

nanoANQ EM RTLS Anchor Module

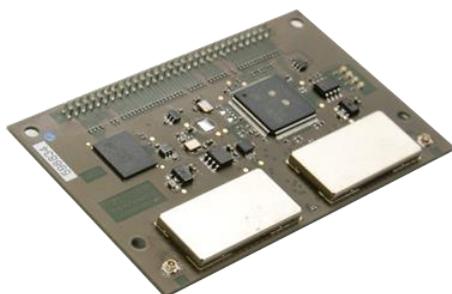
High throughput location and monitoring solutions

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 is able to 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, 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.



nanoANQ Embedded RTLS Anchor Module

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.

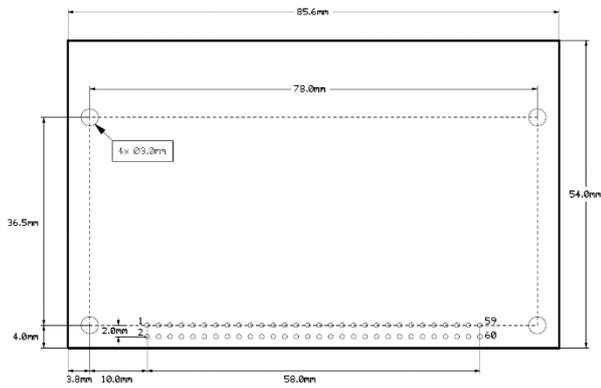
Bidirectional payload exchange between the Location Server and individual tags is supported over the air.

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

Key Features

RF technology.....	Chirp Spread Spectrum (CSS)
Signal detection rate.....	up to 900 per second
ToA capture accuracy.....	< 1 ns (better than 30 cm)
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



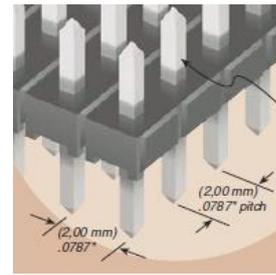
Physical dimensions of the anchor module.

Interfaces

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

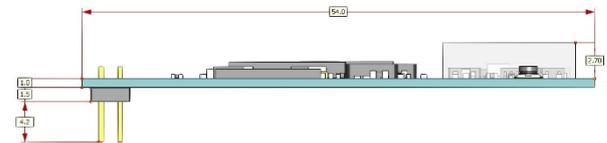
Signal	Description
Antenna	UF.L connector for external antennas
+3V3	Supply Voltage
GND	Ground
Transmit	Active if transmitting
Ethernet	RMI I Bus
Out	Output for status indicator
Reset	Reset for module and Ethernet PHY
USB	USB maintenance port

Connector



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.



Physical dimensions of the low profile module.

Ordering Information

The Embedded Anchor Module is available with data buffer of 1G, 2G or 4G.

Number	Description
KNACORUFL	RTLS Integration Kit EM, 8 x KNACORUFL incl. nanoLES 3 license
BN02SWBPTP5	Tag Pack: 5 swarm bee LE V2 DK+ Board
KNO1TB3	nanotron Toolbox 3
MNACORUFL	nanoANQ Embedded RTLS Anchor Module
MNAC-host	Host Board

Nanotron 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).

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