z300

High Precision NTP Time Server

Indoor / Outdoor Antenna

High Precision NTP Time Server with PoE (Indoor or Outdoor use) synchronized by GPS

Revision 4

ZTI / 1 boulevard d'Armor / BP 20254 / 22302 Lannion Cedex / France
Phone: +33 2 9648 4343 / Fax: +33 2 9648 1485
Email: contact@zti-telecom.com / www.zti-telecom.com

PRESENTATION

ZTI has selected a high precision NTP Time Server with PoE (Power over Ethernet) for indoor or outdoor use and synchronized by GPS, produced by Heol Design to provide accurate timing information for network synchronization and measurement applications.

Based on a high performance GPS chipset (with -155dBm/-185dBw sensitivity), it delivers accurate timing information, even in poor signal level conditions (**indoor**, urban canyons and signal obscured environments). The antenna does not need to be located up a mast or on the rooftop as the norm is, which considerably reduces the cost and complexity of deployment in terms of antenna cabling and lightning strike protection and reduces the cost of maintenance.

Thanks to its self-survey mode, the accuracy of the timestamp (compliant with SNTP protocol) is better than 10µs, and is achievable **even with only 1 satellite being tracked**. Self survey mode is active 20 minutes after first position calculated.

If the satellites signals are completely lost, the **hold-over mode** enables the module to keep sending accurate Ethernet frames, with a drift better than 100µs/hour, with +/- 10°C temperature variation. An advanced oscillator-drift compensating algorithm maintains stability without using an expensive OCXO.

A web server with secure access allows you to configure the z300 NTP Time Server, and monitor its status at a glance.
Automatic E-mails can be sent by the z300 NTP Time Server, periodically or when alarms appear. This function is fully configurable via the HTTP server.

A 2500V isolated event input allows you to time-stamp external event with very high accuracy (100 nanoseconds, refer to UTC time).

The **Power Over Ethernet** is a feature of this module, enabling installation of the module without the need for additional cables to provide power.

The z300 module is RoHS (lead free) compliant.

Note: the specifications in this document are subject to change without notice.
ZTI is not responsible for the operation or failure of operation of GPS satellites or the availability of GPS satellite signals.

MAIN FEATURES

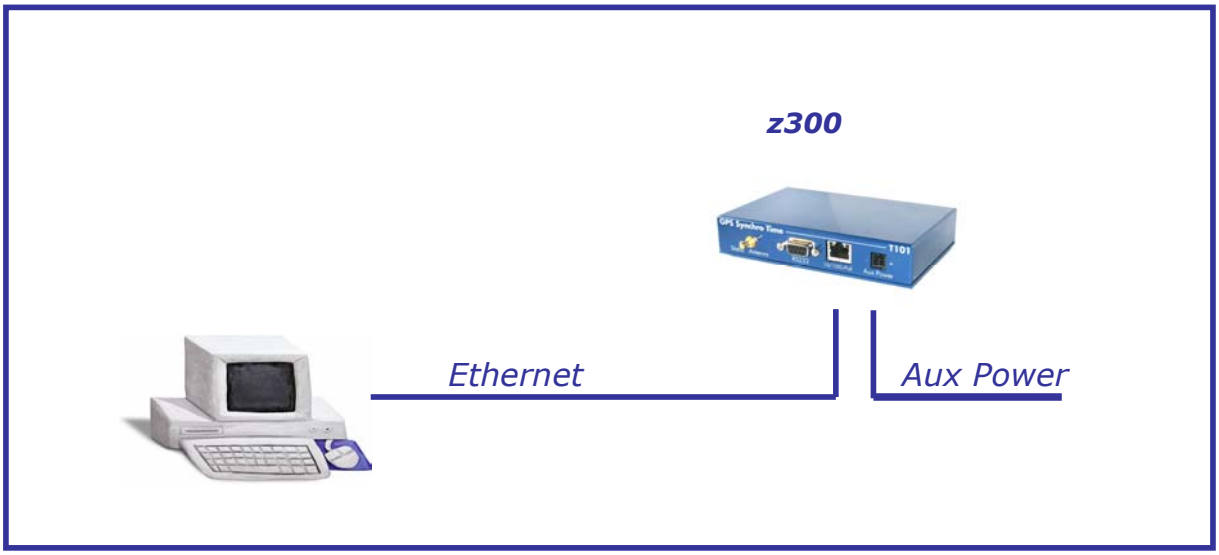
- Ultra-high sensitivity of **-155dBm/-185dBw**, enabling high performance in obscured, low signal and indoor environments.
- Absolute NTP/SNTP timestamp accuracy better than **10µs** in self-survey mode (static use).
- **SNTP** protocol (RFC2030) for timing information, broadcast or unicast mode (broadcast periodicity is configurable).
- **IPv4** compliant.
- Alarms and periodic status reported through **E-mail**.
- **Opto-isolated input**, for time-stamping external events with **100ns accuracy** (time stamp information reported through E-mail or NTP).
- **Alarm relay** output, for driving your external systems.
- Highly accurate pps (pulse per second) signal **(±40ns**) available on SUB-D9 or 6 pts connector (polarity is configurable by user).
- **HTTP web server** for monitoring and configuration :
    - Intuitive bar-graph for easy monitoring status,
    - UTC time and date, with time stamp accuracy indication,
    - NTP server activation and monitoring,
    - Status, alarms, E-mail notifications,
    - WGS84 position,
    - Characteristics of satellites tracked,
    - IP address (DHCP or fix-address), network statistics,
    - PPS and alarm relay output polarity,
    - Event input function configuration
    - etc…,

  for ease use in **any operating system**.
- A RS232 or RS422 serial port can be accessed for remote control and monitoring (with NMEA protocol output; other protocol on request).
- Historic data backed-up to an EEPROM (over 8000 status records).
- Available in 2 different **metal housings**, either compact or 19'' rack mounted form factor. This rack unit displays on a LCD module the status and timing information.
- Power supply through Ethernet (**POE**) or via Auxiliary connector.
- Power-Good and status LEDs on front panel.
- **Protection** against open or short circuit on the antenna.
- **Robust** power supply, protected against transients and reverse polarity.
- According to CE directive, the z300 module has passed the following tests :
    - EN55022/55011 class B: conducted and radiated emissions.
    - EN61000-4-2: Immunity to electrostatic discharges.
    - EN61000-4-3: Immunity tests on electromagnetic fields radiated at radio-electrical frequencies, with 10V/m electromagnetic field.
    - EN61000-4-4: Immunity to rapid transients.
    - EN61000-4-6: Immunity tests on conducted interference, induced by radio-electrical fields.
- The z300 module is RoHS (lead free) compliant.

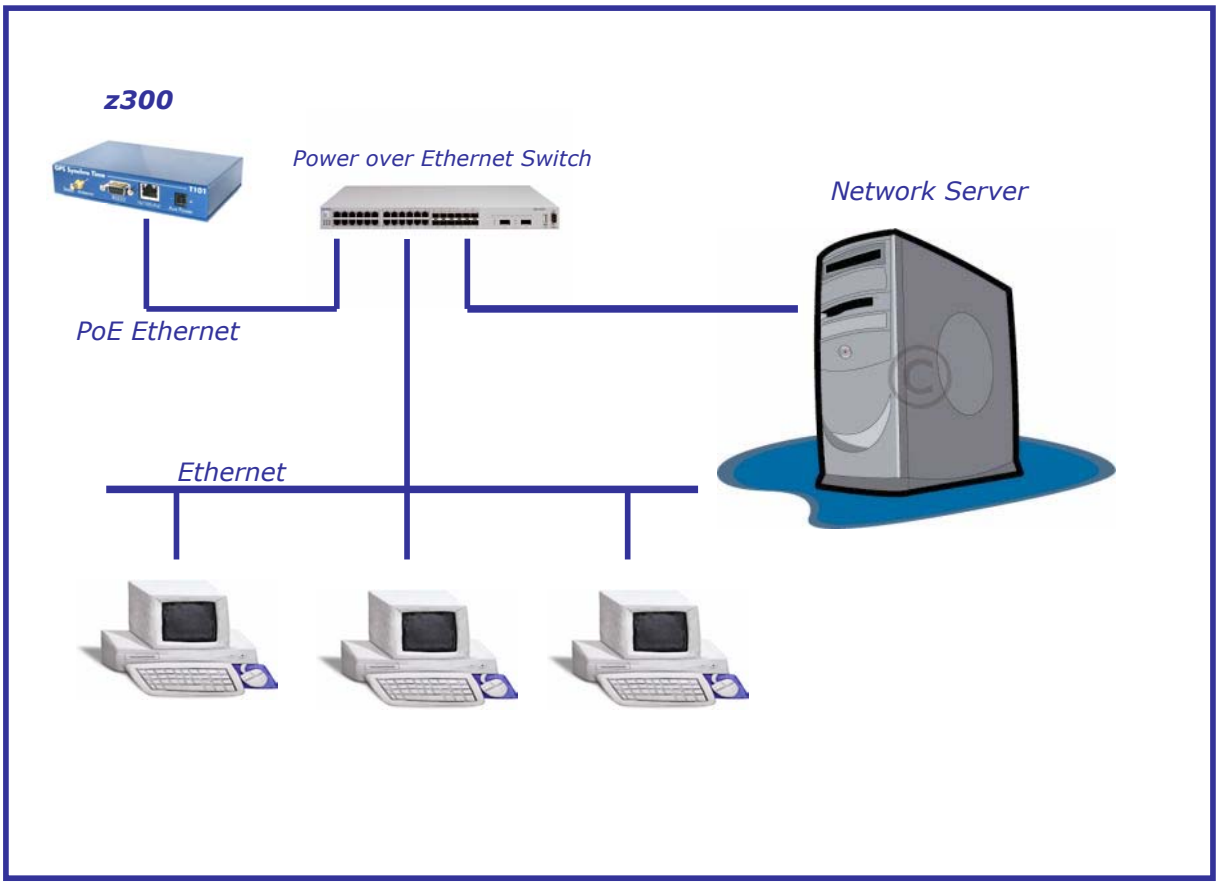
RoHS compliant 2002/95/EC

Specifications

GPS Receiver	Type	12 channels
	Sensitivity	-155dBm/-185dBw
	Accuracy	<5 meters
	Time (pps)	±40 ns
	Cold start (Time to First Fix)	< 45 seconds (90%)
	Active antenna voltage	5V or 3V, user configurable
Timing Generator	Timing Ethernet protocol	SNTP V4, Broadcast / Unicast (100 requests per second maximum)
	Configuration / monitoring	HTTP server
	Absolute timestamp error	10µs (refer to UTC time)
	Timestamp drift when synchronisation lost	100µs/hour with +/- 10°C temperature variation.
Power supply	Input Voltage	Power On Ethernet: compliant with IEEE 802.3af. Auxiliary : 12 to 60VDC
	Power consumption	Normal operation : 2.5W max
Interfaces	Auxiliary Power Supply	2.54mm automotive header
	GPS Active antenna	SMA (other on request)
	Ethernet link	RJ45, 10/100Mbps + POWER
	Remote RS232 / RS422	SUB-D9, 38400/8/No/1
	pps output	RS422, RS232, or logic level; on SUB-D9 or 6 pin connector
	Alarm Relay	2A/250V
	Event input	25V max peak voltage, 2500V isolation, 100ns Timestamp accuracy
Environmental	Operating Temperature	-20°C / +70°C
	Storage Temperature	-40°C / +85°C
	Humidity	90% non-condensing
	Dimensions (mm)	180 x 90 x 27
	Weight	340 grams



Example of use with direct Ethernet connection and auxiliary power



Example of use with a PoE switch