

# LT700H RTK ANDROID TABLET

# **User Guide**



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### Preface

#### Copyright

#### Copyright 2019

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#### Trademarks

All product and brand names mentioned in this publication are trademarks of their respective holders.

#### **Safety Warnings**

The Global Positioning System (GPS) is operated by the U.S. Government, which is solely responsible for the accuracy and maintenance of the GPS network. Accuracy can also be affected by poor satellite geometry and obstructions, like buildings and heavy canopy.

#### **FCC Interference Statement**

This equipment has been designed to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules in the Portable Mode. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

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.

### **CE Interference Statement**

Declaration of Conformity: Hereby, Shanghai Huace Navigation Technology Ltd. declares that this LT700H is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. A copy of the Declaration of conformity can be found at Shanghai Huace Navigation Technology Ltd.

# CE F©

### **1** Introduction

Thank you for choosing CHCNAV LT700H GNSS RTK Tablet.

This user guide will provide useful information about your receiver. It will also guide you through your first steps of using LT700H in the field.

#### **1.1 Technical Assistance**

If you have a problem and cannot find the information you need in the product documentation, contact your local dealer from which you purchased the LT700H. Alternatively, please request technical support using the CHCNAV Website (<u>www.chcnav.com</u>) or CHCNAV technical support email (<u>support@chcnav.com</u>).

#### **1.2 Your Comments**

Your feedback about this Getting Started Guide will help us to improve it in a future revision. Please e-mail your comments to <a href="mailto:support@chcnav.com">support@chcnav.com</a>.

### **1.3 Safety Information**

This manual describes CHCNAV LT700H RTK Tablet. Before using the LT700H, please make sure that you have read and understood this Getting Started Guide, as well as the safety requirements.

#### **1.4 Warning and Cautions**

This device complies with Part 15 of the FCC Rules. The 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.

Absence of specific alerts does not mean that there are no safety risks involved.



A Warning or Caution information is intended to minimize the risk of personal injury and/or damage to the equipment.



WARNING - A Warning alerts you to a potential misused or wrong setting of the equipment.



CAUTION - A Caution alerts you to a possible risk of serious injury to your person and/or damage to the equipment.

#### 1.5 Use and Care

The LT700H is designed to withstand the rough environment that typically occurs in the field. However, the LT700H is high-precision electronic equipment and should be treated with reasonable care.

### 2 Overview

#### 2.1 Features

LT700H is a high-end GNSS RTK tablet under Android 8.1 OS. Its dust and waterproof level is IP67 and it can survive 1.5 m fall onto concrete. With 8000 mAh Li-ion battery, it can continuously work up to 12 h. The LT700H tracks GPS + GLONASS + GALILEO + BEIDOU (for details refer to **3.10.2 Select the Constellation Combination.)** 

Item	Specification
Operating System	Android 8.1
СРИ	8-core 2.2 GHz
RAM	4 GB
Flash Memory	64 GB
Memory Extend	Micro SD, up to 128G
GNSS	Support GPS, GLONASS, BDS and GALILEO
Accuracy	0.05 m HRMS with RTCM 3.2 corrections
Channel	184
Cold Start	30 s
Warm Start	15
WIFI	802.11 a/b/g/n/ac
Cellular Modem	TDLTE, TDSCDMA, EVDO, GSM, WCDMA
Bluetooth	V4.1
USB	Type C/OTG
Li-ion Battery	8000mAh
Voltage	3.8V
Battery Life	12 h (continuous work)
Charging Time	4.0 h (5V, 2A); 3.0h (9V/12V, 2A)
Front Camera	5 megapixels
Back Camera	16 megapixels
Flashlight	Integrated

### 2.2 Specifications

#### **Physical specifications**

#### Display

- Size: 8" IPS Glass touch screen
- Resolution: 1920 x 1200
- Brightness: 450 cd/m<sup>2</sup>
- Touch screen: Capacitive touch, 10 points touch screen, waterproof, gloves-supported
- Point touch pen: Mapping pen with high degree of accuracy
- Screen technology: IPS display panel Corning<sup>®</sup> Gorilla<sup>®</sup> Glass 3

#### Physical

- Dustproof and waterproof: IP67
- Shock: Survives a 1.5 m drop onto concrete
- Humidity: 5% 95% RH (without condensation)
- Dimension: 240 mm\*151 mm\* 32 mm (L\*W\*H) (including module)
- Weight: 675 g (with battery and module)
- Operating temperature: -20 °C to +60 °C
- Storage temperature: -30 °C to +70 °C

#### Sensors

- NFC: Support
- G-sensor: Support
- Light sensor: Support
- Distance sensor: Support
- E-compass: Support
- Gyroscope: Support

#### 2.3 Front View



#### **Power Button**

Power on: Press the button for 1-2 seconds, the Power Indicator will turn on and the boot screen will appear. The LT700H will enter the operating system after 30 seconds.

Power off: Press the button for 1-2 seconds, the **[SELECT]** dialogue box will pop up, select **[Power off]** to turn off the device.

Return: Press the button to go back to the last menu.

#### **Menu Button**

Click this button to bring out the start menu.

#### Homepage

Use the Homepage button to the main menu.

#### F1/F2 Function Button

This key is a shortcut key to the preset function or menu.

#### USB Type C

This interface is used for battery charging and data transmission between LT700H and PC by using a USB cable.

#### Volume button

These two buttons are used for increasing / decreasing the volume.

#### 2.4 Back View



2.5 Тор



#### 2.6 Bottom

## USB Type-C Charging/Data Interface



The tablet has a internal rechargeable Lithium-ion battery, charge the battery completely before using it for the first time. To charge the battery, please connect to the AC power via the USB cable and power adapter.



WARNING - Charge the battery only in strict accordance with the instructions. Charging or using the battery in unauthorized equipment or in a wet environment can cause an electric short and damage to the tablet. Do not insert any object into the charging port, it can result in damage to the charging port.

To prevent injury or damage:

•Charge the battery only in CHC authorized equipment. Be sure to follow all instructions that are provided with the battery charger.

• Discontinue charging a battery that gives off extreme heat or a burning odor.

The operation system has short circuit proof design, a pop-up warning will show up if it's shortcircuited (as shown below), please unplug the charger and check the charging port, USB cable and power adapter.



Please note: If no action is taken while the warning shows up, this would also result in damage



to the charging port.

#### 2.7 Installation



Please insert the SIM card and the MicroSD card in the direction of the diagram.

### **3** Basic Operation

#### 3.1 Insert SIM Card and Power On

Refer to 2.7 Installation to find the SIM card and TF card slot, and then insert the cards into slots correctly.

Before powering on LT700H, please make sure to fully charge the battery. Then long press the power button to turn on LT700H and enter its home screen.

Click **S** to make a phone call.



Click 🔼 to access contacts information.



Click 📀 to open a browser.

**Basic Operation** 



Click d to go back to the previous menu.

Click O to return home screen.

Click click

After powering on LT700H, click **Settings—Network & Internet—SIM cards** to turn on the SIM cards.



SIM cards	
SIM 1	
SIM empty	
2 SIM 2	
China Mobile	
Preferred SIM for	
Default 4G/3G Subscription	
China Mobile	
Calls	
China Mobile	
China Mobile SMS messages	

#### 3.2 Language & Input

Click [Settings] –[System]- [Language & input] – [Language] to select language. If you have not found the language you want to choose, click [Add a language] to find the target language.

4	Languages & input	+	Languages & input
Ā	Languages English (United States), Simplified Chinese (China), and _	Â	Languages English (United States), Simplified Chinese (China), and
	Keyboard & Inputs		Keyboard & inputs
	Virtual keyboard Android Keyboard (AOSP), Google voice typing, 360演示键盘(语勿主 动选择)		Virtual keyboard Android Keyboard (AOSP), Google voice typing, 360演示键盘(语勿当动选择)
	Physical keyboard Not connected		Physical keyboard Not connected
	Advanced Input assistance	~	Advanced Input assistance

#### 3.3 Set Date & Time

Click [Settings] –[System]- [Date & time] and enter [Date & time] interface.



If you want to set date and time by yourself, please turn off the **Automatic date & time** first and then click **Set date** and **Set time** to start your settings.

Date & time	
Automatic date & time Use network-provided time	
Automatic time zone Use network-provided time zone	
Set date October 31, 2018	
Set time 9:41 AM	
Select time zone GMT+08:00 China Standard Time	
Use 24-hour format 1:00 PM	
	Use network-provided time Automatic time zone Use network-provided time zone Set date October 31, 2018 Set time 9:41 AM Select time zone GMT+08:00 China Standard Time Use 24-hour format

You can also customize your time zone and choose whether to use the 24-hour format in this interface.

### 3.4 Display

Click [Settings] – [Display] to enter Display interface. Click Advanced to view all the options.





Brightness adjusting: Click Brightness level to adjust it according to your preference.



**Sleep**: Click to optimize the inactivity time LT700H needs to close the screen.

Sleep	
○ 15 seconds	
◯ 30 seconds	
○ 1 minute	
O 2 minutes	
○ 5 minutes	
I 0 minutes	
◯ 30 minutes	
○ Never	
	CANCEL

**Font size**: Click **Font size** to enter Font size interface and then Slide the green dot to change the font size.



←	Font size
Sar	nple text
The	Wonderful Wizard of Oz
Even were lined with s marb set cl were	ther 11: The Wonderful Emerald City of $0z$ with types protocted by the green spectacles Dorothy and her friends at first dazzled by the brilliancy of the wonderful City. The streets were with beautiful houses all built of green mathle and studded everywhere garkling emeralds. They walked over a paverent of the same green le, and where the blocks were joined together were rows of emeralds, osely, and gittering in the brightness of the sun. The window panes of green glass, even the sky above the City had a green tint, and the fit he sun were green.
these at Do the cl Lion; saw t were of all childr There thing:	were many people, men, women and children, walking about, and were all dressed in green clothes and had greenish skins. They locked toty and her stranged y ascorted company with workening yess, and but no one navey allow the provide the strange of the strange but no one navey allow the strange of the strange and the experiment in the hum. Meny shops stood the strengt and Dorothy had everything in the hum. Meny shops stood the strengt and Dorothy but no one as a strengt and the strengt and the strengt and Dorothy and everything in the mer was green. Sing Green and y and green pop-com- offered for sale, as well as green shoes, green hats and green clothes sorts. At one place a man was selling green lemonade, and when the en bought it. Dorothy could see that they paid for it with green pennies. * seemed to be no horses nor animals of any kind; the men carried a round in itling ence narts, which they pushed before them. Everyone med happy and contented and prosperous.
Pr	eview
	Default
А	• · · · · A

#### 3.5 Wi-Fi

Click [Settings] – [Network & Internet] – [Wi-Fi] to switch on the button.

Wi-F	) (2) "i	🔊 9 🕈 🛣 95% 🔒 9:54 AN
	On	
•	HC-office Sign in to network	8
•	DIRECT-MHONETAMKERYmsSF	ê
•	GNSS-1042646	6
•	HC-Guest	6
	HCE320	6
•	HUAWEI-ASHFJ8	6
•	Lionel	â
Ŧ	dostyle_WR202	â
Ŧ	GNSS-1029010	6
Ŧ	GNSS-1212121	6
Ŧ	GNSS-3400009	6
+	Add network	

Select **Wi-Fi** and type in its password to connect. After connecting Wi-Fi, the Network info can be checked.

#### **Basic Operation**



### 3.6 Bluetooth

Click [Settings] – [Connected device] – [Bluetooth] to turn on the Bluetooth.

Find nearby devices and pair with it.



### **3.7 USB Connection**

For connection or data transmission between LT700H and PC, please use the USB data cable as shown below.



Click **[Settings] – [System] – [Developer options] – [USB debugging]** to make sure this function is switched on. After USB data cable connecting with PC, wait until the **Allow USB debugging** dialogue pops up, and then click OK.



You can also use third party software to manage the documents and data stored in LT700H and install software like GNSS Tool into it.

#### 3.8 Use Camera

Make sure that the battery is charged and installed in the receiver.





Click to select recording the video or panorama mode.



Click to take a photo.



Camera Settings



Click to configure related parameters.



#### 3.9 Log in 4G

After inserting your SIM card, click [Settings] – [Network & Internet] – [Mobile Networks] – [Advanced] – [Preferred network type] and select corresponding network type of your SIM card. Then turn on Mobile data and click Data usage to see data usage.



#### 3.10 Location

#### **3.10.1 Turn on The Location Service**

Click [Settings] – [Security & Location] – [Location] – [On] to switch on location service.

÷	Security & location		÷	Location
	Security status			On 🔹
0	Google Play Protect			Mode High accuracy
9	Find My Device No Google account on this device			Location Mode
Ø	Security update September 5, 2018			GPS + BDS
	Device security			Navigation Mode Portable
	Screen lock Swipe	•		App-level permissions
	Lock screen preferences Show all notification content			Scanning
	Smart Lock To use, first set a screen lock		ient.	Location services Accelerated Location
	Privacy		G	Google Location History
	Location ON / High accuracy		G	Google Location Sharing
	Show passwords Display characters briefly as you type	•		Recent location requests
	Device admin apps		([i.d	GNSS Tool

#### 3.10.2 Select the Constellation Combination

On the **[Location]** panel, the choose **[Location Mode]**, and the user can choose the constellation/constellations.



#### **Basic Operation**



For LT700H, there are six options:

**ALL**: The device will use all data to do the positioning. Note that this is the recommended setting to achieve optimal positioning performances.

GPS+BDS+GALILEO: The device will use GPS, BDS and GALILEO data;

GPS+GLONASS+GALILEO: The device will use GPS, GLONASS and GALILEO data;

**GPS+GALILEO**: The device will use GPS, GALILEO data;

GPS: The device will use GPS data

BDS: The device will use BDS signal only;

GLONASS: The device will use GLONASS signal only;

#### 3.11 Checking the IMEI Number of The Device

Turn the LT700H on and enter the dialing panel, tap '\*#06#', the IMEI numbers show up automatically.



### 3.12 Edit F1/F2 Function Key

The F1/F2 Function Key can be edited to launch the APPs in the device.

Enter the edit interface via [Settings] – [System] – [Gestures] – [F1 F2 Function Key].

Check the APP for corresponding function key in [F1 Settings] / [F2 Settings].

← F1F2 function key	
F1 settings	
Calculator	
31 Calendar	
Camera	
Chrome	
Clock	
Contacts	
Drive	
Duo	
Files	
Gmail	
G Google	
Reep Notes	
LandStar	
Maps	
Messages	
Phone	

## 4 Getting Start with LandStar 7

#### 4.1 LandStar7 Installation

1. Open Google Play store and search for LandStar 7



2. Click [Install] and the installation process start;





3. Wait for the installing, and the 'APP installed' shows up when the installation finished.



#### 4.2 Connect the LT700H to internet

Please select Wi-Fi or mobile network to enable Internet to allow a connection to your GNSS RTK Corrections Service provider.

### 4.3 Create a project

- (1) Power on the LT700H: Long press the power button for 3-5 seconds.
- (2) Launch the LandStar 7 software.





(3) Tap [Projects] - [Project] to create or open a project.



(4) Tap [New] to create a new project.





- (5) Input the project name, author and the time zone of working region.
- (6) Tap [Coordinate System] to choose the coordinate system of the project.



(7) Tap [Add] to add pre-define coordinate system in the list.



÷	Comm	non Co	oordina	ate	?
CRS Sel	ection				
€A	dd	⊗ De	lete	🗹 Sel	ect

- (8) Select the continent and region according to your working area.
- (9) Select the proper coordinate system to use.
- (10) Tap [Select] to confirm.



(11) Selected coordinate system is available in the pre-define list, tap [Select] to confirm.



← c	ommon Coordinate
CRS Select	ion
	na/CHINA BEIJING 1954 3- auss-Kruger CM 120E
⊕Add	🛞 Delete 🛛 🐨 Select

(12) Check the parameters of the coordinate system and tap [Accept] to confirm.



÷	CRS	Ŷ
	UING 1954 3-deg	ree
Ellipsoid	Projection	Datur
Ellipsoid Name	Krassowsky 19-	10
а	6378245.000000	)
1/1	298.300000000	)
Positive Direction	NorthEast	
South Azimuth	No	34
🔓 Logout 🗹 A	.ccept 🖌 🖌 Edit	:

(13) Tap **[OK]** to finish the project setting.

÷	LandStar	?
Project Name	LT700H Testing 🛛 😒	
Author	Support	
Date	2019-09-27	
Time Zone	UTC+08:00	
Project Template	••••	
Coordinate System	CHINA BEIJING	
CodeList	TEMPLATE	
Unit	Horizontal m	
	Vertical m	
Coordinate Display	North,East	
	✔ ОК	

### 4.4 Connect to the LT700H GNSS Module

(1) Tap [Config] - [Connect].



(2) Select Manufacturer as **[CHC]**, Device Type as **[Local]**, Device Name as **[LT700H]**, Connection Type as **[Local]**.

$\leftarrow$ LT700H Testing-Connect ?						
GNSS		Peripheral				
Last Device						
Manufacturer	снс					
Device Type	Local					
Device Name	LT700H	H				
Connection Type	Local					
Auto Connect	No					
Disconnect with the Receiver!						
🖉 Disconnect 🛛 🤗 Connect						





(3) When connected to the LT700H GNSS, the message "Connected to receiver!" appears.

← LT700H	l Test	ing-C	Connect	?
GNSS			Peripheral	
Current Device	Local:			
Manufacturer	СНС			
Device Type	Local		4	
Device Name	LT700	н	4	
Connection Type	Local			
Auto Connect			No	
Connected	to rece	eiver!		
o Disconn و	lect		🔗 Connec	t

### 4.5 CORS / RTK Network Correction Login

(1) Tap [Config] - [Work Mode] to create or accept a work mode.





(2) Tap **[New]** to create a new work mode.



(3) Select the work mode as [Auto Rover], datalink as [PDA Network], protocol as [Ntrip], type in the corresponding Ntrip [IP] and [Port]. Tap [Download] button to load the mountpoints source table.

$\leftarrow$ <b>Г700H Testing-Create Nev</b> ?					
RTK Setti	ing	Static Setting			
RTK		Yes			
Work Mode	Auto R	lover			
Datalink	PDA N	etwork			
Protocol	NTRIP				
Domain/IP	211.144.118.5				
Port	2102	$\otimes$			
Source Table	RTCM3	<u>3.2</u> V 보	<b>Q</b>		
User Name	b				
	~	Save			

(4) Input the username and password of your NTRIP account.

**Note**: If the selected mountpoint does not contain the RTCM 1021 - 1027 messages, leave the related RTCM message setting buttons set to "NO".



#### (5) Tap [Save].



(6) Input the name of the new work mode and tap **[OK]**.

$\leftarrow$ resting-Create New Work r (?)						
RTK Setting Static Setting						
Port	2102		8			
Source Table	RTCM	<u>8.2</u> <b>▼</b>	₹ 2			
	ame for	the new m	ode!			
	Rover PDA					
Canc 10	Cancel OK					
1023-1024						
1025-1027						
	~	Save				



(7) Select the new work mode in the [Work Mode List] and tap [Accept].



- (8) Check the information of NTRIP account and change it as need. Tick on Correct, [Don't remind me next time] when there is nothing need to change.
- (9) Click [Ok].

*	← ∋ting-Work Mode						?
N	o work mo	de found	ļ				
R	Please Check the NTRIP Information						
	Source Table	RTCM3.	2	▼	≛	9	
	User Name	b					
	Password	•				8	
	🗹 Sa	ve Passwo	ord				
	🗌 Co	orrect, don'	t rem	nind r	ne ne	xt tin	ne
	Cancel				ок		
(	New	👁 Previ	ew		Acce	pt	• • •

#### 4.6 Survey

(1) Wait until the software shows [RTD], [Float] or [Fix], which means the LT700H is using the



GNSS correction data from RTK Network.

(2) Tap the [Survey] - [Map] to start your work.





(3) Tap [Survey] icon to collect the points.



### 4.7 Sky Plot

Click **Sky Plot** and see how many satellites (including GPS, GLONASS, BDS, GALILEO and SBAS) the device is currently tracking.





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