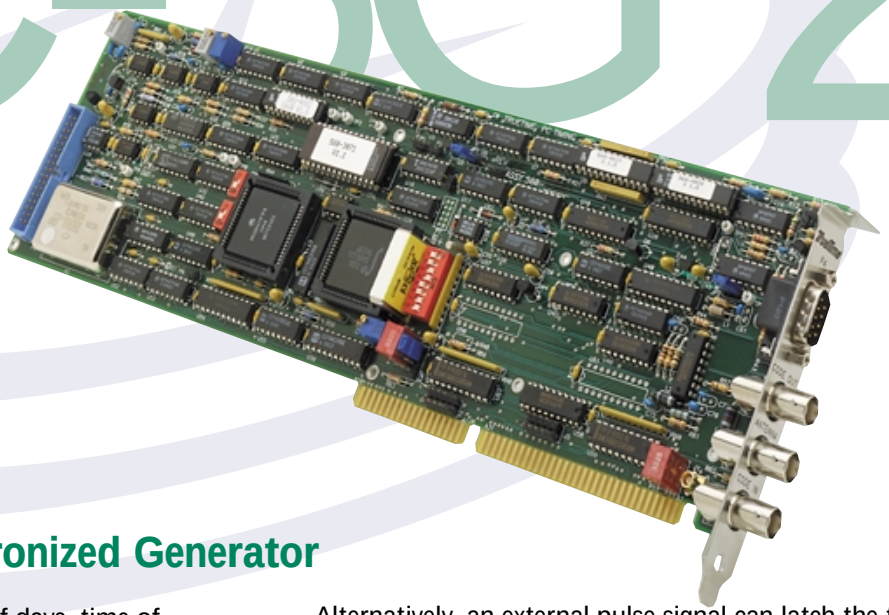
PC-SG 2



Model PC-SG 2

PC Plug-In Card Synchronized Generator

- Microseconds through hundreds of days, time of year, and status information provided
- Synchronize to external IRIG-A or B, or use as stand-alone generator
- IRIG-B time code and 1 PPS outputs
- Programmable pulse rate output
- Time compare output
- External event input
- PC ISA bus compatible

The PC-SG 2 provides ultraprecise time to the ISA bus of a PC computer. The time and status information are available to the PC computer bus in 16-bit packed BCD. User-programmable switches select the address of the board.

When the PC-SG 2 uses amplitude-modulated IRIG-B as the time reference, synchronization is better than 1 microsecond. When it uses the RS-422 IRIG-A or B code, input synchronization is approximately 500 nanoseconds. The synchronization process also measures the frequency difference between the on-board crystal oscillator and the external reference. This information disciplines the oscillator and maintains accurate time during periods of reference loss.

The PC-SG 2 captures the time in two ways. You can write to an address that latches the time in a set of registers. Alternatively, an external pulse signal can latch the time in a second, independent set of registers, permitting time tagging of an external event. Normally, an event generates an interrupt signal to flag its occurrence and the time is read over the bus.

To read the time from the PC-SG 2, a freeze command is sent and the time is saved in Time Registers. Since it remains static until the next freeze command, there are no restrictions as to when the time can be read.

You can program a rate generator to output various pulse rates. A time compare output generates a pulse output at a user-defined time. Either output can be configured to generate an interrupt.

The PC-SG 2 generates both amplitude-modulated and DC shift IRIG-B time codes. This feature enables the PC-SG 2 to act as a timing source for remote displays, tape recorders, and other time code equipment where IRIG-B is not available.

TrueTime provides the TimeServer32 application to assist in set-up and operation.

TRUETIME

Specifications: PC-SG 2

Synchronized Generator Mode

Analog Input Code: IRIG-A & IRIG-B

IRIG-B Sync Accuracy: Typically within 1 microsecond of the input code with propagation delay set properly; jitter of 2 microseconds.

IRIG-A Sync Accuracy: Typically within 30 microseconds of the input code; jitter of 2 microseconds.

Ratio: 2:1 to 5:1

Input Amplitude: 0.1–10 Vpp

Input Impedance: >10k ohms or 600 ohms

Connector: BNC

DC Shift Input Code: IRIG-A or IRIG-B using RS-422 input levels

Sync Accuracy: Approximately 500 ns

Jitter: 2 microseconds

Connector: 9 pin D

Error Bypass: Factory set to three frames

Generator Mode

Time Preset: Allows the PC-SG 2 to act as a stand-alone generator. The user can preset the time over the PC bus.

External Start Input: Starts on rising edge; HCMOS levels

Impedance: 4.7k ohms to 5 Vdc
Connector: 9 pin D

General Specifications

IRIG-B Code Generator:

Amplitude: Adjustable from 0–10 Vpp into 600 ohms
Ratio: Adjustable, 2:1 to 5:1
Connector: BNC

IRIG-B Code Generator (DC Shift):

TTL or RS-422 levels
Connector: 9 pin D

Internal Oscillator:

Type: TCXO
Accuracy: Typically 5 x 10^{-8} when synchronized
Stability: 1 x 10^{-6} 0°C to 50°C when unsynchronized

1 PPS Output:

Timing: 1 microsecond to input code with propagation delay set properly (for IRIG-A AM, timing is <30 microseconds to input code).
Jitter: 2 microseconds
Amplitude: 0–5 Vdc @ ±6 mA
Duty Cycle: 50%
Connector: 9 pin D

Interrupts: Interrupts are jumper selected to IRQ3-IRQ7 or IRQ10-IRQ14. Active low, open collector interrupt.

Programmable Rate Generator Output: 1 PPS, 10 PPS, 100 PPS, 1 kPPS, 10 kPPS

Output Levels: 5 V @ ±6 mA, rising edge on time. The user can configure the pulse generator to output pulsed signals at programmable rates.

Connector: 9 pin D

External Event Input: Interrupt and/or capture time of external event. Event time can be determined by user polling or by generating an interrupt.

Connector: 9 pin D

Coincidence Compare Outputs: Provides a 2 ms pulse output at a user defined time. The programming range is microseconds through day-of-year.

Levels: 5 V @ ±6 mA, rising at the compare time
Connector: 9 pin D

Nonvolatile Memory: The following are stored in nonvolatile memory: rate generator, current year, operating mode, sync generator reference code.

Mechanical/Environmental

Size: Mechanically compatible with a PC ISA bus; one full size slot.

Power: <5 W of standard PC power

Operating Temperature: 0°C to +50°C

Storage Temperature: -17°C to +85°C

Humidity: To 95%, noncondensing

Certification: CE

Software

The PC-SG 2 includes the TrueTime TimeServer32 application program for Windows 95/98/NT, which provides control over general time-related settings and runs as a background task keeping the computer clock synchronized to the PC-SG 2 card. TimeServer 32 is a 32-bit Windows application that can provide a Dynamic Data Exchange (DDE) linkage between your installed TrueTime hardware product and DDE-aware Windows applications, such as Microsoft® Excel.

Options

Various input/output code functions, parallel outputs and special functions are possible. Consult TrueTime to discuss your specific requirement.

- *For GPS synchronization, see GPS-PC data sheet*

Specifications subject to change without notice.

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