HEOL DESIGN

T102, network/industrial Time Server

T102C*ompact*

Time server / Master Clock,
with PoE and advanced Input/Output features

T102R*ack*

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HEOL-T102 V2: PERFORMANCE and EASY INTEGRATION

The T102 module is a server/client **SNTP/NTP**, able to synchronize automated systems and networks in an industrial environment. This synchronization is done using an **Ethernet** link (IEC61850), or serial link RS232/RS422 (**NMEA** with or without pps signal).

As the T102 doesn't integrate GPS antenna, you can install it anywhere in your factory or office (it is just necessary to connect it to your network, so it can synchronize to an external NTP server – T101 GPS master clock, or to an external GPS receiver).

If the synchronization is lost, the **hold-over mode** enables the module to keep an accurate internal clock, with a drift better than 1ms/day (with **OCXO** option).

A **2500V isolated** event input allows you to time-stamp events from any external system.
The TimeStamp information is reported through RS232, SNMP trap, E-mail or Broadcast frame.

A **pps**/**TOP** signal is available on I/O connector (polarity, period, length, and delay compensation are configurable by user). It is also available with optional 1500V isolated static relay.

The **Time Service software** can be installed on any host computer, to synchronize computers using SNTP protocol.
Accuracy and specific alarms are displayed at every connection.

A **web server** with secure access allows you to configure the HEOL-T102, and monitor its status at a glance (GPS satellites strength signals, Ethernet connections, alarms, input/outputs…).

Automatic **E-mails** can be sent by the HEOL-T102, periodically or when alarms appear. This function is fully configurable via the http server.

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Alarm relay is available, for driving your external systems in case of failure of the T102.

Alarms are displayed through **SNMP** traps (Ethernet interface) or through RS232. SNMP can also be used to configure T102 parameters (instead of http web server).

IRIG-B003 and A003 output available on the I/O connector.

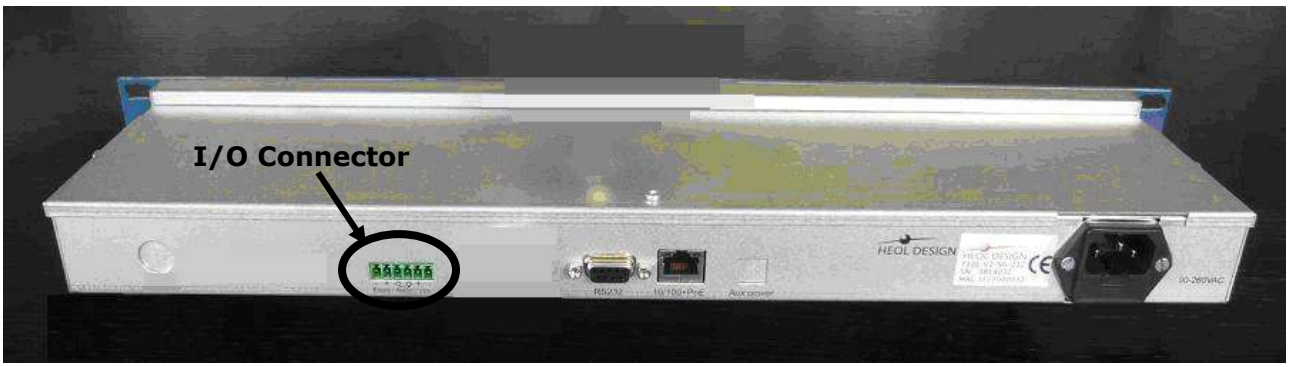
A RS232 or RS422 serial port can be accessed for remote control and monitoring (with NMEA protocol output, and NMEA input for connection to external GPS receiver).

Historic data can be backed-up to an EEPROM (over 8000 status records).

The **Power On Ethernet** enables installation of the HEOL-T102 without the need for additional cables to provide power.

In option, a battery powered internal RTC can provide timing information if no GPS satellites are available at power-up (antenna disconnected or hidden inside a building).

The T102 is 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.



T102 Rack rear view

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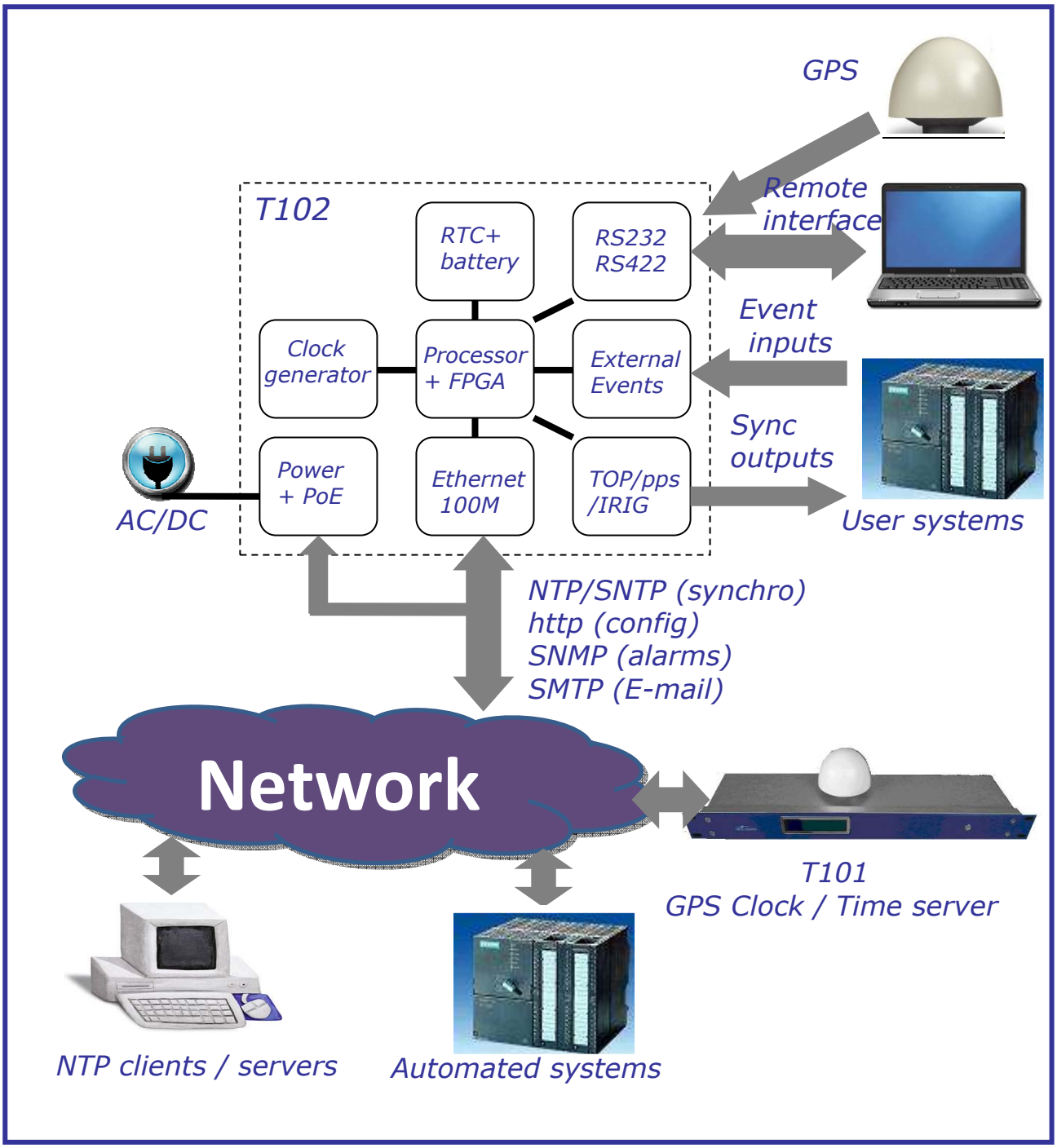

T102 synoptic and external links

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SPECIFICATIONS

Ethernet synchronization	Timing Ethernet protocol	SNTP V4, Broadcast/Unicast (100 requests per second maximum)
	Configuration / monitoring	http server
	Absolute timestamp error (refer to UTC time)	±100µs / external server clock
	Timestamp drift when synchronization lost	1ms/day with OCXO option
	RTC option	1 millisecond accuracy Autonomy: 3 to 5 days(other on request) Drift ~ 1 s / day (10°C temp. variation)
Power supply	Input Voltage	Power On Ethernet : compliant with IEEE 802.3af. Auxiliary: 12 to 60 VDC (-48V Telecom compliant) or 85/250VAC, 110/250VDC (T102R) 47/63Hz, (400 Hz in option)
	Power consumption	4W (T102C), 6W (T102R)
Interfaces	Auxiliary DC Power Supply	2.54mm header, anti-extraction
	AC power supply	CEE plug
	Ethernet link	RJ45, 10/100Mbps + POWER
	Remote RS232 / RS422	SUB-D9, 38400/8/N/1 (other on request)
	pps output	RS422, RS232, or fast static relay output. on SUB-D9 or I/O connector
	Alarm Relay	2A/250V. 2500V isolation
	Event input	25V max peak voltage (add R series for more), 2500V isolation.
Environmental	Operating Temperature	From 0/50°C to -40/+85°C, depending Upon the option
	Storage Temperature	-40 / +85°C
	Humidity	90% non-condensing
	19" Rack - dimensions - weight	483 x 130 x 44 (mm) 1,85kg
	Compact - dimensions - weight	201 x 95 x 26 (mm) 0,34kg

- According to CE directive, the HEOL-T102 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.
  - EN61000-4-5: Immunity to surge.
  - EN61000-4-6: Immunity tests on conducted interference, induced by radio-electrical fields.

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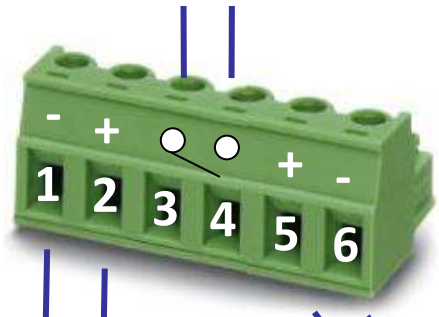
➢ EN61000-4-8: Immunity to Power frequency magnetic field (30 A/m)
➢ EN61000-4-11: Voltage dips, short interruptions and voltage variations immunity tests.

- Compliance with the International Safety Standard for Information Technology (IEC/EN 60950).
- The HEOL-T102 module is RoHS (lead free) compliant.

RoHS compliant 2002/95/EC

3&4 pins :
Alarm relay
or PPS/TOP output on Static relay (option PPSREL)



1&2 pins :
Event input #1

5&6 pins :
PPS/TOP RS422 output
or IRIG B003 output (option IRIG)
or Event input #2 (option EVENT2)

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ORDERING PART NUMBER

T102R-100µs-AC-I/O-OCXOSR-RTC

- Housing R: 19''Rack
  C: Compact
- NTP accuracy 100µs
  1ms
- Power DC : 14 to 60V
  DC/POE: DC+Power Ethernet
  AC : 110 to 250V (Rack only)
- I/O option I/O connector mounted
  (blank : not mounted)
- OCXO option
  OCXOSR : standard (0 / +50°C)
  OCXOMR : medium (-20 / +65°C)
  OCXOHR : high (-40 / +70°C)
- RTC option, battery powered : for fast start without GPS satellites

If other options are needed, just add the part number of these options at the end of the T102 part number :
-422 for RS422 serial port instead of RS232
-EVENT2 for secondary Event input
-IRIG for IRIG-B003 output
-PPSREL for PPS/TOP output on fast static relay
-NMEA for connection to external GPS receiver

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