DK-Technologies

# Compact VariTime™ Sync Generator, PT 5202


solutions in Audio & Video

- **Varitime™, 8 fields for PAL**
- **VariTime™, 4 fields for NTSC**
- **Slave applications, genlocking to PAL, NTSC or 10 MHz clock**
- **Stand-alone SPG with internal TCXO master reference**
- **Multistandard: 525/60, 625/50 and dual standard operation**
- **Outputs:**
  **3 independant Black Bursts**
  **1 SDI Test Signal Generator (incl. SDI Black)**
  **1 Analog video generator**
  **1 AES/EBU or Analog Audio**
  **1 Word Clock at 44.1 or 48 kHz**
- **Source identification programmable into colourbar on SDI and analog Video**
- **Source identification, fixed or scrolling up/down**
- **Easy operation via menu or serial control via RS232 interface**
- **Windows user interface application included**
- **Four programmable presets directly selectable**
- **1U, half 19" wide and rack-mountable**

**Application**

The new digital studios need cost effective and reliable synchronisation for the main equipment to work reliably. For this purpose DK-Technologies 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 the requirements for the modern studio and editing.

DK-Technologies introduces the next generation of the Compact Varitime Sync Generator.
The PT 5202 includes all basic features for professional sync, timing and test signals in one half-sized box.
New is a user friendly frontplate control and moving text on the colourbar pattern.

**Ease of Operation**

A clearly labelled frontplate with separate pushbutton for quick access to main functions allows intuitive selection of main functions.
When a main function is selected, the detailed menu structure is opened on the LCD screen. In the menus all programmable parameters can be managed, e.g. timing, testsignals and audio parameters.
Also the frontplate gives instant access to 4 presets.

In addition to the frontplate control, all configurations can be set via an RS232 interface.
To facilitate the remote control without having to make a software code, a Windows application program is included with the instrument.
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 or uploaded to the PT 5202 as a setup. The setup is uploaded to PT 5202 in an instant mode or stored as a preset in the instrument.
Communication between PT 5202 and PC via standard RS-232 protocol makes it possible to use most PC.

**Master/Genlock Applications**
The PT 5202 is designed to manage slave as well as master operations, as a stand-alone unit.
In systems where PT 5202 operates as a master unit it is controlled by an internal TCXO reference oscillator.
For use in applications where the PT 5202 operates as a slave the genlock function is used.
The genlock function features genlock to NTSC and PAL video signals, Black Burst, composite or a 10 MHz reference clock, e.g. from a GPS receiver. Furthermore the genlock function features timing and active loop-through 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 (±4 fields in PAL, ±2 fields in NTSC) and can be configured as NTSC or PAL-generator, in any combination. NTSC signals are configurable with or without set-up.

**SDI Output**
An SDI Test Signal generator, fully configurable in system and timing, is also included. This Test Signal Generator provides standard colourbars and testpatterns, according to SMPTE and EBU. For diagnostics in studio setups a list of testsignals 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% Colourbar signals which is generated with 8 bit according to ITU 801

**Analog Video Output**
The analog video 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.The output is configurable with or without set-up.

This output, which is primarily meant for testing purposes, is not consistently locked to the BB's and therefore the colour-frame (ScH phasing) may randomly be one of four at power-up. Consequently this output is not recommended for timing purposes

**Source Identification**
One line of 16 characters can be programmed into the EBU Colourbar and the SMPTE bar. The text is fixed positioned or can be made scrolling up/down to reveal if a digital transmission link is in a “freeze” condition.

**Audio Generators**
PT 5202 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 or 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 or mono and includes click markers for identification of left channel. The click interval and samplings frequency for the AES/EBU output is selectable. The ge-nerator 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 synchronising audio equipment. The sampling frequency of 44.1 or 48 kHz is selectable. The 48 kHz is phaselocked to video, while the 44.1 kHz is frequency locked only.

**Presets**
Four complete presets are included to make it easy to change the configu-ration for different setups. Switching between the presets is possible from the front-panel. The number of presets stored in the configuration PC is unlimited.

# Product Data

**Master oscillator**
Master Frequency Reference TCXO:
- Temperature drift: 0-50°: ± 2,5 ppm
- Ageing: (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 Ohm looped through
  Connector: BNC
- Return loss: >36 dB to 6 MHz
- Genlock Signal:
  Video: PAL, NTSC
  Continuous freq.: 10 MHz
- Genlock Video requirements:
  Amplitude: nominal ± 3 dB
  S/N ratio: >26 dB
  Input Sc-H phase: Nominally ±45°
- Genlock Continuous freq.:
  Amplitude: 1 V ± 3 dB
- Pull-in range for fsc.: ± 50 Hz
- Jitter when locked to burst: < 0,5°
- Jitter when locked to sync: < 5 ns

- Timing facilities, range:
  PAL: ± 4 fields
  NTSC: ± 2 fields
- Resolution:
  Analog Black Burst < 0.15 ns
  SDI and Analog Video: 37 ns

**Analog Black Burst Outputs**
- Output interface: BNC, 75 Ohm
- Return loss: >36 dB, to 5 MHz
- Sync amplitude:
  PAL: -300 mV ± 2%
  NTSC: -286 mV ± 2%
- Burst amplitude:
  PAL: 300 mV ± 2%
  NTSC: 286 mV ± 2%
- NTSC set-up: 0 or 7.5 IRE
- Timing range:
  PAL: ± 4 fields
  NTSC: ± 2 fields
- Timing resolution: 0.15 ns
- Sc-H phase: Default 0°, adjustment ± 180°, resolution < 1°
- S/N ratio: 60 dB unweighted to 5 MHz
- Jitter on burst: < 0.5 °

**SDI Test Signal Output**

- Output Interface: BNC, 75 Ohm
- Format:
  270 Mb/s serial, complies with ITU-R BT 656 and SMPTE 259 M
- Return loss: >15 dB, 5 – 270 MHz
- Timing range:
  PAL: ±1 field
  NTSC: ± 1 field
- Timing resolution: 37 ns
- Jitter: < 0.20 UI
- Rise and fall time: 0.75 - 1.50 ns
- Embedded Audio: 1 kHz stereo, levels: -20 $dB_{FS}$ for 525 lines
  -18 $dB_{FS}$ for 625 lines
  Silence and Off

**Analog Video Output**

- Output interface: BNC, 75 Ohm
- Return loss: >36 dB to 5 MHz
- Sync amplitude
  PAL: -300 mV±2%
  NTSC: -286 mV±2%
- Burst amplitude
  PAL: -300 mV±2%
  NTSC: -286 mV±2%
- NTSC set-up: 0 or 7.5 IRE
- Timing resolution: 37 ns
- Sc-H phase:
  Default 0°, adjustment ± 180°, resolution ± 1,5°
- S/N ratio:
  60 dB unweighted to 5 MHz
- Colourframing compared to BB's is not consistent, may be either 0°, 90°, 180° or 270° at power-up.

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

Specific 525-lines patterns

- SMPTE Colour Bar
- FCC

Specific 625-lines patterns:

- EBU Colour Bar
- 75% Colour Bar with Red
- CCIR 18 Multiburst

Common Test patterns 525 and 625-lines:

- 75% Colour Bar, ITU-R BT.801 (timing and level acc. To ITU 801)
- 100% Colour Bar
- 75% Red
- 10% window
- 15% Window
- 20% Window
- 100% Window
- 15 kHz Black/White
- White 100%
- Black
- SDI Check Field
- Digital Grey
- Staircase, 5 Step
- Staircase, 10 Step
- Crosshatch
- PLUGE

**Source Identification on SDI and Video**

- Text on EBU colourbar and on SMPTE colourbar
- 1 line of text with up 16 characters
- Text position: fixed or scrolling up/down

**Analog Audio Output**

- Output Interface:
  Balanced XLR, 30 Ohm
- Amplitude: 0 dBu, 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 Ohm ± 20% (According to AES3 1992)
- Amplitude: Typically 3 Vpp
- Rise and fall time: 10 - 30 ns
- Jitter: <20 ns
- Timing range: ± 10 µs in 0.8 µs step
- Data rate: 3.072 Mbit/s
- Sampling frequency: 44,1 kHz or 48 kHz
- Coding: Linear PCM, 20-bits two complement binary, Biphase 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, -20 $dB_{FS}$
- Pre-emphasis: None

**WordClock Output**

- Output Interface: BNC, 75 Ohm
- Reference output: 44.1 or 48 KHz HC-MOS level 0-5V unterminated

# General Specifications

**Power Supply**

- Mains supply voltage: 100-240V
- Frequency: 47-63 Hz
- Power consumption: 22W

**Mechanical data**

19" rackmountable cabinet

- Height: 42 mm ( 1.73")
- Width: 217 mm (8.54")
- Depth: 400 mm (17.3")
- Weight: 2.5 kg (5.5 lbs)

**Environmental data**

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

**Electromagnetic compatibility**

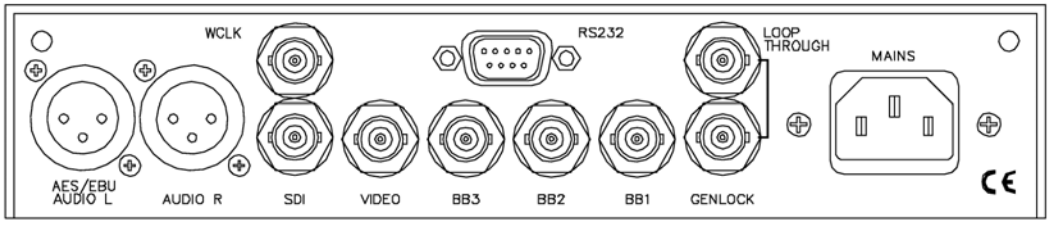
- Complies with requirements for immunity and emission in EN55103-1 and EN55103-2

**Safety**

- Safety: complies with IEC/ EN61010-1

**Rackmount**

- Rackmount kit included




Rearpanel PT 5202

## Ordering Information

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|---|---|---|
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