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## ***AS300 / Compact Asset Tracker***

*User Manual V02    July 05, 2024*

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# 1. Notification

## 1.1. Disclaimer

This document, and all other related products, including device, firmware, and software, are exclusively developed by ATrack Technology Inc.

Due to the continuous developments and improvements of device functionalities, changes in the protocol, specification, and firmware functions are subjects to change without notice. ATrack Technology Inc. reserves the right to modify all documentations based on its own timelines. Document modification notices will be released to ATrack Technology Inc.'s customers upon completion.

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## 1.2. Copyright

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## 1.3. Warning

1. Connecting of the input wires can be hazardous to both the installer and your vehicle's electrical system if not done by an installer. This document assumes you are aware of the inherent dangers of working in and around a vehicle and have qualified knowledge of understanding electrical behaviors. An experienced technician with knowledge of installing audio system, relay wiring, or any electronic system in vehicle is highly recommended to perform installation.

2. While doing any operation without top cover, please wear anti-static gloves/rings to avoid the damage of Electrical Static Discharge.
3. There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

## 1.4. FCC ID

FCC ID : YA7-AS300

## 1.5. FCC Compliance Statement

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.

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/TV technician for help.

FCC Section 15.21 information for user

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

### 1.6. IC Compliance Statement

[EN]

RSS-Gen Issue 4 8.4

This device complies with Industry Canada’s licence-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.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Under Industry Canada regulations, this external radio frequency power amplifier (insert Industry Canada certification number of radio frequency power amplifier) may only be used with the transmitter with which the amplifier has been certified by Industry Canada. The certification number for the transmitter with which this amplifier is permitted to operate is IC:XX...X-YY...Y.

[FR]

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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet appareil et son antenne (s) ne doivent pas être situés ou fonctionner en conjonction avec une autre antenne ou émetteur.

En vertu des règlements d'Industrie Canada, cet amplificateur de puissance de fréquence radio externe (insérer Industrie Canada numéro de certification de l'amplificateur de puissance de fréquence radio) ne peut être utilisé avec l'émetteur avec lequel l'amplificateur a été certifié par Industrie Canada. Le numéro de certification pour l'émetteur avec lequel cet amplificateur est autorisée à opérer est IC: XX ... X-YY ... Y.

### 1.7. Manufacturer

Company: ATrack Technology Inc.

Address: 8F., No. 13, Ln. 120, Sec. 1, Neihu Rd., Neihu Dist., Taipei City 11493, Taiwan (R.O.C.)

### 1.8. CE Representatives (CE Cert. have been processing)

The followings are authorized to represent ATrack Technology, in compliant to CE regulation.



**Company:** APEX CE SPECIALISTS GMBH

**Address:** Habichtweg 1 41468 Neuss Germany

**E-Mail:** Info@apex-ce.com



**Company:** APEX CE SPECIALISTS LIMITED

**Address:** 89 Princess Street, Manchester, M1 4HT, UK

**E-Mail:** Info@apex-ce.com

### 1.9. Document Amendments

Rev.	Pub. Date	Comments	F/W Version
V02	Jul. 05, 2024	• Initial version(EVT)	
V01	May. 24, 2024	• Initial version(EVT)	

**Note:** For the F/W Version column with specific firmware number, it means the modification(s) on the Comments column is done on this corresponding firmware version (and the versions thereafter). Please make sure you upgrade the firmware to the specified version before applying any changes made in this protocol.

### 1.10. Caution

- When user changes the \$FORM setting while there are still queued reports inside memory, those queued reports [with previous format] will be deleted in order to remain integrity.
- For Reports generated After powering-up and Before GPS-fixed, their GPS\_Time & RTC\_Time will be counted from 1970/01/01 & 2021/01/01 accordingly.
- Please activating AS300 outdoor for good GPS reception and you will not have Power ON event report immediately if GPS is not fixed.

## 2. Product Specifications

CELLULAR	
AS300-MG (Global)	LTE FDD Cat.M B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B27, B28, B66, B85
Data Support	UDP / IP, TCP / IP
Antenna	Embedded Cellular Antenna

POSITIONING	
GNSS Receiver	99 Channel Engine
GNSS Engine	GPS & GLONASS
Other Location Technology	Wi-Fi Scan
SBAS Support	WAAS, EGNOS, GAGAN, MSAS
Tracking Sensitivity	-167dBm
Acquisition Sensitivity	-149dBm
Location Accuracy	2.5m CEP 50%
Antenna	Internal

WIRELESS	
Bluetooth	Low Energy v5.0, Class 2 (Support long range)

SENSORS	
Accelerometer	3-axis ±16g
Bluetooth Sensor	Support BL1 Door Open Detection* Support BL1 Temperature Sensor* Support BL1 Humidity Sensor* Support BL1 Angle Sensor*  * Optional Accessories Required

ELECTRICAL	
Operating Voltage	3.7V
Operating Current	20mA~380mA
USB Voltage	5V
USB Current	450mA
Current Consumption	Deep Sleep Mode < 12uA
Battery Type	Li-Polymer
Battery Capability	920mAh
Battery Life	2 years (daily report interval) 4 weeks (hourly report interval) 2 days (every 5min report interval)
LED Indicator	Internal (Power Status Indicator)

MEMORY	
Internal Flash Memory	16 Mbits

<b>ENVIRONMENTAL</b>	
Operating Temp	-20°C to +60°C (Recharge 0°C to +45°C)
Humidity	95%RH @ 50°C Non-condensing
Vibration/Shock	MIL-STD-810H
Salt Fog	MIL-STD-810H
Low Pressure	MIL-STD-810H
Unit Drop Test	MIL-STD-810H
IP Rating	IP67

<b>PHYSICAL</b>	
Dimension	90 mm × 60 mm × 21.85 mm (3.5" x 2.4" x 0.9")
Weight	94g (0.21 lb)
Enclosure	UV-Resistant PC
Mounting Method	Magnet Mount, Zip Tie

<b>CONNECTORS</b>	
SIM Card Socket	Nano SIM(4FF), eSIM
USB Type-C	Battery recharge and configuration

<b>CONFIGURATION</b>	
Firmware Update	ADM (ATrack Device Management), USB Type-C
Configuration Update	ADM (ATrack Device Management), USB Type-C

## 3. Installation

### 3.1. Package Content

Verify that you received the following items in the package:



1x AS300 Device

### 3.2. Optional Accessory

The optional accessory is:

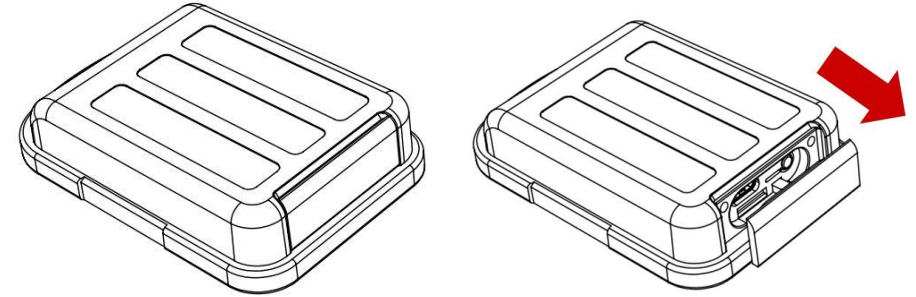


1x USB (Type A) 4pin to USB (Type C)  
for configuring AS300

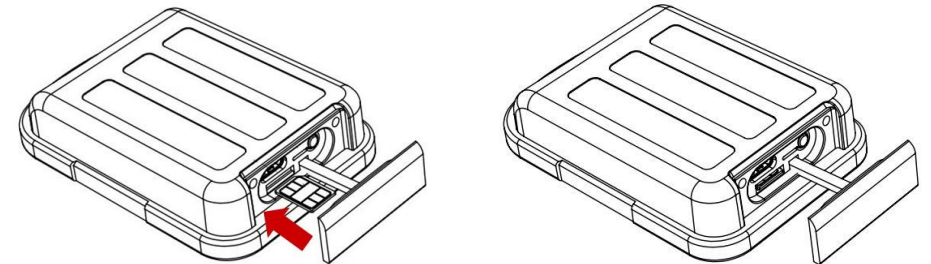
### 3.3. SIM Card Installation

AS300 supports installation of one NANO SIM card. To install a SIM card, please follow the instruction below to remove the cover and insert the SIM.

1. Open the waterproof cover. Please be careful not to pull too hard when opening the cover to avoid breaking it. .

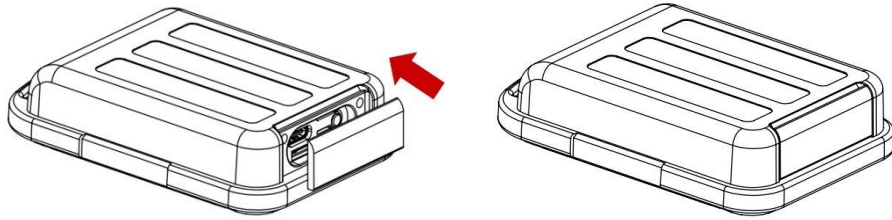


2. Insert the NANO SIM horizontally by the direction shown.



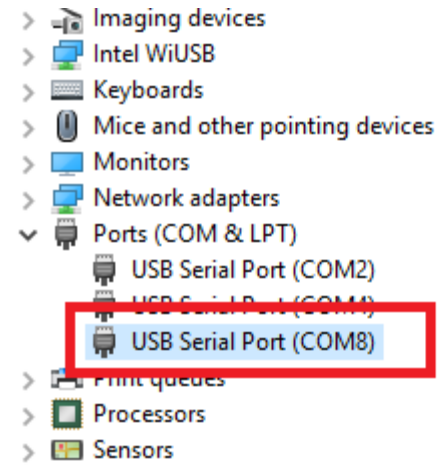


- Put on the waterproof cover. Please make sure the cover is securely in place to ensure the best waterproof performance.



### 3.4. Configuration Port and Setting

The configuration cable is used to connect to the socket inside the AS300 and PC for configuring parameters and firmware upgrade. When the configuration cable is connecting to your PC/laptop, a "USB Serial Port" will show up in the device manager. This will be used as serial port to communicate with AS300. Please note down the COM port in order to select it correctly when using a terminal emulator.

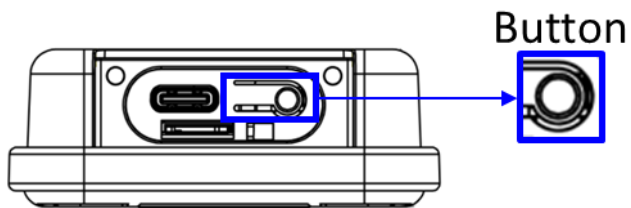


Next, connect the USB (Type C) as shown below.

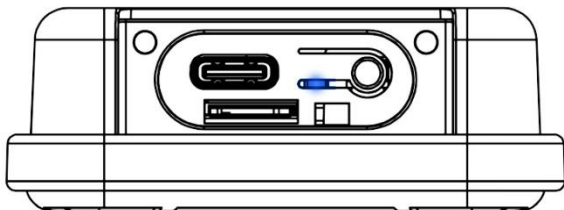


### 3.5. LED Indication for Battery Capacity

Press the button to make LED blink.



The following figure shows the location of AS300's LEDs.



LED	Color	Indication	Description
Turn On/Off		Long press the button 2 seconds, LED flashes once with a 2000ms duty cycle.	Turn on
		Long press the button 2 seconds, LED flashes twice with a 2000ms duty cycle.	Turn off
Battery Capacity	Blue	Press the button, LED Flash 4 time 500ms duty cycle.	Over 4.0V
		Press the button, LED Flash 3 time 500ms duty cycle.	3.8~4.0V
		Press the button, LED Flash 2 time 500ms duty cycle.	3.6~3.8V
		Press the button, LED Flash 1 time 500ms duty cycle.	Below 3.6V
		Recharge with USB (Type C), LED Flash 1 time 200ms duty cycle.	Battery charging *In charging mode, AS300 will not enter to sleep mode.

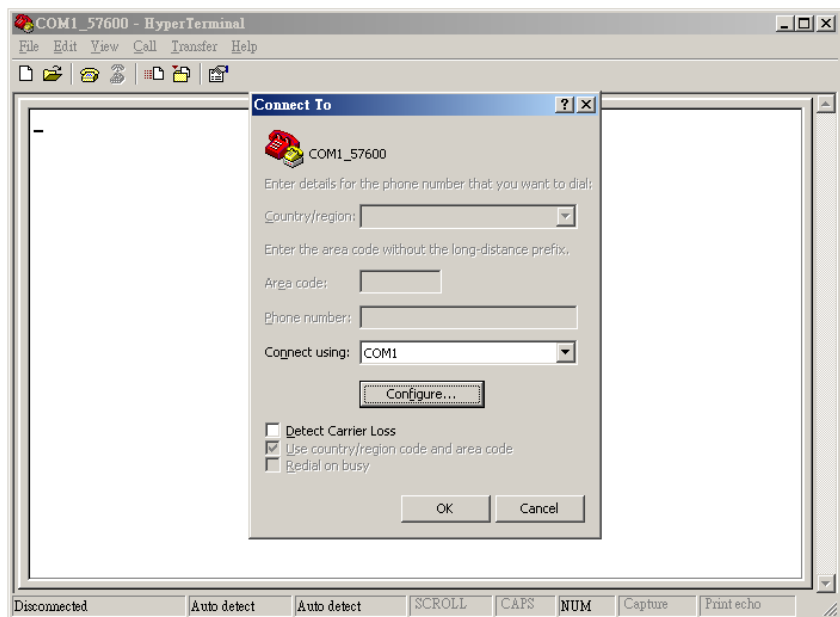
## 4. Configuration

You may explore great features on the AS300 through AT commands either over the direct serial connection or remote via SMS/GPRS. The command syntax for direct or remote connections is the same. Each command should be following the specified format in the Protocol Document, and the command shall end with carriage-return and line-feed characters.

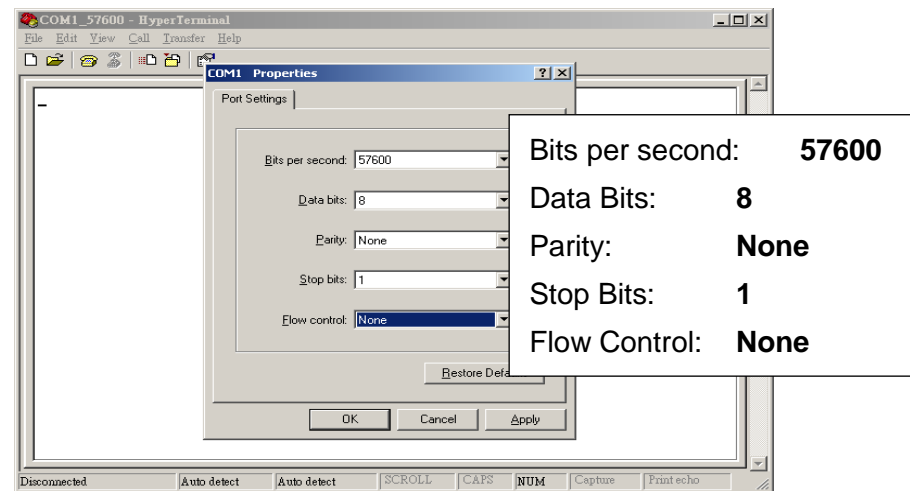
## 4.1. Connecting AS300 Using HyperTerminal

The following example shows how to connect the AS300 through HyperTerminal. You may use other popular terminal emulators such as **Putty** or **Tera Term Pro** to establish a console session with the AS300.

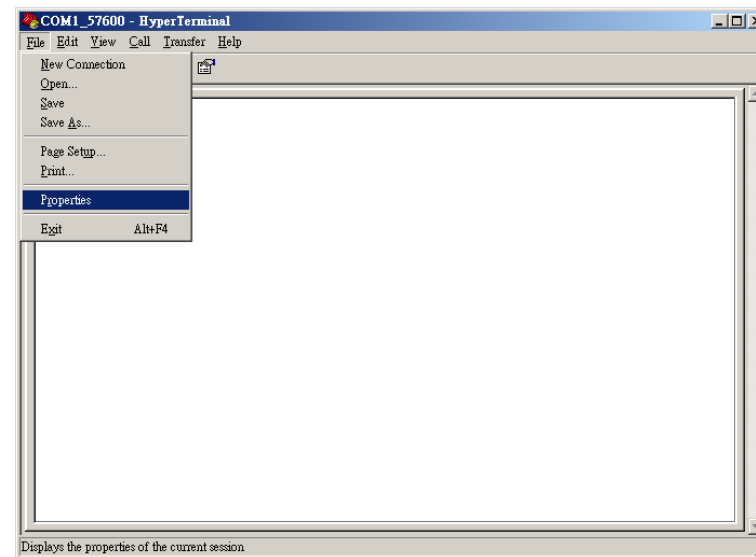
1. Run HyperTerminal, select the correct COM port, and then click on the **[Configure...]** button.



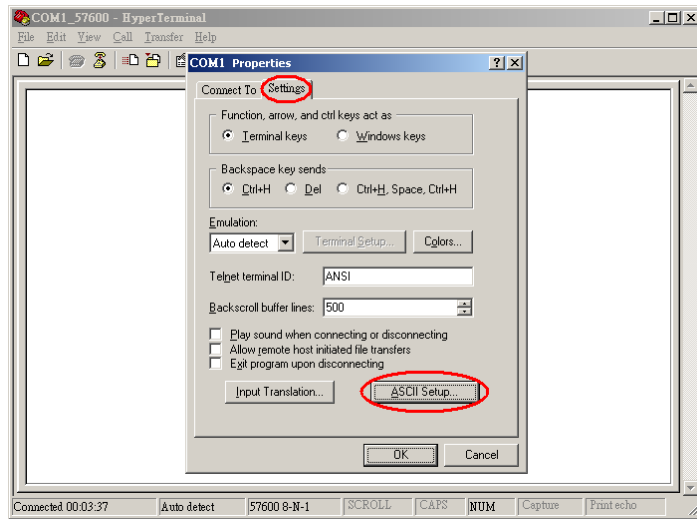
2. The **Port Settings** should be as follows. Click on the **[OK]** button to close the Properties window.



3. Click on **[File] → [Properties]**.



- Click on the [Settings] tab and click on the [ASCII Setup...] button.



- Check the following options and click on the [OK] button.

