1 Description

The PT301 is a mini, rechargeable Ultra-Wideband (UWB) tag designed for use with Ciholas UWB (CUWB) Real-Time Location Systems (RTLS). In a CUWB RTLS deployment the PT301 operates as a mobile, trackable device that can be attached to personnel, equipment, and assets. Featuring an integrated rechargeable battery, the PT301 is compact, lightweight, and designed for easy mounting on a wide variety of objects.

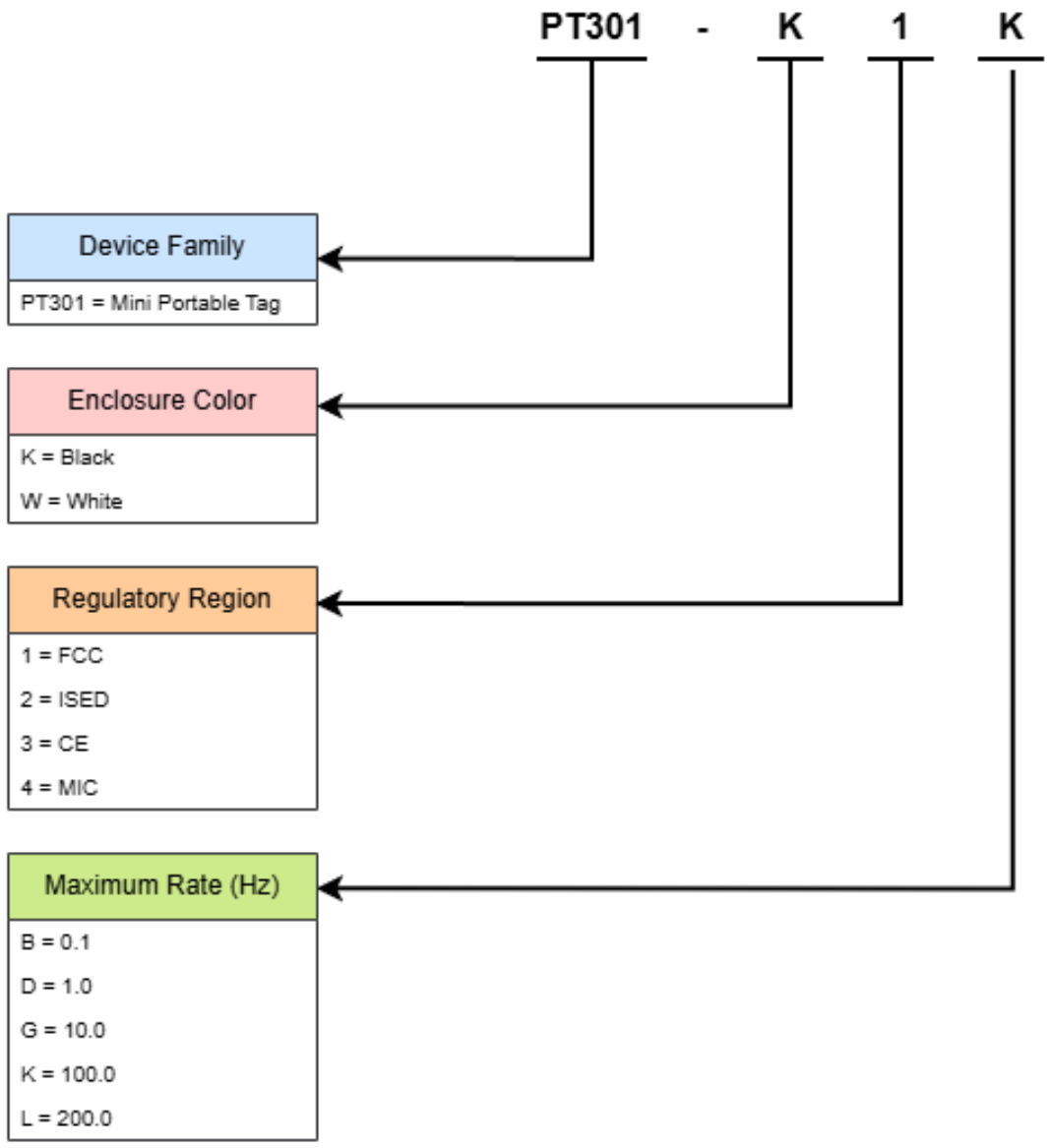
2 Features

- Operates with Ciholas CUWB System
- Ultra-Wideband Radio
  - Supports UWB Channel 5 and Channel 9
  - Data rate 6.8Mbps
- Integrated Radio Frequency (RF)
  - Omni-directional UWB antenna
  - Variable beacon rates
  - Built-in Low-Noise Amplifier (LNA)
  - Long RF range
- Status & Control
  - Tri-Color LED Indicator
  - Wake-on-Shake
  - Firmware updates by UWB or USB
- Power & Connectivity
  - Integrated 150mAh Lithium Ion Rechargeable Battery
  - USB charging and data connection:
    - Fully compliant with USB 2.0 specification
    - Standard USB Type-C Receptacle
  - Low Power & Long Battery Life
- Certifications
  - FCC Certified in the United States
  - CE Marking in the European Union
  - ISED Certified in Canada
  - MIC Certified in Japan
  - RoHs
- Mechanical
  - IPX7 Rating
  - Mounting Accessories - Coming Soon

3 Ordering

Ordering Information

Example:



For a list of avaliable options or for further information, please visit CUWB.io

The PT301 maximum beacon rate is specified for each selected model. PT301 devices can be configured to beacon at any frequency up-to and including the maximum rate. The PT301 is region-locked at purchase to ensure compliance with local regulatory requirements. See regulatory compliance for supported regions and compliance statements.

Available from the **Ciholas Webshop**.

4 Electrical

4.1 Ratings

Parameter	Description	Min.	Typ.	Max.	Units
V_c	Charging Voltage	4.2	5.0	5.5	V
A_c	Charging Current		100		mA
B	Battery Capacity - UN38.3 Approved - Lithium-Ion		150		mAh
B_{charge_time}	Battery Charge Time		2		h
T	Operational Temperature	-20		60	°C
$T_{charging}$	Charging Temperature	0		45	°C

1. See CUWBNet Join for additional information.

4.2 RF Characteristics

Channel[1]	Center Frequency	Bandwidth	Typical Distance[2]
5	6.4896 GHz	499.2 MHz	100 meters
9	7.9872 GHz	499.2 MHz	70 meters

1. Where channel usage is allowed. Not all channels are supported in every regulatory region.

2. In clear Line-of-Sight conditions.

4.3 Battery Life Examples

Operational mode sets the foundation of power consumption for the PT301. PT301 power use is highly dependant on usage and system configuration. Tags configured with beacon rates higher than listed will draw more power.

The following chart depicts the typical battery runtime at 25°C under conditions where Wake-on-Shake features are disabled, the command rate is configured for 0.1 Hz, LEDs are turned off, and no additional user data is used.

UWB Channel	Beacon Rate (Hz)	MultiRange Typical Runtime (Days)	MultiTime Typical Runtime (Days)
5	0.1	190	230
5	1	45	130
5	10	5	20
5	100	0.5	2
5	200	N/A[1]	1
9	0.1	180	225
9	1	40	120
9	10	4	20
9	100	0.5	2
9	200	N/A[1]	1

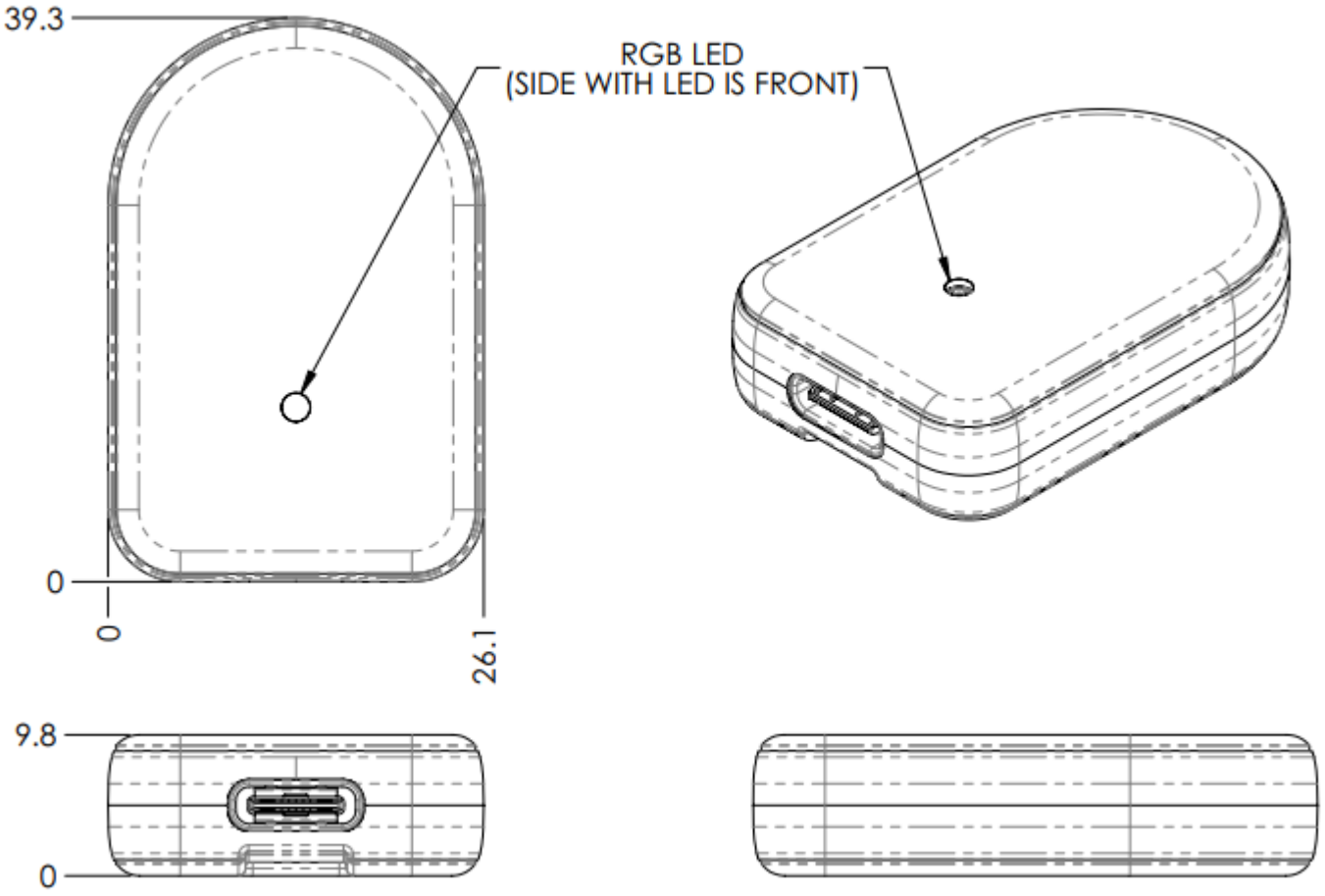
1. 200 Hz beacon rate not compatible with MultiRange mode.

5 Mechanical

Parameter	Description	Min.	Typ.	Max.	Units
Unit Mass	ABS Plastic w/ Flame Retardant - UL94 V0		9.6		g
Drop Rating			2		m
Ingress Protection	IPX7		1		m

5.1 Dimension Drawing

All dimensions are in millimeters unless otherwise stated.

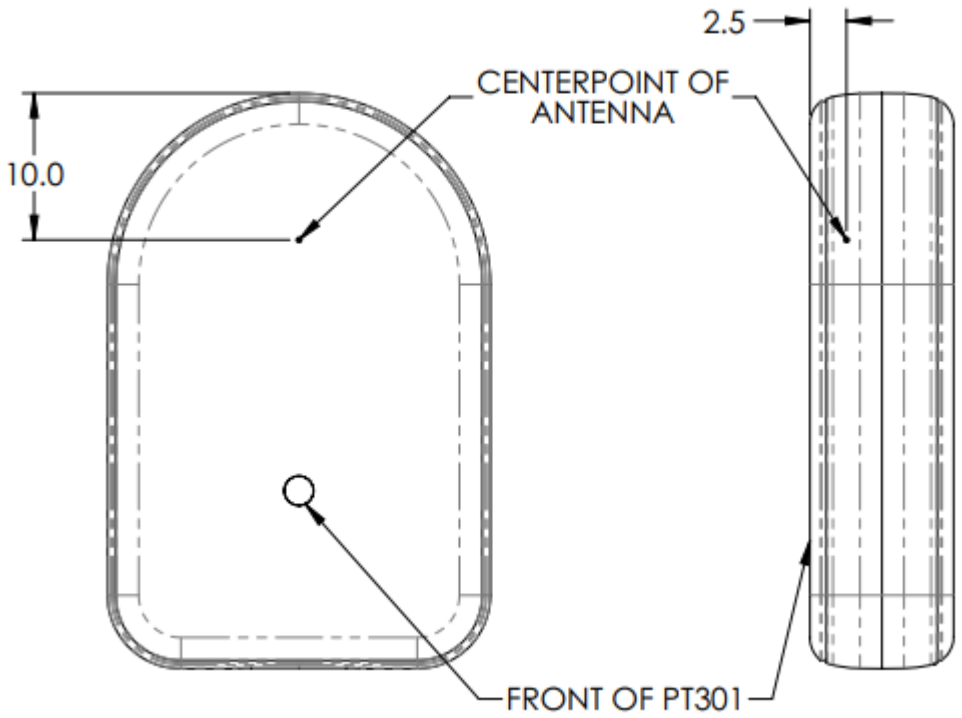


5.1.1 Downloadable Models

- Download a STEP Model
- Download a GLB Model

5.1.2 Antenna Center

The following drawing indicates the center of the antenna for the PT301. For best tracking performance, attach the Tag such that the RGB LED faces away from the object.



6 Operation

6.1 Charging and Battery Monitoring

The PT301 uses a USB Type-C connector for both charging and for optional local communication. To charge the battery, connect the device to a USB power source via the Type-C USB connector.

> When USB power is first applied to a PT301, it will cause a full device reset.

Battery Percentage reporting is available on the PT301 in the CUWB Viewer.

> For battery safety, the PT301 will enter ship mode when the battery becomes too depleted. To recover and exit ship mode, charge the Tag fully.

6.2 Ship Mode

The PT301 is shipped in a low-power `ship mode` to protect the Li-Ion battery during storage and transport. When a PT301 is in ship mode, it is not receiving power from the battery. The PT301 will not search for a CUWBNet or use it's LED indicator.

6.2.1 Exiting Ship Mode

To exit ship mode, connect the PT301 into a powered USB port. Once charging power is applied, the device will wake and begin searching for nearby CUWBNets.

> For first-time operation, the PT301 must be connected to a powered USB port to turn on and exit ship mode. This will cause the PT301 to automatically attempt to join any CUWBNet that is within range of its UWB transceiver.

6.2.2 Entering Ship Mode

The PT301 can be placed back into Ship Mode by using the Device Manager in the CUWB Manager. This will disconnect the battery internally for long term storage or shipping the PT301.

> The battery should be partially charged (~50-60%) when using Ship Mode.

6.3 Communication

When connected to a USB host the PT301 will enumerate as a USB device with the VID:PID of 0x0483:0x5740 and USB speed grade Full Speed (12 MBit/s).

To connect with PT301 and configure them to be a wired device in a CUWBNet, see CUWB USB Driver for additional information.

The PT301 will communicate over USB with the Ciholas Serial Protocol. For additional information on serial packet formatting, see Ciholas Serial Protocol.

6.3.1 Firmware Updates

The PT301 can be updated with new firmware releases by using the CUWB Manager. The PT301 supports Over-the-Air (OTA) by UWB and wired updates by USB. See Firmware Updates for instructions. The latest firmware packages are available on the Software Downloads page.

6.4 CUWBNet Operation and Configuration

6.4.1 CUWBNet Join

After exiting ship mode, the PT301 automatically attempts to join any CUWBNet that is within range of its UWB transceiver. To conserve energy, the device listens on a periodic schedule. Initially, the time between searches is low to allow for a fast join.

If no CUWBNet is found, the period between searches increases over time. Eventually, if no CUWBNet is detected, the device will utilize the slowest search period. The slowest search period is once every 640 seconds. See CUWBNet Search in the CUWB Manager Feature Reference for additional information on search periods.

> The search period described above is reset any time charging power is provided to the PT301. If a device is taking longer than expected to join, plugging it into a powered USB port will reset the listen period and allow it to join more quickly.

> Wake-on-Shake will also modify the listen period for tags. See Wake-on-Shake section below.

6.4.2 CUWB Configuration

PT301 devices must be added to the CUWB configuration in order to join a CUWBNet and begin beaconing. Details regarding PT301 setup and configuration for the CUWB RTLS can be found in the CUWB Manager.

6.5 Wake-on-Shake

The PT301 supports Wake-on-Shake CUWBNet Search. Wake-on-Shake is enabled by default and allows the device to enter low-power sleep when not participating in a CUWBNet. When the device is steady and no motion is detected, the device will enter a low-power mode searching for CUWBNets infrequently. Any time the PT301 detects motion, it will exit the low-power mode and search for CUWBNets at a much higher rate.

> When plugged into USB power, the PT301 will hunt for a CUWBNet every 5 seconds regardless of motion.

The Wake-on-Shake feature is adjustable when the PT301 is active on a CUWBNet. For detailed information on this feature and its settings, see Wake-on-Shake CUWBNet Search.

6.6 LED Indication

The PT301 has a tri-color (RGB) LED for conveying device state to users. In normal operation[1] the device state can be determined using the table below:

Status	Battery	Color	ON Time	Period
ON CUWBNet	<20%	Red	10 ms	1.0 s
ON CUWBNet	20-100%	Green	10 ms	1.0 s
OFF CUWBNet	<20%	Red	10 ms	10.0 s
OFF CUWBNet[2]	20-100%	Green	10 ms	10.0 s
Charging	100%	Green	FULL	N/A
Charging	75-99%	Magenta	900 ms	1.0 s
Charging	50-74%	Magenta	500 ms	1.0 s
Charging	0-49%	Magenta	100 ms	1.0 s
Power On Reset[3]	N/A	Blue	500 ms	N/A
USB Enumeration[4]	N/A	White	0.25-5.0 s	N/A

1. This table denotes normal LED operation. The CUWB Manager can be configured to show different patterns on the LEDs.

2. Off CUWBNet behaviors are a double green blink, and will reduce in frequency for power savings the longer the device is off of the CUWBNet. This may be as long as 640 seconds if Wake-on-Shake features are enabled.

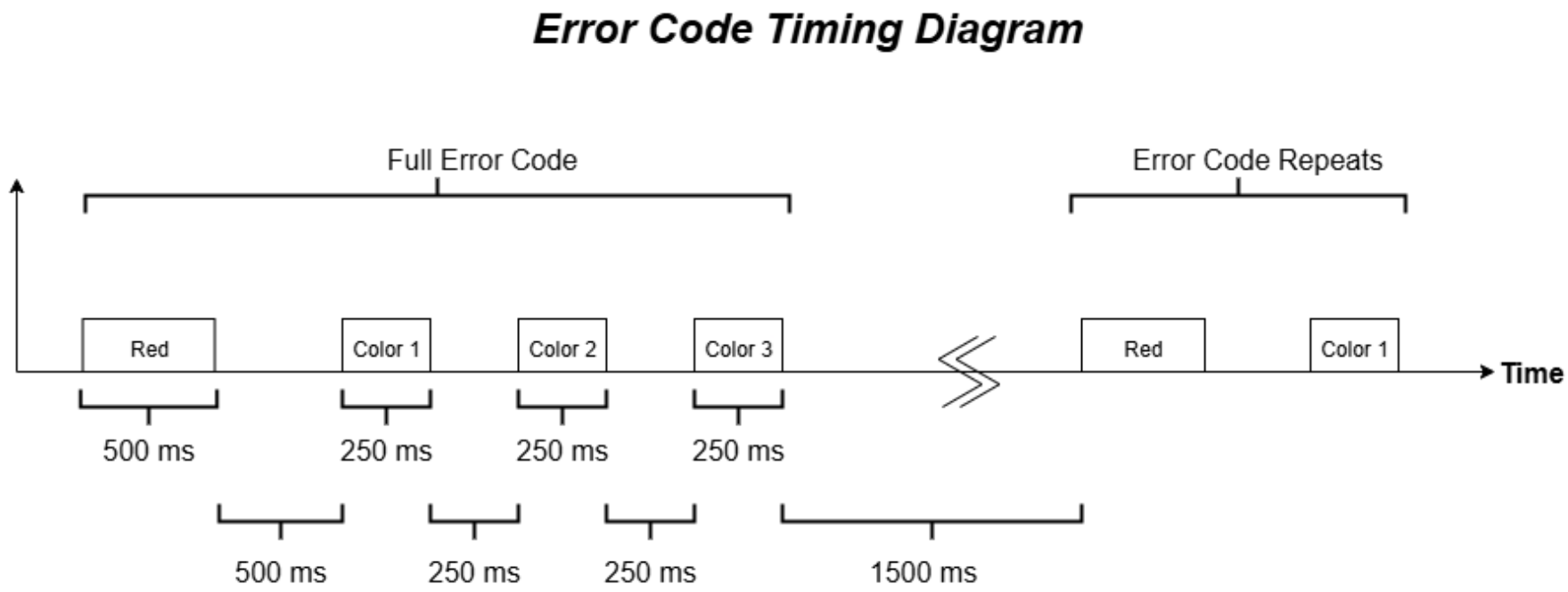
3. Power On Reset (POR) occurs only on system reset. This will happen when on powered USB cable insertion, on reboot after firmware update, and when the device resets due to system watchdog. If a device remains on with a solid blue LED, the firmware is invalid.

4. USB Enumeration time may vary.

> The LED on the PT301 can be completely disabled. See the CUWB Manager Reference Manual for configuration details.

6.6.1 Error Handling

The RGB LED also conveys error states to the user. An error is indicated by a 500 ms red flash followed by a color sequence.



The following color sequences are used to decode error states:

Color Sequence	Code	Description
Red — White-White-White	0	UWB IC Communication Error
Red — White-White-Magenta	1	Device Over Temperature (60°C)
Red — White-White-Blue	2	Device Under Temperature (0°C)
Red — White-White-Green	3	Accelerometer IC Communication Error
Red — Magenta-White-White	16	Battery Charger Under Voltage Protection
Red — Magenta-Magenta-White	20	No valid Search Parameters
Red — Magenta-Magenta-Magenta	21	Battery Charger Over Current Protection
Red — Magenta-Blue-Blue	26	Charger Input Over Voltage
Red — Magenta-Green-Green	31	Battery Not Detected
Red — Blue-White-White	32	Hard Fault
Red — Blue-White-Magenta	33	Watchdog

[CODE 0] - UWB IC Communication Error

This indicates that the PT301 firmware is unable to communicate with the UWB transceiver. Plug PT301 into a USB power to cause a device reset. If the problem persists please contact Ciholas for support.

[CODE 1] - Device Over Temperature (60°C)

The PT301 will indicate an over-temperature error when its internal temperature reaches 60°C. This condition may damage the device or battery. Move the device to a room-temperature environment and allow it to cool before continuing use.

[CODE 2] - Device Under Temperature (0°C)

The PT301 will indicate an under-temperature error when its internal temperature reaches 0°C. This condition may damage the device and battery. Move the device to a room-temperature environment and allow it to warm before continuing use.

[CODE 3] - Accelerometer IC Communication Error

This indicates that the PT301 firmware is unable to communicate with the accelerometer. Connect the PT301 into USB power to reset the device. If the problem persists, please contact Ciholas for support.

[CODE 16] - Battery Charger Under Voltage

This indicates that the PT301 battery charger under voltage protection has triggered. Connect the PT301 into USB power and charge the battery. If the problem persists, please contact Ciholas for support.

[CODE 20] - No valid Search Parameters

If the problem persists, please contact Ciholas for support.

[CODE 21] - Battery Charger Over Current

This indicates that the PT301 battery charger over current protection has triggered. If the problem persists, please contact Ciholas for support.

[CODE 26] - Charger Input Over Voltage

This indicates that the PT301 firmware has detected the input voltage is too high. Unplug the device and verify USB power levels of the power source. This condition may damage the device or battery. If the problem persists, please contact Ciholas for support.

[CODE 31] - Battery Not Detected

This indicates that the PT301 firmware is unable to detect the presence of the battery. If the problem persists, please contact Ciholas for support.

[CODE 32] - Hard Fault

If the problem persists, please contact Ciholas for support.

[CODE 33] - Watchdog

If the problem persists, please contact Ciholas for support.

7 Regulatory Compliance

The PT301's regulatory certification is selected at the time of purchase. The device may only be used in regions covered by its certification and must be operated in accordance with all applicable regulatory limitations.

7.1 Federal Communications Commission (FCC) - USA

FCC ID: 2ALIR-PT301

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, and (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 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/TV technician for help.

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

Operation on board an aircraft, ship, or a satellite is prohibited. Devices operating under this section may not be employed for the operation of toys (15.521(a)).

The use of a fixed outdoor infrastructure is prohibited. A fixed infrastructure includes antennas mounted on outdoor structures, e.g., antennas mounted on the outside of a building or on a telephone pole.

UWB devices operating under the provisions of 15.519 may operate indoors or outdoors.

Radiation Exposure Statement: The device has been found to be exempt from SAR under KDB 447498 D01 v06 Section 4.3.1. This device may be used in an uncontrolled environment.

7.2 Innovation, Science and Economic Development (ISED) - Canada

IC:26788-PT301
CAN ICES-3 (B)/NMB-3(B)

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

1. This device may not cause interference; and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage;
2. l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Applicable rules: RSS-220

Radiation Exposure Statement: The device has been found to be exempt from SAR under KDB 447498 D01 v06 Section 4.3.1 and Industry Canada RSS-102 Section 6. This device may be used in an uncontrolled environment.

Déclaration relative à l'exposition aux rayonnements: L'appareil est exempté du DAS en vertu de la norme KDB 447498 D01 v06, section 4.3.1, et de la norme RSS-102 d'Industrie Canada. Cet appareil peut être utilisé dans un environnement non contrôlé.

7.3 European Conformity (CE) - EU

Hereby, Ciholas declares that this device is in compliance with the essential requirements and other provisions of Directive 2014/53/EU, 2014/30/EU, and 2011/65/EU.

The full text of the EU Declaration of Conformity is available: PT301 Declaration of Conformity.

7.4 Ministry of Internal Affairs and Communications (MIC) - Japan

PT301
MIC: 217-252501

警告: この装置は屋内でのみ操作できます。屋外での運用は総務省電波法の規制に違反し、運用者は重大な法的罰則を受ける可能性があります。

WARNING: This equipment may only be operated indoors. Operation outdoors is in violation of Japan MIC Radio Law regulations and could subject the operator to serious legal penalties.

航空機や人工衛星に搭載しての運用は禁止されています。本条項に基づいて動作する機器を、玩具の操作に使用することはできません

Operation on board aircraft or satellites is prohibited. Devices operating under this section may not be employed for the operation of toys.

放射線被曝に関する声明: 無線機器の平均電力が 20 mW 未満であるため、このデバイスは人体 SAR 規制の対象外であることが確認されています。

Radiation Exposure Statement: The device has been found to be exempt from Body-SAR regulations due to the average power of the radio equipment being less than 20 mW.

7.5 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.
- This product contains a Li-Ion rechargeable battery. Li-Ion batteries can be damaged if left in a discharged state for extended periods. To reduce this risk, charge the device regularly and store it in ship mode with the battery at approximately 50-60%.

- PT301 might pose a choking hazard or cause injury to small children. Keep device away from small children.

- 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 devices near unshielded blasting caps or in an explosive environment unless the devices have been specifically modified and certified for such use.

8 Revision

Version	Date	Change Description
5.0.8	2026-08-05	Adding new tag frequency to ordering chart. Revising battery runtime lengths.
5.0.7	2026-03-05	Updating Input Voltage Range. Clarifying device reset on USB power.
5.0.6	2026-01-14	Correcting Ordering Information Chart
5.0.5	2025-12-19	Adds ISED certification
5.0.4	2025-12-16	Adds MIC certification
5.0.3	2025-12-09	Adds EU Declaration of Conformity
5.0.2	2025-10-31	Adds battery life section; Updates to text description; Fixing link errors
5.0.1	2025-10-20	Preliminary Release: Adds FCC Regulatory Information; Updates to Features, Electrical, Mechanical and Operation sections
5.0.0	2025-09-15	Initial Preliminary Release

9 APPENDIX A : License Terms and Conditions

1 General Terms and Conditions of Purchase/Service

These General Terms of Purchase/Service are a legal Agreement between you and Ciholas, Inc. (“Ciholas”), and govern your use of all Ciholas services and products, which include, but are not limited to, CUWB.io, Ciholas.com, and all Ciholas Products, Software, and Hardware. If you are accessing and/or using any of the Ciholas services and products on behalf of your employer or as an agent of a third party, your employer or third party is bound to these terms.

Please read these General Terms carefully. Your use of these services and products indicates that you have read, understand, and agree to be bound by the terms herein. Any attempt to set up, use, or install these products constitutes your assent to all the terms of this Agreement. If you disagree with this or any of our other policies, please do not install or use our services and products, and see our return policies for instructions regarding our 60-day Money-Back Guarantee. Written approval is not a prerequisite to the validity and enforceability of this Agreement. Ciholas reserves the right to amend and/or update these terms from time to time. Such modifications to this Agreement will be posted to the website and bundled with software revisions.

This Agreement constitutes the entire and exclusive Agreement between Licensor and Licensee regarding Ciholas services and products, unless modified and agreed to in writing by both parties. We may terminate or suspend access to our services and products at any time, without prior notice or liability, for any reason whatsoever, and without limitation if you breach the General Terms. All provisions of the General Terms shall survive termination, including, without limitation, ownership provisions, warranty disclaimers, indemnity, and limitations of liability. If any provision of this Agreement is deemed invalid or unenforceable, the remaining provisions shall remain in full force and effect.

Any customized services and products will be governed under a separate Customization Agreement.

2 Definitions

For purposes of this Agreement, the following terms shall have the following meanings, unless the context clearly requires otherwise:

“Agreement” means this General Terms of Purchase/Service Agreement and Technology License, any exhibits or appendices attached hereto, and any documents incorporated by reference.

“Buyer” means a person or entity that purchases or contracts to purchase products, services, or property from Ciholas.

“Ciholas” means Ciholas, Inc. including any entity controlled by Ciholas, Inc.

“End-User” means the person or entity that receives and uses Ciholas services and/or products.

“Firmware” means a code segment compiled into binary machine code that is embedded inside a device.

“Hardware” means the physical components of the Ciholas UWB Systems, such as anchors, tags, and supporting equipment.

“Indemnitee” includes, but is not limited to, all End-Users, Buyers, and/or Licensees.

“License Configuration” means a particular configuration or setting provided with Ciholas services and/or products for the purposes of meeting regulatory requirements, or ensuring performance to specification.

“Licensee” means any individual or entity who purchases or uses Ciholas services and/or products covered by this Agreement.

“Licensor” means Ciholas, Inc. including any entity controlled by Ciholas, Inc.

“Our” means Ciholas, Inc. including any entity controlled by Ciholas, Inc.

“Personal Identifiable Information (PII)” means any identifying information unique to you that is made available to Ciholas when you browse our sites, create accounts on our sites, purchase and use our services and products, and/or contact us through our support phone number /email.

“Products” means any goods and/or services provided by Ciholas that are covered under this Agreement.

“Services” means services ancillary to the support and operation of Ciholas Products, Software, Firmware, or Hardware.

“Software” means programs or sets of instructions, including associated source code, object code, documentation, and data, which enable End-Users to perform specific operations or series of operations.

“Technology License” means the License granted to the Licensee for the use of Ciholas services and products through this Agreement.

“We” means Ciholas, Inc. including any entity controlled by Ciholas, Inc.

“You” means the person or entity entering into this Agreement with Ciholas.

3 Technology License

Subject to the terms and conditions of this Agreement, Ciholas grants to you, the Licensee, a limited, non-exclusive, license to use CUWB Software and CUWB Hardware containing Ciholas' Intellectual Property and patent-protected technologies. Ciholas remains the owner of all titles, rights, and interests in the CUWB Software, CUWB Hardware, and other Ciholas products.

Unless expressly stated otherwise, all Software constitutes original code and is subject to the License. Any use of the Software must be in compliance with the License. You acknowledge that the Software and the underlying ideas or concepts of the services and/or products are valuable intellectual property, and you agree not to, except as expressly authorized and only to the extent applicable by statutory law, attempt (or permit others to attempt) to decipher, decompile, disassemble, modify, or otherwise reverse engineer, or attempt to reconstruct or discover any original code, underlying ideas, algorithms, interoperability of the services, products, and Software by any means. Ciholas services, products, and Software are meant to be used in conjunction with one another and any attempt to circumvent this is a violation of this License.

It is a violation of this Agreement to alter any of the Ciholas products to change their designated capability with the intent, or resulting effect, of circumventing the license configuration. Any unauthorized modification violates the terms of service and may make the products illegal in certain jurisdictions (see Government, Regulation, Jurisdiction, and Export Control below).

You must never use Ciholas services and products in any way where the failure of said services and products could cause possible harm, injury, or death to you or others.

The Licensor may amend the License at any time and will post such modifications on our website. Changes are effective upon posting. The Licensee's continued use of the Software after such posting constitutes acceptance.

4 Support

Under this Agreement, Ciholas is under no obligation to provide support for any product or service (such as, but not limited to, technical support, maintenance, upgrades, modifications, or new releases) unless otherwise specified by an additional Agreement.

5 Indemnification

Notwithstanding any other Agreements with Ciholas, the user shall indemnify, defend, and hold harmless the Licensor, its employees, successors, and heirs against any claim, liability, cost, damage, deficiency, loss, expense, or obligation of any kind or nature (including, without limitation, reasonable attorney's fees and other costs and expenses of litigation) incurred by or imposed upon the indemnitees, or any one of them, in connection with any claims, suits, actions, demands, or judgments (including, but not limited to, actions in the form of tort, warranty, or strict liability) arising from the use of Ciholas software and products.

6 Force Majeure

Ciholas shall not be liable or responsible to you for any failure or delay in fulfilling or performing any term of this Agreement, when and to the extent that, such failure or delay is caused by or results from acts beyond Ciholas' reasonable control, including, but not limited to, acts of nature, natural disasters, war, terrorism, labor disputes, supply chain disruptions, power outages, or governmental restrictions.

7 Government Regulation, Jurisdiction, and Export Control

Ciholas products are subject to governmental regulations and laws that may vary by state and country. By purchasing Ciholas products, you agree you will not ship, transfer, or export said products in any manner prohibited by law. You also warrant and agree that you are not located in, under the control of, or a national or resident of any of the countries defined by the Office of Foreign Assets Control, which include, but may not be limited to, Cuba, Iran, North Korea, and Syria. In addition to embargoes, other countries and/or regions may face restrictions under various U.S. export control regulations or be the target of sanctions governed by the Export Administration Act of 1979 (EAA), as amended, any successor legislation, the Export Administration Regulations (EAR), and the International Traffic in Arms

Regulations (ITAR). You will comply in all respects with the export and reexport restrictions applicable to Ciholas products and will otherwise comply with the EAA, EAR, ITAR, and other United States laws and regulations in effect from time to time.

In addition to export regulations, the United States and other countries have laws and regulations governing the use of radio frequency (RF) devices. In the United States, such regulation is under Title III of the Communications Act of 1934, as amended, and regulated by the Federal Communications Commission (FCC). The FCC oversees all non-Federal uses of the radio frequency spectrum, while other regulatory bodies oversee RF devices in other countries' jurisdictions. You agree that you will only use Ciholas products in the jurisdiction for which they were certified and will not exceed the products' operational and use limitations as stated in the product manual. All Ciholas products are labeled as to their specific jurisdictional certification in accordance with the laws of that jurisdiction.

7.1 Governing Law

This Agreement will be governed by the laws of the State of Indiana, USA. Parties agree to attempt, in good faith, to resolve and settle any dispute arising out of this Agreement through negotiation between officially authorized representatives of each party. If the dispute is not resolved through negotiation, any litigation arising from the use of Ciholas services and/or products must be brought and resolved in the State of Indiana, USA.

8 60-Day Money-Back Guarantee

All standard Ciholas products not covered by another agreement have a 60-day Money-Back Guarantee. If for any reason the performance of any product is not acceptable, the product may be returned to Ciholas for a refund. Please note: bulk orders are not eligible for the money-back guarantee and cannot be canceled once the order is processed.

Shipping costs and any taxes and/or duties are not refundable and there is a 20% restocking fee for all returns under this policy. To be eligible for a refund, a customer must include an RMA# (see our return process) and dated proof of purchase with the item for return. The cost of the return shipment, including all taxes and duties, is at the buyer's expense. Any product returned not in resalable condition will not be refunded.

9 Limited Warranty

Ciholas warrants that all Ciholas manufactured products, excluding software, will be free from any defect in materials or workmanship for a period of one year. Warranty begins on the date that an item is shipped from Ciholas to the buyer. The warranty is non-transferable and is extended only to the original buyers of this product when the product is used for the purpose for which it was intended. The one-year warranty covers only defects arising under normal use and does not include malfunctions or failures resulting from misuse, abuse, neglect, alteration, improper installation, acts of nature, tampering, or any repairs attempted by anyone other than Ciholas. During the one-year warranty period, the customer's sole and exclusive remedy will be, at Ciholas' sole discretion, the repair or replacement of the defective product, or refund of the purchase amount of the product. Ciholas reserves the right to substitute functionally equivalent new or serviceable used parts.

To be entitled to the rights provided by the one-year warranty, the customer must do the following:

1. Contact Ciholas Technical Support at returns@ciholas.com or 1-844-595-TECH (8324).
2. Provide in email/phone call, all model number(s), serial number(s), and proof of purchase for all items affected.
3. If return/exchange is necessary, customer will be given a Returned Material Authorization (RMA) # to include with their return.
4. The customer must then ship the item(s), at their expense (including all duties and taxes), to the address provided in the RMA authorization.
5. Once a product arrives at Ciholas, return shipment of repaired or replaced product(s) or a refund will be sent to the customer. The method of return shipment is at Ciholas' discretion and expense, except for applicable duties and taxes, which are the responsibility of the buyer.

9.1 Product Warranty Exclusions

Ciholas does not warrant or guarantee, and is not responsible for the following:

1. Defects, failures, damages, or performance limitations caused in whole or in part by: (A) power failures and surges; fires; floods; acts of nature; excessive temperatures; corrosive environments; accidents; actions by third parties; or

other events outside of Ciholas' control; or (B) customer abuse; mishandling; misuse; negligence; improper storage, servicing, installation, or operation; or unauthorized attempts to repair or alter equipment in any way.

2. Performance of the equipment when used in combination with equipment not purchased, specified, or approved by Ciholas.
3. Consumable goods used with, or required by, Ciholas products.
4. Alterations and/or modifications to any Ciholas equipment without Ciholas' written authorization. Such action unconditionally VOIDS the Ciholas Agreement and Warranty.
5. Installation of any software code, other than that provided and licensed by Ciholas. Any such installation onto any Ciholas product voids the one-year warranty, unless a written exemption is provided to the customer by Ciholas.

9.2 Disclaimer of Warranty

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10 Ciholas Standard Privacy Policy

Ciholas is committed to protecting your personal information and your right to privacy. If you have any questions or concerns about our policy or our practices with regards to your personal information, please notify Ciholas at info@ciholas.com.

The following is to inform you of our policies for collecting, using, and disclosing your Personal Identifiable Information (PII) made available to Ciholas when you browse our sites, create accounts on our sites, purchase and use our services and products, and/or contact us through our support email. By using any of our services and products, you agree to the collection and use of your PII in accordance with this and other policies contained in this Agreement.

10.1 Personal Identifiable Information Collected

In the CUWB.IO Shop, we collect personal information that you voluntarily provide to Ciholas when creating an account, posting messages, or otherwise contacting us. The PII that we collect depends on the context of your interactions with Ciholas and the choices you make regarding the information you provide. The PII you share is up to you and is not required for browsing any of our sites. However, if you want to create an account, purchase an item in our shop, and/or call/email our support staff, you may be asked for PII. The PII collected is encrypted using secure socket layer technology (SSL).

The PII we collect could include the following:

Name and Contact Data – First and last name, email address, postal address, phone number, and other similar contact data.

Credentials – Passwords and similar security information used for authentication and account access.

Payment Data – All payment data collected through the website is by a third-party payment processor (TPPP). Ciholas DOES NOT have access to any of the payment information that you provide to the TPPP. None of the TPPPs use any of your data for anything other than processing your payment and have their own privacy policies, which are as strict as or stricter than, those contained in this privacy policy. Ciholas and all Ciholas TPPPs use SSL/TLS encryption for securing data. All Ciholas TPPPs are PCI DSS compliant for payment processing standards.

10.2 Information Usage

We use your PII for the purposes listed above and to keep our site safe and secure (for example fraud monitoring and prevention) and to enforce our terms, conditions, and policies for our legitimate business purposes.

We may disclose your information where we are legally required to do so to comply with applicable law, judicial proceedings, court order, or legal process, such as in response to a court order or a subpoena.

We will not share, sell, rent, or trade any of your PII with any third parties.

10.3 Duration of PII Storage

We keep your information for only as long as necessary to fulfill the purposes outlined in this privacy policy unless otherwise required by law.

10.4 Keeping PII Safe

We have implemented appropriate technical and organizational security measures designed to protect the security of any personal information we process. However, given that the internet is not 100% secure, transmission of personal information to and from our sites is at your own risk. Only access our services, products, and sites within a secure environment.

10.5 Unique Privacy Rights

Based on the laws of some countries and states, you may have the right to request access to the PII we collect from you, change that information, or delete it in some circumstances. For more information on how to do that, please contact Ciholas at info@ciholas.com.

If you are visiting our sites from outside of the United States, please be aware that you are sending information (including PII) to the United States where our servers are located. That information may then be transferred within the United States or back out of the United States to other countries outside of your country of residence, depending on the type of information and how it is stored by us. These countries, including the United States, may not have data protection law as comprehensive or protective as those in your country of residence; however, our collection, storage, and use of your PII will at all times continue to be governed by this Privacy Policy.

10.6 Non-PII Information Automatically Collected

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These Terms of Service were last modified on 2025-11-11.

[**End of Agreement**]

10 APPENDIX B : Software License Attributions

This appendix documents the legal attributions for third party software and components included in the CUWB Firmware.

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FreeRTOS Kernel
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https://www.FreeRTOS.org
https://github.com/FreeRTOS

2 SHA-1 in C

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steve@edmweb.com
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4 LWIP

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5 fixed point log

fixed point log
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