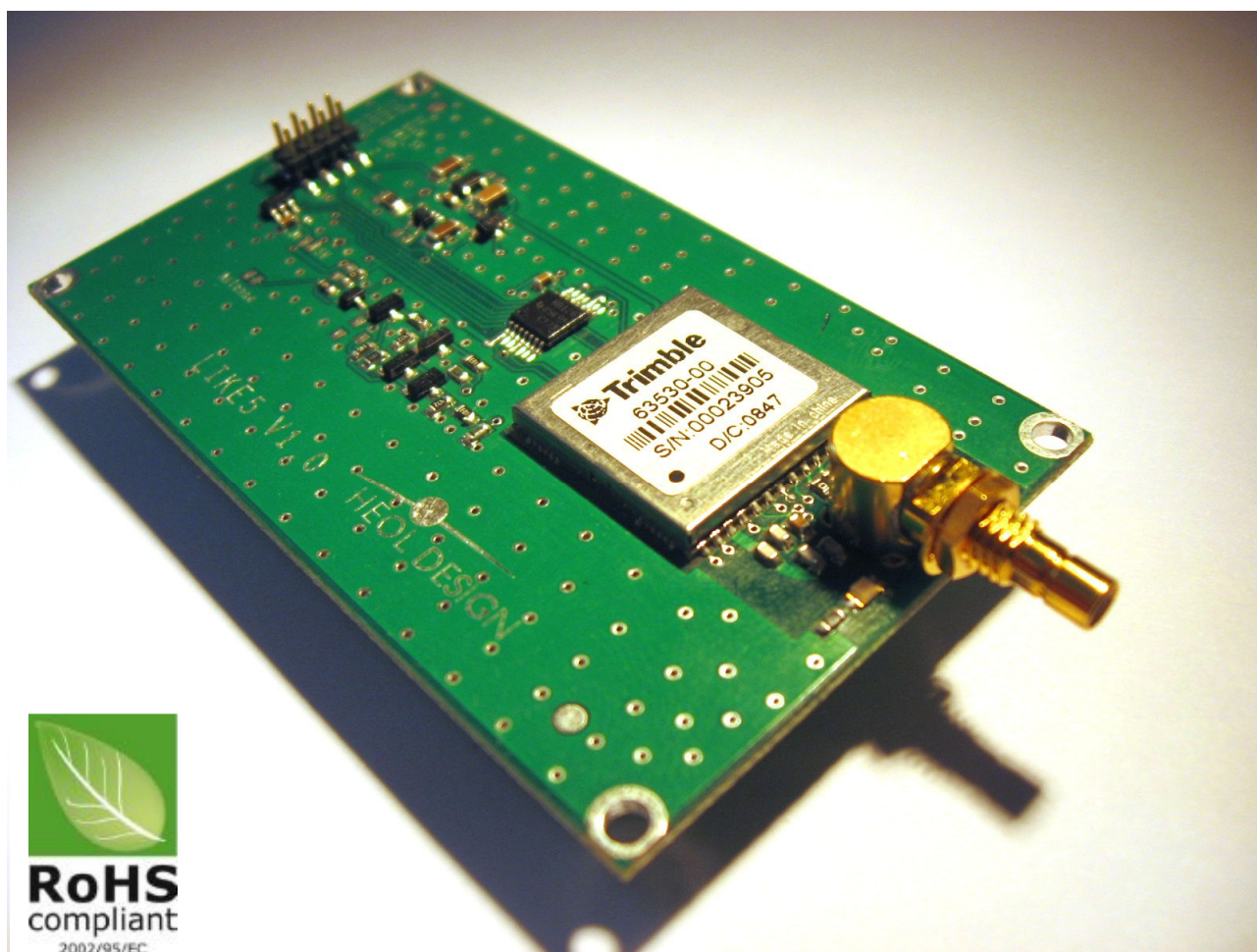




N014 v2,

Trimble ACE II / III improved replacement GPS receiver



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.

BEST PERFORMANCE

HEOL DESIGN has produced a new GPS receiver board, the N014, which is based on the Trimble Copernicus high performance GPS chip set. This OEM board is designed for use in embedded and industrial applications requiring high accuracy positioning and timing information. It can also be used as a replacement and upgrade for users of the Trimble ACE II and ACE III receiver boards, which are obsolete now.

The HEOL-N015 board has the same specifications as HEOL-N014, with an additional feature: thanks to a switch, you can select the active antenna voltage; so you can migrate from an obsolete receiver technology to a performing one, without the need to change the antenna.

The N014 and N015 boards are RoHS (lead free) compliant.

ADVANTAGES:

- Ultra-high sensitivity of **-160dBm**, enabling high performance acquisition and tracking in urban canyon and signal obscured environments
- Cold Start Time to First Fix (TTFF) is quicker than **39s**.
- Low power consumption: **45mA** @ 5V, with Power-Good LED.
- The 2 ports that can be configured to suit the customer's requirements such as: input and output protocols (TSIP, NMEA, TAIP) and transmission speed.
- Configuration parameters backed-up to an EEPROM.
- Pin to pin compatible with Trimble ACE II and ACE III GPS receivers; same form factor, for ease of integration.
- Active antenna is **voltage selectable** : 3.3V, 5V, or passive antenna
- **Protection** against open and/or short circuit on the antenna (60mA), and alarms reported through serial port.
- **50V** overvoltage protection on Antenna input.
- Accurate pps (pulse per second signal), better than **±60 ns**.
- Optional: **Back-up** capacitor with an autonomy of 35 hours for hot start-up after a power cut.

SUMMARY OF THE CHARACTERISTICS:

Performances:

Receiver	12 channels, -160dBm
Update speed	TSIP \Rightarrow 1Hz ; NMEA \Rightarrow 1Hz*
Accuracy	Horizontal <2 meters (50%), <4 meters (80%)
	Altitude <3 meters (50%), <5 meters (80%)
	Speed 0,06 m/sec (nominal)*
	Time (pps) \pm 60 ns
Initial acquisition time	Cold (Time to First Fix) < 38 seconds (90%)*
	Warm start < 35 seconds (90%)*
	Hot start < 3 seconds (90%)*
Reacquisition signal after signal lost	< 2 seconds (typical)*
Altitude	< 18 000 m
Speed	< 515 m/sec maximum
Acceleration	4 g (39,2m/sec ²)
Operating Temperature	-40/+85 °C
Storage Temperature	-55/+105°C

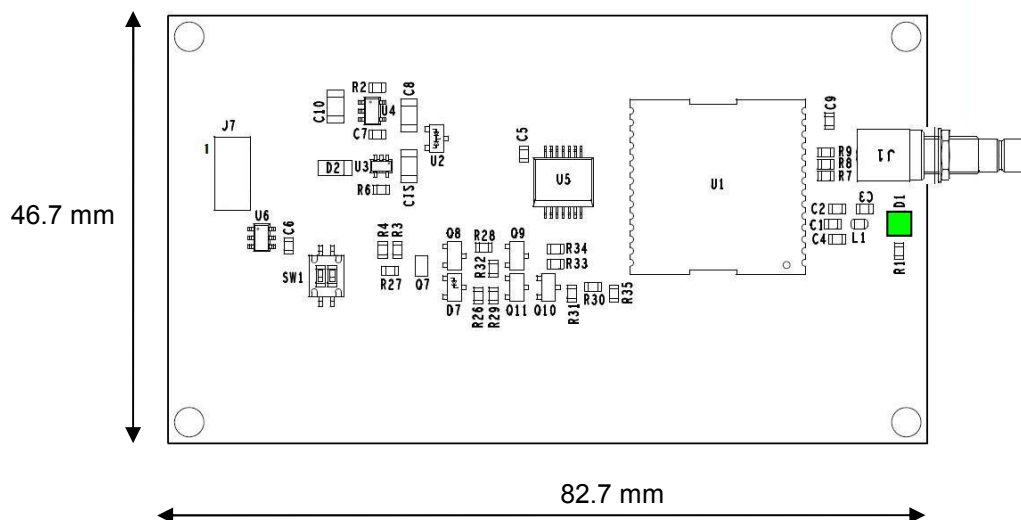
* Aerial field cleared

Electrical characteristics

Prime power	5V option	4.5 to 5.5 VDC
	Power consumption	45mA
Backup power	5V option	3.2 to 5.5 VDC
	Power consumption	10 μ A typical (1)
Antenna voltage		5V, 3V3, or passive

- (1) With N014 V1 (obsolete board) : at beginning of standby, and each 18 hours, the current drawn on Backup pin will be 30mA during 40ms.

Physical characteristics:



EMC compatibility

The HEOL-N014 board has successfully completed compliance testing against the following standards listed below: (In accordance with the **CE** directive).

- EN55022 class B (conducted and radiated emissions) dated January 1999, with 10dB margin.
- EN61000-4-3 published in 2002: "Immunity tests on electromagnetic fields radiated at radio-electrical frequencies", with 10V/m electromagnetic field.
- EN61000-4-6 published in February 1997: "Immunity tests on conducted interference, induced by radio-electrical fields".
- EN61000-4-4 (Immunity to rapid transients) dated June 1995, with 2kV transients.
- EN61000-4-2 (Immunity to electrostatic discharges) dated June 1995.

For Information:

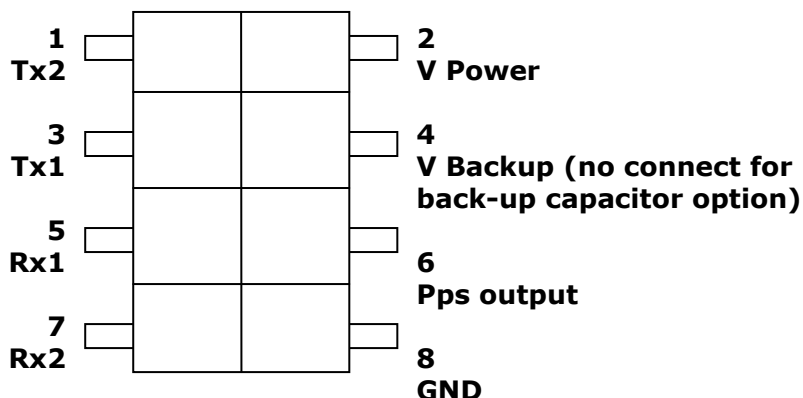
The EN61000-4-3 standard is identical to the CEI 1000-4-3 standard and replaces ENV50140.

The EN61000-4-3 standard (see note A) is mentioned in the EN50082-generic standard for electrical and electronic equipment designed for use in industrial environments.

The NF EN61000-4-6 standard is identical to the CEI 1000-4-6 standard and replaces ENV50141. The EN61000-4-6 standard (see note B) is mentioned in the EN50082-2 generic standard for electrical and electronic equipment designed for use in industrial environments.

Connectors description

8 pin 2mm male header:



HEOL DESIGN can provide mother board in metal housing (with protected RS232/RS422 interface and power supply) for your applications upon request.

Antenna: Right angle SMB connector (factory configuration). Optional Fakra (automotive compliant), SMA and MCX connector is available upon request.

Factory settings of the serial ports

The two communication ports (5V TTL level) are set as standard as follows:

Port 1:

- Input: TSIP protocol, 38400 Baud, 8 bits, no parity, 1 stop bit.
- Output: TSIP protocol, 38400 Baud, 8 bits, no parity, 1 stop bit.

Port 2:

- Input: NMEA protocol, 4800 Baud, 8 bits, no parity, 1 stop bit.
- Output: NMEA protocol, 4800 Baud, 8 bits, no parity, 1 stop bit.

Ordering part number

The factory standard part number is HEOL-N014-V2-B. However, customer can request several options, as described hereafter

HEOL-N014-V2-B C

Antenna connector:

- B : SMB (default)
- A : SMA
- X : MCX
- F : Fakra SMB

Optional BackUp
Battery Capacitor
(leave blank if not required)