – Error Log

The Error log portion of the GUI is only really applicable to larger systems where the control system is permanently attached to the device. Should any alarm condition occur (or recover) an entry is made in the error log. This entry is time-stamped and notation of the error is recorded. This error log is stored in the PC (standard text file)

Note. The error log is still functional with the Service Adapter, or when connected to the USB port on the Hard Cases.

Main Tab



The main tab contents are shown above, this GUI screen is shown when the device is initially selected and shows module status and primary functions

Status Area

The top area shows the module status

Reference input – if a reference is connected the detected format and standard is displayed. Selection can be made for Rack Reference or Board Reference

Lock to Reference – If annotated Green (as shown) this indicates P TG 5610 is genlocked to the connected standard. The drop down menu allows the selection of the genlock modes which are detailed below

Frequency Lock – Basic Genlock (crosslock) mode, the P TG 5610 SD outputs and the analog sync output is frequency locked to the connected reference. The video delay is not valid in this mode (greyed out). The output sync formats are qualified by the SDI standard selected and the Frequency Lock selection. Sync Standards which are not supported are greyed out. The analog reference sync can be delayed relative to the SDI output.

Timing Lock – Timing lock (crosslock) mode will genlock to the connected analog sync input and also provides for delay adjustment of the video and analog sync outputs independently. One full frame of delay is possible for both the SDI output and Sync outputs adjustable in lines / pixels or time. The subset of supported analog sync outputs are reduced in timing lock mode, and any unsupported output formats will be greyed out.

OFF (free run) – If set to OFF mode then the P TG 5610 is in free run mode and will ignore any connected reference input signal. Supported analog sync output standards are qualified by the selected SDI format, unavailable selections are greyed out. The analog reference sync can be delayed relative to the SDI output.

SDI 1 and SDI 2 – Two small thumbnails are shown which show the current selected test patterns for each output. Clicking on the pattern will take you to the pattern selection tabs

Video Format Selection – This is a tabular representation of the supported output SDI formats available in P TG 5610. Simply select a format to switch both SDI output to this standard. Selection will be highlighted green.

> ***Note.*** *The Selected SDI format is the "Master Setting" for the module, and the analog sync output formats as well as compatibility to the connected reference will be relative to this setting.*

Output Sync Format Selection – P TG 5610 can output a sync standard in a different format to the selected SDI format. When selecting a SDI output format the analog sync output will always default to the same standard as the SDI output. Depending on the locking mode there will be other compatible analog sync output formats possible. All selections which are not supported will be greyed out.

Sync Delay – When in Free Run or Frequency Lock mode Sync no delay adjustments are available

Video Delay – When in Timing Lock mode the sync delay and video delay modes are available. (see above) Both adjustments are independent and these are relative to the connected reference source (not the SDI output as in Free Run or Frequency Lock mode)

Note. *Up and Down buttons are provided or enter a value directly from the keyboard in the boxes provided. The Total delay (in nsec) will calculate automatically as you adjust the pixel and line delays.*

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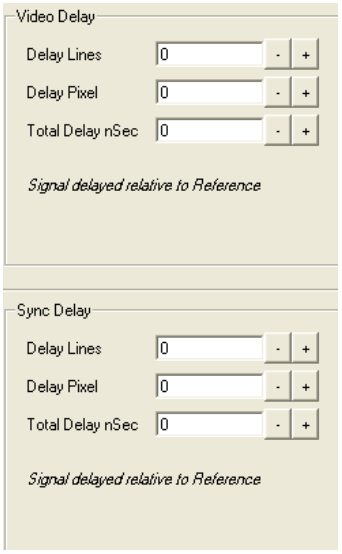
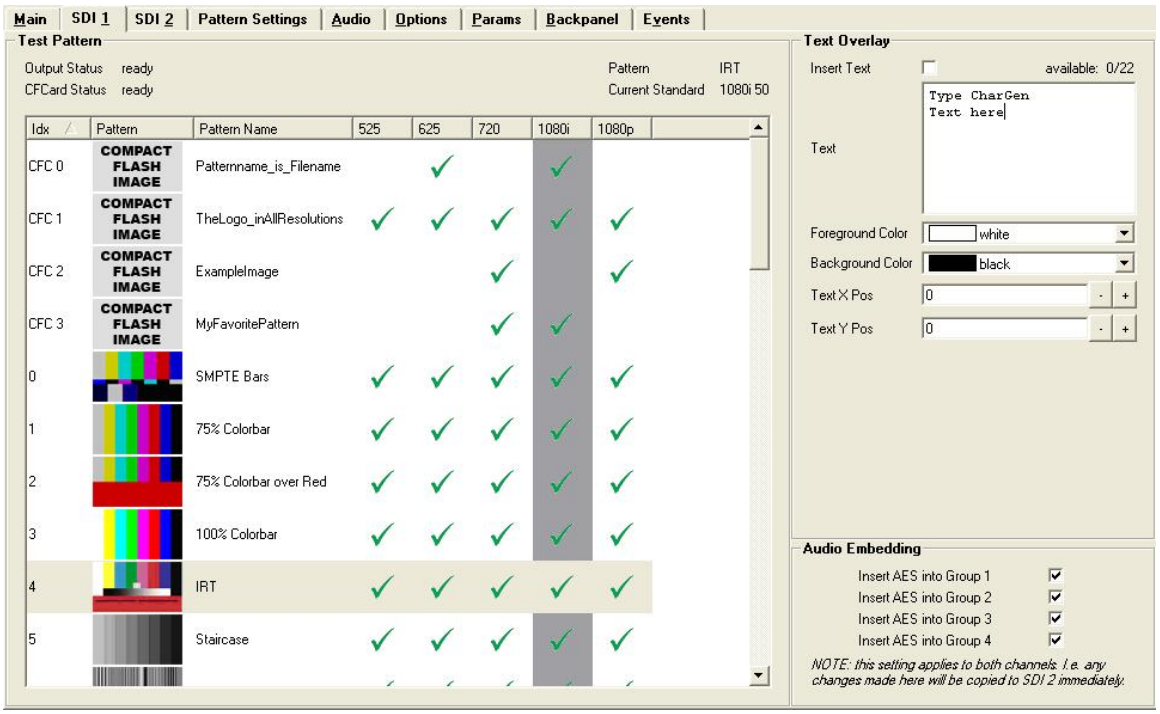


"Timing Mode" Adjustments

SDI 1 and SDI 2 Tab



There are two identical tabs for SDI output 1 and SDI output 2. This is where the pattern selection and character generator configuration is made.

Output Status and CF Status – This indicates the status of the Compact Flash card (this is an Option PTG FLASH which is installed in this example). Refer to the PTG Flash manual for specific details on Compact Flash support.

The selected pattern description and the selected SDI standard are also shown for reference.

Pattern Select – All internal patterns available are shown in this scroll box, thumbnails and pattern descriptions are provided. Clicking on an entry in the table will change the output to the selected pattern. (Any CF images are indexed at the top of the display – not thumbnails are possible all are represented with the “compact flash image” thumbnail icon.

The columns of “tick” marks indicate if a pattern is available (or applicable) to a given output format grouping. This is primarily applicable to Compact Flash images, as P TG 5610 requires test patterns in 4 basic native resolutions, and the user may only load a pattern in a single resolution. There are some basic pattern in P TG 5610 which are not applicable for certain applications, for instance a field test pattern is not applicable for progressive output formats so this is disabled in the list – see below.

Text Overlay – This part of the GUI is concerned with setting up the character generator.

Insert Text -The checkbox turns the character generator ON or OFF (without changing the text and formatting information if any has been specified)

P TG 5610 supports 22 characters total, across multiple lines. (Spaces and carriage returns count as once character) Test is entered into the box provided using the keyboard. The number of characters used and remaining which are available is shown. Test entry will stop when the limit of 22 characters is reached.

Foreground Color - This sets the text color, make selection from the drop down list provided. (Transparent is provided as a selection if required)

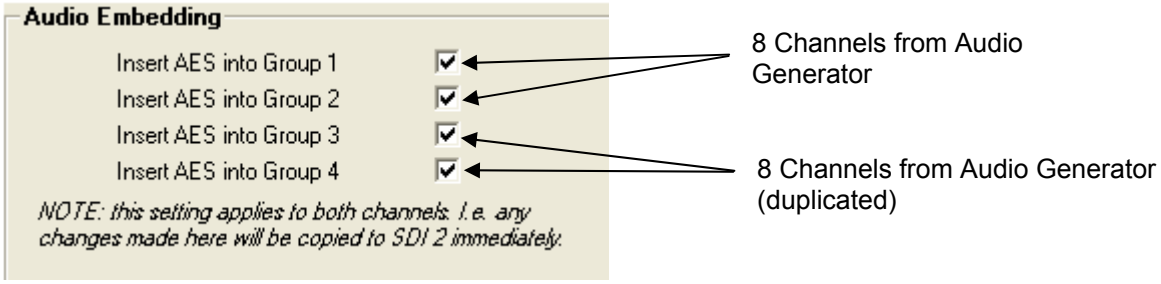
Background Color - This sets the background "box" (P TG 5610 will insert and auto sized box to background the text when selected), make selection from the drop down list provided. (Transparent is provided as a selection if required)

Text X and Y Position – Adjusting these values will allow positioning of the text (and text box) anywhere on the video output. This is best done while viewing the output video signal.

Audio Embedding – This is where the embedders are configured. Simply select the checkbox required to embed audio in the required Audio group(s)

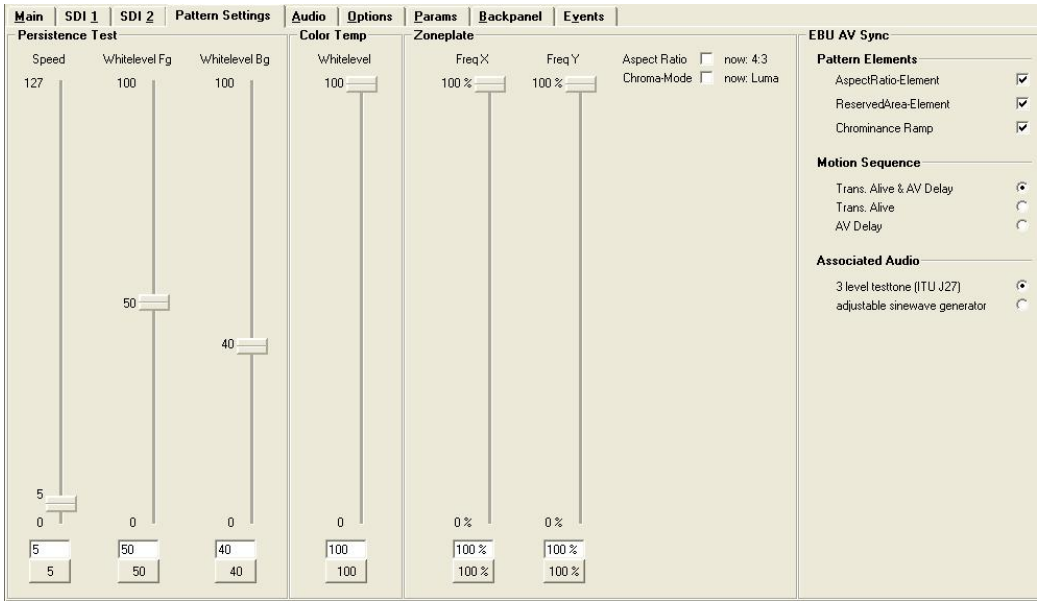
Although the audio embedder is shown separately on each SDI output tab it is a global setting. It is not possible to switch off embedding on one SDI channel and select it on the other.

> ***Note.*** *P TG 5610 has an 8 channel audio test generator, which is enough for two groups of AES audio. The 8 channel audio is simply duplicated into groups 3 and 4 if selected.*



Pattern Settings Tab

Some of the patterns have user adjustable settings, and these settings are accessed using the pattern settings tab.



Three patterns have user adjustable parameters, the Persistence test Pattern the Color Temperature Window and the Zoneplate generator, each has its own area on the GUI.

Persistence Test - This has three user adjustable settings; Speed (velocity) of the white moving square, Background Y level and Foreground Y level. Each is set using the slider provided. Clicking the buttons below each slider will return the settings to factory default levels.

Color Temperature Test – This is used to set the Y level of the window used in the color temperature pattern. Clicking the button below the slider will return this setting to the factory default setting.

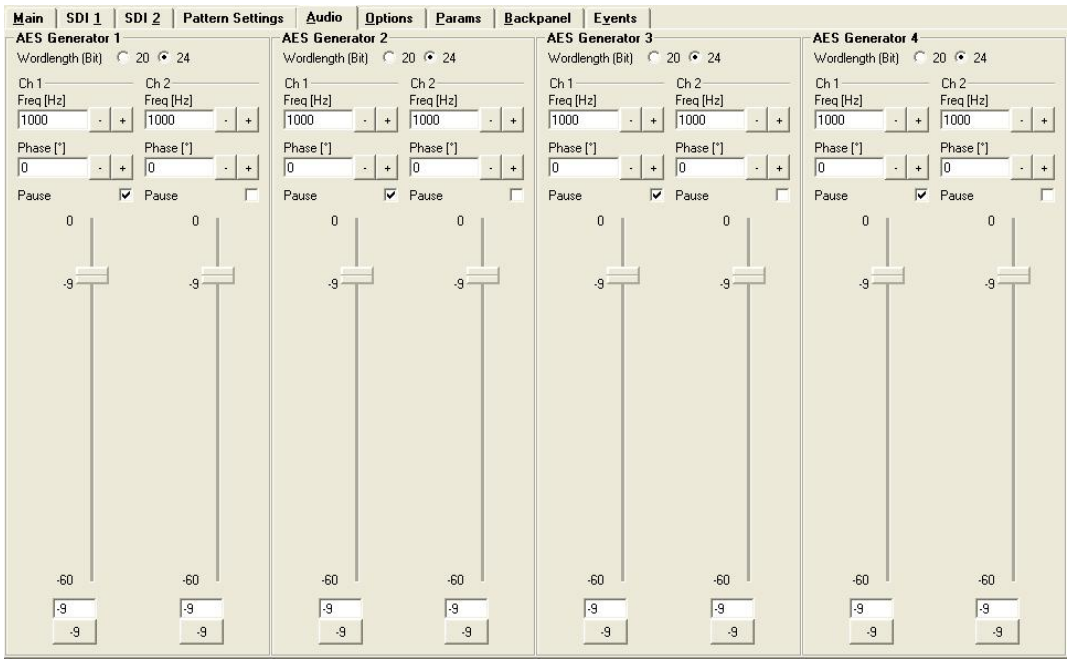
Zoneplate – These adjustments impact both the dynamic (moving) Zoneplate generator and the static Zoneplate pattern. The X and Y center frequencies are independently user adjustable and are set using the sliders provided. The LUMA/ CHROMA checkbox is used to switch between a Luminance or a Chrominance Zoneplate. The aspect ratio checkbox is used to switch the Zoneplate between 4:3 and 16:9 modes (meaning circles are produced correctly in the selected aspect ratio) Typically set to 4:3 for SDTV use and 16:9 for HDTV use.

EBU AV Sync

These settings allow the user to configure the EBU AV Sync Test pattern. The various user selectable settings can be made using the checkboxes provided.

> **NOTE.** Please refer to the annex in the rear of this manual ***"EBU Digital AV Sync and Operational Test Pattern"*** this will provide detailed information on the pattern composition and uses.

Audio Tab



This tab is for the configuration of the 8 channel audio generator. The 8 channels are arranged into 4 x AES groupings – each with CH1 (left) and CH2 (right) channel.

Wavelength (bit depth) – this checkbox is provided to switch each individual AES grouping into 20 or 24 bit modes of operation.

Frequency Set – Using this adjustment it's possible to set the channel frequency to anything between 20Hz and 20KHz in 1 Hz steps. (Default 1 KHz) The value can be typed in with the keyboard or adjusted with the up and down buttons.

Phase Set - Using this adjustment it's possible to set the channel phase to anything between 0º and 360º in 1º steps. (Default 0º) The value can be typed in with the keyboard or adjusted with the up and down buttons.

Pause – Using this checkbox it's possible to insert a momentary pause into the test frequency. Sometimes used to identify left and right channels.

FS level set – The sliders provided allows the setting of the audio output Full Scale (FS) level for each channel. Set between 0dB FS and -60dBFS (default is -9dBFS). The button below the slider is for resetting to default (-9dBFS).

> ***Note:*** *This audio is available on the external AES audio outputs as well as being available for embedding into both SDI streams.*

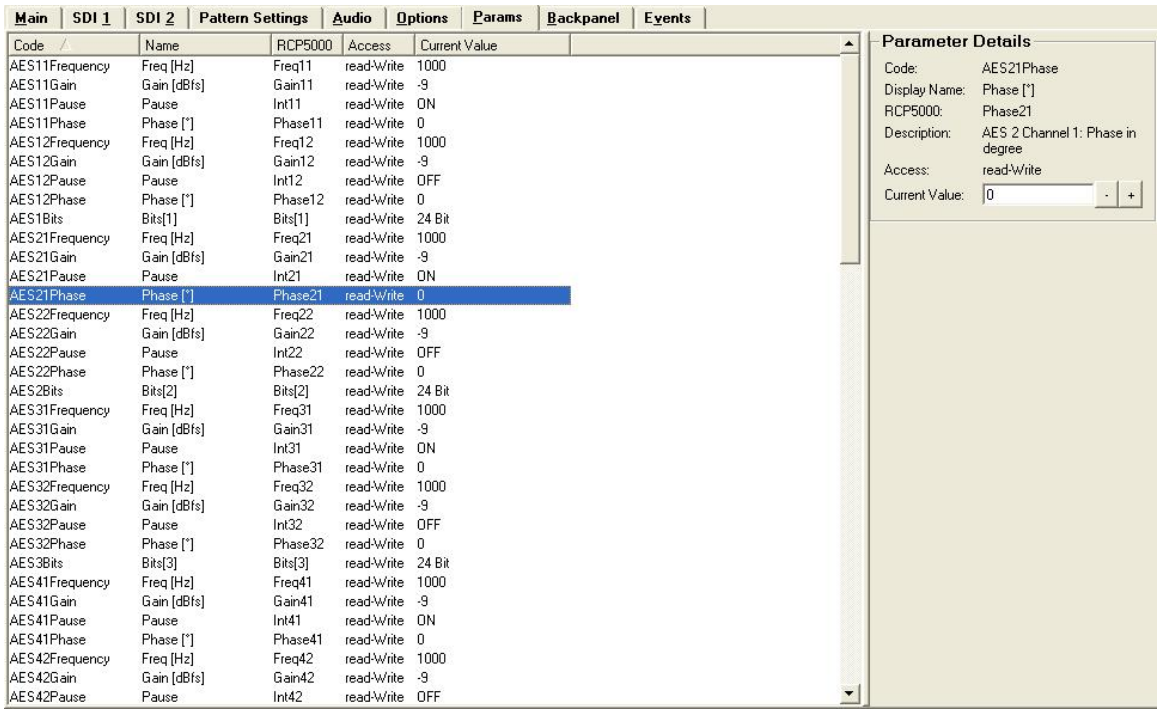
Options Tab

This tab is where the optional PTG FLASH (compact flash support) option is installed (for the loading of external DPX files into P TG 5610). This is a licensed option and requires a valid license code to activate.

Installing Firmware Options -The example above shows the PTG FLASH option installed and active. If you would like to purchase this option please press the "request code" button which will past P TG 5610 system info into the PC clipboard. Simply print or paste this information into an e-mail and contact your local LYNX representative to purchase this option. Once the license is received, enter (or paste) this into the area provided and press activate. The license is now permanently installed.

> ***Note.*** *For users without access to the GUI PC control we will supply the license as a text file which is simply stored in the root of a compact flash card. When the card is inserted P TG 5610 will detect the license code and automatically activate the option.*
>
> ***Note****. There are no returns / refunds possible for any firmware options – once installed it cannot be removed.*
>
> ***Note*** *– All licensed options are keyed to the specific serial number of the Module, this license can only be installed into the device it was purchased for.*

Params (parameters) Tab

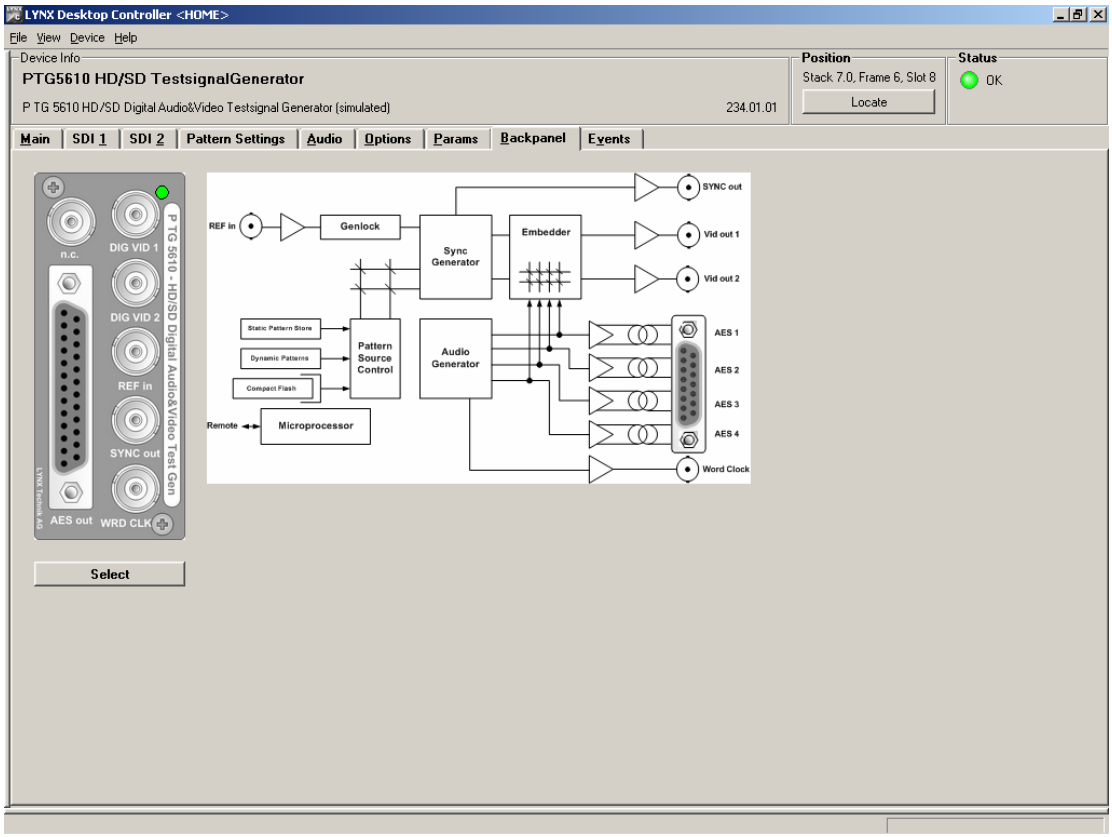


This tab provides a listing of all the available parameters for P TG 5610; this is primarily designed for use with a software option for the control system called “User Access control”. In larger systems it’s possible for the system administrator to enable or disable any specific adjustment to any LYNX device which is qualified by the user logged into the system. This prevents casual users manipulating critical settings to the system.

If user access control is not installed (as in this case) then selecting a function from the listing will bring up the specific parameter details on the right hand side, current status is displayed and if the parameter is adjustable then it can be adjusted from here also.

Unless using the central control system with “User Access Control”, users should not overly concern themselves with this part of the system; all relevant module adjustments are placed in the other GUI screens for ease of use, and nothing is restricted.

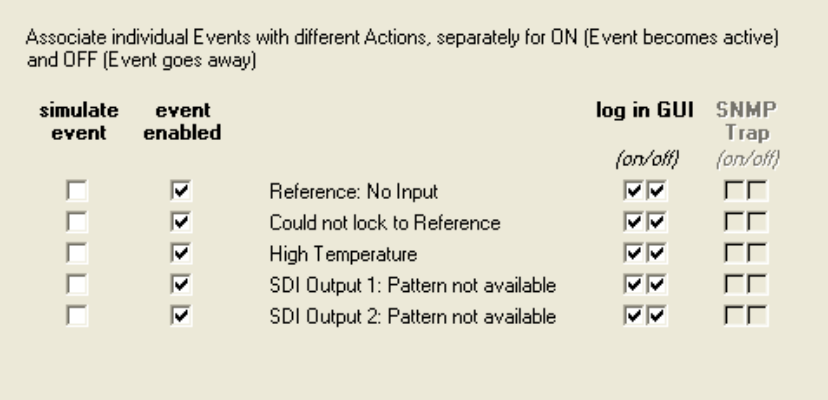
Backpanel Tab



This screen is provided for informational purposes and contains an image of the P TG 5610 to show available connections and I/O with the basic functional diagram. The “select” button allows the user to select between images of the two versions, (the B version uses BNC connectors for unbalanced AES and the D version uses a 15pin SubD for balanced AES audio).

Again, this screen is more relevant to larger permanently installed system where the hardware is located some distance from the control system operator and some indication of the modules available I/O connections and general function are required.

Events Tab



This tab is where it's possible to configure the module alarming and error reporting (only really applicable to larger permanent system installations using Central Control)

A list of the available monitored fault conditions is listed.

Event Enabled – Selecting this will enable the event as something which is actively logged and monitored (sometimes its desirable to disable an event if you expect lots of triggers, for instance is the module had input detection on a SDI input signal, and you know this will be frequently disconnected and changed then you might chose to disable these events)

Log in GUI (on/off) – there are two columns provided for each event. ON is selected if you wish to record and log when the event happened, OFF is selected if you wish to record and log when the error condition corrected itself. This is up the user and the installation. For example maybe you're only interested to log when a specific alarm occurred and not when it recovered.

> ***Note.*** *Both the "Event Enabled" and the "Log in GUI" selections are tools specifically designed to manage the error log file as to what's logged. This lets the user remove any inconsequential "routine" alarm conditions from the log file to prevent it becoming excessive in size and more relevant to the particular installation.*

SNMP Trap (on/off) – This is a duplicate of the Log In GUI function and is made available if the SNMP option is installed in the central control system. A SNMP trap will be sent to a user configured IP address reporting the error condition if the check boxes are selected.

Simulate Event – This mode is provided if the GUI is running in "simulate mode". We use this mode for testing / training and demonstration purposes where a large system comprising off all LYNX modules is simulated. The user can try all the GUI controls for all modules, experiment with the navigation and simulate fault conditions to see the results in the GUI. Checking an event will simulate the fault condition and change the status of the GUI alarm condition and also generate an entry in the Error Log.

NOTE: Unless you are using P TG 5610 as part of a large permanent system with the LYNX Central Control system then you should not overly concern yourself with the settings provided on this tab.

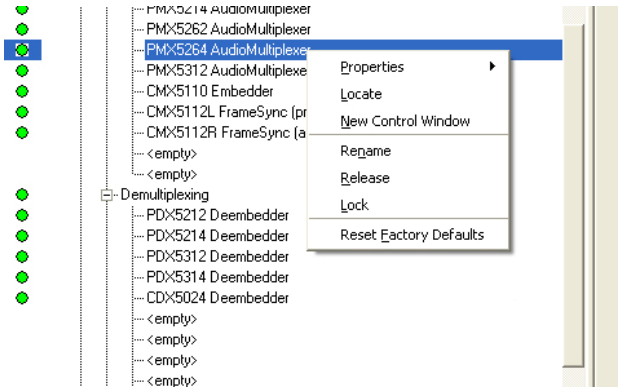
Note. *The settings will be written to flash RAM automatically after 10 seconds with no activity on the GUI. This can be observed by the alarm LED flashing yellow three times. We recommend you "RELEASE" the module from the GUI before unplugging. This will write all the settings to flash RAM and prepare the module for unplugging.*

This can be done by selecting the ***"Device>Release"*** *from the drop down menus*

Common GUI Controls

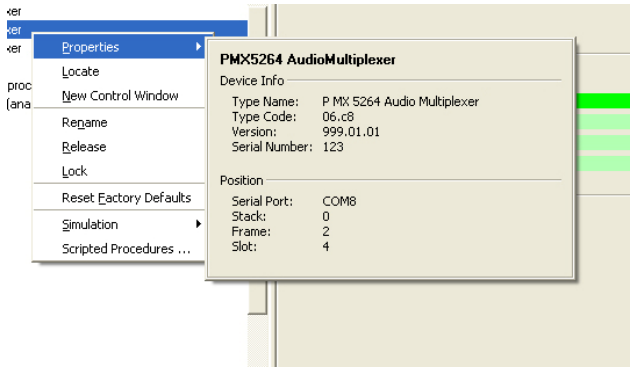
If using the P TG 5610 as part of a larger integrated system then there are a number of GUI controls and commands which are common for all modules in the control system. These are explained below.

Right click on any module in the tree will bring up a sub-menu of available commands (see below). **Note.** This menu can also be selected using the GUI drop down menus by clicking on ***"Device"***



Properties

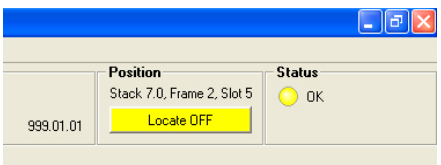
This will bring up a dialog which shows device specific properties about the module selected. *(**Note**. this is just an example and the module type and data shown is not indicative of the module specified in this manual)*



Locate

This feature is useful if you need to physically locate a module in a larger system quickly (for removal or maintenance purposes) When Locate selected this will flash the module alarm LED yellow. This function does not impact normal module operation and will timeout after a short time period.

This feature can also be invoked from the main GUI screen using the "locate" button in the top right hand side of the screen (see below)

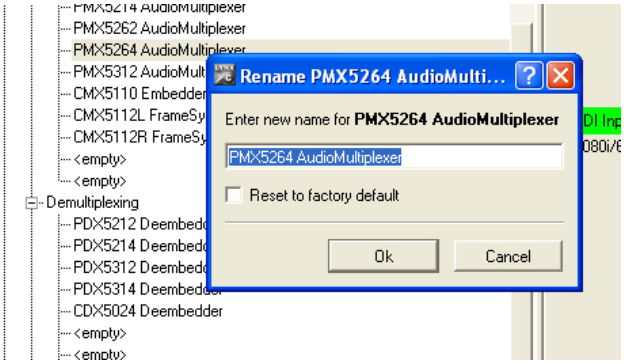


New Control Window

Selecting this will open up a new control window with selected the module GUI contained within. This window can be minimized to the taskbar for fast access and is useful if this GUI is something you will need to refer to often.

Rename

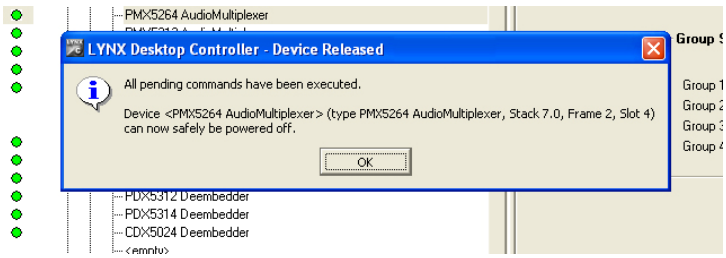
It is possible to rename everything in the control system selection tree, this includes all rack names and the individual module names. The descriptions supplied are default descriptions the system applies. To rename a device simply select the device in the tree, right click and then select “rename” the dialog below will be displayed



Simply type in the name you wish to assign to this device and press OK. If you wish to restore the default name simply select “Reset to Factory Default” and press OK

Release

During normal operation if there is no activity on the module GUI for approx ten seconds then any changed settings are automatically written to flash ram in the module. You can store the settings immediately by using the release command. When the settings have been stored you will see the confirmation dialog below.



It is recommended you use the release function before removing any module from the rack to ensure the latest settings have been stored prior to module removal (if a module is removed before the normal 10 second timeout then the settings will not be stored)

Lock

Selecting this will lock the device to prevent any accidental changes being made to the modules settings. The module status can be seen but all the controls will be grayed out. To unlock simply deselect the lock control from the menu.

Reset Factory Defaults

If you are unsure of the settings, or have managed to set the module into a strange mode of operation and wish to recover the factory defaults then this can be done by selecting reset factory defaults. You will be asked to confirm this operation with the dialog below

Note. *Settings will be written to flash RAM automatically after 10 seconds with no activity. This can be observed by the alarm LED flashing yellow three times. If power is removed before the settings have been stored the module will revert back to the previous settings when powered up*

Specifications

Reference Input	
Signal Type	Analog bi-level or tri-level sync – Auto Detect
Supported Formats	SMPTE 259M-C, SMPTE 292M 525/59.94Hz. 625/50Hz, 720P/59.94Hz/60Hz/50Hz/24Hz/25Hz/23.98Hz/30Hz/29.97Hz 1080i/59.94Hz/60Hz/50Hz 1080P/24Hz/25Hz/30Hz/23.98Hz/29.97Hz 1080PSF/24Hz/25Hz/23.98Hz
Sync Level	Bi Level = 300mV Nominal Tri Level = 600mV Nominal
Input Imedance	75 Ω
Connector	BNC
Reference Output	
Signal Type	Analog bi-level or tri-level sync
Supported Formats	525/59.94Hz. 625/50Hz, 720P/59.94Hz/60Hz/50Hz/24Hz/25Hz/23.98Hz/30Hz/29.97Hz 1080i/59.94Hz/60Hz/50Hz 1080P/24Hz/25Hz/30Hz/23.98Hz/29.97Hz
Sync Level	Bi Level = 300mV Nominal, Tri Level = 600mV Nominal
Output Imedance	75 Ω
Connector	BNC
Digital Video Ouputs (SDTV mode)	
Signal	Serial Digital Video SMPTE 259M-C
Quantization	10 bits
Number of outputs	2
Output Imedance	75 Ω
Return Loss	> 15dB (270MHz)
Connection	BNC
Jitter	<0.2 UI (270 Mbit/s) with 10Hz High pass filter
Digital Video Outputs (HDTV mode)	
Signal	Serial Digital Video SMPTE 274M, 296M
Quantization	10 bits
Number of Outputs	2
Output Impedance	75 Ω
Return Loss	> 15dB (1.485GHz)
Connection	BNC
Jitter	0.25UI (1.485Gbit/s) with 1kHz High pass filter
AES Audio Outputs	
Signal	PTG 5610B =AES3id (unbalanced) PTG 5610D = AES3 (balanced)
Impedance	PTG 5610B =75 Ω BNC PTG 5610D = 110 Ω 15 pin female SubD
Bit depth	20 or 24 bit (selectable for all 8 channels independently)
Number of outputs	4 AES outputs (8 channel)
Coupling	Transformer (Isolated)
Embedder	
Group Selection	4 groups independently selectable ON/OFF
Function	Embed audio from test generator (4 AES channels duplicated into 4 groups)
SDI outputs	Audio embedded into both SDI outputs
Electrical	
Operating Voltage	+ 5 VDC
Connector	Lemo or Binder 5 pin locking connector
Power Consumption	7 W
Safety	IEC 60950 / EN 60950 / VDE 0805
Mechanical	
Size	85.5mm x 71mm x 41.5mm + connections
Weight	320g
Ambient	
Temperature	5ºC – 40ºC Maintaining Specifications
Humidity	90% non condensing

Options

More details can be found on our website www.lynx-technik.com

Compact Flash Option (PTG FLASH)

The PTG FLASH option is a licensed Firmware addition for the P TG 5610 which makes use of the integrated Compact Flash slot and allows the user to download pattern designs (or images) into the P TG 5610. File format is standard SMPTE DPX.

We also have provided a download area on our website where we have posted some additional pattern designs, as well as allowing other Testor (P TG 3610) or P TG 5610 users to upload their own designs to share with others. The download area is free for all to browse and download and can be found under the "*Support*" drop down called "*Testor Pattern Download*" Lynx website address is www.lynx-technik.com

The upgrade process is simple; once the option is purchased we will send you a text file (via e-mail) with the license code. You simply store the text file on a compact flash card and insert the card into Testor or P TG 5610 which will then scan the card and automatically install the license.

Audio Breakout Cable (RAC M25-8)

If using the PTG 5610 D version this is equipped with a 25 pin female SubD connector for External balanced AES3 audio outputs. We offer a prefabricated audio breakout cable which brings the audio out to eight (four used) standard 3 pin in line XLR connectors

Service

Parts List

Due to the very dense design and high level of integration there the module is not user serviceable. Please contact LYNX for repairs or to request an exchange unit.

Technical Support

If you are experiencing problems, or have questions please contact your local distributor for further assistance.

Technical support is also available from our website.

Please do not return products to LYNX without an RMA. Contact your authorized dealer or reseller for more details on our return process.

More detailed product information and product updates may be available on our web site:

www.lynx-technik.com

Contact Information

Please contact your local distributor; this is your local and fastest method for obtaining support and sales information.

LYNX Technik can be contacted directly using the information below.

Address LYNX Technik AG
Brunnenweg 3
D-64331 Weiterstadt
Germany.

Website www.lynx-technik.com

E-Mail info@lynx-technik.com

LYNX Technik manufactures a complete range of high quality modular products for broadcast and Professional markets, please contact your local representative or visit our web site for more product information.