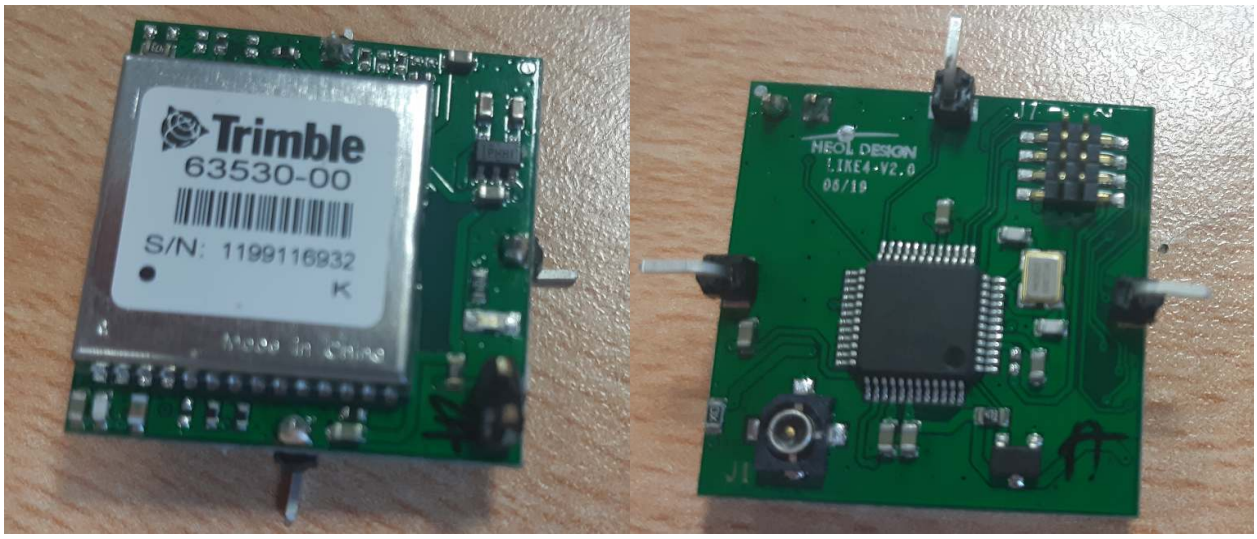
N016-V2,

Lassen iQ / SQ Improved replacement GPS receiver, with parity ODD and WNRO management.



RoHS compliant 2002/95/EC

IMPROVED PERFORMANCE:

HEOL DESIGN has produced a new GPS receiver board, the N016-V2, 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 Lassen iQ receiver board (Part Number 46240-00).

This GPS board receiver embeds an additional processor, to manage parity, WNRO, and other firmware features if necessary.

ADVANTAGES:

- Ultra-high sensitivity of **-160dBm**, enabling high performance acquisition and tracking in urban canyon and signal obscured environments.
- SBAS support (WAAS, EGNOS), for improved Horizontal and Altitude accuracy.
- Cold Start Time to First Fix (TTFF) is quicker than **38s**, hot start **3s**.
- Low power consumption: **50mA** @ 3.3V.
- 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, as well as **parity ODD.**
- **Management of futures WNRO.**
- Configuration parameters backed-up to an EEPROM.
- Firmware customizable.
- Pin to pin compatible with Trimble Lassen iQ and SQ GPS receivers; same form factor, for ease of integration.
- **Protection** against short circuit and overvoltage on the antenna.
- Accurate pps (pulse per second signal), better than **±60 ns**.

SUMMARY OF THE CHARACTERISTICS:

Performances:

Receiver		12 channels, -160dBm
Update speed		TSIP ⇒ 1Hz ; NMEA ⇒ 1Hz
Accuracy	Horizontal (w SBAS)	<2 meters (50%), <4 meters (90%)
	Altitude (w SBAS)	<3 meters (50%), <5 meters (90%)
	Speed	0,06 m/sec (nominal)*
	Time (pps)	±60 ns
Initial acquisition time	Cold (Time to First Fix)	< 39 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□)
Operating Temperature		-40/+85 °C
Storage Temperature		-55/+105°C

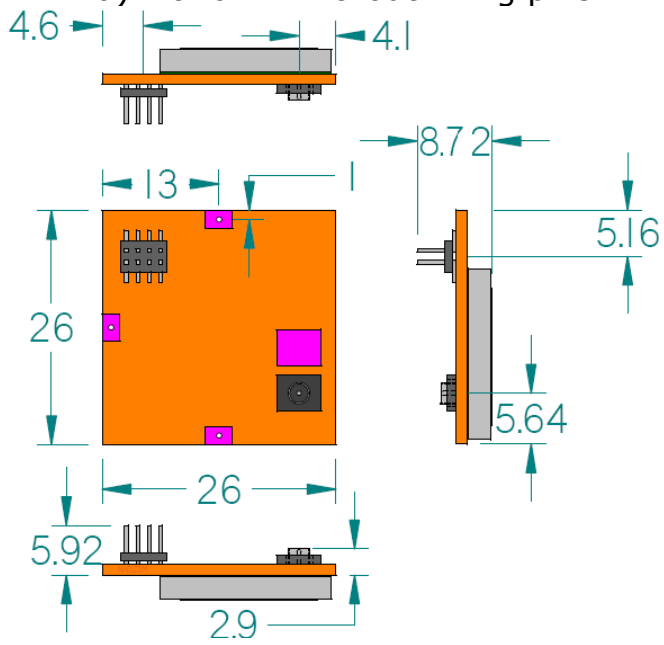
* Aerial field cleared

Electrical characteristics

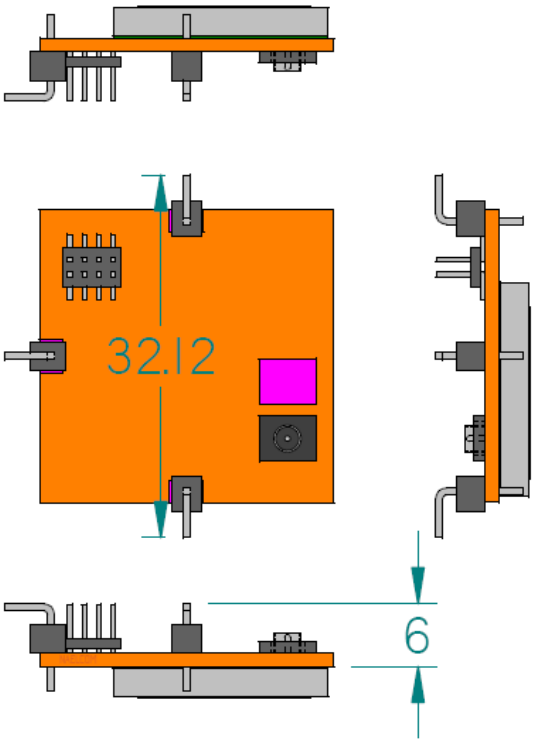
Prime power	Voltage	3.2 to 3.6 VDC
	Power consumption	50mA without active antenna
Backup power	Voltage	3.2 to 3.6 VDC
	Power consumption	10µA
Antenna voltage		3 to 3.3 VDC

Physical characteristics:

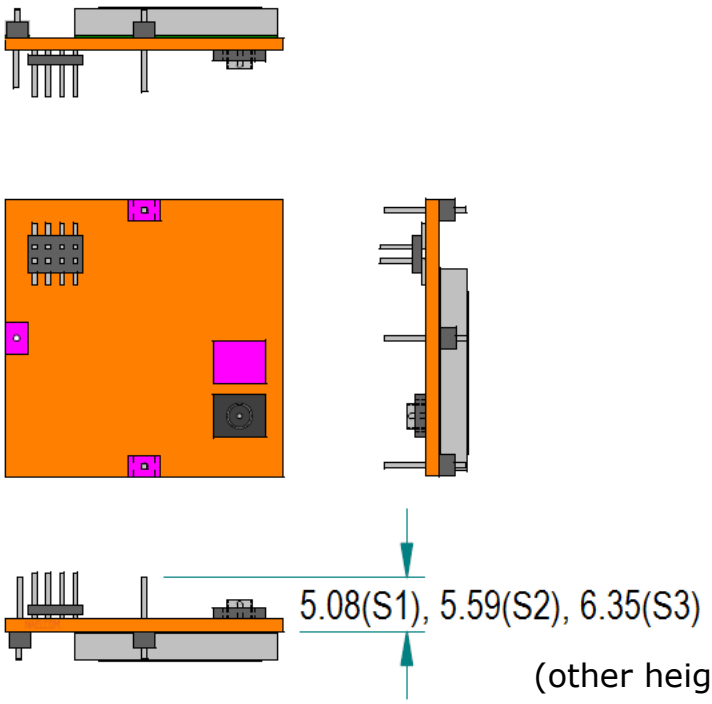
a) N016-V2 without fixing pins:



b) 3 fixing pins allow you to solder firmly the N106 board on your mother board. These pins can be right angle (surface mount) :



c) …or straight:



(other heigths available on request)

EMC compatibility

The HEOL-N016-V2 board has successfully completed compliance testing against the following standards listed below: (In accordance with the CE directive).

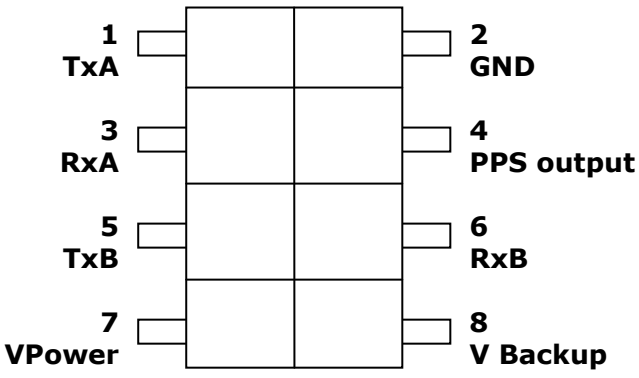
- EN55022 class B (conducted and radiated emissions) dated January 1999, with 10dB margin.
- EN61000-4-3 published in 2002: "Immunity tests on electromagnetic fields radiated at radio-electrical frequencies", with 10V/m electromagnetic field.
- EN61000-4-6 published in February 1997: "Immunity tests 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 1.27 mm male header:



Antenna: Hirose HFL.

Factory settings of the serial ports

The two communication ports (3.3V level) are set as standard as follows:

Port A:

- Input: TSIP protocol, 9600 Baud, 8 bits, parity ODD, 1 stop bit.
- Output: TSIP protocol, 9600 Baud, 8 bits, parity ODD, 1 stop bit.

Port B:

- 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 N016-V2-R. However, customer can request several options, as described hereafter

N016-V2-R

Fixing pins:

- S1 : 5.08mm Straight
- S2 : 5.59mm Straight
- S3 : 6.35mm Straight
- R : Right angle
- blank : no fixing pin

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.