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HEOL-N102-ST5:

**Ruggedized
Low Power Intelligent
Timing module**



GPS TIMING MODULE WITH SYNCHRONOUS RMC

The specifications in this document are subject to change without Notice.
Heol Design is not responsible for the operation or failure of operation of GPS satellites or the availability of GPS satellite signals.

PRESENTATION:

The HEOL-N102-ST5 has been designed to provide **accurate** and **reliable** timing information through a RS232 link.

Based on a high performance GPS chip, it delivers accurate timing information (NMEA RMC frame), even in poor signal level environments (tree foliage, urban canyons).

Advanced features could be integrated in the HEOL-N102 to interface with your system without the need to develop your own functions.

MAIN FEATURES:

- Very-high sensitivity of **-160dBm** enabling high performance in low level signals environments.
- Time to first timing information (TTFF) is around **38s** (cold start).
- A configurable **RS232 or RS422** serial port can be accessed for monitoring and control : NMEA and Trimble TSIP , TAIP protocol.
- Highly accurate pps (pulse per second) signal (**±60ns**) available on SUB-D9 front panel. RS232 or TTL level.
- Active antenna is **voltage selectable** : 3.3V or 5V (patented).
- Status LED on front panel.
- NMEA '**RMC**' frame outputted in phase with the pps signal (ST4 option).
- **Customizable firmware** to fit your requirements (Firmware upgraded directly via RS232 link).

OPTIONAL FEATURES:

- **Back-up** capacitor with an autonomy of 20 days for hot start-up after a power cut; for beacon systems.
- Fully programmable **standby** mode with less than **0.1µA** power consumption (patented).
- **Data logging** : position, speed, time, temperature backed-up to a 2Mb EEPROM : 15 000 positions.
- Temperature / shocks sensors.
- **Event** input and logic output for your specific applications.
- **Analog output** proportional to Position, Cap, Speed.

PROTECTION:

- **Metal housing**, ruggedized and compact.
- RS232/RS422 port is **15kV ESD** protected + **60V fault** protected.
- **Protection** against short circuit and overvoltage on the antenna.
- **Robust** power supply, protected against transients and reverse polarity.

COMPLIANCE:

- Connectors are compliant with **automotive standards**.
- According to **CE** directive, the HEOL-N102 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.
 - IS07637-1/2/3 (for automotive applications).
- The HEOL-N102 module is RoHS (lead free) compliant.

SPECIFICATIONS:

GPS Receiver	Type	12 channels
	Sensitivity	Tracking -160dBm
Accuracy	Horizontal	<2.5 meters (50%), <5 meters (90%)
	Altitude	<5 meters (50%), <8 meters (90%)
	Horizontal (with SBAS)	<2 meters (50%), <4 meters (90%)
	Altitude (with SBAS)	<3 meters (50%), <5 meters (90%)
	Speed	0,06 m/sec (nominal)*
	Time (pps)	±60 ns RMS
	pps drift (no fix available**)	100µs/hour @ ambient temperature
	ZDA frame delay / pps	0 to +30µs
Initial acquisition time	Cold (Time to First Fix)	< 38 seconds (90%)*
	Warm start	< 35 seconds (90%)*
	Hot start	< 3 seconds (90%)*
Interfaces	5V/3.3V Active antenna	SMB FAKRA (SMA or MCX on request)
	Remote RS232/RS422	SUB-D9, 38400/8/No/1 (factory setting, user configurable)
	Protocols	In /Out : NMEA 0183v3.0 , TSIP , TAIP
Power supply	Input Voltage	12 / 24 VDC for automotive (A option) 9 to 50 VDC for industrial (J option)
	Power consumption	Run : < 70mA @12V Standby : < 0.1µA
Environmental	Operating Temperature	-40 / +85°C
	Storage Temperature	-55 / +105°C
	Humidity	90% non-condensing
	Dimensions (mm)	112 x 91 x 26
	Weight	240g

* Aerial field cleared

** When back to fix OK, **pps signal jumps to initial accuracy immediately**

MECHANICAL DRAWINGS



SUB-D9 Status LEDs Fakra connector

Figure 1 : Front view



Main Power connector

Figure 2 : Rear view

ORDERING PART NUMBER

HEOL-N102-232-Px-ST5

Serial interface:

- 232 : RS232 (default)
- 422 : RS422

Optional PPS (leave blank if not required) :

- P0 : RS232
- P1 : 5V TTL
- P2 : RS422