



PINPOINT UWB MODULE



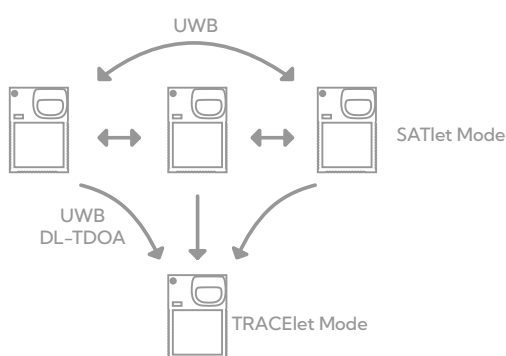
Key Features

- Can operate as infrastructure node (SATlet) or positioning module (TRACElet)
- UWB according to IEEE 802.15.4.z and FiRa 2.0 DL-TDOA
- Supports UWB channels 5 (6.5 GHz) and 9 (8 GHz)
- Wireless UWB synchronization without ETH or IP network connection
- Configurable via UART or wireless connection by using Pinpoint's SDK and setup tools
- FCC, SRRG and ETSI certification - Q4 2021

Application

The Pinpoint Module features either the highly precise Pinpoint positioning or SATlet firmware and can be integrated in other hardware components and devices. Application areas of the Pinpoint Module include indoor areas that are to be equipped with precise positioning for way finding, location based services and interactions.

System Architecture



The Modules synchronize wirelessly with each other and provide UWB signals as broad cast for the receivers. The UWB signals work according to the downlink TDOA method and can be used by the receivers for positioning, regardless of the manufacturer.

UWB receivers calculate their own position on the device and make it available to the applications. The number of receivers is not limited.

Integration Guidelines

The module is based on Qorvos DWM3001C. Please refer for details and integration to the according data sheet (<https://www.qorvo.com/products/d/da008289>):

- Application Board Guidelines (DWM3001C Data Sheet Rev C, Apr 2023, pp. 16)

The module is delivered with either the SATlet or the TRACElet Firmware and requires following pin connections on the PCB of the integrating device:

Pin No.	Purpose
P1.01 (25)	WHEELTICK (according to IEC 16844-2, TRACElet Pro option)
P1.00 (28)	INTERRUPT_2 (IMU) (Requires ICM-42605, TRACElet Pro option)
P1.05 (29)	INTERRUPT_1 (IMU) (Requires ICM-42605, TRACElet Pro option)
P0.15 (32)	UART_RX
P0.19 (34)	UART_TX
P0.07 (40)	CS_IMU (Requires ICM-42605, TRACElet Pro option)
P0.27 (41)	SCLK
P0.31 (42)	MOSI
P0.30 (43)	MISO

See page 4 for pin layout. Further information for integration on request.

TRACElet / Positioning Mode

- FiRa 2.0 DL-TDOA compliant location engine
- Sensor Fusion with IMU data for more robust positioning
- Improved by gyroscope and wheel tick data for vehicles, AGV and robots (TRACElet Pro option)

Interface/API description (excerpt, fullt description on request):

- Position information in cartesian coordinates: x, y, heading, accuracy/covariance
- Device status information
- Configurations and calibration

SATlet / Infrastructure Mode

- FiRa 2.0 DL-TDOA compliant infrastructure node
- Decentralized mesh network implementation
- Configurable via Pinpoint SDKs or setup tools

Interface/API description (excerpt, fullt description on request):

- Configuration of coordinates, UWB channel, etc.
- Device and network status information
- Automatic network measurements and setup (rangings)

Specification

Communication	
Communication	UART or wireless
Positioning	UWB IEEE 802.15.4z, 6.5 GHz or 8 GHz

Software	
Configuration	Via UART and embedded C SDK or wireless and setup tools
Firmware Update	DFU via UART or wireless

Electrical	
Supply Voltage	2.5 to 3.6 V DC
Typical Input Current	68 mA @ 3.0 V

Mechanical	
Dimensions	27 x 19.13 x 3.2 mm (WxHxD)
Weight	1.5 g

Environmental	
Operating Temperature	-40 °C to +85°C
Certifications	FiRa 2.0, CE, ETSI

Schematics

