



Ciholas DWTAG100

User Manual

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Introduction

The Ciholas DWTAG100 is a small, battery-powered RF device that produces ultra-wideband (UWB) pulses. These pulses are used to generate real-time location data. Ciholas DWTAG100s are attached to objects of interest and transmit UWB “beacons” to UWB receivers placed around an area in which tracking will occur. Its small size and low power consumption make the Ciholas DWTAG100 an ideal UWB tracking device for many applications. The Ciholas DWTAG100s allow for remote activation, easy attachment and removal, convenient USB charging, and have an on-board LED indicator for real-time feedback of tag status.

Regulatory Information

FCC Notice (For US Customers):

FCC ID: 2ALIR-DWTAG100

Model: DWTAG100

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician to help.

Changes and modifications not expressly approved by Ciholas, Inc. can void your authority to operate this equipment under Federal Communications Commissions rules.

Usage Instructions

Overview

The battery-powered DWTAG100s transmit UWB beacons allowing for real-time location calculation. Tag beacon rates can be programmed depending on the number of other active tags in a tracking area. The DWTAG100 devices are placed on any object of interest within the operational area in order to locate and track that object. DWTAG100s can also collect and transmit data from on-board sensors such as IMUs and environmental sensors. The DWTAG100 receives power from an internal battery that can be recharged via a standard Micro-USB connection. DWTAG100s remain in sleep mode when not in use and can be activated or deactivated remotely by using a UWB transceiver. The DWTAG100 devices are small and versatile, and can be attached to a variety of surfaces and objects.

Placement

The DWTAG100 devices support a variety of attachment methods, and should be secured to each object to be tracked.

Example Mounting:



Product Specifications

Main System Components

Micro-controller:	32-bit ARM Cortex-M4F low power processor
RF Transceiver:	Decawave DW1000 Ultra Wideband (UWB) IEEE802.15.4-2011
Sensors:	Inertial, Temp, Barometric Pressure
I/O:	Micro-USB
Indicators:	Tri-Color LED (Red, Green, Blue)
Power:	3.7V 300mAh Rechargeable Battery
Operating Voltage:	3.3V
Temperature Range:	-40 - 85C

Mechanical

Width:	2.0"
Depth:	1.5"
Height:	0.6"
Weight:	0.6 oz

RF Characteristics

UWB IEEE802.15.4-2011

Channel: 5

Bandwidth (Values in GHz):

fM	The highest emission peak	6.7388
fL	10 dB below the highest peak	6.1414
fH	10 dB above the highest peak	6.8347
Bandwidth	Calculated: (fH - fL)	0.6933

Data Rate: 6.81Mbps

Antenna: 0 dBi Omnidirectional

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