nanoPAN 5375 Development Kit

High Output Power Development Kit for Creating Robust Distance and Location-Aware Wireless Applications

Faster Time to Market

The nanoPAN 5375 Development Kit is a fast and convenient way to develop and test distance and location-aware wireless applications. Without additional effort, these applications can then be immediately integrated into products using the nanoPAN 5375 RF Module.

Long range is assured due to the development board's high output power of +20 dBm. Power supply and data transfer share a single USB interface. Optional Li-Ion rechargeable batteries are available. The board's small form factor allows for an optional housing, while a movement sensor can further increase battery lifetime.

The kit features a Location Demo with client/server technology that precisely tracks and displays up to sixteen tag locations. These tags can be remotely monitored by up to sixteen anchors. This demo application is configurable to allow free anchor positioning, tag tracing, and data logging with a playback function.
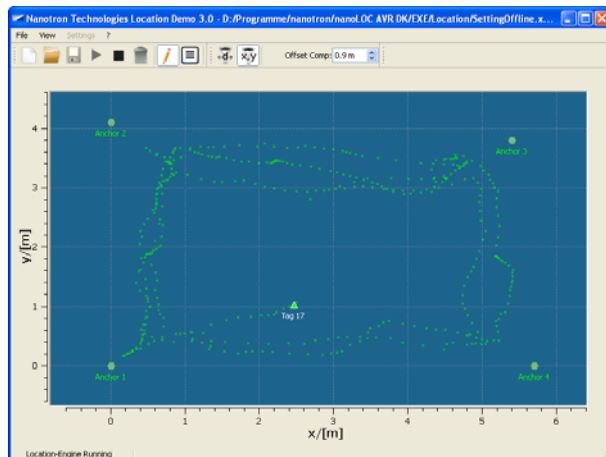
Four demo applications are also included with the kit that show the robust communication and ranging capabilities of the nanoPAN 5375 RF Module. Additionally, debugging and flashing tools as well as several testing applications are provided for rapid application development.

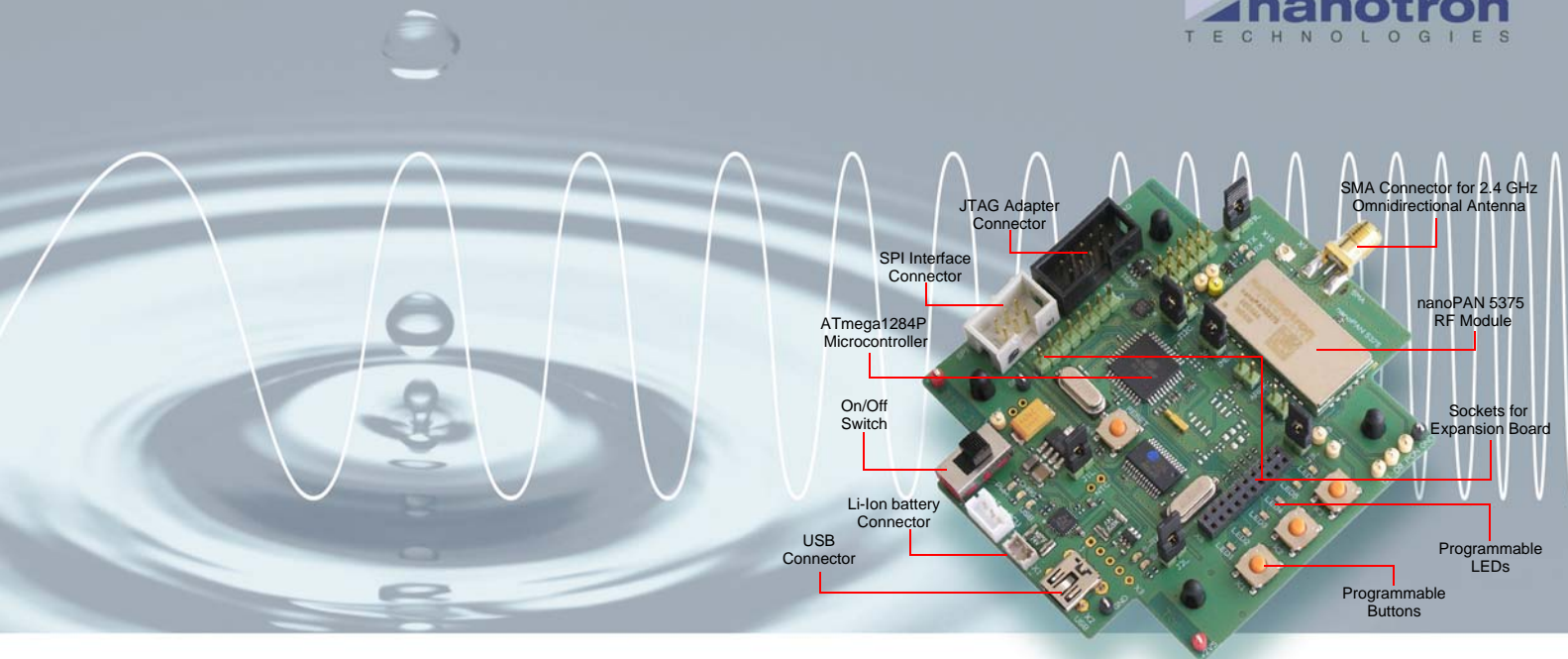### Key Features – nanoPAN 5375 Development Kit

- Seven full-featured demo applications including source code for the embedded software parts of the demos
- nanoLOC nTRX Driver providing an API for interfacing to the nanoPAN 5375 RF Module on the boards
- ATmega 1284P microcontroller platform and a JTAG interface for debugging and flashing applications

Key Features – Kit Development Boards

- RF Module .... nanoPAN 5375 RF Module
- Modulation technique .... Chirp Spread Spectrum
- Operates worldwide ....2.4 GHz ISM band
- Ranging accuracy .... 2 m indoors / 1 m outdoors
- Supply voltage.. 5 V USB
- Output power (programmable) .... -15 dBm to +20 dBm
- Data rates (programmable) ....250 kbps to 1 Mbps
- Receiver sensitivity (FEC on)................up to -97 dBm
- Current consumption (max)............................500 mA

nanoLOC Location Demo

Chirp it.

Labels on board image:
- JTAG Adapter Connector
- SPI Interface Connector
- ATmega1284P Microcontroller
- On/Off Switch
- Li-Ion battery Connector
- USB Connector
- SMA Connector for 2.4 GHz Omnidirectional Antenna
- nanoPAN 5375 RF Module
- Sockets for Expansion Board
- Programmable LEDs
- Programmable Buttons

Development Kit Contents

■ nanoPAN DK Boards – Integrates nanoPAN 5375 RF Module, ATmega1284P microcontroller (pre-flashed with Location Demo), charging circuitry, temperature sensor, JTAG adapter, USB connectors, expansion socket, and programmable key buttons and LEDs.

■ nanoLOC Driver – Sends MAC layer messages to the IC over the SPI interface. IC settings include address matching, error checking, modulation, data transmission rates, and 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 for demonstrating point-to-point wireless communication.

■ Throughput Demo – GUI and embedded software for demonstrating 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 Tool – Atmel JTAG ICE mk-II Development Tool for Windows®.

■ Power Supply – Via either a set of USB cables or a set of international USB Power Supply devices.

■ Antennas – 2.4 GHz omnidirectional antennas.

■ Documentation – Nanotron and third-party datasheets, user guides, and manuals.

■ Optional Equipment – Standard housing for the development boards and Li-Ion rechargable batteries.

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.

nanoLOC Ranging Demo

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.

Ordering Information

Number	Description
KN200L	nanoPAN 5375 Development Kit
HPOD43N	nanoPAN 5375 Anchor Housing
AVLIN	Li-Ion Batteries
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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Chirp it.