MK UWB Kit

Mobile Knowledge

**Secure UWB
for your IoT solution**

What the MK UWB Kit offers

A set of **hardware**, **software** tools and **documentation** to **prototype** your idea and **accelerate** the **time to market** of your new UWB – based solution.

Experience the **UWB technology** with ready-to-run demonstration apps, development boards and sw libraries to start developing your own UWB application with minimum effort.

What you'll find in the MK UWB Kit

MK
UWB
Kit
Secure UWB
for your IoT solution

(1)

(6)

(2)

(3)

(4)

(5)
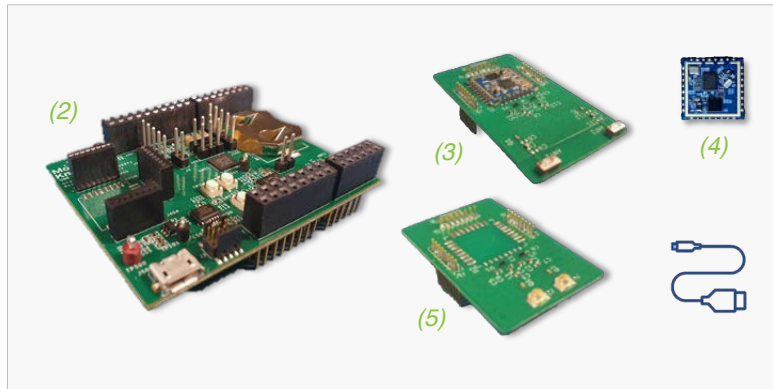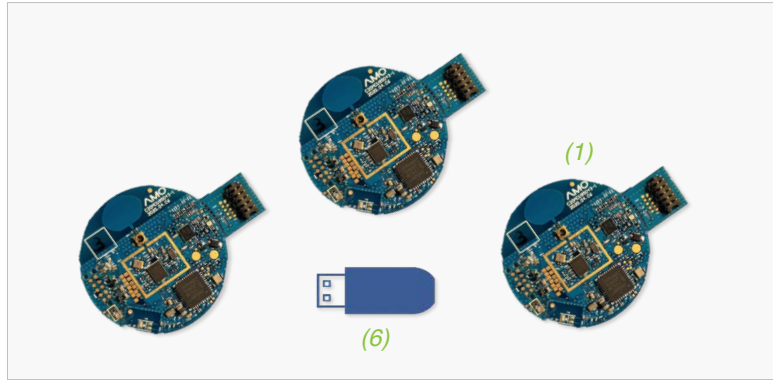
- **3x UWB Tag** boards (1)
- **1x UWB Shield** (2) equipped with an **antenna board** (3) where a **UWB module** is soldered
- **1x additional UWB Module** (4) integrating NXP's UWB chip
- **1x additional antenna board** (5) to enable use of custom UWB antennas
- **Cables and connectors:** USB to microUSB OTG adapter, microUSB to USB-C adapter, and USB cable
- **USB flash drive** (6) with software and documentation to help you develop your own solution:

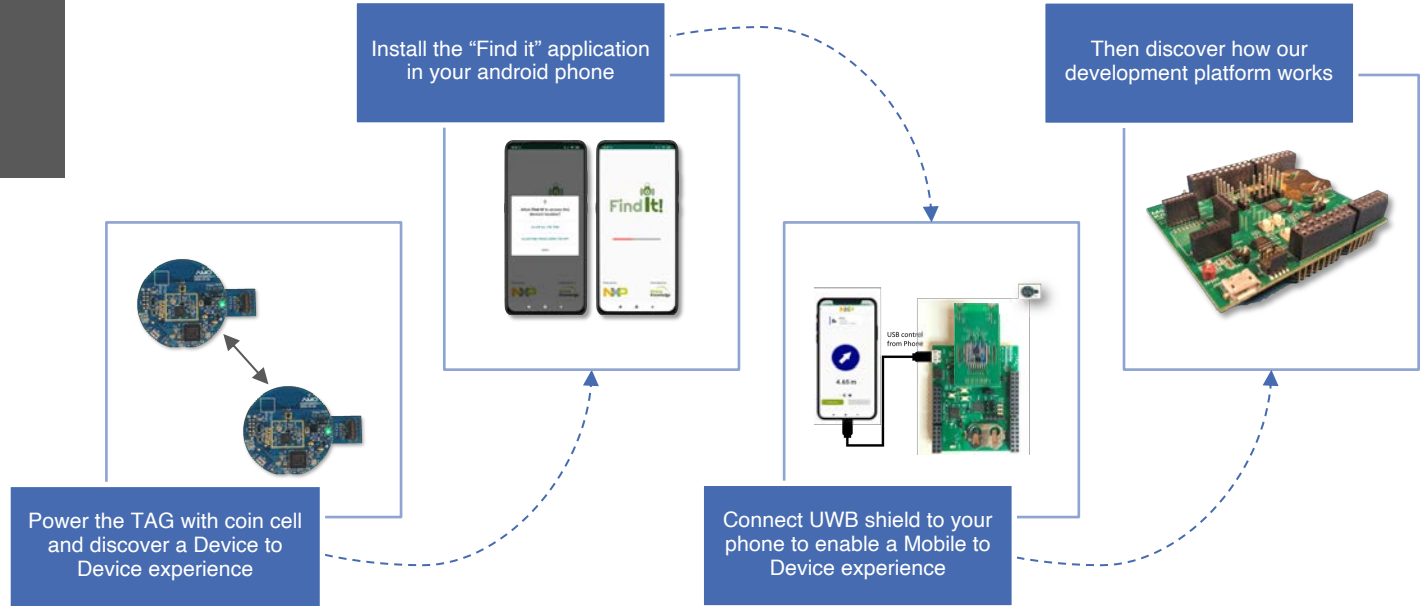| *Documentation*	*Software*
• *UWB Quick Start Guide* • *Datasheets* • *UWB Shield user Guide* • *Device SDK Guide* • *Mobile SDK Guide* • *Mobile App User Manual*	• *FindIt App* • *Mobile SDK* • *Device SDK*

Any additional support from MobileKnowledge in connection to the MK UWB Kit is not included in the price of the kit (ref. MK UWB Kit license agreement #6.2 and #6.3). Any required support shall be subject to a specific and separate agreement ref section "MK Services".

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MK UWB Kit
Out of the box experience

MK
UWB
Kit

Secure UWB
for your IoT solution

Install the "Find it" application in your android phone

Then discover how our development platform works

Power the TAG with coin cell and discover a Device to Device experience

Connect UWB shield to your phone to enable a Mobile to Device experience

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UWB Tag
In detail

Autonomous, battery-powered UWB device that features NXP's UWB chipset Trimension SR1xxx and a BLE-enabled microcontroller, enabling all kinds of tracking and localization use cases.


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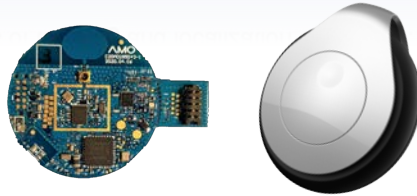
The TAG is providing an UWB signal that can be processed, by a MOBILE or a DEVICE capable to connect with the UWB signal, thus providing accurate distance and positioning data of the TAG

This is called UWB ranging and can be used to find items thanks to mobile or manage the positioning between 2 devices

In addition, BLE is used for power efficiency management and possible connection to a mobile

Accelerometer	UWB core	UWB ANT.
PMU & Testing		
Interfaces / UI		
BLE/MCU	BLE ANT.	
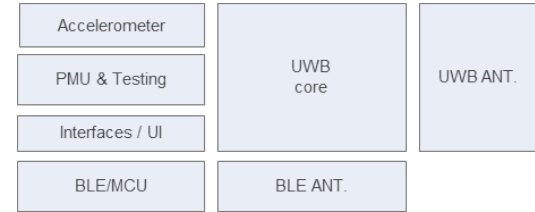
- FIRA compliant based solution
- Worldwide RF bands capability with support of CH5 & CH9
- Power optimized design for coin cell battery supply with more than 1-year battery lifetime
- Accelerometer / motion detector
- > 50 m ranging distance with high accuracy (10 cm)
- Optional Enclosure
- Can be delivered as White label Certified product.

UWB Module
In detail

Compact UWB transceiver based on NXP's UWB chipset Trimension SR1xxx. It supports multiple RF configurations with off-board components, allowing a flexible front-end design. It allows a quick integration of UWB capabilities into any design by using it as a component.
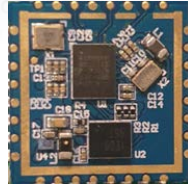

A UWB Module is a miniature PCB that regroups the core functionality of the UWB solution.

Adding power, Interface with system host, and antenna configuration, allow enabling UWB connectivity in the final system.

Trimension SR1xxx UWB: Access to external SE. Compatible with Ranging, 2D & 3D AoA (Angle of Arrival)

Trimension SR040 UWB: UWB Kit Shield-compatible SR040 board may be ordered separately. SW packages and demo applications included in the kit are however not compatible with the SR040 board.
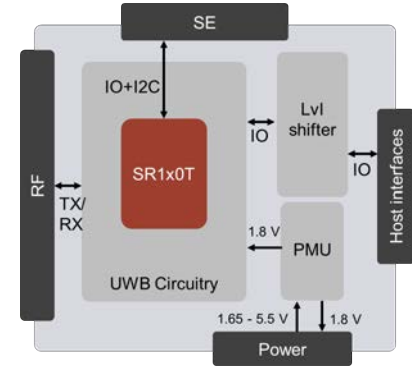
- Core UWB functionality in a small form factor: 13 mm x 13 mm
- Worldwide RF bands capability with support of CH5, 6, 8, 9
- 1.27 mm pitch for easy placement on a PCB design
- Integrated DC/DC for optimum efficiency and UWB performance
- Integrated level shifter for wide IO voltage supply range (1.8V-5.5V)
- Access to multiple I/Os for extended features

UWB Shield
In detail

Flexible platform to develop customized UWB systems. As the central part of the UWB Kit, it is used as the interface between the UWB module and external devices.
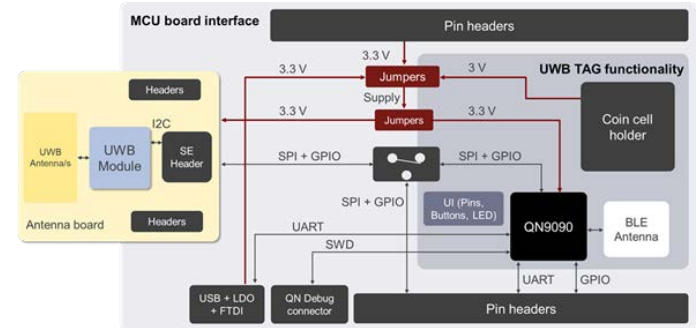

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It can support multiple HW configuration of Trimension SR1xxx UWB module thanks to an Antenna board, or Trimension SR040 UWB module

Its embedded BLE SoC allows developing autonomous device such as TAGs

A simple switch allows controlling the UWB module with an external MCU thanks to an Arduino compatible interface.


- Easy connection to UWB Module through an Antenna board.
- Can be used as a standalone development platform by using its integrated MCU.
- Controllable by other MCUs through Arduino-compatible expansion headers.
- Support for multiple interfaces (BLE, USB, UART).
- Power supply available through USB, external board and standard 3V coin cell.

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UWB Antenna boards
In detail

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UWB Module-compatible PCBs that can be easily connected to the UWB Shield. They allow both the use of alternative UWB antennas and customization of RF frontend
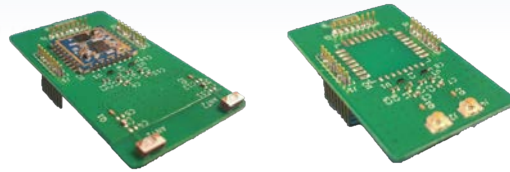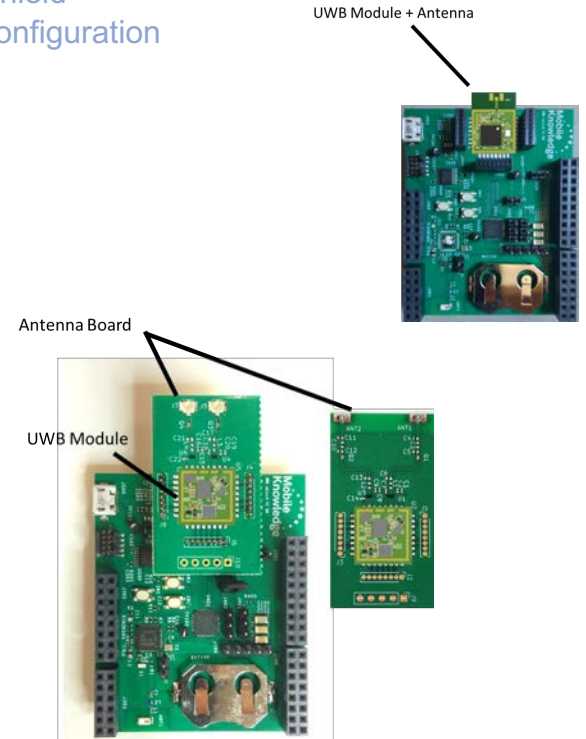

Two antenna boards are included in the UWB Kit:

Antenna board + UWB Module: Ready-to-use solution that features two SMD antennas, enabling 2D AoA reading.

Antenna board with RF connectors: Allows the use of alternative UWB antennas via its dedicated UFL connectors.

Shield configuration

UWB Module + Antenna

Antenna Board

UWB Module

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Software and Documentation
In detail

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UWB
Mobile and Device SDK

The UWB **Android SDK** allows enabling and developing UWB applications for Android devices. It allows controlling the UWB Tag through BLE and emulate UWB function of a mobile when connected to the UWB development board.

The **Device SDK** allows enabling and developing applications for devices integrating SR1xxx UWB modules. It is built on top of the NXP SW package and provide access to specific logic and commands to personalize the application.

Demonstrative FW and **Android applications** built on top of the Mobile and Device SDK

UWB
Documentation

Full set of documents to help you experience the UWB technology using off-the-shelf demo applications included in the kit and use the development platform and libraries to create your own applications.

- UWB Kit Quick Start Guide
- UWB Module datasheet
- UWB Shield User Guide
- UWB Android app User Manual
- UWB Device SDK Guide
- UWB Mobile SDK Guide

MK UWB Kit
Experience

MK UWB Kit
Evaluation

Evaluate MK UWB Kit
demonstrative applications,
and identify the key
technologies involved

MK
UWB
Kit

Secure UWB
for your IoT solution

MK UWB Kit
Development

Customize your firmware or
mobile application. Integrate
new hardware or peripherals
using MK UWB Kit
development board

Access to
MK Services

Accelerate further your time to
market by getting support from
MK in the design and
development of your solution.

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MK UWB Kit
Evaluation

MK UWB Kit
Secure UWB
for your IoT solution

Unbox MK UWB Kit
Get your MK UWB development kit here

Read start guide
Learn how to connect and power your devices for the first time

Run the demos
Follow the demos to discover the capabilities of the MK UWB

Ready!
Move on. You are ready to develop your own application

Demos

- **Device to device**
  Use case demonstrating how to use UWB to track the distance between two tags

- **Mobile to device**
  Showcasing the UWB capability of having a 2D localization of an object using a mobile phone

Essential

Understand and value the effort and challenges behind a fully optimized UWB solution such as MK UWB Tag.

Understand how you can use MK UWB Kit to accelerate the development of your UWB IoT solution.

You are now ready to develop your own application.

Scale limit

10 m

83 cms

Disconnect

MK UWB Kit
Development

The UWB Kit comes with a complete **development set** to ease the integration and testing of the UWB Tag and UWB module into your own solution.

Use Mobile and Device SDKs for a quick integration reducing development effort.

MK UWB Kit

Secure UWB
for your IoT solution

Your UWB solution

Imagine your next cutting-edge solution

Accelerate time-to-market and save cost, by acquiring the **MK UWB development tools** and use your kit as an efficient platform to develop your own solution.

Read HW/SW guides
Get your MK UWB kit here

Connect peripheral
Learn how to connect and power your device for the first time

Install the toolchain
Follow the demos to discover the capabilities of UWB

Develop
Move on. You are ready to develop your own application

Ready!
Go to production with a validated proof of concept

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MK UWB Kit
Development

Do you need to extend the hardware features of MK UWB Kit?

Get rid of the UWB integration challenges. Benefit from our fully validated reference design to build your own UWB-ready solution.

The **UWB Shield board** offers a flexible platform to accelerate the integration of hardware or peripherals into your reference design using the Arduino header connector.

The UWB Shield board can be used as a **stand-alone device**, or as an **anchor connected to a mobile phone or** to another **USB-enabled device**.

Do you need to add additional software features?

Focus on **your added value** hardware features in the prototyping stage.

Get a head start on your mobile application development by reusing the existing **MK Mobile SDK** for **Android** and even extend it to support additional features

We provide the necessary support material and guidance for a quick integrating of new features.
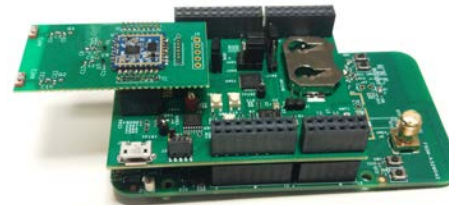
Access to MK services

MK UWB Kit
Secure UWB for your IoT solution

- **Development** and **customization** of antenna boards.

- Porting of **SDK** into a **specific MCU platform.**

- Specific **HW development** based on specification. Knowledge and experience to help you design **robust**, **secure**, and **reliable** systems.

- Support **integration** of **Secure Element** (SE).

- **Performance** enhancement with calibration methods and sensor fusion.

- UWB **use case development:** FW, mobile application, back-end solutions…
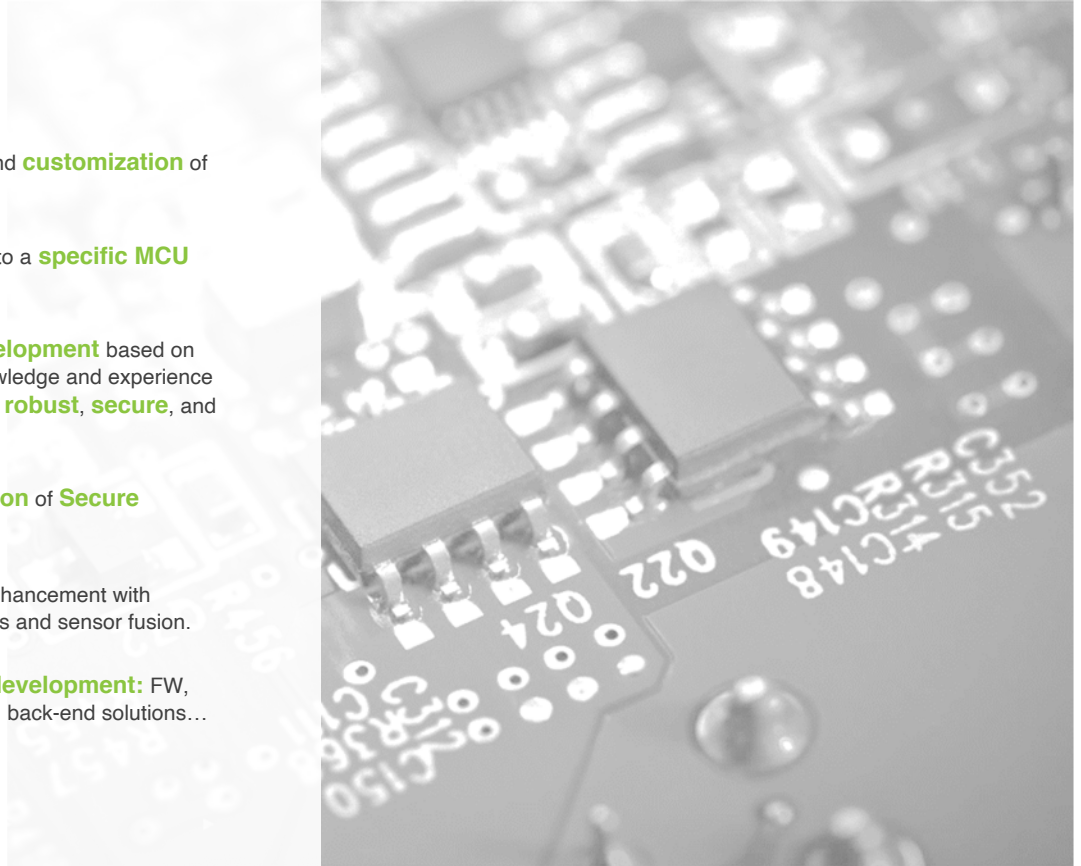
Mobile Knowledge

MK UWB Kit
Ordering details

You can order the MK UWB Kit at the MobileKnowledge website

https://www.themobileknowledge.com/product/mk-uwb-kit/

MK UWB Kit

MK UWB Kit

Your entry point to the UWB technology
Evaluate the solution and identify the key technologies involved

1.000 €

Additional Components

- Additional **UWB Tag** ———— **125 €**
- Additional **UWB Shield** ———— **250 €**
- Additional **UWB Module** ———— **50 €**
- Additional **Antenna board** ———— **On demand**

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MK Services

Contact us for further information
contact@themobileknowledge.com