

nanoLOC Development Kit 3.0

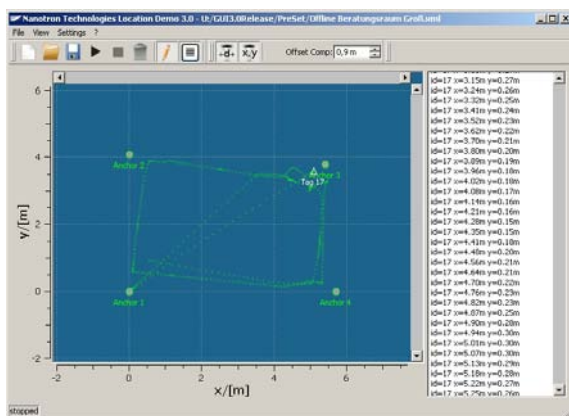
The Fast and Convenient Way To Develop Distance and Location-Aware Wireless Applications

Complete Kit for Application Development

The *nanoLOC Development Kit 3.0* is a complete, easy to use set of tools for evaluating, prototyping and developing applications based on the *nanoLOC TRX Transceiver*.

nanoLOC is a highly integrated mixed signal chip utilizing Nanotron's unique Chirp Spread Spectrum (CSS) technology. It provides built-in ranging in the globally available 2.4 GHz ISM band.

The kit is pre-set to run a LOCATION DEMO that performs location tracking using the five full-featured boards. The LOCATION DEMO is user-configurable providing free anchor positioning, tag tracing, and data logging with playback option. The LOCATION DEMO's client / server technology allows up to sixteen tags using up to sixteen anchor nodes to be remotely monitored.



nanoLOC Location Demo

Additional demos such as RANGING, TALK, THROUGHPUT, and REMOTE LIGHT SWITCH are included to show *nanoLOC*'s robust communication and ranging capabilities. Embedded applications are provided as sample code to support building Real-Time-Location Solutions (RTLS).

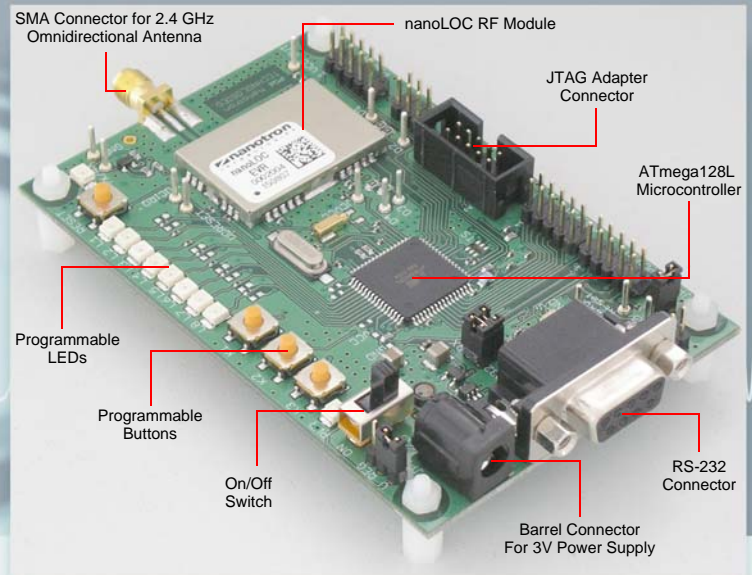
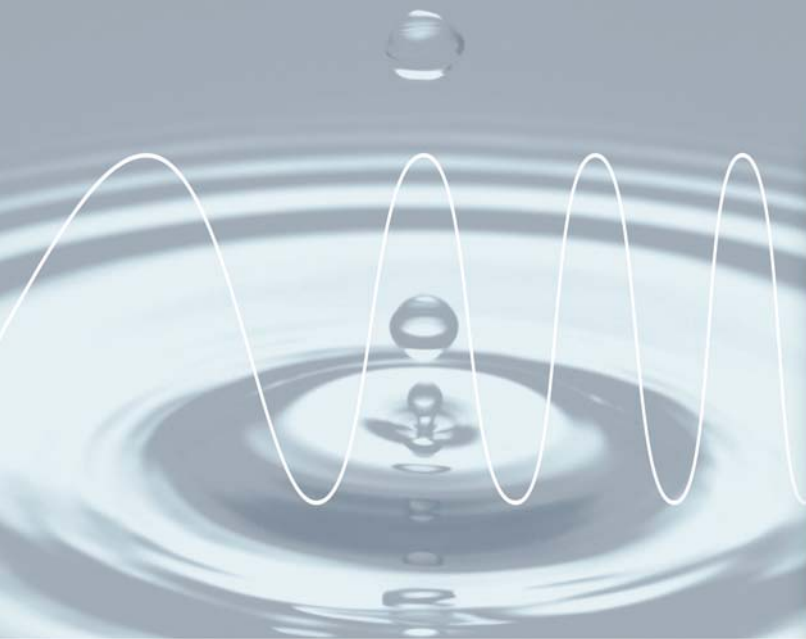
For rapid application development, debugging and flashing tools and a SNIFFER application are also provided.

Key Features – nanoLOC TRX

- Modulation technique Chirp Spread Spectrum
- Operates worldwide 2.4 GHz ISM band
- Ranging accuracy 2 m indoors / 1 m outdoors
- Supply voltage 2.3 V to 2.7 V
- Output power (programmable) -33 dBm to 0 dBm
- Data rates (programmable) 250 kbps to 1 Mbps
- Receiver sensitivity (FEC on) up to -97 dBm
- Current consumption TX 30 mA @ 0 dBm
- Current consumption RX starts at 33 mA

Key Features – nanoLOC Development Kit

- Full-featured demo applications with source code for the embedded applications
- *nanoLOC nTRX Driver* for interfacing to the *nanoLOC TRX Transceiver*
- ATmega 128L controller platform and JTAG interface for debugging and flashing
- Each board configurable as either a fixed or a mobile node in a nanoLOC network



Development Kit Contents

- **nanoLOC DK Boards** – Integrates on one board the nanoLOC RF Module, an ATmega128L microcontroller (which has been pre-flashed with the LOCATION DEMO binary file), a light sensor, a JTAG adapter, a set of programmable key buttons and LEDs, and a range of connectors and interfaces.
- **nanoLOC USB Reader** – Used by the LOCATION DEMO for connectivity between the nanoLOC tags, anchor nodes and the LOCATION SERVER.
- **nanoLOC Driver** – For sending MAC layer messages to the chip over the SPI interface. It facilitates nanoLOC settings such as address matching, error checking, modulation, data transmission rates, and also ranging calculation functions.
- **LOCATION DEMO** – GUI and embedded software for locating up to 16 tags using up to 16 anchor nodes.
- **RANGING DEMO** – GUI and embedded software for performing ranging between two nodes.
- **TALK DEMO** – GUI and embedded software to demonstrate point-to-point wireless communication.
- **THROUGHPUT DEMO** – GUI and embedded software to demonstrate data throughput on the nanoLOC wireless link.
- **SNIFFER DEMO** – GUI and embedded software for easy debugging of the air interface.
- **Additional Applications** – Embedded software for a simple PING application and a REMOTE LIGHT SWITCH (sensor/actor type) application.
- **Flashing and Debugging Tools** – Atmel AVR STK 500 Development System for Windows® and the JTAG Programming Adapter.
- **Additional Hardware** – USB and RS-232 cables, power supply units, and 2.4 GHz antennas.
- **Documentation** – Nanotron and third-party datasheets, user guides, and manuals.

Ranging and Communication Examples

Use this kit for developing RTLS and location-aware WSN solutions. The RANGING DEMO, which is included as sample code, provides a jump-start for quickly developing custom peer-to-peer ranging applications.

To demonstrate the implementation of robust and reliable wireless data communication, easy to follow communication examples such as the TALK and REMOTE LIGHT SWITCH demos are provided in source code.



nanoLOC Ranging Demo

Ordering Information

Number	Description
KN100L	nanoLOC Development Kit 3.0
KNRKII	nanoLOC Ranging Kit II
MN5375V1	nanoPAN 5375 RF Module
KN5375P2	nanoPAN 5375 Primer2 DK

For our complete product line and to locate an authorized distributor in your area, visit www.nanotron.com.

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