

ATS01-CL120 User Manual/Install Guide



Quick Reference



Attention

The ATS01-CL120 obtains power through sunlight to extend the battery life.

Please make sure that the device is exposed to direct sunlight every day. This will be very useful to extend the battery life. If the device is not charged for more than three months, it may cause permanent damage to the internal battery.

Please ensure the device is fully charged before installation.

Only when the solar panel output voltage value is 0.3V higher than device battery voltage value, the solar panel will start to charge the battery. Otherwise, the solar charging will stop.

To ensure the battery life for longer period, please be careful to set the reporting intervals. Lower reporting rates will maintain the balance between the power consumption and gaining (from solar panel).



Equipment power consumption and solar panel charging current

The normal device power consumption is around 40mAh when the device is in working mode without sleep.

The typical charging rate of the solar panel under direct sunlight at noon (in summer) is about 330mAh (different sunlight illumination, different charging current).

Disclaimer

Before using this device, customers should fully understand their usage scenarios and installation environment. Fleet Hoster™ will not be responsible for any lost caused by using the device in a wrong scenario or reporting rate. It is highly recommended that customers should contact Fleet Hoster™ before deployment. We are glad to give suggestions.

Intelligent Power Management

To extend the battery life, we designed an intelligent power management algorithm. This algorithm allows the tracker working under a lower reporting rate when battery is low. Once the battery is charged back, the tracker will report as normal. This function is enabled in default. Customer can disable it by command. The detail working logic is:

- When the battery voltage value is down to 3.4V, then the tracker will report at every 24 hours no matter moving or standstill.
- When the battery is charged back to 3.5V, the device will report as what are set by customer.

FOTA (firmware over the air) Notification

Fleet Hoster™ may authorize firmware updates from time to time to ensure all devices are operating on the most recent versions to ensure device functionality and longevity, and to possibly avoid any need for critical manual firmware updating.

Product Specifications

Network Specifications	
Operating Band	LTE FDD Cat M1: B1/ B2/ B3/ B4/ B5/ B8/ B12/ B13/ B18/ B19/ B20/ B25/ B26/ B28/ B66/ B85 LTE FDD Cat NB2: B1/ B2/ B3/ B4/ B5/ B8/ B12/ B13/ B18/ B19/ B20/ B25/ B28/ B66/ B71/ B85 GSM/ EDGE: 850/ 900/ 1800/ 1900MHz
Data Transmission	eMTC: Max. 588 (DL), Max. 1119 (UL) NB1: Max. 32Kbps (DL), Max. 70Kbps (UL) NB2: Max. 127 (DL), Max. 158.5 (UL) EDGE: Max. 296Kbps (DL), Max. 236.8Kbps (UL)

	GPRS: Max. 107Kbps (DL), Max. 85.6Kbps (UL)
GNSS Specifications	
GNSS Chipset	MediaTek High Gain GNSS receiver
GNSS System	GPS+ Glonass or GPS+ Beidou
Receiver type:	33 tracking / 99 acquisitions- channel GNSS receiver
Sensitivity	Cold start: - 149 dBm Tracking: - 167 dBm
Horizontal Position Accuracy	< 2.5m CEP
TTFF @ - 130 dBm with (without) EASY™	Cold Start: < 15s (32s) Warm Start: < 8s (28s) Hot Start: < 1s (1s)
Interfaces	
Charging Port	2 Pin 5V/DC
E- Lock Configuring Port	Type- C connector
Network, GNSS Antenna	Internal only
Indicator LED	Battery, Network, GNSS, RFID
FOTA	Yes
Physical Power Switch	1
Temperature Sensor	1 temperature sensor
BLE 5.1	Yes
General Specifications	
Waterproof	IP67
Dimensions	207.5mm*110.2mm*48.1mm(8.17"*4.39"*1.9")
Weight	1050g (37oz)
Battery	Rechargeable Li- Polymer 14400 mAh/ 3.6V
Standby Time (Without solar charging, 2 hours active tracking per day)	10 minutes reporting: 402 Days 5 minutes reporting: 315 Days 1 minute reporting: 144 Days
Charging	2 PIN (Recommend using 5V 1A adaptor, 30 hours charging)
Operating Temperature	- 25°C ~ +80°C (- 13°F ~ 176°F)
Mounting	Built- in Magnet
Air Interface Protocol	
Transmit Protocol	TCP, UDP, MQTT, SMS
Data Security & Encryption Option	MD5/ AES256
BLE Accessory Support	Yes
Scheduled Timing/angle/distance Report	Report position and status at preset intervals
Geo- fence	Support up to 64 internal geo- fence regions
Alarms	Rope cut, Moving, Stop, Lock, Unlock
Industry Certifications	
CE, RCM, IC, FCC, PTCRB, AT&T, US Cellular, T- Mobile, Verizon (Planning)	

Standard Accessories Introduction



LED indicator



Note: Indicator lights will go out automatically after the tracker turns on for 70 seconds without connecting to the external power via USB cable.

LED indicator working status:

Solid on: LED indicator on and no flashing

Fast flashing: 0.25 second on and 0.25 second off

Slow flashing: 1 second on and 1 second off

Unlock: Unlock successfully, Put the correct RFID key card on the section marked in red for several seconds. After the lock successfully recognizes the RFID key card, RFID LED indicator will show **solid on** until plug out the lock rope. If the rope isn't taken out in 60 seconds, device will lock again, and LED indicator goes off.



Lock: After lock successfully, RFID LED indicator will be **fast flashing** for 2 seconds then off.

Wake up the device: Device gets the wake up info, RFID LED indicator will show **slow flashing** 300 seconds or get the unlock command from server side then switch to unlock process.

Lock Error: Network & GNSS & RFID LED on (The maximum duration of continuous light is 300 seconds then off or the error disappear) – This is mechanical failure.

Unlock Error: GNSS & RFID LED on (The maximum duration of continuous light is 300 seconds then off or the error disappear) – This is mechanical failure.

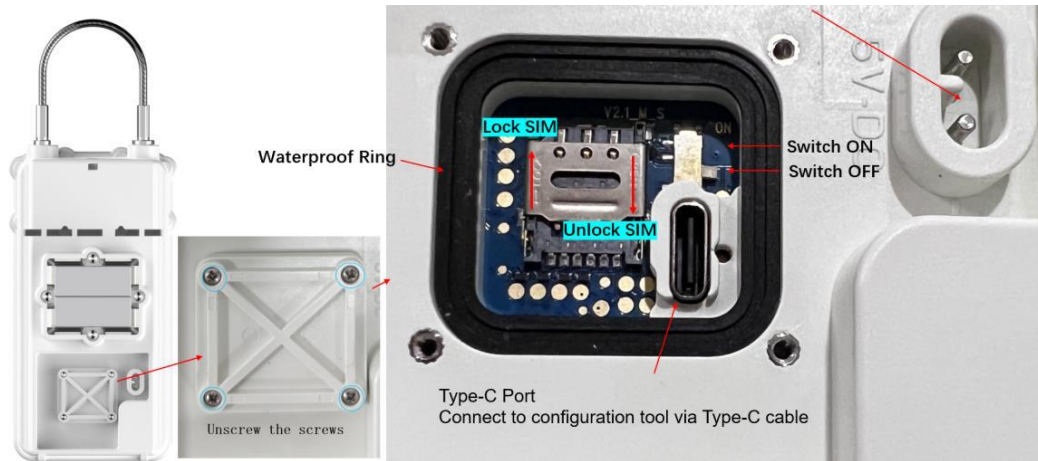
Installation Guide

SIM card pre-installation note

- SIM card data service should be enabled.
- If SIM card is locked via PIN, please unlock it first.
- Ensure there is sufficient balance in the SIM card.

SIM card installation and tracker power switch

- Open the tracker SIM card cover with the screwdriver.
- Unlock SIM cover and insert sim card then lock. Turn the power switch from off to on.
- Put the cover back and use screwdriver to fix the cover tightly.



Fix Screws

It is **VERY IMPORTANT** to fix the 4 SIM card cover screws to prevent water from leaking inside and cause damage to device.

For third party electric screwdriver, please use torque 3.5kgf.cm.

Installation

- Ensure the device is not located near any other foreign objects with emissions such as sensors, alarms, and any other communication devices.
- This device is intended to be installed what may appear as upside down; with cable on bottom or facing the ground.
- Please be aware of the magnet on the back as it is very strong.
- If you are installing to a trailer or surface that is non metallic, please utilize and install the included metal plate first.
- When inserting the cable to secure your asset, please make sure the cable is fully inserted with no spaces.
- If it is inserted incorrectly you will see error message on the device with all three lights solid; there should be no lights when cable is securely fitted.



Trailers



Containers



Secure Doors

Tracker Operation

Physical power on or off

Turn the power switch to on or off position.

Physical power off is recommended when the tracker is stored in the warehouse.

The battery

Place the tracker solar panel side on the desk

Recommend connecting the device to a 5V 1A (cellphone) adaptor through magnet USB cable for 30 hours charging to make sure the battery is fully charged. Customer also can connect the tracker to other USB connectors. But lower current output will cause longer charging time.

When the battery voltage value drops to 3.3V, usually a battery charging is needed to avoid unexpected shutdown due to low power. If the battery runs out completely, please keep the tracker charging for 24 hours first. Only when the battery is charged to 3.5V, the device will power on again.

Get Current Position

SMSQuery (only when the device in working mode and registered on the network)
Device default PIN is 0000. Send a location inquiry SMS command (google,0000#) to the tracker. The location information will be sent back through SMS (the tracker SIM card must support receiving and sending SMS first).

Platform Query

Connect your tracker to the tracking platform then check the real-time position online. (Additional tracking service charge may happen. Contact with your service provider to get more details)

Alarm Configuration

Alarm configuration please via the Fleet Hoster™ configuration tool.

Quick Trouble Shooting

Unable to Connect to the Tracking Platform

Check the APN and IP settings.

Check the SIM card data service whether enabled.

Make sure there is no limitation or already added server IP to the SIM card IP whitelist when using a M2M SIM card.

Check the balance/data of the SIM card.

Tracker Shows Offline

Check the battery remaining power

Check if the device entered into network blind area.

Check the SIM card balance.

If the connection lost happens on the last several days of the month, check whether the network service is terminated by carrier because of exceeding the max data usage volume.

Unable to Locate

The device may shield by metallic things.

The device may enter into an area with no satellite signal coverage.

(Underground, building, etc)

Position Drift

In an area with poor GNSS signal (like the areas with lots of high buildings), position drift may happen. When the device moves to open area, the drift will no longer exist.

No Command Reply

Check the command format. Make sure it's correct.

The device may be in network blind area.

Ensure the SIM card is properly inserted.

Frequently Used Commands

Commands are not case-sensitive and can be sent via mobile phone. The content is separated by comma and ends with #. When set successfully, the tracker will return OK and execute it. Otherwise, there will be no message returned.

Function	Command Format
Unlock	Unlock ,Unlock PIN #
APN Setting	APN ,Current PIN,APN Name,Username,Password#
Server Setting	IP ,Current PIN,Server Domain Name or IP,Port Number#
Upload Interval Setting	TIMER ,Current PIN,Upload Time(ACC on):Upload Time(ACC off):Angle Compensation:Distance Compensation#
Heartbeat Setting	HBT ,Current PIN,Heartbeat Interval#
PIN Setting	PASSWORD ,Current PIN,New PIN#
Google Map Search	GOOGLE ,Current PIN#
Forgot the PIN	MYSELF #

Unlock Setting

Unlock,Unlock PIN #

Unlock PIN:

Range: 6 numbers

Length Limit: 6

Note: The unlock PIN is different from device PIN

APN Setting

APN,Current PIN,APN Name,Username,Password#

APN Name:

Range: APN of service provider

Length Limit: 1~32

Username:

Range: Letters and Numerals

Length Limit: 0~32

Password:

Range: Letters and Numerals

Length Limit: 0~32

Note:

- 1) Tracker will return "SET APN OK" when received this command.
- 2) If there is no Username and Password, the SMS setting is:
APN,Current PIN,APN Name,,#
- 3) If there is no APN PIN, the SMS setting is:
APN,Current PIN,APN Name,Username,#

Server Setting

IP,Current PIN,Server Domain Name or IP,Port Number#

Server Domain Name or IP:

Range: Letters, Numerals and Symbols

Length Limit: 1~128

Port Number:

Range: Positive Integer

Length Limit: 0~65535

Note: Tracker will return "SET IP OK" when received this command.

Upload Interval Setting

TIMER,Current PIN,Upload Time(ACC on):Upload Time(ACC off):Angle Compensation:
Distance Compensation#

Upload Time (ACC on):

Range: Positive Integer

Range Limit: 0, 3~65535 second

Upload Time (ACC off):

Range: Positive Integer
Range Limit: 0, 1200~ 4294967295 second

Angle Compensation:

Range: Positive Integer
Range Limit: 0~90 degrees

Distance Compensation:

Range: Positive Integer
Range Limit: 0 ~ 65535 meters

Note: Tracker will return "SET TIMER OK" when received this command.

Heartbeat Setting

HBT,Current PIN,Heartbeat Interval#

Heartbeat Interval:

Range: Positive Integer
Range Limit: 1 ~ 255 minutes
Default: 30 minutes

Note: Tracker will return "SET HBT OK" when received this command.

PIN Setting

PASSWORD,Current PIN,New PIN#

PIN:

Range: Letters and Numerals
Length Limit: 1 ~ 10
Default: 0000

Note: Tracker will return "SET PASSWORD OK" when received this command.

Google Map Search

GOOGLE,Current PIN#

Note: Tracker will return below message when received this command.

<http://maps.google.com/maps?q=<Latitude>, <Longitude>>

Forgot the PIN

MYSELF#

Note:

- 1) If the manager phone number has been set, only the manager can use "MYSELF#".
If no manager setting, the tracker will return the IMEI and current PIN when it