



NAELCOM

2 Rue Jean Mermoz B.P.120
93297 Tremblay en France Cedex
FRANCE

Tel : +33 1 48 61 95 28

Fax : +33 1 48 61 94 03

e-mail : contact@naelcom.com

Web : www.naelcom.com

NLC103-232
Ruggedized,
GPS/GPRS Intelligent
Tracking and
Navigation module





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

NLC103-232 : RELIABILITY and ADVANCED FUNCTIONS

The automotive grade NLC103-232 module has been designed to provide accurate and reliable navigation information through a RS232 link.

Based on the Copernicus high performance GPS chip, it delivers accurate position information, even in poor signal level environments (tree foliage, urban canyons).

The latest Enfora GPRS technology has been integrated in this module. It allows you to track vehicles or beacons (data reported: position, speed, internal temperature, 3D accelerometer data). The NLC103-232 is an ultra-low power embedded tracking and reporting system.

Upon request, other advanced features could be integrated in the NLC103-232 to interface with your system without the need to develop your own functions.

MAIN FEATURES:

Performance :

- Very-high sensitivity of **-160dBm**, enabling high performance in low level signals environments.
- Time to get first fix information is around **38s** (cold start).
- **Quad Band GPRS** modem, configurable in UDP or TCP mode. E-mails and SMS can also be sent to report status of the module.
- A configurable **RS232 or RS422** serial port can be accessed for monitoring and control : NMEA and Trimble TSIP & TAIP protocol.
- Accurate PPS (pulse per second) signal (**±60ns**) available on SUB-D9 front panel. RS232, RS422 or TTL level.
- Active antenna is **voltage selectable** : 3.3V or 5V (patented).
- **Back-up** capacitor with an autonomy of 30 days for hot start-up after a power cut.

Advanced features :

- **3D accelerometer** for detection of motion, shocks, vibration.
- Fully programmable standby mode with less than 0.1µA power consumption (patented). Wake up by internal RTC or external event.
- Data logging: position, speed, time, internal temperature and accelerometer data backed-up to a 2Mega EPROM: up to 15 000 positions.
- Programmable status LED on front panel.
- Logic and analog input/output for your specific applications.
- Customizable firmware to fit your requirements.
- Firmware upgraded directly via RS232 link.

Protection :

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

Compliance :

- Connectors are compliant with **automotive standards**.
- According to **CE** directive, the NLC103-232 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 NLC103-232 module is RoHS (lead free) compliant.

SPECIFICATIONS :

GPS Receiver	Type	12 channels
	Sensitivity	Tracking -160dBm
Accuracy	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)	±60ns RMS
Initial acquisition time	Cold (Time to First Fix)	<38 seconds (90%)*
	Warm start	<35 seconds (90%)*
	Hot start	<3 seconds (90%)*
GPRS Modem	Radio Frequency	850 / 900 / 1800 / 1900
	Transmit Power	Class 4: 2W, Class1: 1W
	Functions	GPRS clas 10, MS, E-mail
Interfaces	Antennas	GPS: SMB FAKRA, GPRS: SMA
	Remote RS232/RS422	SUB-D9, 38400 Baud (user configurable)
	Protocols	In/Out: NMEA 0183v3.0, TSIP, TAIP, AT commands, proprietary
Power supply	Input Voltage	12/24 VDC, automotive (A option) 9 to 50 VDC for industrial (J option)
	Power consumption	Run : 40mA max @ 12V (average) Standby : <0.1µA
Environmental	Operating Temperature	-40°C to +85°C
	Storage Temperature	-55 / +105°C
	Humidity	90% non-condensing
	Dimensions (mm)	112 x 91 x 26
	Weight	270 Grams
* Aerial field cleared		

CONNECTIONS:

Figure 1 : Front view

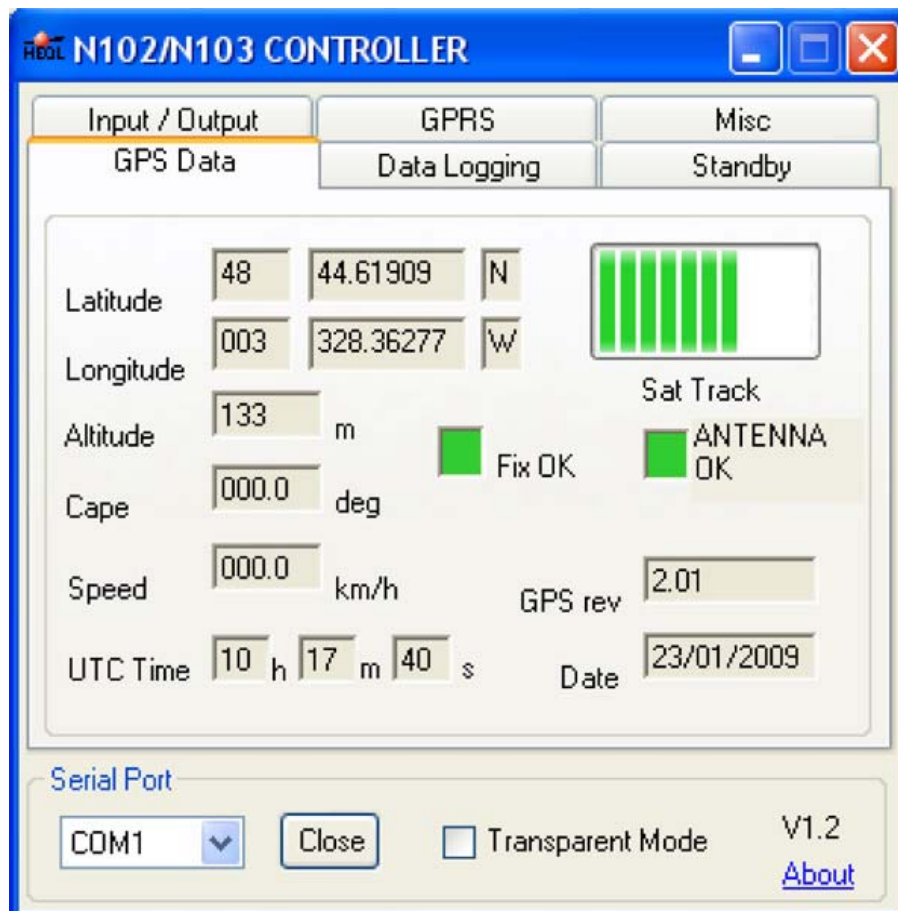


Figure 2 : Rear view

Controller software

The N102/N103 controller software allows you to configurable all the advanced functions of the GPS/GPRS module, and monitor its status.

This screenshot gives you an overview of the functions developed on this system:



ORDERING PART NUMBER

The factory standard part number is :

NLC103-**XXX**

Serial interface:

- **232** : RS-232 (default)
- **422** : RS-422

