TREK1000 Overview

The IC Evaluation Kit for Two-Way-Ranging (TWR) RTLS (Real Time Location Systems) enables users to evaluate the performance of DecaWave's DW1000 Ultra-Wideband (UWB) IC in RTLS application use cases based on various topologies.

The superior location and tracking accuracy of the DW1000 can be compared to other wireless technologies.

Customers of the TREK1000 receive access to all software source code which can be used as a starting point for developing their own products.

+ Software Source Code

Target Applications

- ➢ Logistics, Asset-Tracking, Factory Automation
- ➢ Geo-Fencing, Safety & Security, Smart Homes
- ➢ Indoor Navigation, Robotics, Sports

TREK1000 Benefits & Advantages

- ➢ Quickly evaluate DecaWave's UWB technology, RTLS & multiple use cases with a single kit.
- ➢ X-Y location accuracy typically <20 cm
- ➢ Use the included TWR software to jump-start product development
- ➢ Leverage DW1000 IC's unique single-chip UWB features (low power, range, reliability, cost effective)
- ➢ Can be combined with an EVK1000
- ➢ Configurable to evaluate various RTLS use cases
- ➢ Dual Mode: low power or long range
- ➢ Supports channel 2 (4 GHz) or channel 5 (6.5 GHz)

DW1000 IC

- ➢ Single chip UWB wireless transceiver
- ➢ IEEE802.15.4-2011 UWB compliant
- ➢ Up to 6.8Mbits/s data rates
- ➢ Low power consumption
- ➢ Support high tag densities (short packet durations)
- ➢ Support long ranges (coherent receiver technologies)
- ➢ Reliable communications (immunity to multipath fading)
- ➢ Enables cost effective solutions (single-chip, 6mm x 6mm)
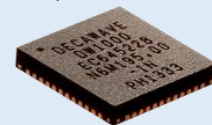
TREK1000 Product Description

The Two-Way-Ranging RTLS IC Evaluation Kit* consists of 4 units, configurable as anchors or tags, PC application software and source code for RTLS result display and board software source code.
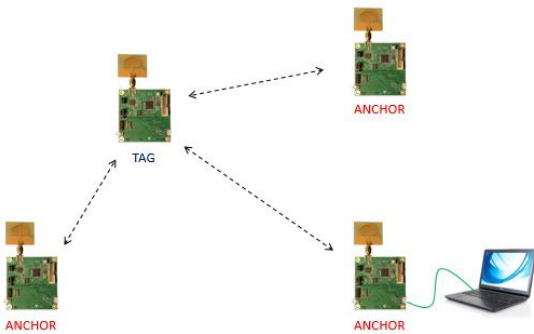
*Power supplies are not included.

Ordering Information

TREK1000 kits can be ordered from authorized distributors. See www.decawave.com for more information.

Application Use Cases

Tracking Systems

3 Anchors & 1 Tag (3D Trilateration)

Determine location of the tag relative to fixed anchors.

Example Applications:

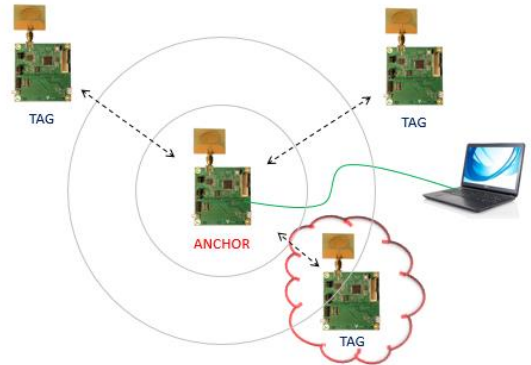Asset-Tracking (Healthcare, Farming, Logistics), Factory Automation

Geo-Fencing Systems

1 Anchor & 1, 2 or 3 Tags

Determine when tags enter or leave a specific perimeter/zone.

Example Applications:

Location-Based Payments, Personal Safety (Forklifts, Drilling Machines), Child-Monitoring, Secure-My-Valuables, Security

Indoor Navigation Systems

3 Anchors & 1 Mobile Tag (3D Trilateration)

Track the 2D or 3D location of the tag relative to fixed anchors.

Example Applications:

Robotics, Human Navigation
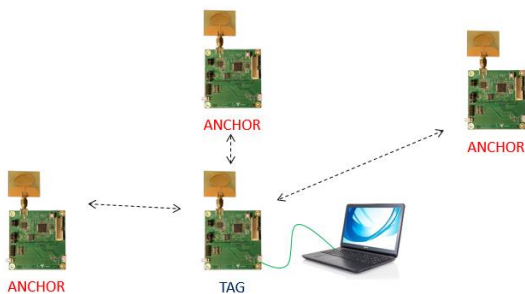
Expand the TREK1000 with an EVK1000

Customers of the EVK1000 can expand the system with a TREK1000 kit to support more anchors and tags. Please refer to the document "TREK1000 Expansion Options" for more information.