



Meinberg Radio Clocks

Lange Wand 9
31812 Bad Pyrmont, Germany
Phone: +49 (5281) 9309-0
Fax: +49 (5281) 9309-30
<https://www.meinbergglobal.com>
info@meinberg.de

GPS170PCI: GPS Clock for Computers (PCI/PCI-X Bus)

The Meinberg GPS170PCI slot card is the professional solution for your standalone computer synchronization requirements. With a variety of outputs such as IRIG, serial time string, and 1PPS, it can be used to provide reliable synchronization for other devices. A powerful but easy-to-use API enables you to integrate a highly accurate time base in your own software, while the two independent capture inputs allow for hardware timestamping of external events in your measurement application.

Important Note

This product is no longer available and may have been replaced by a newer product. We will, of course, continue to provide support for units that have already been purchased and are still in use. Please contact our [1][Sales Department](#) for further details.

This product has been discontinued and has been replaced with: [2]

Key Features

- PCI LOCAL BUS interface, 3.3V or 5V, 33MHz or 66MHz, PCI-X compatible
- 2 time trigger inputs
- Pulses per second and per minute
- RS-232 interface
- IRIG-B/AFNOR time code outputs and NEW:3 programmable TTL outputs
- Plug and Play
- DCF77-simulation
- Included GPSANTv2 antenna uses downconverter technology to enable long transmission routes of up to 1100 m (1200 yards)
- Configurable time scale (UTC/local, GPS time, TAI)
- DC-insulated antenna circuit
- Driver software for all popular operating systems
- Flash-EEPROM with bootstrap loader
- Including GPS antenna, 20m standard cable and manual on USB key

Description

The GPS170PCI has been designed to synchronize the system time of PCI/PCI-X bus interface-equipped computers and to provide an API (Application Programming Interface) which allows time to be read with great accuracy and precision from within your own application.

The IRIG output of the GPS170PCI can be used to synchronize IRIG time code receivers. TCR167PCI slot cards provide a convenient solution for synchronizing more than one standalone (non-networked) computer system - eliminating the need to deploy multiple GPS antennas.

The **Windows** driver package includes a time synchronization service which runs in the background and adjusts the Windows system time continuously and invisibly. This package also includes a monitor program to enable the user to check the status of the device and time adjustment service. If the monitor program is run with administrator rights, it can also be used to modify configurable parameters.

The **Linux** and **FreeBSD** driver packages include a kernel driver which allows the product to be used as a reference time source for the NTP daemon included in most Unix-like operating systems. This also allows the computer to be used as an NTP time server to provide accurate time to NTP clients on the network. Some command line tools can be used to modify configurable parameters and monitor the status of the clock in use.

Please contact Meinberg's Support Team for more information on using the card with other operating systems: techsupport@meinberg.de.

The device's serial port is not required for operation but can be used to update the card's firmware, or to provide another computer with the current time via a serial time string.

If you intend to use the GPS170PCI in your own applications, please use our Software Development Kit, which shows how to access the card from within your software.

All drivers and SDKs can be downloaded free of charge from our website, and we are happy to assist you if you face any difficulties in using the Meinberg driver API in your software development process.

Characteristics

Receiver Type	6 channel GPS C/A-code receiver
Status Indicators	Fail-LED shows that the internal timing has not been synchronized or that a system error occurred Lock-LED shows that the calculation of the position has been achieved after reset
Type of Antenna	Included [3] GPSANTv2 antenna with innovative downconverter technology that allows transmission routes of up to 300 m using RG58 cable, 700 m using RG213 cable, and 1100 m using H2010 Ultraflex cable
Synchronization Time	Max. 1 minute in normal operating conditions Max. 25 minutes (average 12 minutes) upon first initialization or in the absence of saved satellite data
Frequency Outputs	Frequency output 10 MHz, TTL level
Pulse Outputs	3 Programmable TTL outputs, channels 0 and 1 per default configured as Pulse per second (TTL, RS232 level) and pulse per minute (TTL), pulse duration: 200 msec Channel 2 default configuration: DCF77 compatible pulses (TTL level), pulse width: 100/200 msec
Accuracy of Pulse Outputs	< ± 250ns
Interface	Single serial RS-232 interface
Serial Time String Output	Baudrate: 300, 600, 1200, 2400, 4800, 9600, 19200 Baud data format: 7N2, 7E1, 7E2, 8E1, 8N1, 8N2 Time telegram: [4] Meinberg Standard-Telegram , SAT, Uni Erlangen (NTP), SPA, NMEA0183 (RMC) or [5] capture-telegramm
PWM Time Code Output	DCLS, TTL into 50 ohm (active high or active low)
AM Time Code Output	IRIG AM sine wave signal: 3Vpp (MARK), 1Vpp (SPACE) into 50 ohm
Supported Timecode Formats	IRIG B002: 100pps, DCLS signal, no carrier, BCD time of year IRIG B122: 100pps, AM sine wave signal, 1 kHz carrier, BCD time of year IRIG B003: 100pps, DCLS signal, no carrier, BCD time of year, SBS time of day IRIG B123: 100pps, AM sine wave signal, 1kHz carrier, BCD time of year, SBS time of day IEEE1344: Code according to IEEE1344-1995, 100pps, AM sine wave signal, 1kHz carrier, BCD time of year, SBS time of day, IEEE1344 expansion for date, time zone, daylight saving and leap second in Control Funktionen Segment AFNOR: Code according to NFS-87500, 100pps, AM sine wave signal, 1kHz carrier, BCD time of year, complete date, SBS time of day
Time-Trigger inputs	Resolution: 100 nsec, triggered by falling TTL slope Time of trigger event readable via computer slot or optional second RS232-interface
Electrical Connectors	BNC female connector for antenna BNC female connector for modulated timecode 9 pin sub D male connector

Backup Battery Type	When main power supply fails, hardware clock runs free on quartz basis, almanac data is stored in RAM Life time of lithium battery min. 10 years
----------------------------	---

Operating Voltage	+5V, ca. 400mA +12V, ca. 170mA
--------------------------	-----------------------------------

Board type	PCI card short (174,6 mm x 106,7 mm)
-------------------	--------------------------------------

Supported Temperature	Operational: 0 - 50 °C (32 - 122 °F) Storage: -20 - 70 °C (-4 - 158 °F)
------------------------------	--

Supported Humidity	Max. 85 % (non-condensing) at 40 °C
---------------------------	-------------------------------------

Warranty	Three-year warranty
-----------------	---------------------

Options

- * Additional independent RS232 interface
 - * Additional optical output for IRIG DCLS (instead of IRIG AM)
 - * Oscillator upgrade OCXO-LQ (instead of TCXO) for extended Holdover capabilities (see [6][oscillator table](#) for further details)
-

RoHS Status of Product	This product is fully RoHS-compliant.
-------------------------------	---------------------------------------

WEEE Status of Product	This product is handled as a B2B (Business to Business) category product. To ensure that the product is disposed of in a WEEE-compliant fashion, it can be returned to the manufacturer. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will bear the costs for the waste disposal itself.
-------------------------------	---

Manual

The English manual is available as a PDF file: [7][Download \(PDF\)](#)

Links:

- [1] <mailto:sales@meinberg.de>
- [2] <https://www.meinbergglobal.com/english/products/gps180pex.htm>
- [3] <https://www.meinbergglobal.com/english/products/gps-antenna-converter.htm>
- [4] <https://www.meinbergglobal.com/english/products/specs/timestr.htm>
- [5] <https://www.meinbergglobal.com/english/products/specs/capstr.htm>
- [6] <https://www.meinbergglobal.com/english/specs/gpsopt.htm>
- [7] <https://www.meinbergglobal.com/download/docs/manuals/english/gps170pci.pdf>