

# Compact VariTime™ Sync Generator, PT 5201



- VariTime™, 8 fields for PAL
- VariTime™, 4 fields for NTSC
- Master applications with internal reference
- Genlock to PAL, NTSC or 10 MHz clock, for slave applications
- Multistandard: 525/60, 625/50 and dual standard operation
- Outputs:
  - 3 Black Burst
  - 1 SDI Test Signal Generator (incl. SDI Black)
  - 1 Analog Test Signal generator
  - 1 AES/EBU or Analog Audio
  - 1 Word Clock at 44.1 or 48 KHz
- Configuration via Windows interface
- Direct front panel access for operation and 4 presets status
- 1U, half 19" wide and rackmountable

## Application

The new digital studios need cost effective and reliable synchronization for the main equipment to work reliably.

For this purpose PTV offers a fully integrated solution eliminating any costs associated with modular structures, support of many different signal types and fancy operating features.

All solutions have been carefully designed to meet all requirements for the modern studio and editing.

PTV introduces a Sync Generator as the first of its type ever seen! The PT 5201 includes all basic features for professional sync, timing and test signals in one half-sized box.

## Configuration

The PT 5201 configuration is based on a well-arranged Windows interface.

The Windows interface makes it easy to manage all timing, test signals and audio features in one screen.

Modification from factory preset can be saved as a file on the PC harddisk or uploaded to the PT 5201 as a setup. The setup are uploaded to PT 5201 in an instant mode or stored as a preset in the instrument.

Communication between PT 5201 and PC via standard RS-232 protocol, makes it possible to use any kind of PC. Status of current functions and systems will be displayed at any time as matching LEDs, on the PT 5201 front-panel.



## Master/Genlock Applications

The PT 5201 is designed to manage slave as well as master operations, as a stand alone unit.

In systems where PT 5201 operates as a master unit it locks to an internal, high stability TCXO, reference oscillator.

For use in applications where the PT 5201 operates as a slave the genlock function is used.

The genlock function features genlock to NTSC and PAL video signals, Black Burst house sync or a 10 MHz reference clock, e.g. from a GPS receiver.

Further more the genlock function features timing and active loop-trough of the genlock signal.

## Analog Black Burst Outputs

The sync generator is equipped with three VariTime™ analog Black Burst outputs. Each of these Black Burst outputs is individually fully timeable and can be configured as NTSC or PAL-generator, in any combination.

## SDI Output

A SDI Test Signal generator, fully configurable in system and timing, is also included. This Test Signal Generator provides standard colorbars and test-patterns, according to SMPTE and EBU. For diagnostics in studio setups a

list of simple test signals is available. The SDI output includes codes for embedded audio, featuring data for 1kHz Stereo and silence

The SDI signals are in general generated as 10 bit signals, except one of the EBU 75% Color Bar signals which is generated with 8 bit according to ITU 801

## Analog Test Signals Output

The analog Test Signal generator, is based on the same digitally signal definitions as the SDI Test Signal Generator. It outputs the same test pattern in the same system and with the same sync timing.

This output is primarily for testing purposes as the Sc-H phase is unlocked to the Black Burst outputs.

## Audio Generators

PT 5201 contains an Analog Audio Generator or an AES/EBU Serial Digital generator. One format at the time as both signals are available on the same XLR connectors.

## Analog Audio Outputs

The Analog Audio generator provides three different test tones in a number of levels. The output is available in stereo, mono and includes click markers for identification of left channel. The click interval is selectable.

## AES/EBU Serial Digital Audio Outputs

The Serial Digital Audio generator provides three different test tones in a number of levels. The output is available in stereo, mono and includes click markers for identification of left channel. The click interval and sampling frequency for the AES/EBU output are selectable. The generator also features system lock and timing facilities for elimination of Lip Sync problems.

## WordClock Output

The WordClock signal is a continuous reference clock operating at HC-MOS level, used for synchronizing audio equipment. Sampling frequency of 44.1 or 48 kHz is selectable in the audio window.

## Presets

Four complete instrument presets have been included to make it simple to change the configuration for different studio setups. Changes between the presets are available from a hidden button at the frontpanel. The number of presets stored in the configuration PC is unlimited.

# Product Data

## Master oscillator

Master Frequency Reference TCXO:

- Temperature drift: 0-50°:  $\pm 2,5$  ppm
- Aging: ( 1 ppm/year; first year, then better

## Remote Control

- Input interface: RS-232 port, 9 pole D-sub, male
- Protocol: SCPI based
- Baud rate: 9600 Kbit

## Genlock

- Input: 75  $\Omega$  looped trough  
Connector: BNC
- Return loss: >36dB to 6 MHz
- Genlock Signal:  
Video: PAL, NTSC  
Continuous freq.: 10 MHz

- Genlock Video:  
Amplitude: nominal ( 3 dB
- S/N ratio: >26 dB
- Input Sc-H phase: Nominally ( 45°
- Genlock Continuous freq.:  
Amplitude: 1 V  $\pm$  3 dB
- Pull-in range for fsc.:  $\pm$  50 Hz
- Jitter when locked to burst.: < 0,5°
- Jitter when locked to sync: < 5 ns

## Timing facilities

- Range:  
PAL:  $\pm$  4 fields  
NTSC:  $\pm$  2 fields
- Resolution:  
Analog Black Burst < 0,5 ns  
SDI and Analog TSG: 37ns

## Analog Black Burst Outputs

- Output interface: BNC, 75  $\Omega$
- Return loss: >36 dB, to 5 MHz
- Sync amplitude:  
PAL: -300mV  $\pm$  2%  
NTSC: -286mV  $\pm$  2%
- Burst amplitude:  
PAL: 300mV  $\pm$  2%  
NTSC: 286mV  $\pm$  2%
- Timing range:  
PAL:  $\pm$  4 fields  
NTSC:  $\pm$  2 fields
- Timing resolution: 0.15 ns
- Sc-H phase: Default 0°, adjustment  $\pm$  180°, resolution < 1°
- S/N ratio: 60 dB unweighted to 5 MHz
- Jitter: < 0.5 ns

### SDI Test Signal Output

- Output Interface: BNC, 75  $\Omega$
- Format:  
270 Mb/s serial, complies with ITU-R BT 656 and SMPTE 259 M
- Return loss: >15 dB, 5 - 270MHz
- Timing range:  
PAL:  $\pm 1$  field  
NTSC:  $\pm 1$  field
- Timing resolution: 37 ns
- Jitter: < 0.25 UI
- Rise and fall time: 0.75 – 1.50 ns
- Embedded Audio: 1kHz stereo, silence and Off

### Analog Test Signal Output

- Output interface: BNC, 75  $\Omega$
- Return loss: >36 dB to 5 MHz
- Timing resolution: 37 ns
- Sc-H phase:  
Default 0°, adjustment  $\pm 180^\circ$ , resolution  $\pm 1^\circ$
- S/N ratio:  
60 dB unweighted to 5 MHz

### Common test signals, SDI and analog generator:

#### Color Bars, 525:

- SMPTE Color Bar
- FCC
- 75% Color Bar, ITU-R BT.801 (timing and levels acc. To ITU801)
- 100% Color Bar
- 75% Red

#### Color Bars, 625:

- EBU Color Bar
- 75% Color Bar, ITU-R BT.801 (timing and levels acc. To ITU801)
- 100% Color Bar
- 75% Color Bar with Red
- 75% Red
- CCIR 18
- Test patterns:
  - 10% window
  - 15% Window
  - 20% Window
  - 100% Window
  - 15 KHz BI/Wh
- White 100%
- Black
- SDI Check field
- Digital Grey
- Staircase, 5 Step
- Staircase, 10 Step
- Crosshatch
- Pluge

### Analog Audio Output

- Output Interface:  
Balanced XLR, 30 $\Omega$   $\pm$  10%
- Amplitude: 0dBu, 775 mV
- Distortion: < 0.1 %
- Output signals:
  - Stereo 500 Hz, no click
  - Stereo 1 KHz, no click
  - Stereo 8 KHz, no click
  - Stereo EBU, 1 KHz, single

click in ch. A

- Click rate: 1 or 3 sec.
- Levels: From +10 to –36 dBu in steps and Silence

### AES/EBU Audio Output

- Output Interface: Balanced XLR, 110  $\Omega$   $\pm$  20% (According to AES3 1992)
  - Amplitude: Typically 3 Vpp
  - Rise and fall time: 10 – 30 ns
  - Jitter: <20 ns
  - Timing range:  $\pm 10$   $\mu$ s in 0.8  $\mu$ s step
  - Data rate: 3.072 Mbit/s
  - Sampling frequency: 44,1 kHz or 48 kHz
  - Coding: Linear PCM, 20-bits two complement binary, Bi-phase mark
  - Output signals:
    - Stereo 500 Hz, no click
    - Stereo 1 kHz, no click
    - Stereo 8 kHz, no click
    - Stereo EBU, 1 kHz, single click in ch. A
  - Click rate: 1 or 3 sec
  - Levels: Silence, 0 -9, -12, -15, -16, -18, -21 dBFS
  - Pre-emphasis: None
- #### WordClock Output
- Output Interface: BNC, 75  $\Omega$
  - Reference output: 44.1 or 48 KHz HC-MOS level 0-5V unterminated

## General Specifications

### Power Supply

- Mains supply voltage: 90-250 V
- Frequency: 47-63 Hz
- Power consumption: 22W

### Mechanical data

19" rackmountable cabinet

- Height: 42 mm( 1.73")
- Width: 217mm (8.54")
- Depth: 380mm (15")
- Weight: 1.5kg (3.3 lbs)

### Environmental data

- Operational temperatures:  
+5°C to +45°C (41°F to 113°F)
- Storage temperatures:  
-30°C to 70°C (-22°F to +158°F)

### Electromagnetic compatibility

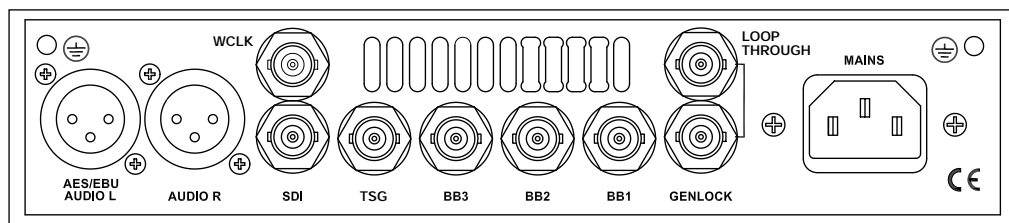
- Complies with CENELEC requirements and immunity, EN50081-1 and EN50082-1

### Safety

- Safety: complies with IEC1010-1

### Rackmount

Rackmount included



Rear panel PT 5201

## Ordering Information

PT 5201

Compact VariTime™ Sync Generator

9449 052 01001

### FOR FURTHER INFORMATION

Contact the PTV sales office in your area, or contact us directly:



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