

nanoANQ EM RTLS Anchor Module

High throughput location and monitoring solutions

Flexible Monitoring and Location Solutions

The *nanoANQ Embedded RTLS Anchor Module* can be integrated into any communication substation by interfacing directly with an Ethernet MAC or PHY via RMII. It precisely detects the time of arrival (ToA) and received signal strength (RSSI) of tag blinks required for TDOA location applications. The module can range with other embedded anchor modules to automatically determine anchor separation distances – a key capability to enable automatic system set-up and maintenance.

Together with swarm bee LE based tags and nanotron's Location Server nanoLES, the nanoANQ EM anchor module forms the basis for high throughput tracking and monitoring applications in harsh environments.

The credit card size design supports any 2.4 GHz antenna through its U.FL connectors. There is one connector for each of the two independent radio channels.

Through its Ethernet port in RMII mode the module utilizes IP-based data and management protocols and features a built-in DHCP client. Thus, it can be configured remotely through its API over the network.

Bidirectional payload exchange between the Location Server and individual tags is supported over the air.

In compliance with CE and other regulations the RF output power is adjustable between 0 and +19 dBm.

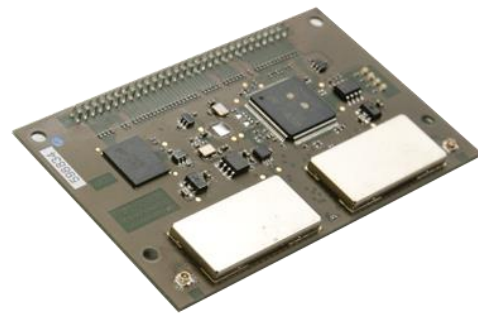


Figure 1 nanoANQ Embedded RTLS Anchor Module

Key Features

RF technology	Chirp Spread Spectrum (CSS)
Signal detection rate	up to 900 per second
Typical location accuracy	1-3 m
Typical range in mining tunnel	100 - 300m*
RF output power	Configurable 0 to +19 dBm
Typical RX sensitivity (80MHz, 1Mbps) ..	-89 dBm
Power supply.....	3.3 V +/- 10%, 0.3 A
Antenna connector	2x U.FL
Operating temperature range.....	-30 to 65 °C
Data interface	RMII
Dimensions	85.6 x 54.0 mm

* Depends on topology and antenna

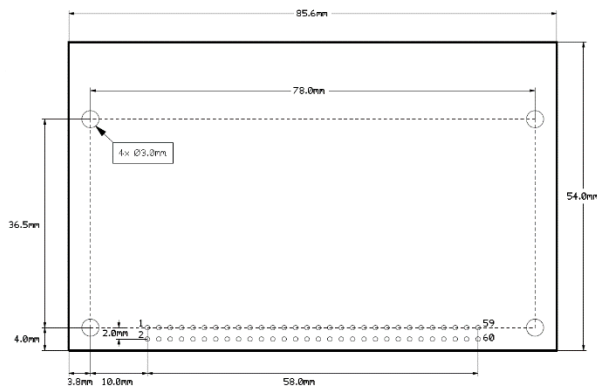


Figure 2 Physical dimensions of the anchor module

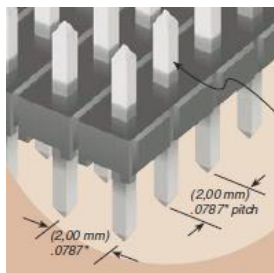
Interfaces

Except for the antennas all other signals are connected through a 60 pin connector.

Signal	Description
Antenna	UF.L connector for external antennas
+3V3	Supply Voltage
GND	Ground
Transmit	Active if transmitting
Ethernet	RMI Bus
Out	Output for status indicator
Reset	Reset for module and Ethernet PHY
USB	USB maintenance port

Connector

Figure 3 60 pin connector with 2 mm pitch and 3.2 mm



pin length

The module allows for low profile designs. Components on the top side require 3 mm in height. PCB thickness and connector body occupy 1 mm and 1.5 mm respectively. The RF circuit is EMI-protected by metal caps.

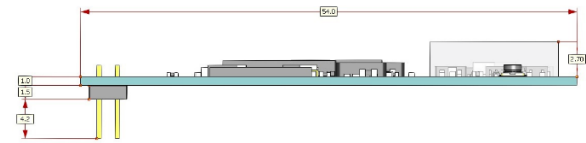


Figure 4 Physical dimensions of the low profile module

Ordering Information

Order No.	Description
MNACORUFL	nanoANQ EM (PCB) with U.FI. Connector
BN01SWBEP	swarm bee ER DK + Board incl. antenna

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About nanotron, An Inpixon Company

nanotron Technologies GmbH, an Inpixon company (Nasdaq: INPX) is a leading provider of electronic location awareness solutions. If knowing what, where and when is mission-critical to your business, rely on nanotron with Location Running.

nanotron's solutions deliver precise position data augmented by context information in real-time. Location Running means, reliably offering improved safety and increased productivity, 24 hours a day, 7 days per week: Location-Awareness for the Internet of Things (IoT).

Subject to change without notice.