Description

The Ciholas DWUSB-SMA is a demonstration device for experimenting with Ultra-Wideband (UWB) Real Time Location Systems (RTLS). In the Ciholas UWB (CUWB) system, the DWUSB can act in multiple roles, such as reference anchor, mobile trackable tag, and UWB network interface. The DWUSB-KIT comes with a DWUSB-SMA unit, removable antenna, USB rechargeable battery, AC/DC wall power adapter, and a USB cable.

The DWUSB is intended to be used for UWB and RTLS research and development, and is not FCC certified.

1 Features

- 32-bit ARM Cortex-M4 RISC processor
  - 120MHz maximum speed
  - 256kB Flash
  - 64kB RAM
- Decawave DW1000 Ultra-Wideband transceiver
  - IEEE802.15.4-2011 Compliant
  - 6 RF bands from 3.5GHz to 6.5GHz
  - Data rates 110kbps-6.8Mbps
  - Up to 1023-byte packet length
- Motion Processing Unit (MPU)
  - 16-bit 3-Axis Gyroscope 250-2000°/S
  - 16-bit 3-axis Accelerometer ±2g up to ±16g
  - 14-bit 3-axis Magnetometer ±4800T
  - Digital Motion Processing including low-power quaternion
- MEMS High Resolution Barometric Altimeter
  - 24-bit 0.01hPa RMS
  - 260-1260hPa absolute pressure range
  - 16-bit temperature ±2°C absolute accuracy
- USB 2.0 Device, 12Mbps, with USB Type-A connector
- Tri-Color LED indicator
- Standard polarity SMA female jack
- Included in Kit :
  - DWUSB-SMA
  - ANT110
  - 2600mAh rechargeable battery
  - 5V output AC/DC USB Wall Power Adapter
  - Charging cable
- Compatible with Archimedes release of the Ciholas UWB RTLS system

2 Ordering

Model	Part Number	Description
DWUSB-KIT	E00494-00607	DWUSB-KIT

Available from the **Ciholas Webshop**

3 Electrical

Parameter	Description	Min.	Typ.	Max	Units
$\mathbf{V}_{in}$	Input Voltage	3.3	5.0	5.5	V
P	Powered Unconfigured		150		mW
	Powered Master @ 10Hz		600[1]		mW
	Powered Anchor @ 10Hz		820[1]		mW
	Powered Tag @ 10Hz		150[1]		mW
T	Operational Temperature	-20		60	°C
B	Battery Capacity[2]		2600		mAh

1. *DWUSB Input Power is highly dependent on usage and system configuration. For example, tags configured with beacon rates higher than listed in the table above will draw more power.*
2. *Capacity given for USB battery pack included in kit. DWUSB-SMA does not have internal battery*

4 Mechanical

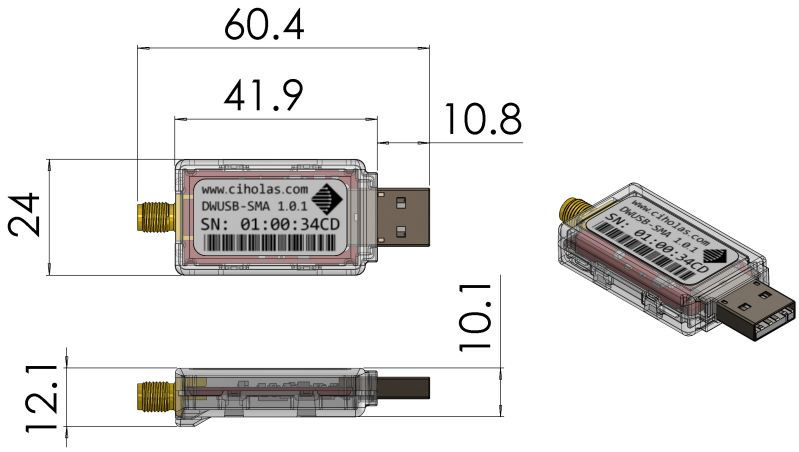
Parameter	Description	Min.	Typ.	Max	Units
Mass	DWUSB		11.9		g
Mass	Antenna Mass		7.8		g
Mass	USB Battery Mass		72		g

Ingress Protection

IP30, protected against solid objects over 2.5mm, no protection against liquids

Connector

Standard polarity SMA female jack



Dimension unit: millimeter

5 Operation

5.1 Power and Communication

The DWUSB is designed with a USB Type-A connector for easy connection to typical USB power sources. The kit provides a battery pack as well as a USB power power brick that may be used to power the device.

The DWUSB may also be connected to a USB compatible hub for both communications and power.

5.2 Configuration

Details for setup and configuration of the CUWB RTLS system using DWUSB devices can be found in the User Manual. Also please visit the Documentation Site to learn about feature updates and upgrades.

5.3 Regulatory Compliance

The following FCC notice from 47 CFR 2.803 is required to be included with this evaluation kit:

> FCC NOTICE: This kit is designed to allow:
>
> (1) Product developers to evaluate electronic components, circuitry, or software associated with the kit to determine whether to incorporate such items in a finished product and
>
> (2) Software developers to write software applications for use with the end product. This kit is not a finished product and when assembled may not be resold or otherwise marketed unless all required FCC equipment authorizations are first obtained. Operation is subject to the condition that this product not cause harmful interference to licensed radio stations and that this product accept harmful interference. Unless the assembled kit is designed to operate under part 15, part 18 or part 95 of this chapter, the operator of the kit must operate under the authority of an FCC license holder or must secure an experimental authorization under part 5 of this chapter.
>
> For evaluation only; not FCC approved for resale.

5.4 Product Warnings

- Before working or installing electrical equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents

- Usage of this product outside the parameters outlined in the user manual can result in bodily injury and damage to this and other equipment. To prevent this, please follow all instructions in the user manual.
- Installation of this equipment must comply with all local and national electrical codes.
- Do not operate any wireless network devices near unshielded blasting caps or in an explosive environment unless the devices have been modified to be especially qualified for such use.

5.5 Ciholas Standard Software License and Warranty

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6 More Information

Please visit the following links for more information and documentation regarding Ciholas UWB systems and products:

- Documentation, installation, and usage instructions visit CUWB.io
- To purchase Ciholas UWB products, please visit the Ciholas Shop
- Ask other users questions and find community information in the Community Forum
- Learn more about Ciholas services at www.ciholas.com

7 DWUSB-KIT Datasheet Change Log

Version	Date	Change Description
1.0	2018-05-10	Initial Public Release
1.1	2018-06-04	Added Product Warnings Added Warranty Disclaimer Added IP Rating Corrected Flash and RAM numbers in feature section Modified Operation Temperature Range
1.2	2018-06-04	Updated Minimum Input Voltage Added SMA Connector call out to features and mechanical section