

Operating instructions



Omegon® EQ370 Upgrade Kit

Version 08.2026, Art.-Nr. 88393

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Omegon® EQ 370 Upgrade Kit

Congratulations on the purchase of the new Omegon® EQ 370 Upgrade Kit. This kit is easy to install and will upgrade your EQ370 mount into a full EQ370DX that will give you even more hours of fun. This manual will show you how to mount the upgrade kit. To use the full potential of the - then EQ370DX – please use the original manual of the Omegon EQ370DX, which can be downloaded from our website here:

<https://www.astroshop.eu/equatorial-with-goto/omegon-eq370dx-goto-mount/p.87318>

Installing the EQ370 Upgrade Kit



Please install and use the mount in strict accordance with the steps and precautions reminded in this manual, operators shall be responsible for any damage to the equipment or personal injury caused by improper operation.



Ensure the mount's time, coordinates, and home position are properly set before use. Incorrect settings can cause GOTO errors or equipment collisions.



After installation, carefully check for any interference. Collisions can damage components, causing malfunctions or accuracy issues. Unplug immediately if interference or emergencies occur.



Please be careful when you carry, assemble or disassemble the mount and other heavy components and other equipments used on the mount. Or it may cause damage to the equipments or even personal injury.



Please ensure the entire setup is placed on a stable, flat surface and confirm the tripod has enough capacity and support area to prevent tipping, which could cause equipment damage or personal injury.



If there are children around when using, please pay attention to protecting their safety

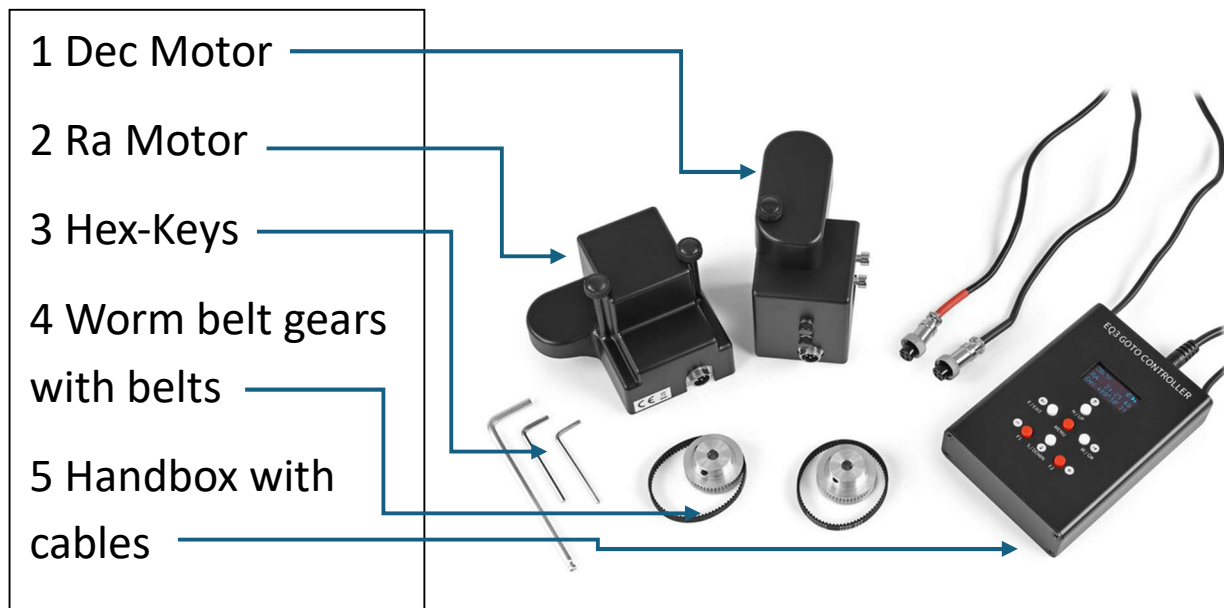


Do not wipe the surface with corrosive liquid. Avoid water immersion and exposure to rain.



Unauthorized disassembly is strictly prohibited. Any self-disassembly will result in the warranty being voided.

EQ370 Upgrade Kit Installation

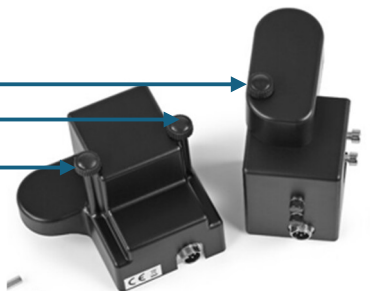


- 1) Remove the manual controls from the mount:

Manual controls
RA Motor attachment
threads

- 2) Slide the two Worm belt gears over the shaft and secure those with the radial hex screw. Be sure not to over or undertighten the screw.
- 3) Remove the motor covers by unscrewing the thumb screws that hold the covers. Make sure that there is no stress on the cables, when the covers and the cables are hanging from the motor/bracket units.

Motor cover thumb
screws



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- 4) *Attach the motors but do not tighten the screws firmly. The Dec-Motor attaches to the two holes on top of the mount:*



- 5) *The RA-Motor attaches to the two threaded holes at the side of the mount:*



- 6) *Insert the belt over the motor gear and the worm gear that you have attached. Slide the motor assembly out until the tension in the belt strong enough so that it is not sagging. Do not overtighten the belt. Then secure the motor by tightening the attachment screws and reattach the cover with the thumb screws.*
- 7) *Finished and ready to go!*

EQ370DX User Manual



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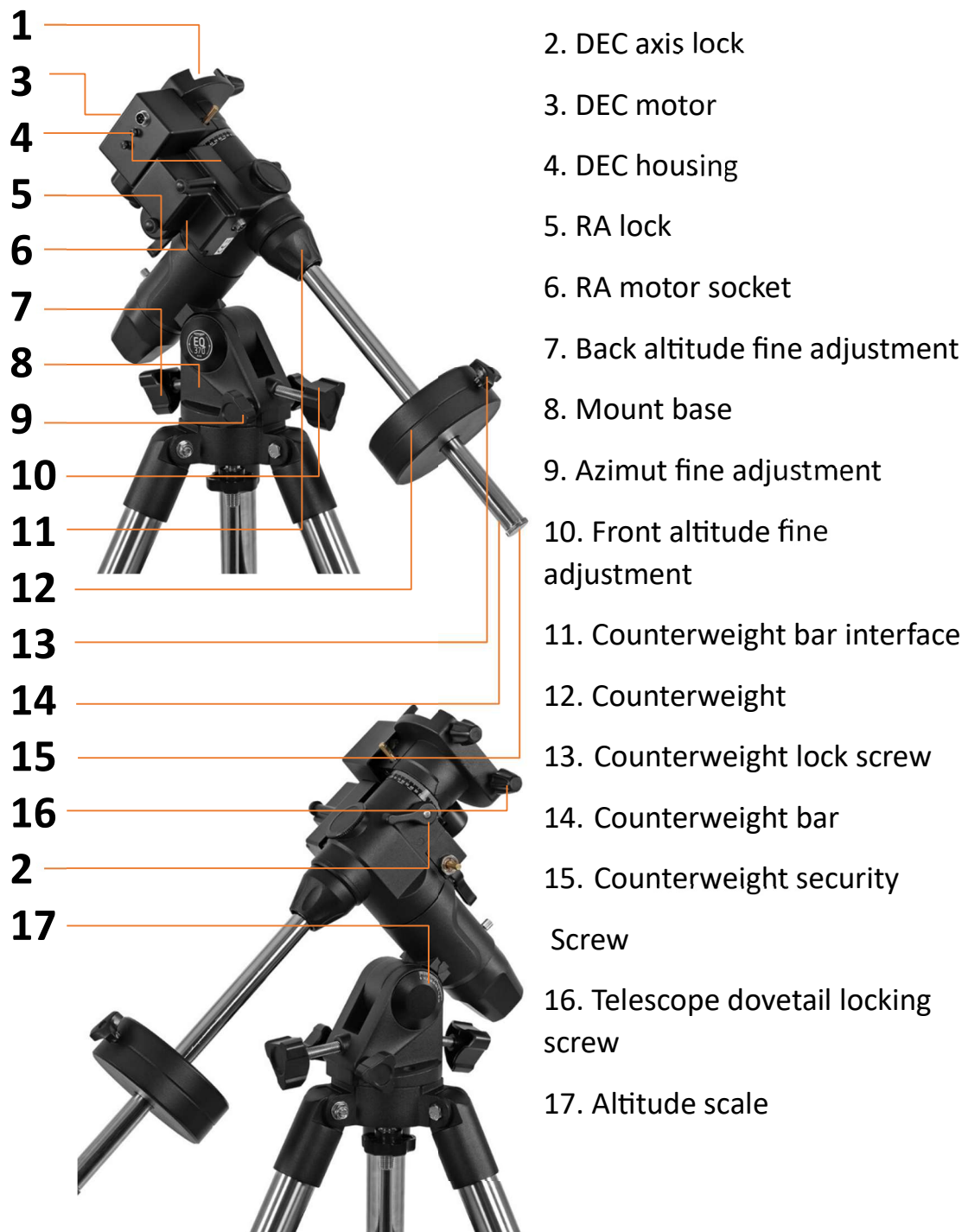
Unauthorized disassembly is strictly prohibited. Any self-disassembly will result in the warranty being voided.

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Components and Installation



When you start to set up your new Omegon EQ370DX, remove the tripod from the box, spread the legs and put it onto a level ground. The EQ 370DX can be mounted onto the included tripod using the center locking bolt. Place the mount on top of the tripod and screw the Tripod center locking bolt (18) into the mount from below,

using the Mount locking knob (17). Now insert the azimuth and altitude adjustment screws (7/9/10) into their respective threads. Lock the azimuth screws with just a little force. Adjust the altitude with the back screw (7) until the indicator points to the geographical latitude of your observing site. Lock the position with the front altitude fine adjustment screw (10). Remove the spreader bar locking knob (20). Now slide the spreader bar (24) over the tripod center locking bolt and align the three legs of the spreader bar with the three legs of the tripod. Reinsert the spreader bar locking knob (20) and tighten it, securely clamping the spreader bar and the tripod legs together.



Quick Overview

Install equipment



Set time and coordinates



Set home position



Polar alignment



Select target and Goto



Using Target Calibration



Enjoy the night



Ensure the site coordinates, time, and home position are set correctly to avoid GOTO errors or equipment collisions.



For OnStep, South latitude & East longitude (-), North latitude & West longitude (+);

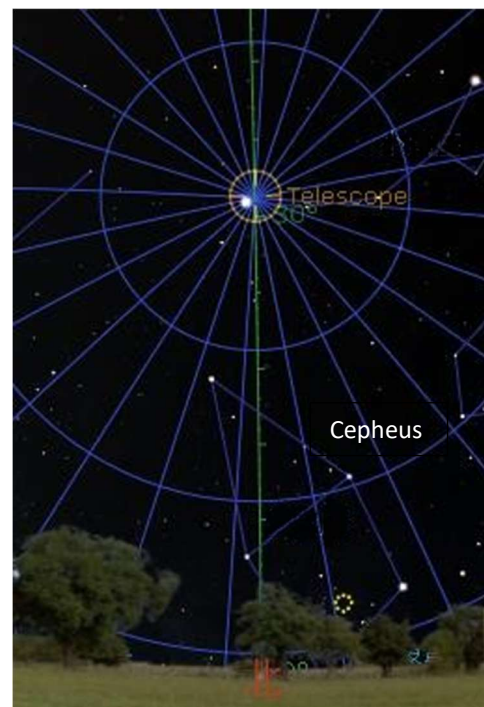
UTC: East of the prime meridian (-), West (+)

Home position

The home position is shown in the diagram below. This is the position the mount should be in before power-off or should be reset manually after each power-on. The optical tube assembly is pointing parallel to the RA axis, and the edge of the Dec motor cover is level. In this position the counterweight shaft is pointing directly to the ground.

Ensure the site coordinates, time, and home position are set correctly to avoid GOTO errors or equipment collisions.

For OnStep, South latitude & East longitude (-); North latitude & West longitude (+); UTC: East of the prime meridian (-), West (+),



Precise alignment of polar axis

For astrophotography, polar calibration can be completed through plate solving, using a camera and an external computer with appropriate software, such as N.I.N.A. If a computer is not available at the observation site, traditional methods such as the drift alignment method can be applied.

Cable Connections

Omegon EQ370DX has two sets of cable ports, located on the RA motor cover and the DEC motor cover of the mount. Insert and secure the cables from the handbox that are designated RA and Dec respectively.

Do not connect two astronomical control devices simultaneously (such as any PC, astronomy box, or Mini PC).

Power connection method

EQ 370DX features an DC 12V ports. To power up the mount connect it to a power supply with 12V. It is a low voltage connector 2.1/5.5mm with + on the inner connector.

USB cable connection

Omegon EQ370DX has an USB port, capable of connecting the mount to a control device (such as a PC, astronomy box, Mini PC).

Do not connect the mount through any USB hub.

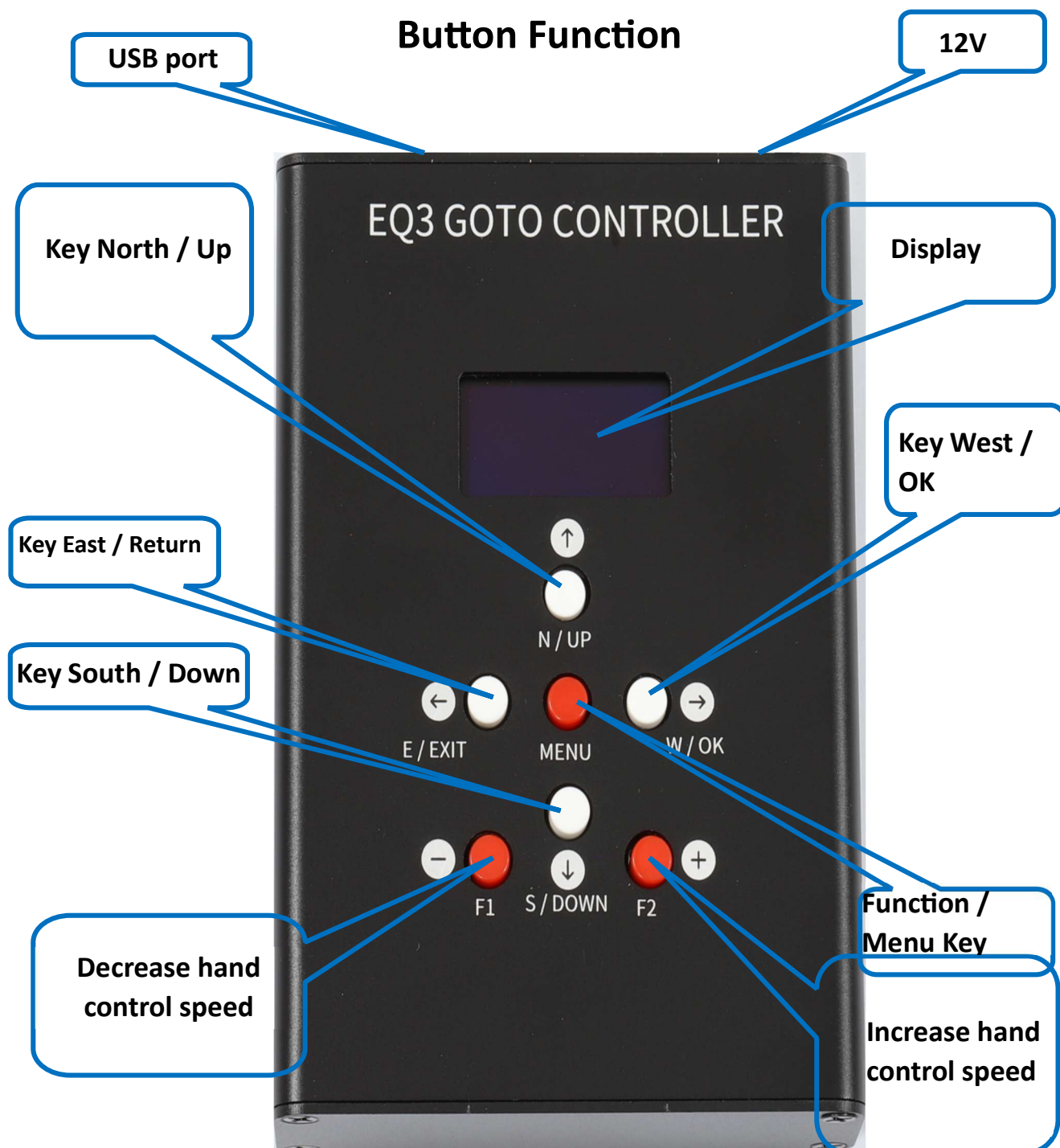
Do not plug and unplug the motors while the mount is powered on!

Omegon EQ370DX Hand Controller



Keep the hand controller connected to the mount even when not in use or inquire about firmware options to disable its function.

Button Function



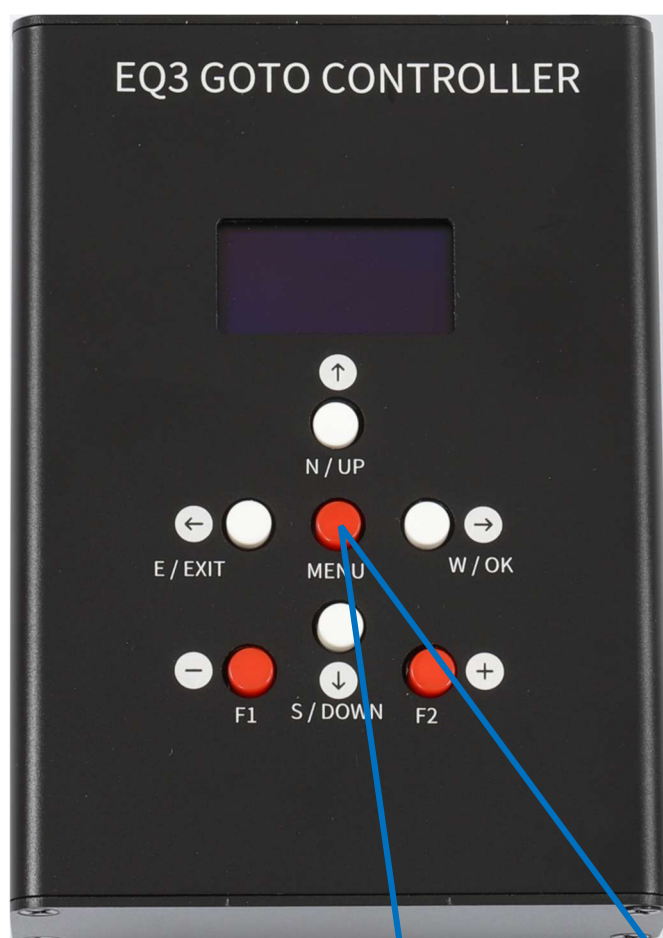
For safety, the hand controller defaults to a low speed (20X) upon startup. Press 'F' to increase the speed.

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EQ370DX Hand Controller

Function Button

Function Button – the red button in the middle of the direction buttons is used to switch menus. Press this button to move from the regular display content as it is shown on startup to the menus where you can control the telescope, select targets and align your setup.



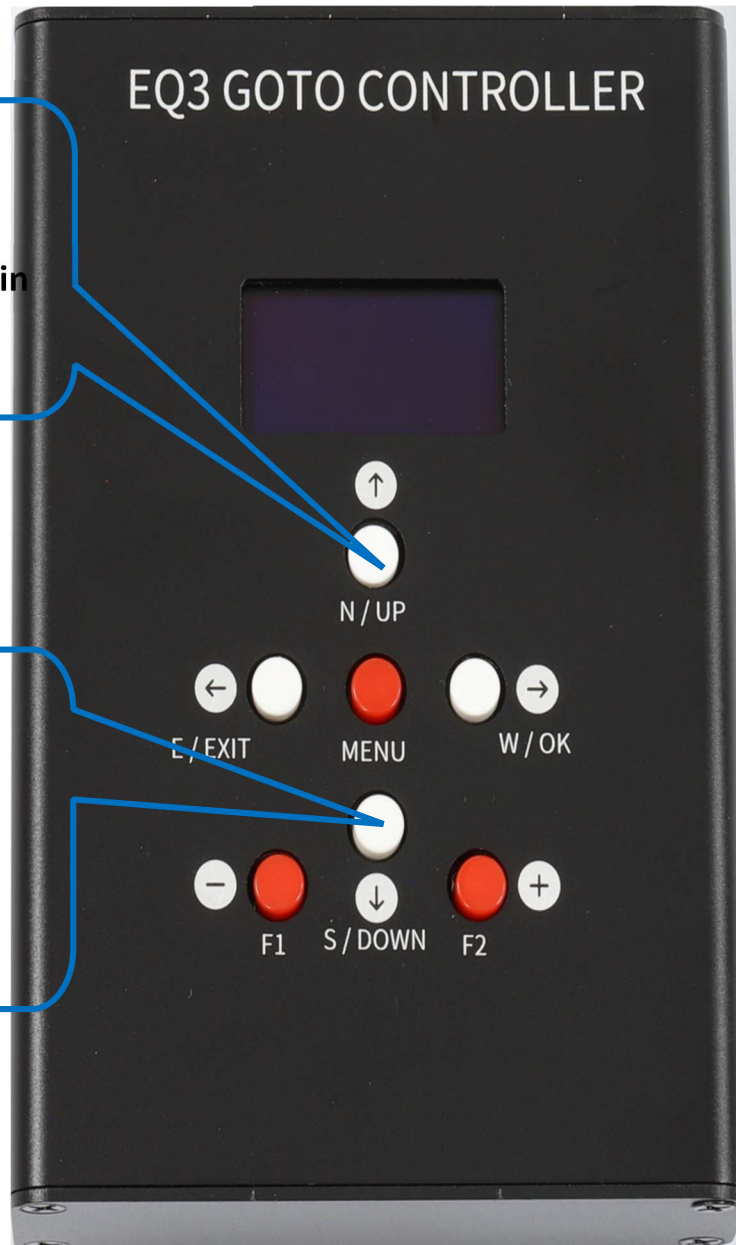
1. Short Press = switching display information
2. Long Press = entering Main Menu
3. Double Click = Feature Menu

EQ370DX Hand Controller

Button Function

- 1. North when tracking
- 2. Scroll Up while in Menus

- 1. South when tracking
- 2. Scroll Up while in Menus



N and S Button Note

Near the celestial pole, the N and S buttons may behave unexpectedly. This is normal. The system always tries to move North when you press the N button. If it can't, it will move South until you release the button.

Tip: This behavior is expected near the pole and will make more sense with practice. In the Southern Hemisphere, this will be reversed.

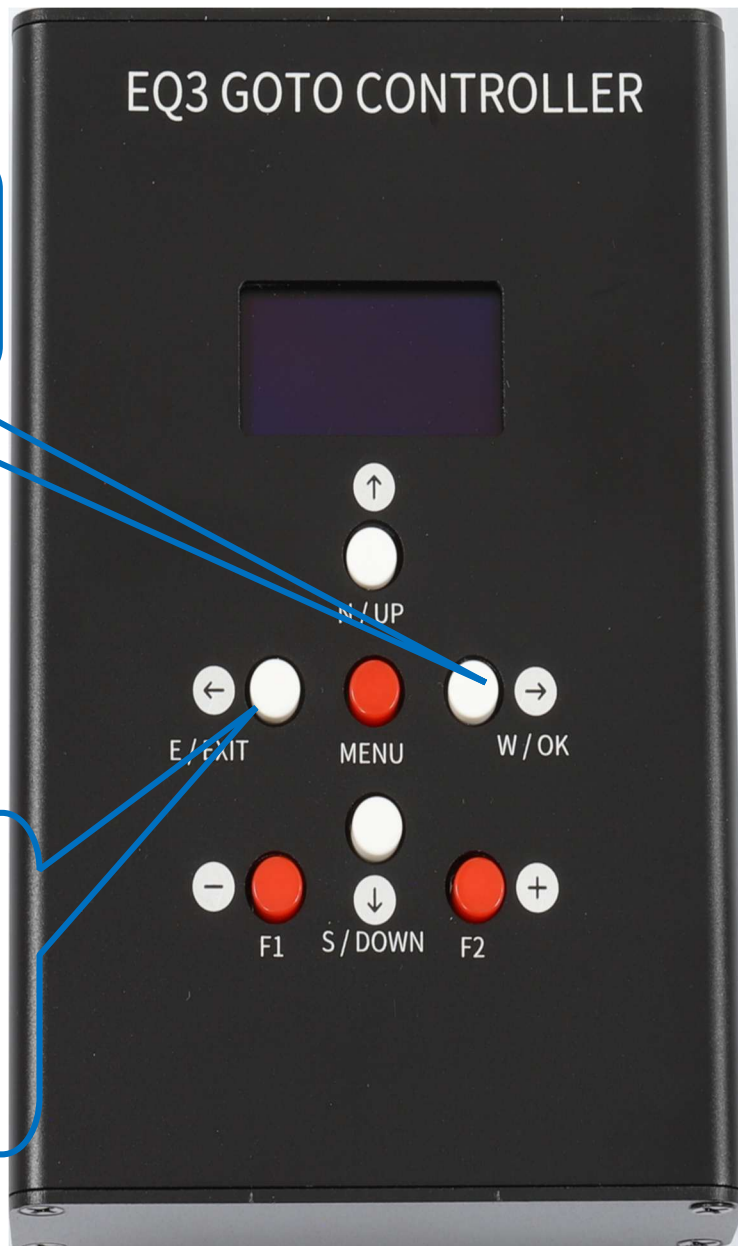
WARNING! Never use a telescope to look at the Sun! Looking at or near the Sun will cause instant and irreversible damage to your eye. Eye damage is often painless, so there is no warning to the observer that damage has occurred until it is too late. Do not point the telescope at or near the Sun. Do not look through the telescope or viewfinder as it is moving. Children should always have adult supervision while observing.

EQ370DX Hand Controller

Button Function

- 1. West when tracking**
- 2. Select current option while in Menus**

- 1. East when tracking**
- 2. Back while in Menus**



Refer to the OnStep website for detailed menus and usage instructions.

<https://onstep.groups.io/g/main/wiki/28605>

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Common status icons for the Hand Controller



Alignment Star #1



Alignment Star #2 (#3 thru #8 not shown)



Alignment Star #9 (last possible)



Telescope is at home position. Tracking is OFF



Unknown error. Tracking has stopped



Telescope position exceeds user defined Meridian limit. Tracking has stopped



Telescope position exceeds user defined RA limits "Under Pole". Tracking has stopped



Telescope position exceeds user defined Azimuth limits. Tracking has stopped



Telescope position exceeds user defined Declination limit. Tracking has stopped



Telescope limit sensed. Tracking has stopped



Telescope position exceeds user defined Horizon or Overhead limit. Tracking has stopped



Motor fault. Tracking has stopped



East side of pier. Declination is between 90 and -90



West side of pier. Declination is between 180 and 90 or -90 and -180



PEC, paused

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PEC, recording



PEC, playing



Telescope is slewing



Lunar Tracking rate is selected



Solar Tracking rate is selected



King Tracking rate is selected



Sidereal Tracking rate is selected



Sidereal Tracking, refraction compensated (RA-axis only)



Sidereal Tracking, refraction compensated (Dual-axis)



Sidereal Tracking, refraction and pointing model compensated (Full)



Sidereal Tracking, refraction and pointing model compensated (Full, Dual-axis)



Tracking is OFF



Telescope is guiding



Park failure



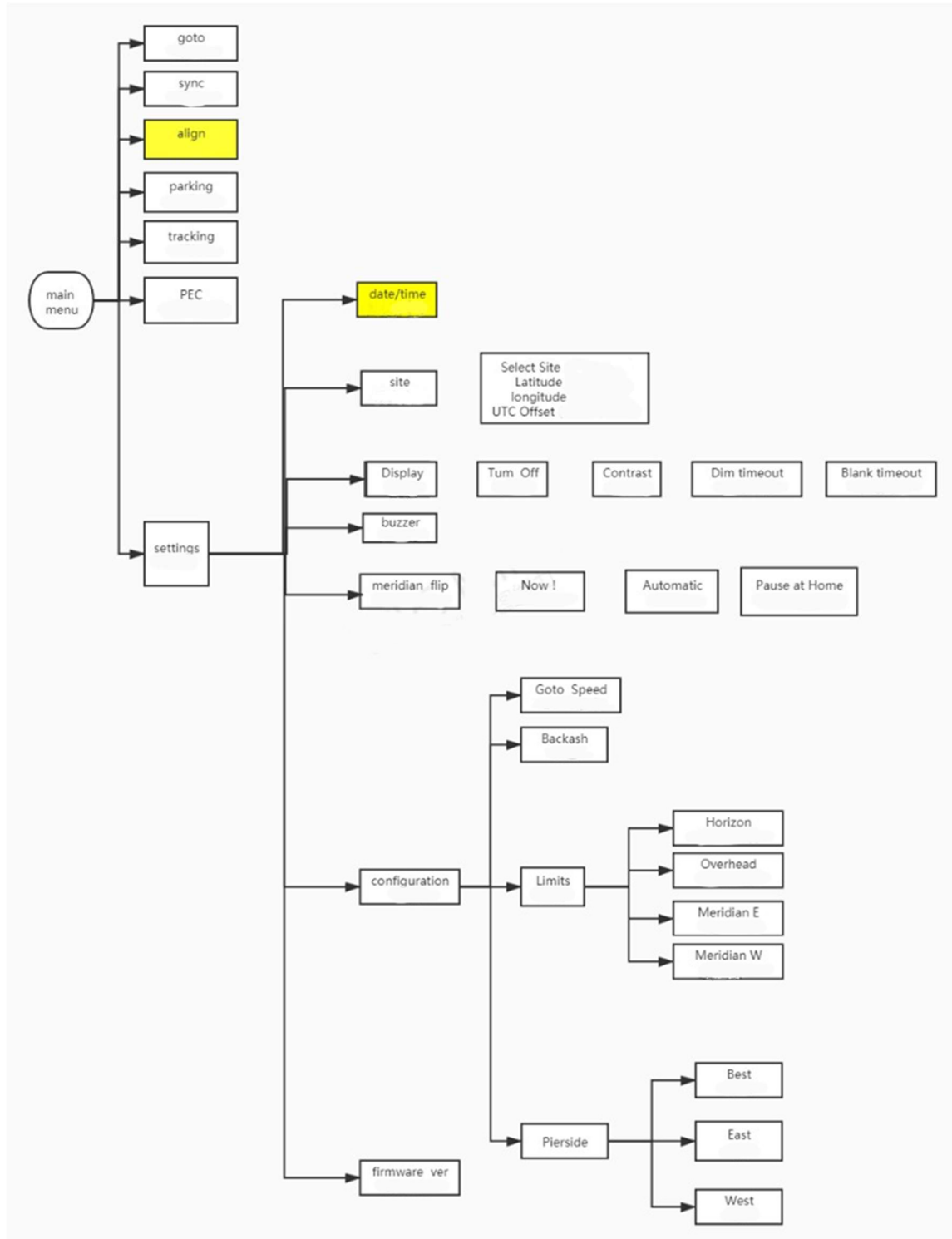
Telescope is slewing to park position



Telescope is parked

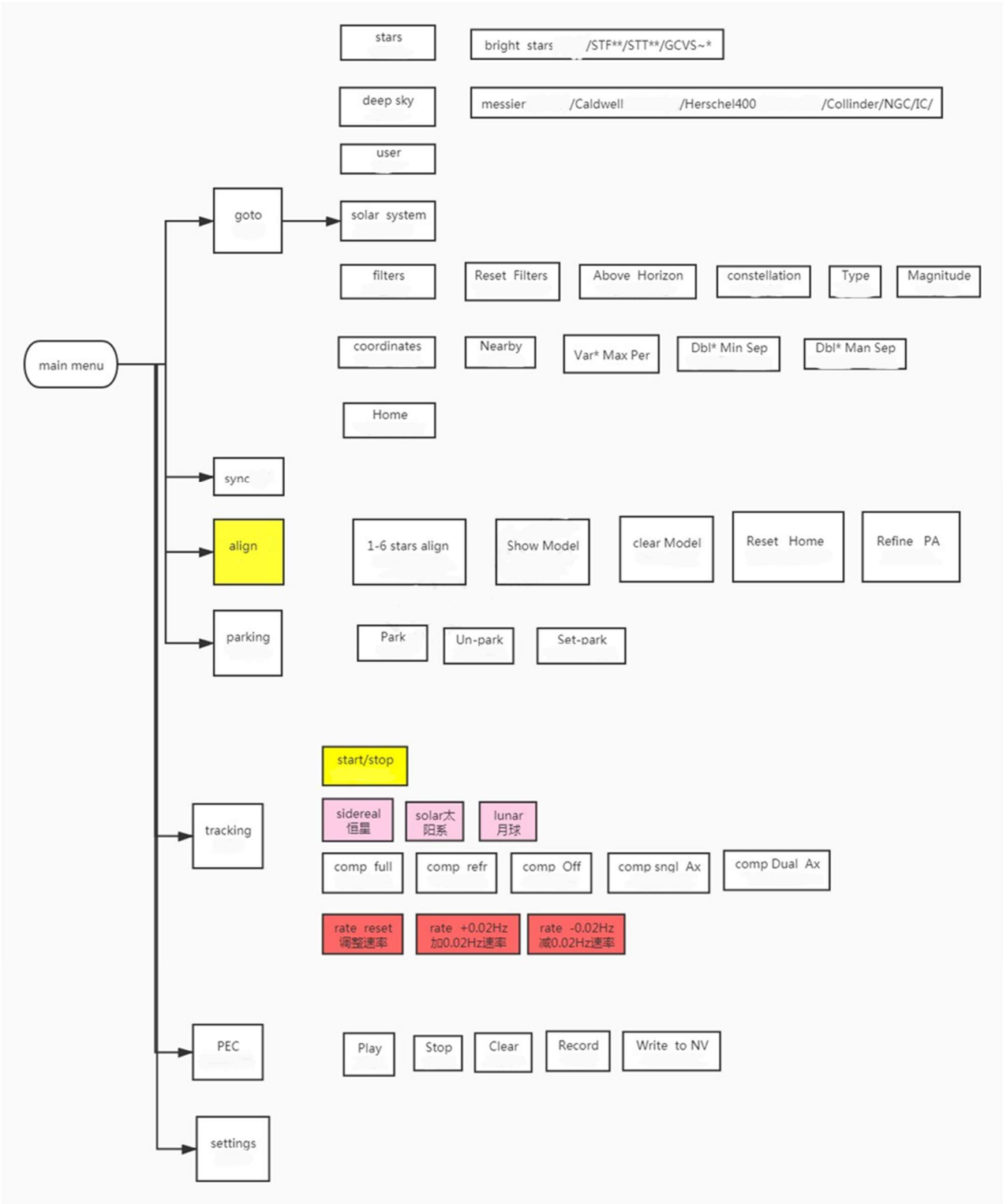
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Hand Controller menu structure diagram



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OnStep Guide – App control



Android users can set and control the mount through OnStep APP or webpage. **IOS system cannot use APP, webpage is working**



Connect to the web via WiFi:

Search for WIFI hotspot OnStep connection through PC or mobile phone,
password: password

Enter "192.168.0.1:9999" or "192.168.0.1" into the browser



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For the first use or when using the mount at a new location, set the mount's latitude and longitude coordinates and local time (can be synced via NINA or Asiair)

OnStep WiFi Server 2.1i (OnStep 4.24a)

Status Control Library PEC Settings Config WiFi

Basic:

Site Latitude, Longitude, UTC Offset

-121 ° 13 ' Longitude, in deg. and min. +/- 180, W is +

31 ° 03 ' Latitude, in deg. and min. +/- 90, N is +

-08 h 00 m UTC Offset, in hours and min. -14 to +12

Opposite of a time-zone value, this is for Standard Time (not Daylight Time)

Upload

Horizon and Overhead Limits

Axis1 RA/Azm

Axis2 Dec/Alt

Set time offset

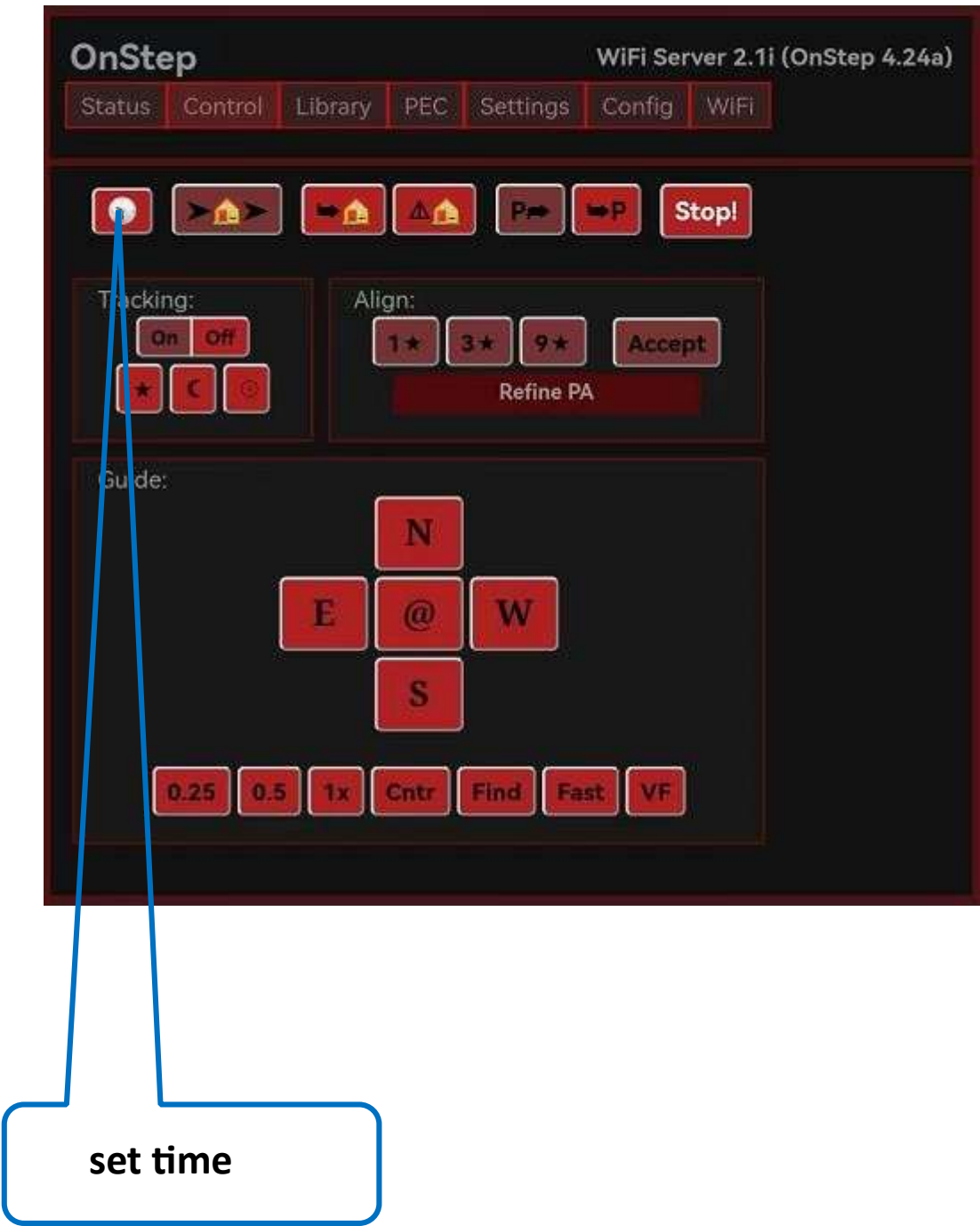
Latitude and longitude coordinates



In the OnStep system, east longitude is (-), west longitude is (+), north latitude is (+), and south latitude is (-). For UTC, east of the prime meridian is (-), and west is (+).

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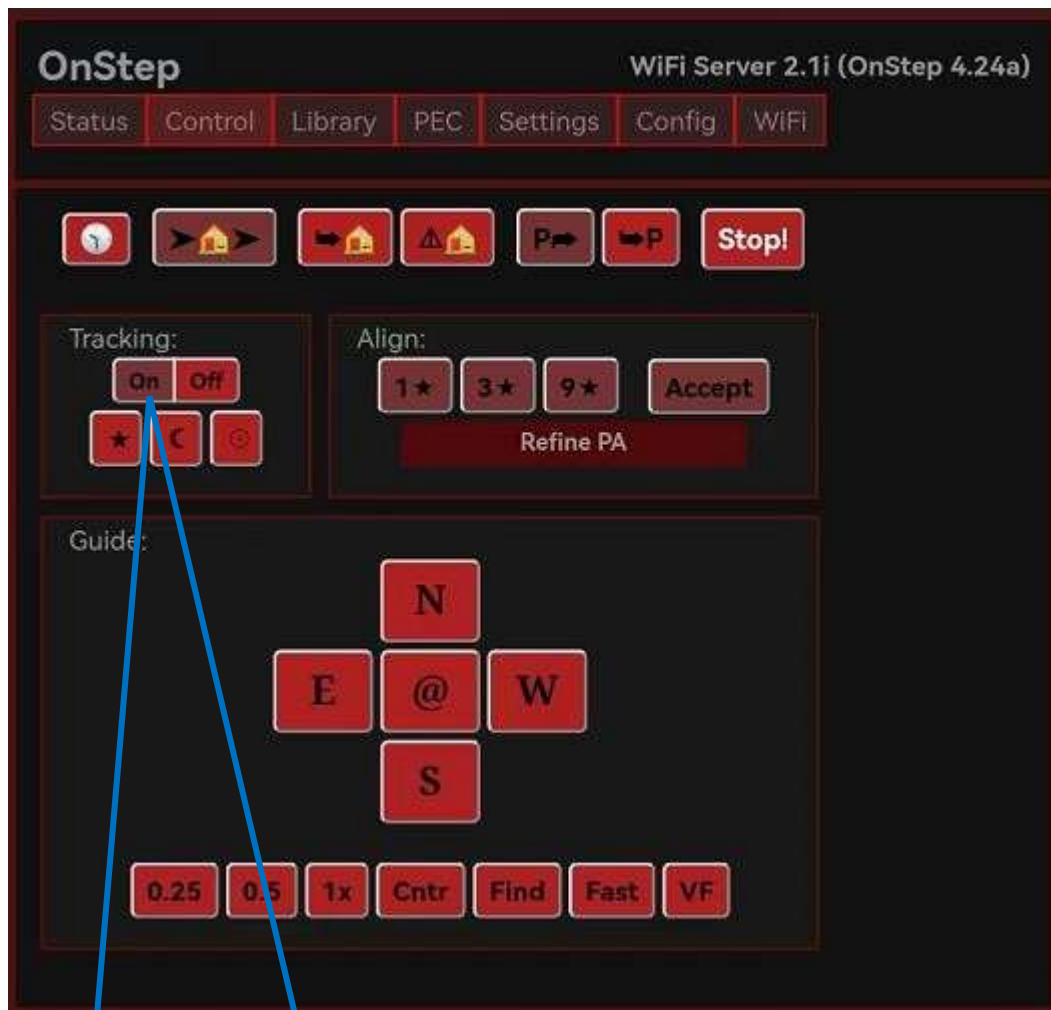
Set Time



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OnStep Quick Start Guide – App

Start Tracking



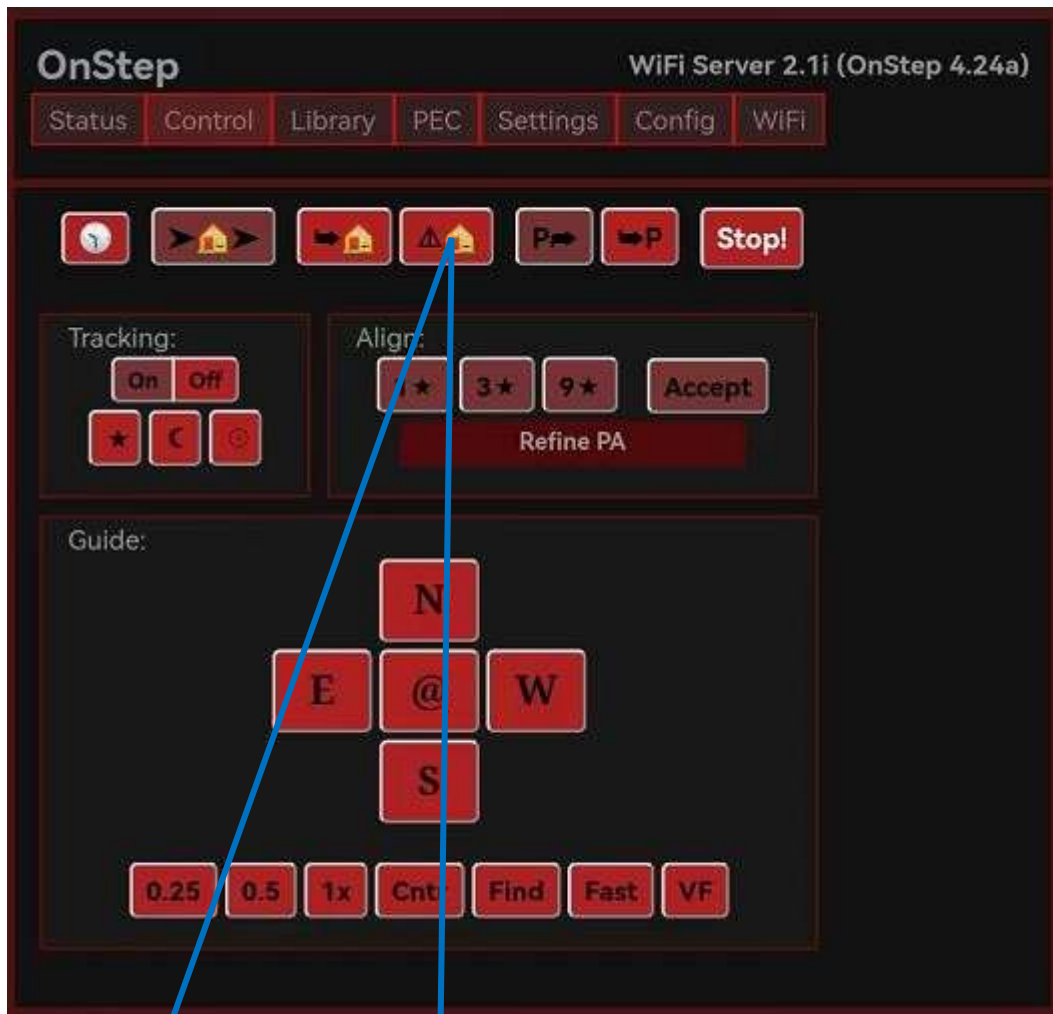
Turn on Tracking, and the rotation of the mount can be controlled by operating the direction keys.



In the OnStep system options, grey indicates ON status

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OnStep App Quick Start Guide – Home position

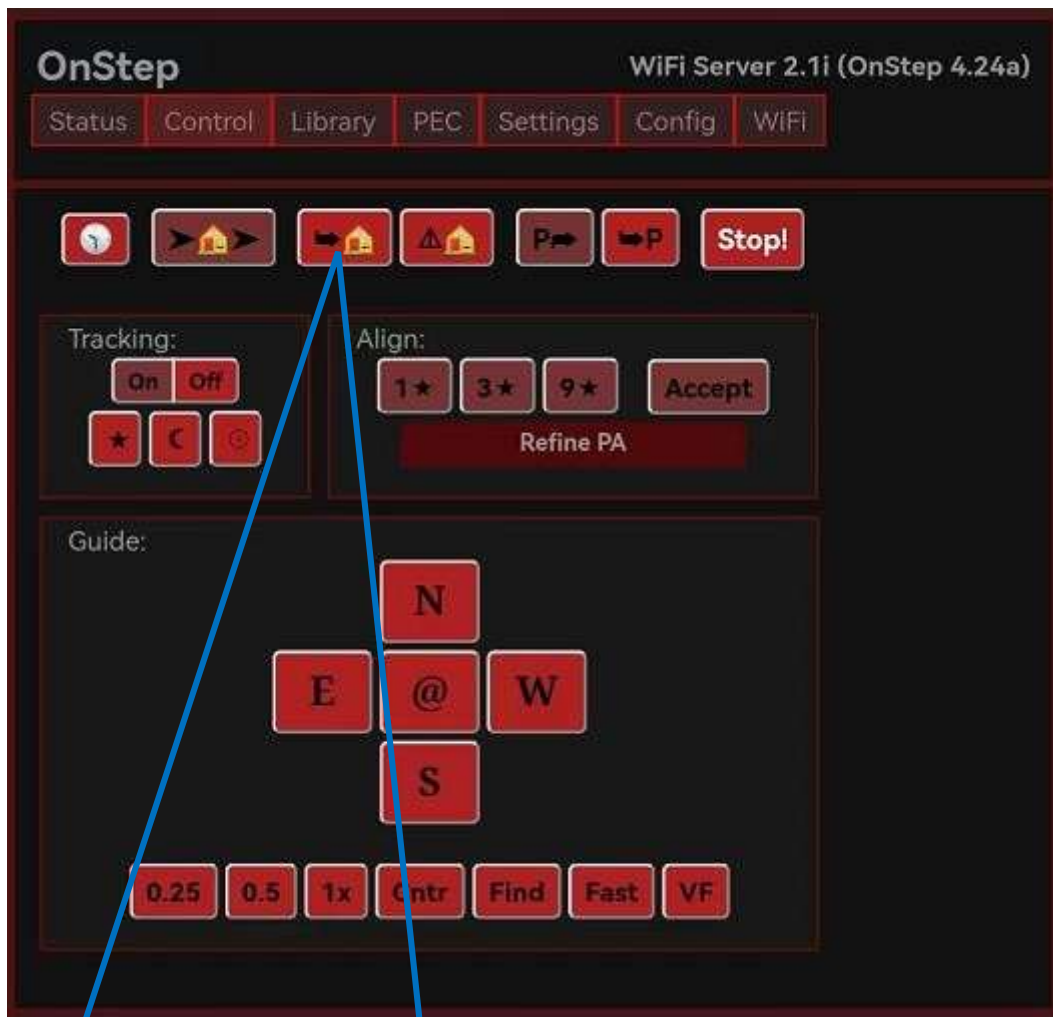


After enabling tracking, manually rotate the mount to the home position, and click the “At Home” button to save the home position of the mount.



Note: After setting the home position, the mount will return to the “Untracking” state. Click “Tracking ON” again to enable tracking

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Click the “Go Home” button to return the mount to the home position.



After powering off and on, the mount defaults to the power -on position as the home position. For accuracy, always reset the home position before each use. Alternatively, you can click the 'Go Home' button to return the mount to the home position before powering off, or, if using control software, configure the plan to execute the 'Go Home' command automatically after each session to avoid the need for a manual reset next time.

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Limit position setting



Equatorial mode, DEC axis rotation limit

Altitude angle limit in Altazimuth mode



Note : When the manual operation of the mount rotation exceeds the set limit, the mount will stop rotating, press the key again, the mount will only move a small angle.

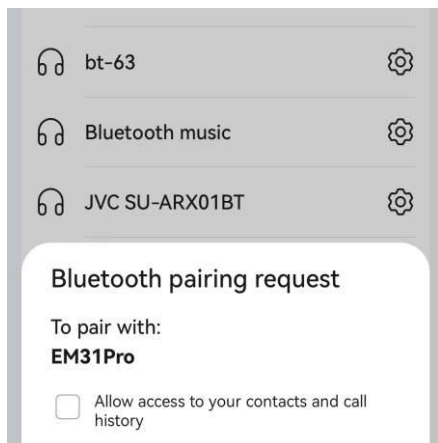
Once the GOTO target exceeds the limit, GOTO will stop. The limit position is related to the time, latitude and longitude coordinates and home position setting of the mount.

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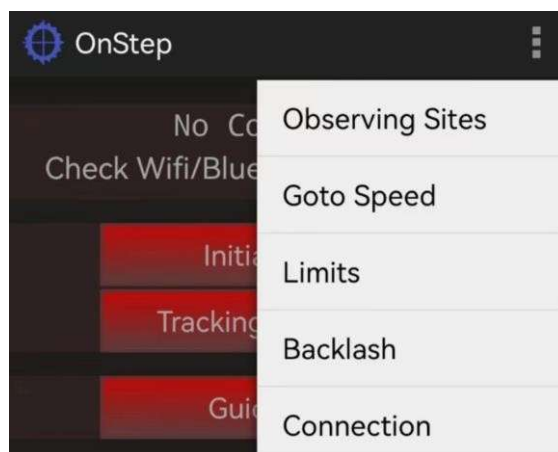
Connect to the Android app via Bluetooth.

(App only supports Android system, Apple system needs to be set through the webpage)

① Matching Bluetooth



② Select Connection in the APP



③ Choose Bluetooth



④ Complete connection



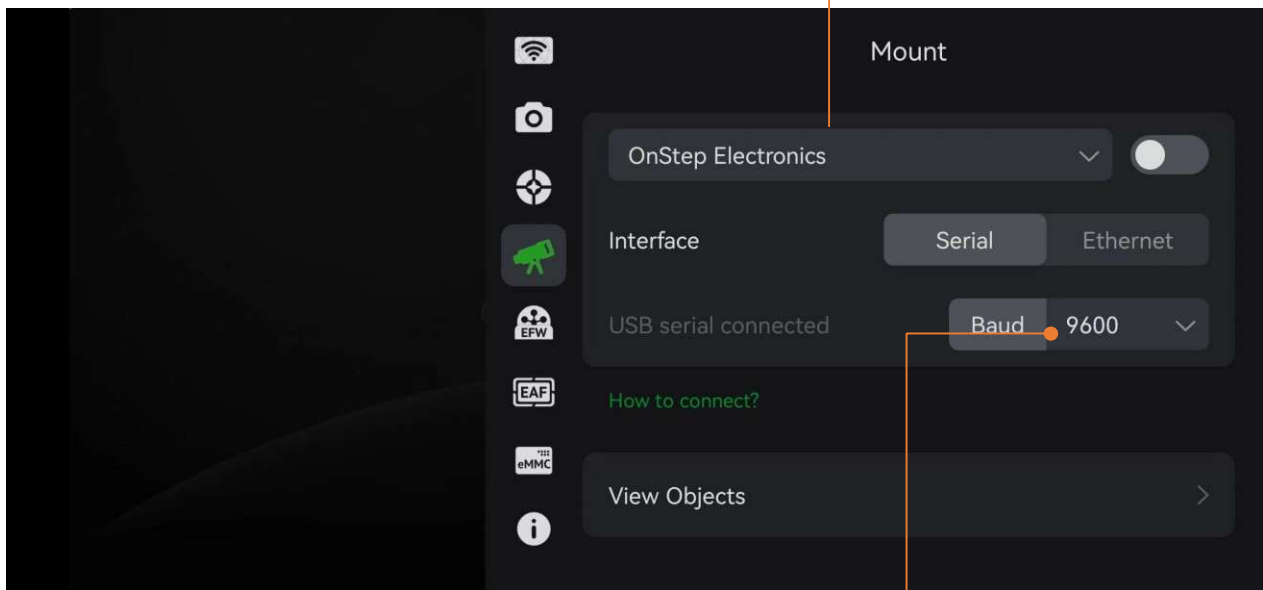
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The first connection may be very slow. Please allow some time for the process to complete.

OnStep and ASI AIR connection

Mount select: "OnStep Electronics"



Serial port baud rate 9600

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OnStep and PC connection

Step ① Installing the mount serial port driver cp2102



Confirm that the mount serial port connection is normal in Windows Device Manager



Step ② Install ASCOM platform

<https://www.ascom-standards.org/>



Step ③ Install OnStep ASCOM driver <https://emcanastro.com/downloads/>

Select the correct serial port (check the correct port number in Device Manager) and connect the mount

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OnStep Telescope Setup



3.7

OnStep

Port: COM5
IP Address: 192.168.0.1:9999

Retry Timeout (3000ms):

Currently connected to: OnStep 4.25a
☒ Enable Serial Port DTR Control
☐ Use Error Correction Protocol

Site Information

Latitude (N is +): +31°02:59
Longitude (W is +): -121°13:00
Elevation (m): 0
UTC Offset (opposite of a): -8

Date/Time

Date: 12/17/21
Standard Time: 09:37:30
Time (UTC): 01:37:30
Time (LST): 15:26:01
Set Date/Time on Connect:

Optics

Aperture (m): 0
Aperture Area (m²): 0
Focal Length (m): 0

NOTE: OnStep never uses Daylight Savings Time internally, so all time related values are based on Standard Time.

Backlash

RA/Azm: 0 (arc-sec)
Dec/Alt: 0 (arc-sec)

Limits

Horizon: -10 (deg)
Overhead: 90 (deg)
Meridian E: 8 (deg)
Meridian W: 8 (deg)

Max. Goto Rate

31.25 us

(6 deg/sec)

☐ Trace on

OK

Cancel

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SkySafari Connection

Scope Type:
Meade LX200
Classic

Mount Type: Choose
Equatorial or Alt-Az
depending on EM31Pro
mode.

Scope Setup

EQUIPMENT SELECTION

Scope Type -- Meade LX200 Classic

Mount Type -- Equatorial GoTo (German)

COMMUNICATION SETTINGS

☒ Connect via Bluetooth (EM31Pro)

☐ Connect via WiFi

COMMON SETTINGS

☐ Set Time & Location

☐ Tilt Device to Slew

☐ Save Log File

Readout Rate -- 4 per second



Note:

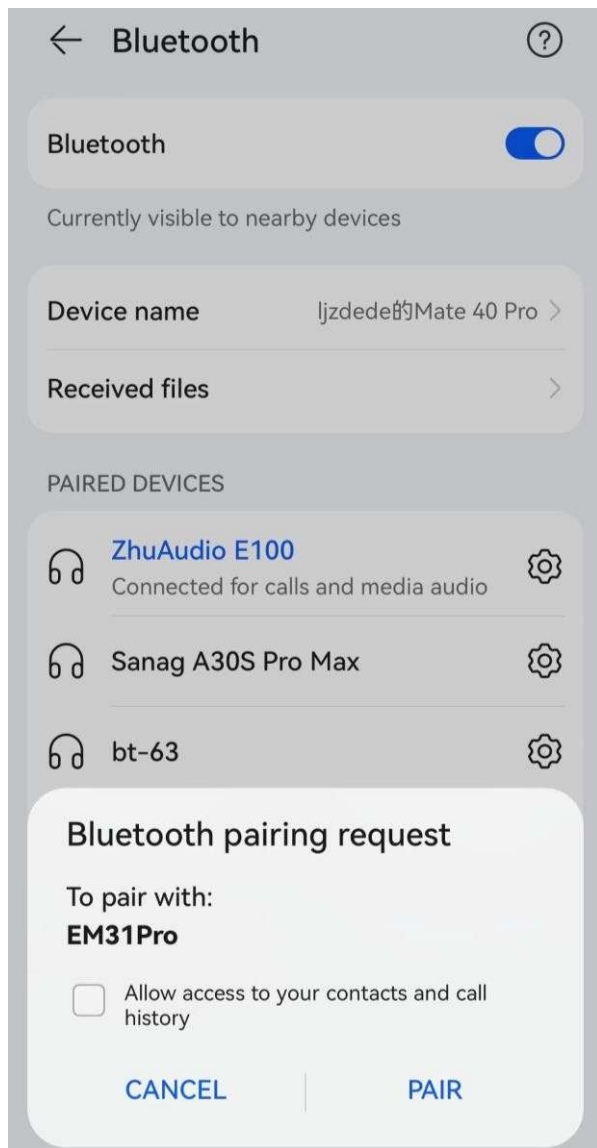
Selecting to synchronize time and location information will slow down the mount connection startup, adding approximately 30 seconds, please wait patiently.

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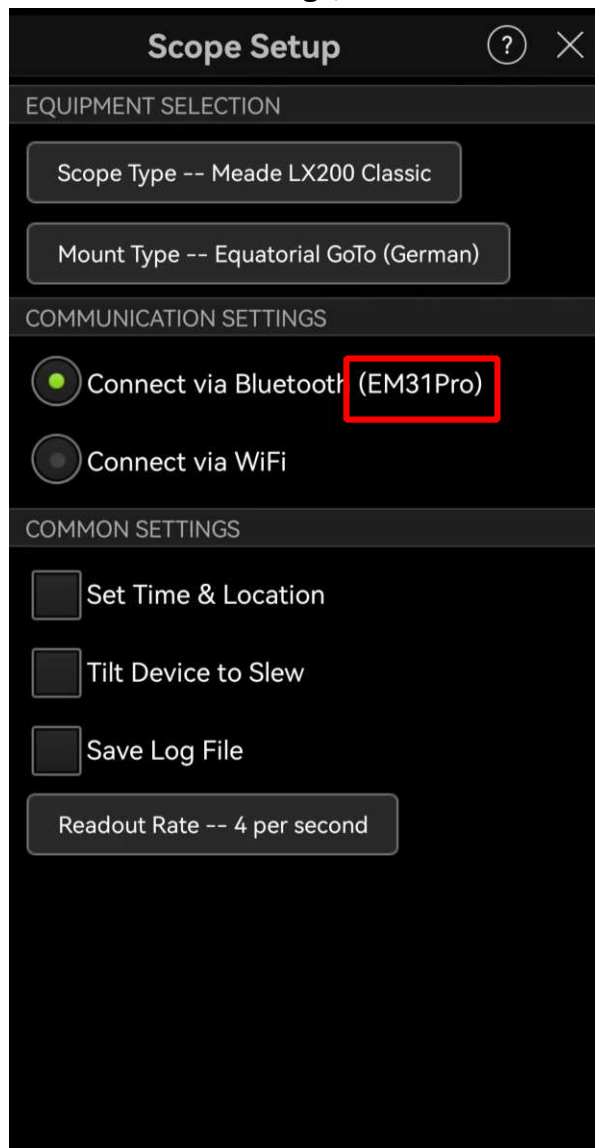
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SkySafari Connection 1. Via Bluetooth (**Android only**)

Pair with EQ 370DX via Bluetooth.



Bluetooth settings, select EQ 370DX .



Note:

Using Bluetooth to connect to EQ 370DX will take around 40–60 seconds to initiate the mount connection.

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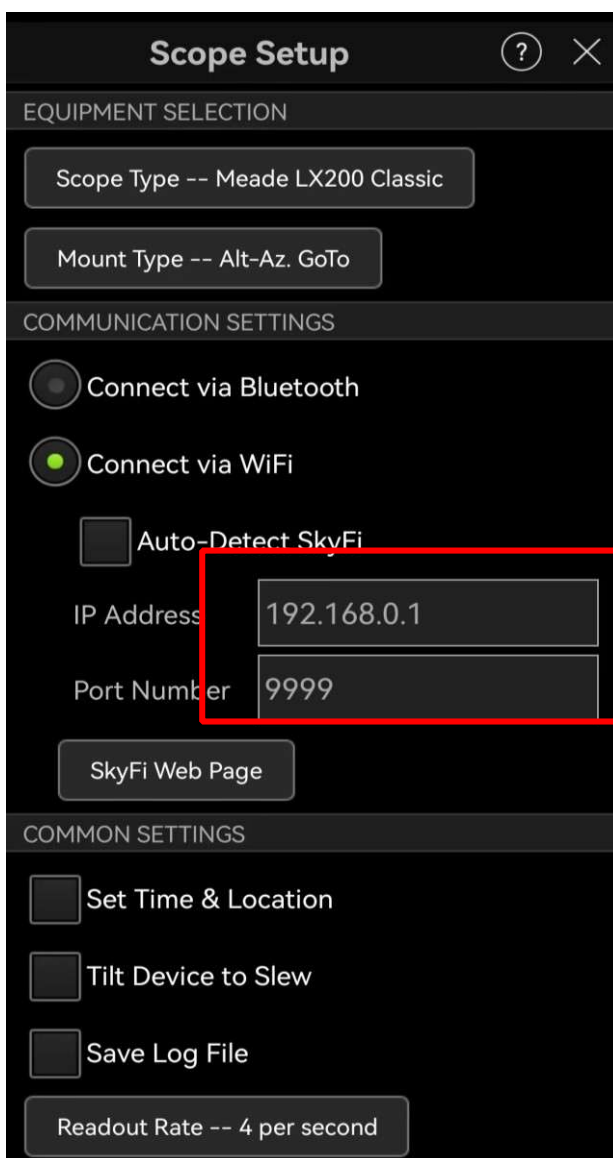
SkySafari Connection 2. Via Wi-Fi (Android + Apple)

Connect to the mount's
Wi-Fi hotspot.



Enter the following details:

IP: 192.168.0.1 Port: 9999 or 9998.



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Warranty Statement

Thank you for purchasing the EQ 370DX Mount. To ensure you have the best experience with our product, we provide a two-year warranty service for the EQ 370DX. Below are the specific warranty terms and conditions:

Warranty Period

This product is covered by a two-year warranty starting from the date of purchase.

Warranty Coverage

During the warranty period, if the product exhibits any material or workmanship defects under normal use, we will provide free repair or replacement services. This includes, but is not limited to:

- Motor failure
- Control board failure
- Mechanical structure damage

Warranty Exclusions

The warranty does not cover the following situations:

1. **Human-induced damage:** Including but not limited to damage caused by dropping, impact, submersion, excessive use, etc.
2. **Unauthorized repair or modification:** If the product has been repaired or modified by an unauthorized service provider, the warranty will be void.
3. **Accidents or natural disasters:** Including but not limited to fire, earthquake, flood, lightning, etc.
4. **Normal wear and tear:** Such as normal wear and tear, scratches on the exterior, etc.

Warranty Service Procedure

1. **Contact Customer Service:** If your product requires repair, please first contact the after-sales service of the purchase channel or directly contact our customer service center. Provide a detailed description of the fault.

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2. Fault Diagnosis: We will conduct a preliminary diagnosis of the reported fault via email. If further inspection is needed, we will guide you to send the product to the designated repair center.

3. Repair or Replacement: Once the product is confirmed to be within the warranty conditions, we will provide free repair services. If the product cannot be repaired, we will replace it with the same model or an equivalent product of the same value.

4. Return Shipping: The repaired or replaced product will be shipped back to you via courier.

Important Notes

❓ Before sending the product, please ensure it is properly packaged to avoid further damage during transit. ❓ When shipping, include a description of the fault.

If you have any questions or need further assistance, please feel free to contact our customer service team. We are dedicated to serving you.

Customer Service Email: info@nimax.de Thank you for your understanding and support.

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Appendix A - Symbols and Error Messages



Telescope is at home position. Tracking is OFF



Tracking sidereal is ON



Tracking moon is ON



Tracking sun is ON



Tracking is OFF



Telescope is slewing



East side of pier. Declination is between 90 and -90



West side of pier. Declination is between 180 and 90 or -90 and -180



Telescope is slewing to park position



Telescope is parked. Press shift and then east button to unpark

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Park failure



Buttons are locked to avoid unintentional press



Show guiding correction, for pulse Guiding and ST4 corrections



Telescope position exceeds user defined Horizon limit. Tracking has stopped



Telescope position exceeds user defined Meridian limit. Tracking has stopped



Telescope position exceeds user defined Declination limit. Tracking has stopped



Motor fault. Tracking has stopped



WiFi is ON. If it is configured in station mode it shows a successful connection to the WiFi router



WiFi is ON but has no connection to the WiFi router. Reasons are e.g. out of range



GNSS receiver synced with satellites, you can now update your location and/or Time with GNSS signal, when the Telescope is at home/park. The GNSS

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feature is turned off when the telescope is not at home and not at park hence the icon will disappear if you leave the Park home position

Catalogue icons:



Globular star cluster



Galaxy



Open star cluster



Planetary nebula



Nebula

Symbol Description



forbidden



Important points



Operation instruction



Blue stands for counter-clockwise rotation



Green stands for clockwise rotation

Observe in the direction indicated by the dashed arrow.

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Appendix B – Technical Specifications

- **Weight of the main body** : approx. 4kg (without dovetail & adapter)
- **Payload** : $\leq 8\text{kg}$
- **Note**: payload calculated in the condition that the telescope's center of gravity is 20cm from RA axis
- **Latitude adjustment** : $0^\circ \sim 90^\circ$
- **Azimuth adjustment** : $-8^\circ \sim +8^\circ$
- **RA** : Worm gear 144 teeth + synchronous belt
- **DEC**: worm gear 144 teeth + synchronous belt
- **Motor**: Nema 42 stepper motor
- **Goto speed** : max $4^\circ/\text{s}$
- **Power port**: DC5.5-2.1 12V 5A (Cable Management Support)
- **Power consumption** : approx. tracking 0.4A, Goto 0.7A
- **Communication interface** : usb2.0, Wi-Fi, Bluetooth
- **Dovetail** : Vixen 75°
- **Hand controller** : Wired hand controller



The payload capacity is not exactly equal to the total weight of the equipment being mounted. The effective weight that the mount can support depends closely on the center of gravity of the entire setup. Equipment with a higher center of gravity will reduce the mount's loadbearing capacity accordingly. Before installing heavy equipment with a high center of gravity, please ensure it does not exceed the weight limit.