

Præcis Ct Computer Time Source

Time Reference for Your Computer

The Præcis Ct can synchronize your computer platform or network server via RS-232 and/or 1 PPS outputs. A built-in CDMA time receiver disciplines the internal reference clock. Using CDMA, rather than a traditional GPS-based timing system, frees you from the need to install a roof-mounted antenna because the CDMA signals can be received inside buildings.



CDMA Timing and Frequency Control

Præcis Ct uses the existing CDMA wireless infrastructure, whose system timing is slaved to GPS, to precisely synchronize itself to UTC. CDMA system time and frequency synchronization must be reliably maintained in order for the CDMA mobile telecommunications system to operate properly. Præcis Ct does not need to know its position to establish a UTC time to the 10-microsecond level of accuracy. There is no lengthy site survey required and transmissions from a single base station are all that is needed. Præcis Ct is up and running quickly and can be relocated to a new location without concern.

Simple Installation

Since CDMA signals at cellular frequencies can be received inside buildings, Præcis Ct saves installation, labor and leasing costs inherent in traditional GPS timing systems. No costly rooftop antenna, window-mount antenna, or cable installation is required. The unit's small size and convenient packaging, coupled with its integrated antenna, allow it to be located wherever it is needed.

Features

The Præcis Ct provides an ASCII time-of-day message that is compatible with public-domain NTP drivers available for Unix, Linux, Solaris and Windows NT platforms. Præcis Ct also provides a 1 Pulse Per Second (PPS) signal on the Data Carrier Detect (DCD) line of the RS-232 interface that is compliant with RFC 1589 (Kernel Model for Precision Timekeeping) and RFC 2783 (Pulse-Per-Second API for UNIX-like Operating Systems). For high precision applications, Præcis Ct can timetag the transition of the Clear To Send (CTS) signal with 30 nanosecond precision and transmit it in a format compatible with an existing, public-domain driver.

OCXO Upgrade Option

The temperature-compensated crystal oscillator (TCXO) is standard with the Præcis Ct. If your Præcis Ct loses lock to the synchronization signal then it will drift away from the perfect time 10 milliseconds during the first day. The OCXO upgrade option offers more than an order-of-magnitude of improvement in temperature stability relative to the TCXO. This means that the Præcis Ct will take 10 days to drift 10 milliseconds with the OCXO. The OCXO upgrade is a good choice if your application requires a long holdover period if the Præcis Ct should lose lock.

FEATURES

- 1 PPS Output on DCD signal.
- Timetag Input on CTS signal.
- ASCII Time-of-Day Output.
- Oscillator Upgrade Option



Præcis Ct Specifications



CDMA RECEIVER:

- AMPS Mobile Receive Band - 869-894 MHz
- TIA/EIA IS-95 CDMA Pilot and Sync channels

ANTENNA:

- SMA jack on rear panel, $Z_{in} = 50 \Omega$.
- 824-896 MHz 1/4 wave helical, standard.
- Remote magnetic-mount antenna/cable assembly (option).

LOCAL OSCILLATOR:

- TCXO. OCXO (option).

TIME TO LOCK:

- < 5 minutes, typical.

1 PPS TIMING:

- Accuracy: < 10 microseconds to UTC typical when locked. Fringe area reception may degrade the absolute timing accuracy due to increased propagation delay.
- Stability: TDEV < 50 ns, $t < 10^4$ seconds.

SERIAL PORT I/O:

- Serial I/O: RXD, TXD at RS-232 levels on RJ-45 jack.
9600 to 57600 baud; 7 or 8 data bits; odd, even or no parity; 1 or 2 stop bits.
- DCD: Output at RS-232 levels, falling edge is on-time, driven by internal 1PPS.
- CTS: Input at RS-232 levels, positive edge transition is captured in event timetagging circuit.
- Time-of-Day: ASCII string via serial i/o port. Seconds through years in GPS, UTC or Local Time.
- RJ-45 to DB-9F cable assembly is included.

SOFTWARE:

- Præcis Ct emulates several existing GPS and WWV clocks for which public domain NTP drivers are available at: <http://www.ntp.org>.

SYSTEM STATUS INDICATORS:

- Lock LED: Green indicator that pulses to indicate the current CDMA acquisition and lock status.
- Alarm LED: Red indicator that illuminates when a serious fault condition exists.

FIRMWARE UPGRADES:

- Maintenance upgrades provided free-of-charge.

POWER:

- On 3.5mm phone jack.
- 6 VDC @ 400 mA.
- AC wall adapter is included.

SIZE:

- Case: 4.84"L x 2.68"W x 1.18"H
- Antenna: 3.46"H x 0.43" diameter at base.

WEIGHT:

- 1/2 pound (270 g).

ENVIRONMENTAL:

- Temperature: 0° to +70° C.
- Humidity: 0 to 95%, non-condensing

OCXO OPTION:

- Temperature Stability: 7.5×10^{-8} .
- Temperature Range: -20° to +70° C.
- Ageing Rate/Year: 1×10^{-7} .
- Allan Deviation @ 1 second: 5×10^{-10} .

