DK-Technologies

VariTime™ Changeover Unit
PT5211

solutions in Audio & Video

- **Very high reliability, MTBF 80.000 hrs**
- **Indicates status of both primary and back-up generator**
- **Switches: analogue video, serial digital video and digital audio (balanced and unbalanced signals)**
- **Basic version four channels, expandable up to 12 channels**
- **All unbalanced channels may be used for all types of signals**
- **Free choice of generator as primary or back-up SPG**
- **Configurations compatible with PT 5210 VariTime™ Digital Sync Generator and PT5300 HD-SD VariTime™ Sync Generator**
- **Error detection and indication on both primary and back-up SPG**
- **Local and remote status indication**
- **Preset of automatic or manual selection of primary or back-up SPG**
- **Local and remote manual operation**
- **Continues operation with the selected SPG in case of power failure on the changeover unit**

The PT5211 VanTime™ Changeover unit is designed for use in both serial digital and analogue television environment, including AES3 digital audio signals. The use of the changeover unit greatly improves the reliability of a single SPG by having a back-up unit ready for take over in the event of an SPG break down. In order to improve the reliability of the complete system it is essential to have a simple changeover unit. This ensures that the system reliability will not be reduced by the complexity of the changeover unit.

The PT5210 VariTime™ Digital Sync Generator and PT5300HD-SD VariTime™ both have an independent circuit for monitoring the signal quality on the outputs. A choice of outputs to be monitored is possible. Errors (too low levels or no transitions) will cause an alarm signal. This is used in the PT5211 VariTime™ Changeover unit to switch to the stand-by SPG. By monitoring both the master and the stand-by SPG, the system reliability is increased. Since the changeover unit relies on alarm signals from the SPGs, the complexity of the unit itself is reduced and thereby not only its own but also the total system reliability is improved.

The PT5211 VariTime Changeover unit automatically switches serial digital video, composite video, composite black burst, AES3 digital audio and LTC signals between the primary and the back-up generator.

The changeover unit can be configurated to fit the exact configuration of the SPGs used in connection with the changeover unit. The switching is done by means of relays with all channels switched simultaneously. The use of latching relays ensure that the SPG selection remains unchanged in case of power failure on the changeover unit. Front panel control is provided to select which generator is to be the primary one (operating mode manual or automatic). The front panel is secured against accidental changes by including a "Hold to Modify" button which must be pressed simultaneously with any other button.

Remote control is facilitated by a parallel remote interface. For emergency situations the remote can always be overruled by the front panel controls.

A simple relay contact in the remote connector may be used to connect an external warning circuit. The contact is open during normal operation and closes during failure. This relay may be used to activate an external alarm in the event of a failure - even in case of missing power to the changeover system.

Configuration

The basic PT5211 VariTime™ Changeover unit is delivered with four channels. These channels are all the same, i.e. 75 Ω with BNC connectors.

The two options, PT 8617 and PT 8618 give additional channels.

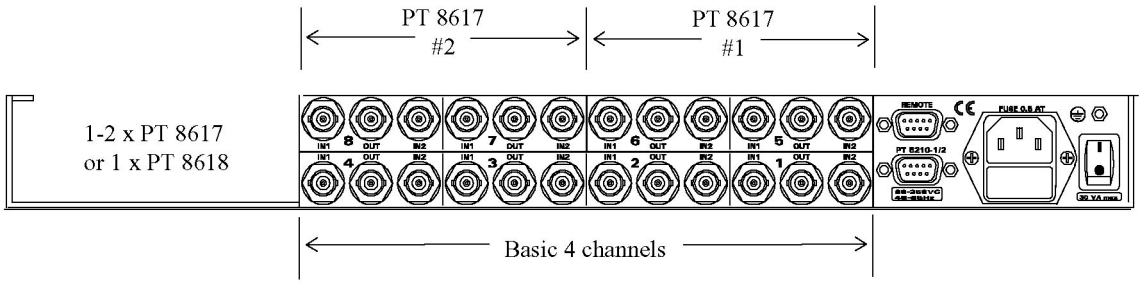
The PT 8617 BNC option adds two more channels. The function and quality of these additional BNC channels are equal to that of the basic channels.

The PT 8618 XLR option adds two balanced channels with XLR connectors. The PT 8618 is used for the switching of balanced AES3 digital audio and the balanced LTC signals.

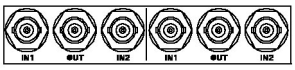
Up to four PT 8617 or two PT 8617 and one PT 8618 can be installed simultaneously. This gives a maximum of either 12 BNC channels or 8 BNC channels + two XLR channels.

PT5211—Rearview

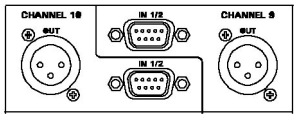
The top drawing shows the PT5211 with two PT8617 options installed.
The empty space can be installed with either one or two PT8617 or one PT8618



PT 8617



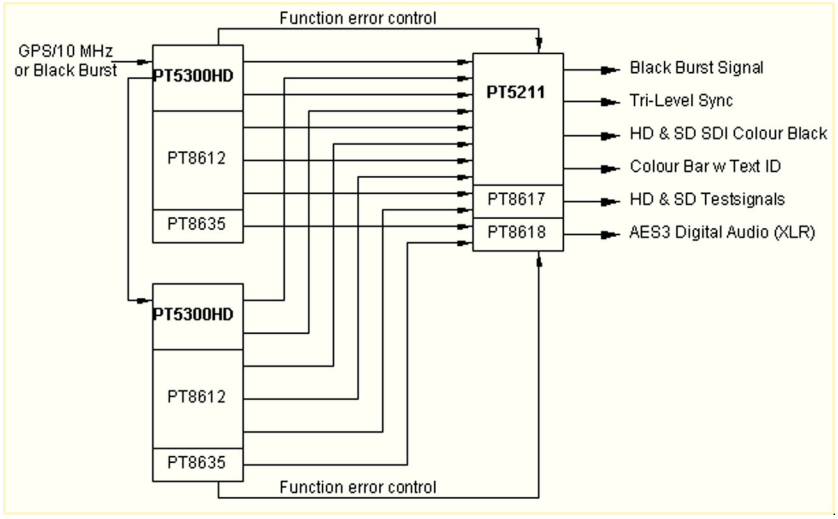
PT 8618



Applications

Fail-Safe Sync Generator System

The fail-safe operation of the sync generator system is demanded wherever the interruption of the synchronizing signals and thereby the breakdown of a video production or a TV transmission could cause major losses.
With a dual and independent sync generator system coupled to an automatic changeover unit from DK-Technologies the uninterrupted operation of the sync system is secured. A typical, fail-safe system is shown in the drawing.
The system will work either as a Master Sync System or as a Slave System genlocked to a master.
The high flexibility of the PT5300 allows the configuration to meet specific requirements through the addition of optional modules. Up to 12 tri-level sync outputs, 8 black burst outputs, multiple HD and SD-SDI test signal outputs, as well as analogue PAL and NTSC test signals can be added. All video signals can be timed individually and precisely over the full video frame. Audio signals are embedded in all SDI signals. A dual, separate AES digital audio generator can be added supplying audio tones, silence signal, and wordclock locked to video.
Signals from the sync generators are applied to the PT5211 Changeover Unit. Through relays either the main or reserve sync generator signals are switched through to the outputs of the PT5211.
In each PT5300 the amplitudes at the outputs are monitored as well as the internal supply voltages. By any malfunction in the main sync generator, a control signal switches the PT5211 to the reserve generator.
By placing the detectors in the sync generators, the changeover unit is kept the simplest possible to obtain a very high reliability. The MTBF of the total system is mainly determined by the PT5211, and is thus maximized.
The PT5211 base unit can switch up to 4 video and audio signals in 75 ohm BNC interfaced signals. Fully equipped with optional relay modules it can switch up to 12 BNC channels or up to 8 BNC channels and 2 XLR balanced channels.



Dual PT5300 sync generator system with PT5211 automatic changeover unit secures uninterrupted supply of synchronizing signals for video and audio.

Product Data

BNC Channels. Basic and option PT8617 terminated with 75 Ω
- Connector: BNC
- Return loss
  > 36 dB, 0.1 to 10 Mhz
  > 15 dB, 10 to 360 MHz
- Insertion loss:
  < 0.2 d13, 0.1 to 180 MHz
  < 1 dB 180 to 360 MHz
- On resistance: < 0.2 Ω
- Cross-talk:
  < -70 dB, 0.1 to 10 MHz
  < -80 dB at f_{sc}
  < -50 dB, 10 to 180 MHz
  < -30 dB, 180 to 360 MH

XLR Channels. Option PT8618 Connectors:
- Signal input: Sub-D 9 pin, female
- Signal output: XLR 3 pin, male
- MReturn loss: > 30 dB, 0.1 to 10 MHz
- Insertion loss: < 0.2 dB, 0.1 to 20 MHz
- On resistance: < 0.2 Ω
- MCross-talk: <-50 dB, 0.1 to 8 MHz

General Specifications

Power Supply
- Voltage: 85 -132 V AC, 180 - 250 V AC
- Frequency: 48 - 62 Hz
- Power consumption: < 15 VA with all options

Mechanical Data
- 19" rack mount cabinet
  Height: 44 mm (1.73")
  Width: 483 mm (19")
  Depth: 490 mm (19.3")
  Weight: 4 kg (8.8 lb.)

Environmental Conditions
- Storage temperature:
  -20° to +70°C
- Operating temperature:
  +5° to +45°C (41° F to 113° F)
- Humidity:
  Non-condensing (IEC 721)

Electromagnetic compatibility
- EN 50081-1/1994 (emission)
- EN 50082-1/1992 (immunity)
- FCC rules & regulations, part 15, subpart J, level B (emission)

Safety
- Safety: Complies with IEC/EN610101

Accessories

- Mains cable
- Interconnection cable to connect two PT5210s or two PT5300s to the PT5211
- Operation Manual

Ordering Information

Base unit

PT5211	VarTime™ Changeover (basic with 4 BNC channels)

Options

PT8617	2 BNC Changeover channels
PT8618	2 XLR Changeover channels (including interface cable)

Note: PT5211 is designed to work solely with PT5300 HD-SD VariTim™ Sync Generator.

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