

AIROC™ UWB TSL100

Infineon's ultra-wideband ranging and sensing system on a chip

Bring trusted security, precision, efficiency and convenience to your next gen UWB-enabled smart devices with AIROC™ UWB.

Infineon's AIROC™ UWB TSL100 is a cutting-edge Ultra-Wideband (UWB) System on a Chip (SoC) that leverages UWB technology to enable precise distance measurement and localization with centimeter-level accuracy. UWB technology uses the impulse radio principle to transmit short pulses of radio energy and measure the signal's Time-of-Flight (ToF).

The TSL100 offers a unique combination of security and precision, making it an ideal solution for a diverse range of applications. Its exceptional power efficiency and compact design further enhance its benefits, allowing optimized system performance.

AIROC™ UWB TSL100 series has two variants: TSL100 for automotive and consumer/industrial applications.

Key features

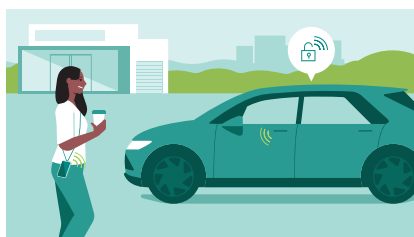
- Dual PHY – HRP and AIROC™ UWB low-power mode
- Very low power consumption
- High receiver sensitivity
- Highest FiRa/CCC security levels
- High First Path Dynamic Range (FPDR) for NLoS scenario
- Channel 8, 9, 10 and 12
- UWB sensing mode

Key benefits

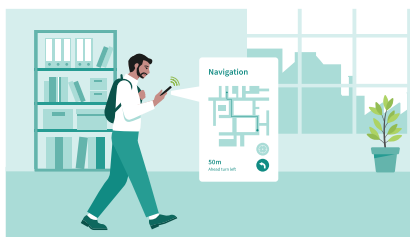
- Extended keyfob/tag battery lifetime due to low power usage
- Accurate distance measurements even in challenging non-line-of-sight conditions
- Protection against unauthorized access
- Future-proof with front-end designed for channel 12
- Optimized RF architecture for radar sensing

Key use cases

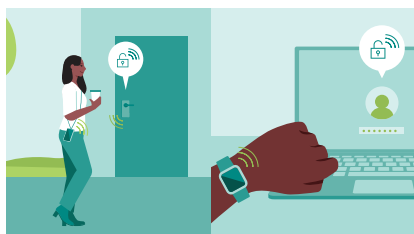
- **Car access** – hands-free keyless entry
- **Indoor navigation** – finding spaces in complex, busy indoor environments
- **Point & trigger** – activating IoT device by simply pointing your smartphone at it
- **Access control** – secured logical/physical access based on precise position of your UWB-enabled device
- **Asset tracking & find my** – track & find your belongings with centimeter level accuracy
- **Touchless transactions** – hands-free secured payment transactions & purchasing
- **Radar sensing** – child presence detection, kick sensing, presence sensing



Car access



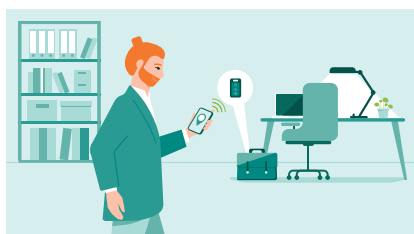
Untracked indoor navigation



Access control



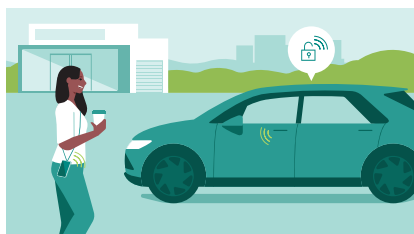
Asset tracking



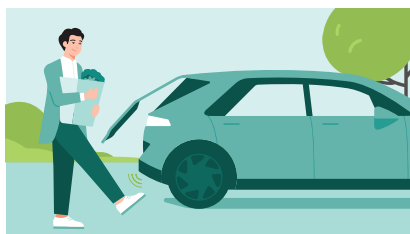
Find someone, find something



Touchless transactions

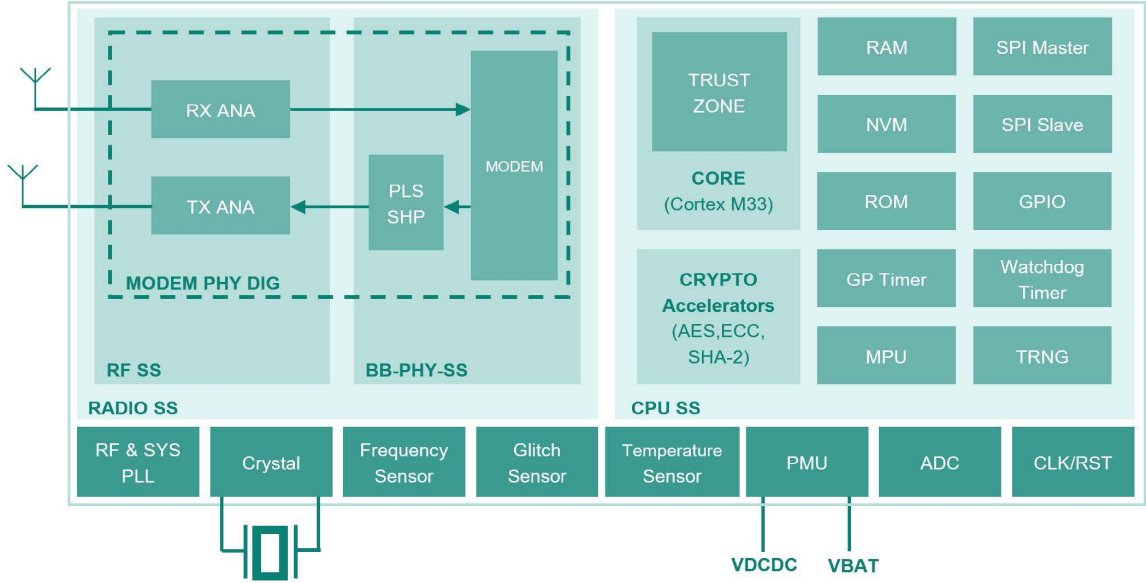


Child presence detection



Kick sensing

Block diagram



Product name	AIROC™ UWB TSL100 Ranging and Sensing SoC
Physical layer	– High-Rate Pulse (HRP) BPRF – AIROC™ UWB low-power
Operating frequency	6–9 GHz (HRP & AIROC™ UWB low-power mode)
Recommended channels	– HRP: 8, 9, 10 and 12 – AIROC™ UWB low-power mode: 6, 7 and 8
Antenna configuration	1 TX and 1 RX
Current consumption	– CCC/FiRa HRP BPRF < 45 mA – AIROC™ UWB low-power mode < 30mA
Supply	V _{BAT} 2 V ... 3.6 V and V _{DCDC} : 1.1 ... 1.2 V
Integrated MCU	Arm® Cortex®-M33 with TrustZone, up to 64 kB RAM
Integrated NVM	Up to 512 kB
Software	CCC, FiRa and Aliro compliant MAC
Package configuration	6 mm x 6 mm VQFN-40 with wettable flanks
Temperature range	Automotive: -40 to +105°C (AEC-Q100 Grade 2), Consumer/Industrial: -25 to +85°C

Published by
Infineon Technologies AG
Am Campeon 1-15, 85579 Neubiberg
Germany

© 2026 Infineon Technologies AG.
All rights reserved.

Public

Version: V1.1
Date: 06/2026

Important notice
Products are sold or provided and delivered by Infineon Technologies AG and its affiliates (“Infineon”) subject to the terms and conditions of the frame supply contract or other written agreement(s) executed by a customer and Infineon or, in the absence of the foregoing, the applicable Sales Conditions of Infineon. General terms and conditions of a customer or deviations from applicable Sales Conditions of Infineon shall only be binding for Infineon if and to the extent Infineon has given its express written consent.

To the fullest extent permissible pursuant to applicable law, with respect to any information given in this document or in any associated documentation, Infineon disclaims all warranties and liabilities of any kind, whether express

or implied, including but not limited to any warranties of merchantability, suitability of the products for the intended application or the specific use, or non-infringement of third-party rights.

Subject to the development and release of the products for series supply by Infineon, the technical specifications of the products are set forth in the relevant final datasheet provided by Infineon and, if any, agreed and signed specifications. Infineon’s customers are required to evaluate the suitability of the products for the intended application or specific use.

The information given in this document is subject to change by Infineon at any time without notice.



Scan QR code and explore offering
www.infineon.com