
ASIAIR Mini

User Manual V1.3



Table of Contents

Preface	4
Reading Instructions	5
Packing List	7
1. Product Overview	8
1.1. Introduction	8
1.2. Feature Highlights	8
1.3. Preparation Kit	9
1.4. ASIAIR Component Names	10
1.5. Status Indicator Light	12
1.6. Specifications	13
2. Connection and Setup	14
2.1. Data Cable Connection	14
2.2. Power Cable Connection	15
2.3. Network Connection	16
2.4. Equatorial Mount Connection - Serial Cable Method	17
2.5. Equatorial Mount Connection - Network Method	19
2.6. DSLR/Mirrorless Camera Connection	21
3. ASIAIR App	24
3.1. Home	24

3.1.1. ASIAIR Page	24
3.1.2. Community Page	25
3.1.3. Nearby Page	26
3.1.4. My Page	27
3.2. Basic Configuration	28
3.2.1. Device Information Page	28
3.2.2. ASIAIR Settings	30
3.2.3. Primary Camera Settings	31
3.2.4. Guiding Settings	33
3.2.5. Equatorial Mount Settings	36
3.2.6. Filter Wheel Settings	38
3.2.7. Electric Focuser Settings	39
3.2.8. Storage Settings	40
3.2.9. About	42
3.3. Shooting Guidance	43
3.3.1. Focusing	43
3.3.2. Polar Axis Alignment	45
3.3.3. GoTo	49
3.3.4. Shooting Preview and Composition	50
3.3.5. Start Guiding	51
3.3.6. Planned Shooting	55
3.3.7. Multi-Target Shooting	56

3.3.8. Real-Time Stacking	57
3.3.9. Others	58
4. Appendix	63
4.1. Image Export	63
4.2. Firmware Upgrade	63
4.3. Wi-Fi Recovery	63
4.4. Safety Summary	64
4.5. Disclaimer	64
4.6. After-Sales Service Information	65

Preface

Thank you for purchasing the ASIAIR Mini.

ASIAIR Mini is a Wi-Fi enabled astronomy controller designed for deep sky astrophotography. When used with the ASIAIR app, it integrates your mount, camera, focuser, filter wheel, and other supported equipment into a single control system. It manages equipment connection, polar alignment, guiding, sequencing, and image acquisition in one workflow.

ASIAIR Mini is the third generation of the ASIAIR platform. It incorporates hardware and software improvements developed by ZWO since the first ASIAIR was released in July 2018.

Before using ASIAIR Mini for imaging, please read this manual carefully. While the system is designed to simplify astrophotography, it may take several sessions to become fully comfortable with its operation. This manual provides step by step guidance, detailed explanations of features, and practical tips to help you operate the system efficiently.

This document explains proper setup and operation through written instructions and illustrations. It also outlines important safety information and usage precautions. Read all instructions thoroughly before operating the device and follow them carefully during use. Damage to equipment or personal injury resulting from improper operation is the responsibility of the user.

Reading Instructions

Quick Keyword Search

PDF electronic documents support keyword searches using the search function. For example, in Adobe Reader, Windows users can press Ctrl+F, and Mac users can press Command+F to search for keywords.

Navigate by Clicking the Table of Contents

Users can understand the document's structure through the table of contents; clicking a title will navigate directly to the corresponding page.

Print Document

This document supports high-quality printing.

Usage Recommendations

ZWO provides tutorial videos and documentation for ASIAIR Mini users, and strictly follows the guidance of the Manual during actual use. The content of the Manual may be subject to change. For the latest instructions on using this product, please refer to

Online manuals are available at <https://www.zwoastro.com/cn/support/manuals>.

1. Quick Guide
2. User Manual including Disclaimer and Safety Summary

It is recommended that users first watch the instructional videos and then review the Quick Guide to become familiar with the basic operation process.

For complete product information, including the full disclaimer and safety summary, please refer to the User Manual.

Access Instructional Videos

Users can scan the QR Code with their mobile devices to access and view the

instructional videos, ensuring correct and safe usage of this product.

<https://qrcode.zwoastro.com/asiair-video>



Download the ZWO ASI AIR App

Scan the QR Code to obtain the download link. The iOS version can be found and downloaded in the App Store. The Android version is available on the Google Play Store, Z WO official website, Huawei AppGallery, and Xiaomi App Store by searching for ASI AIR.

The ASI AIR App supports Android 8.0 and above, and iOS 12 and above.



Minimum and Recommended Specifications

ASI AIR is supported on devices running iOS and Android operating systems. To ensure the best user experience, we recommend running the ASI AIR App on devices exceeding the recommended specifications.

	Android	iOS	MacOS	HarmonyOS
Minimum Specifications	Android 8 and above, device RAM > 4GB	iOS 12 and above	Mac devices equipped with Apple Silicon	HarmonyOS 2.0 and above
Recommended Specifications	Android 12 and above, device RAM > 6GB	iOS 15 and above	Mac devices equipped with Apple Silicon	HarmonyOS 4.0 and above

Packing List



ASIAIR Mini



DC 1.5m male-female extension cable * 1



DC 0.5m male cable * 2



DC 1m male cable * 2



ASIAIR Mini quick start guide

Labeled Power cables are 5.5 * 2.1 mm standard

1. Product Overview

This chapter describes the main features of the ASIAIR Mini, identifies its external components, and explains the function of the status indicator lights.

1. 1. Introduction

ASIAIR Mini is an intelligent Wi-Fi device featuring a lightweight power management module, ample USB Interfaces, and various dovetail plate mounting methods. Together with the comprehensive functions of the ASIAIR App, it offers full support for Astronomical Deep-Sky Photography, from device integration to image acquisition. ASIAIR Mini is the third-generation product, continuously improved and newly designed by ZWO since the release of the first-generation ASIAIR in July 2018.

1. 2. Feature Highlights

The ASIAIR Mini housing is constructed from aerospace-grade aluminum, manufactured by CNC machining, and finished with anodic oxidation, which not only effectively protects the enclosure but also provides a comfortable tactile experience. With overall dimensions of 80.5 × 52 × 26 mm, it is compact and portable, handheld-sized, and easier to store.

The elegantly symmetrical slots on the body, combined with the front laser-etched star maps of Polaris, Ursa Minor, and Ursa Major, further highlight its dynamic and refined design. The M4 and 1/4-inch openings on the bottom and sides, in conjunction with the Dovetail Plate, make installation and removal effortless.

Equipped with a lightweight power management module, the device facilitates integrated wiring that is neat and orderly, providing stable and reliable power supply. In addition to ample USB interfaces, a DSLR camera shutter port is provided, supporting exposures of 30s or longer.

During operation, clear and distinct LED status indicators, along with key operational alert sounds, ensure everything remains under control.

1. 3. **Preparation Kit**

The dovetail plates on the sides are factory installed. Because of transportation and handling, the mounting screws may loosen. Check and secure them properly before operation.

When tightening the dovetail plate fixing screws, avoid applying excessive force to prevent thread damage.

Product Certification Information:

“Contains TX FCC ID: 2A7R3-ASIAIRPLUS”

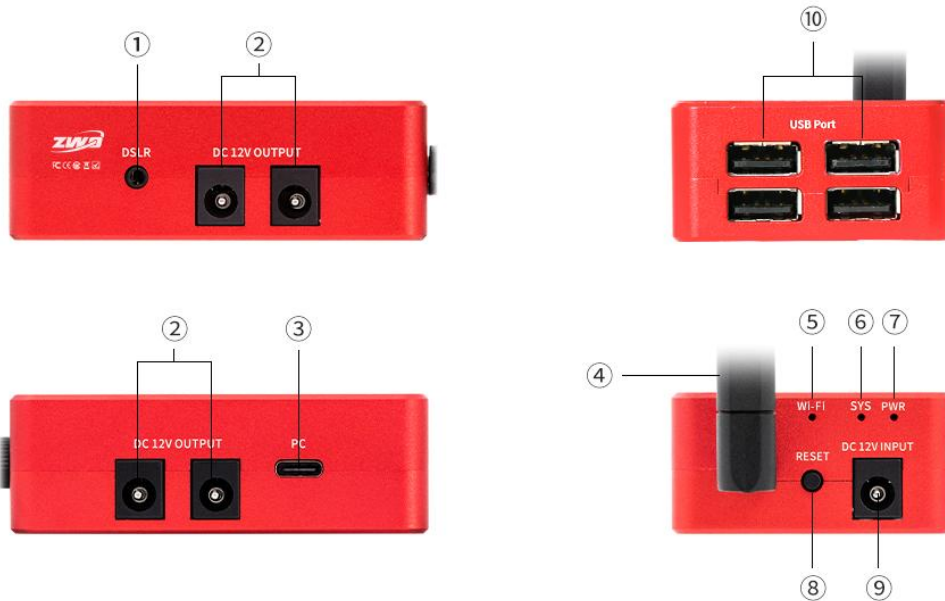
“Contains IC: 28392-ASIAIRPLUS”

“This device complies with Part 15 of FCC Rules. Operation is Subject to following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received including interference that cause undesired operation.”

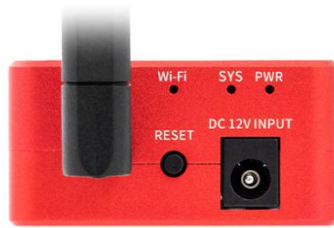
1. 4. ASIAIR Component Name



Label	Name	Specification	Quantity	Remarks
1	DSLR	DSLR shutter release interface (2.5 mm)	1	
2	DC 12V Output Interface	DC 5.5 x 2.1 mm power output	4	
3	PC	Type e-C Port	1	Can be connected to a computer to view and edit shooting-related files
4	Antenna	External Enhanced Dual-Band Antenna	1	
5	Wi-Fi	Wi-Fi Status Indicator Light	1	
6	SYS	Disk read/write	1	

		status indicator		
7	PWR	Power indicator	1	
8	RESET	RESET Button	1	
9	DC 12V INPUT	DC 12V Power Input	1	Used to supply power to the device
10	USB2.0	USB 2.0 Port	4	Used for communication with the Guide Camera, Equatorial Mount and Primary Camera

1. 5. Status Indicator Light



LED	Function	Status	Description
PWR	Power Indicator Light	Steady On	Power Supply Normal
		Blinking/Off	Voltage Too Low
Wi-Fi	Wi-Fi Status Light	Steady On	Normal
		Off	Wi-Fi Not Started
		Blinking	Resetting
SYS	Disk Read/Write Status Light	Off	ASIAIR Mini is powered off or no system read/write activity
		Steady On	Normal startup: S YS indicator stays solid for 15-20 seconds, then flashes; if it remains solid, the disk has failed.
		Irregular flashing	ASIAIR Mini functioning normally

Wi-Fi indicator abnormal. Press and hold the RESET button until the indicator flashes, then release. The hotspot, password, and bridge settings will be reset; reset completes in 5 seconds.

1. 6. Specifications

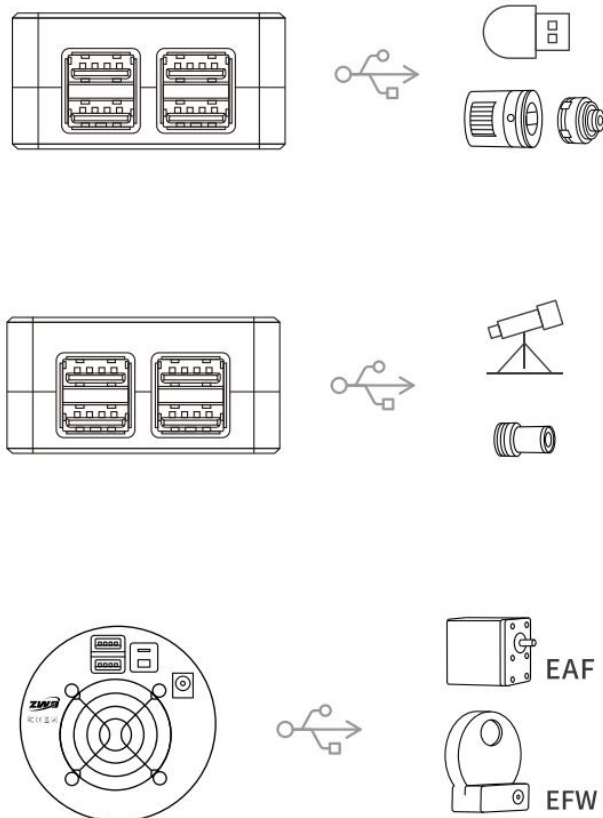
Product Name	ASIAIR Mini
Dimensions (L*W*H) (cm)	8.05 x 5.2 x 2.6
Weight (g)	165
Operating Temperature (°C)	-10~40
Storage Temperature (°C)	-30~60
RAM	2GB LPDDR4
Storage	32GB eMMC
Wired Network	No
Wireless Network	802.11 b/g/n/ac (2.4Gh/5 GHz) , effective transmission distance 20 m
Input Power	12V@2A-10A input
Output Power	12V@5A Max output, 4 output ports

* The ASIAIR Mini version doesn't support Bluetooth connection with Harmonic Drive Equatorial Mounts AM7, AM5N and AM3.

2. Connection and Setup

This chapter primarily demonstrates the device's data cable and power cable connections and setup based on the ASIAIR Mini.

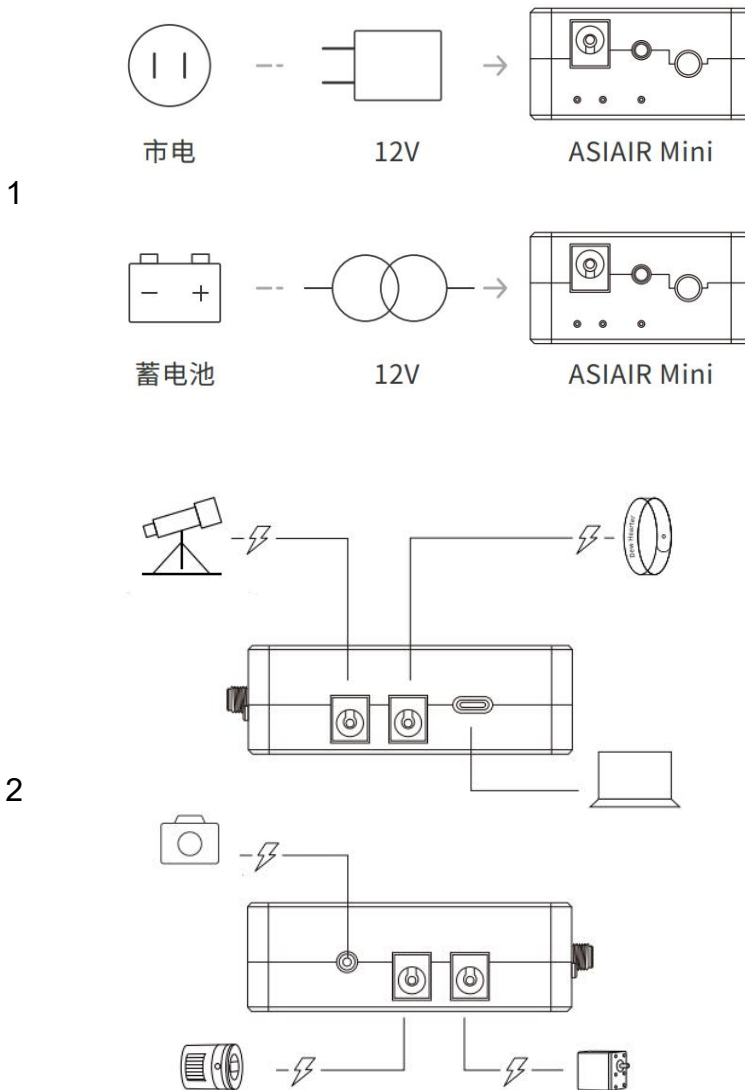
2. 1. Data Cable Connection



1. Connect the Primary Camera and USB flash drive to the USB 3.0 port.
2. Connect the Guide Camera and Equatorial Mount to the USB 2.0 port.
3. Connect the EAF and EFW to the Primary Camera USB HUB port.

All cooled cameras require a DC 12V@3A–5A power supply for proper operation.

2.2. Power Cable Connection



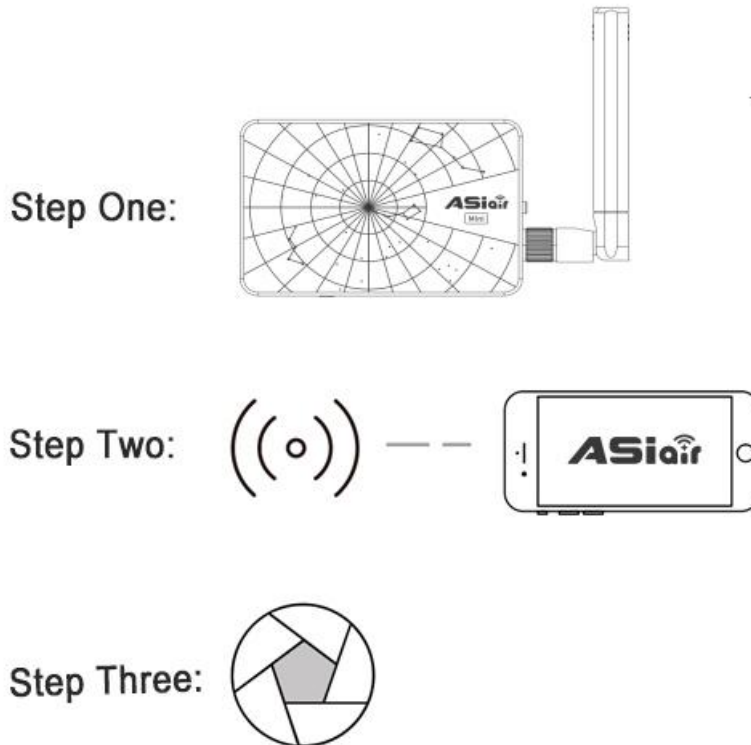
1. The ASIAIR Mini requires only a 12V@2A power supply to operate normally. Considering the power requirements for other devices through its four DC output ports, it is recommended to use a 12V@5A power supply.

2. Connect the power cable from the ASIAIR Mini power output port to the Primary Camera, EAF, EFW, dew heater strip, Equatorial Mount, and other powered devices.

Pay close attention to the varying lengths of the power cables to prevent entanglement during Equatorial Mount rotation.

Please strictly supply power to devices according to their specified voltage, current, and power ratings; otherwise, the devices may be damaged or fail to operate normally.

2. 3. Network Connection



Step 1: Press the power switch toggle to on, and wait for 15 seconds.

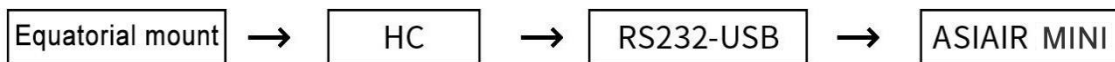
Step 2: Connect to the hotspot named “ASIAIR_XXXXXX” using the initial password 12345678, then launch the ASIAIR App.

Step 3: Begin your imaging journey!

The built-in Wi-Fi hotspot of the ASIAIR Mini can theoretically cover a range of 20 meters in an unobstructed environment.

2. 4. Equatorial Mount Connection - Serial Cable Method

1. RS-232 conversion via hand controller



Most equatorial mounts have a separate control system, commonly referred to as the “hand controller”. Common models include: ARGO VAVIS, GTOCP series, StarGo, NexStar series, SynScan V3/V4 series, Pulsar2 GoTo, Go2Nova series, Gemini series, AutoStar series, AudioStar series, PMC-8 (requires manual switching to serial mode), as well as the Electronic FS-2, frequently used by enthusiasts.

All connection methods utilize RS232 to USB cable adapters; alternatively, integrated FTDI cables may be chosen to simplify the wiring.

The SynScan V5 version requires a USB Type B to Type A printer data cable. If the connection fails to open in the App, please confirm that the “Baud rate” setting is correct.

2. Direct connection to the equatorial mount's HC Interface



With ongoing optimization by equatorial mount manufacturers, some mounts now integrate the control system within the mount body itself and expose a direct interface. This further simplifies wiring, allowing connection between the equatorial mount and ASIAIR Mini using a single USB Type B – Type A printer data cable.

Whether this feature is supported must be verified by the user through the equatorial mount’s specific documentation.

3. EQMod, utilizing the EQDir cable

Equatorial mount

EQDir Cable →

ASIAIR MINI

For EQ series equatorial mounts, besides connecting via the hand controller, there is a simpler and more stable method by directly connecting the equatorial mount's HC Interface (or AUX Interface) to the ASIAIR Mini USB Interface using an EQDir cable. In the App, select [EQMod Mount] or [EQMod with SkySafari] accordingly.

Currently known equatorial mounts are:

EQ3-2

NEQ3

HEQ3

SkyView Pro EQ

EQ4

EQ5

HEQ5

EQ6

EQ6 Pro

NEQ6

EQ6-R PRO

AZ-EQ5GT

AZ-EQ6GT

EQ8

EQM-35 Pro

AZ-GTi*

M-Uno Fast Reverse Single Fork Arm EQ

Linear Fast Reverse EQ

Vixen GPDX / Vixen SP fitted with Sysncan Upgrade kit (EQ5)

CEM26, GEM28, CEM40, GEM45, HEQ5 PRO, AVX, CGEM II, CGX, Black Hole Equatorial Mount 2nd Generation, RST-135, RST-135E, EM31, Crux 170HD, Crux 140HD, Mark III

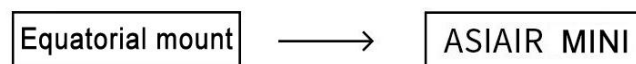
AM5

HEM27

The default baud rate for EMQod mode is 9600, except for AZEQ5 and EQ6-R PRO, which use 115200. AZ-GTi uses a network connection method with a baud rate of 11880 and employs the UDP protocol.

2. 5. Equatorial mount connection- Network method

1. Wi-Fi connection

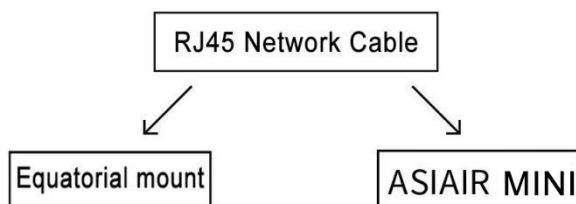


With the growing popularity of wireless technology, some manufacturers have integrated Wi-Fi modules within equatorial mounts or provide external Wi-Fi accessories, such as the built-in SynScan Wi-Fi module in the AZ-GTi, the StarFi Wi-Fi Adapter, SkyPortal Wi-Fi Module, StarGo Wi-Fi mode, and PMC-8 Wi-Fi mode.

This type of Wi-Fi connection operates on a generally similar principle; however, since there is currently no unified standard for Wi-Fi connections, please refer to the relevant documentation on the ZWO official website's Help page for detailed

instructions regarding the ASIAIR Mini connection.

2. Wired Network Connection



This method is primarily intended for Vixen’s StarBook series control systems, including StarBook, StarBook One, StarBook-S, StarBook Ten, etc. The specific steps are as follows:

1. Power on the StarBook control system.
2. Connect the ASIAIR Mini and the StarBook control system directly using an RJ45 standard Ethernet cable (with crystal connectors wired according to either the A or B standard).
3. Open the ASIAIR App and keep the “Wired Ethernet” setting on “Automatic” to obtain the IP address.
4. Switch to the “Equatorial Mount Settings” page, select the corresponding StarBook control system option, and enter the StarBook control system's IP address in the IP input box (obtainable from “Menu - About LAN”).

For example: 169.254.0.1. The default port is 80.

If the ASIAIR App indicates a connection failure, please verify whether the IP address has been acquired in StarBook under About LAN.

2. 6. DSLR/Mirrorless Camera Connection

ASIAIR Mini supports the following DSLR/mirrorless camera list:

Canon			Nikon		
Model	Status	Live Mode	Model	Status	Live Mode
Canon EOS 1000D	Tested	Y	Nikon D780	Tested	Y
Canon EOS 100D	Tested	Y	Nikon DSC D3	Tested (B)	Y
Canon EOS 1100D	Tested	Y	Nikon DSC D300	Tested (B)	Y
Canon EOS 1200D	(I)	Y	Nikon DSC D300s	(I) (B)	Y
Canon EOS 1300D	Tested	Y	Nikon DSC D3200	Tested (B)	Y
Canon EOS 1500D	Tested	Y	Nikon DSC D3300	Tested (B)	Y
Canon EOS 1D Mark III	(I)	Y	Nikon DSC D3400	(I) (B)	Y
Canon EOS 1D Mark IV	(I)	Y	Nikon DSC D3s	Tested (B)	Y
Canon EOS 1D X	Tested	Y	Nikon DSC D3x	Tested (B)	Y
Canon EOS 1D X Mark II	Tested	Y	Nikon DSC D4	(I)	Y
Canon EOS 2000D	Tested	Y	Nikon DSC D5	(I)	Y
Canon EOS 200D	Tested	Y	Nikon DSC D500	(I)	Y
Canon EOS 250D	Tested	Y	Nikon DSC D5000	(I) (B)	Y
Canon EOS 4000D	Tested	Y	Nikon DSC D5100	Tested	Y
Canon EOS 40D	Tested	Y	Nikon DSC D5200	Tested	Y
Canon EOS 450D	Tested	Y	Nikon DSC D5300	Tested	Y
Canon EOS 500D	Tested	Y	Nikon DSC D5500	Tested	Y
Canon EOS 50D	Tested	Y	Nikon DSC D5600	Tested	Y
Canon EOS 550D	Tested	Y	Nikon DSC D600	Tested	Y
Canon EOS 5D Mark II	Tested	Y	Nikon DSC D610	Tested	Y
Canon EOS 5D Mark III	Tested	Y	Nikon DSC D700	Tested (B)	Y
Canon EOS 5D Mark IV	Tested	(N)	Nikon DSC D7000	Tested (B)	Y
Canon EOS 600D	Tested	Y	Nikon DSC D7100	Tested	Y
Canon EOS 60D	Tested	Y	Nikon DSC D7200	Tested	Y
Canon EOS 650D	Tested	Y	Nikon DSC D750	Tested	Y
Canon EOS 6D	Tested	Y	Nikon DSC D7500	Tested	Y
Canon EOS 6D Mark II	Tested	Y	Nikon DSC D800	Tested	(N)
Canon EOS 700D	Tested	Y	Nikon DSC D800E	Tested	(N)
Canon EOS 70D	Tested	Y	Nikon DSC D810	Tested	(N)
Canon EOS 750D	Tested	Y	Nikon DSC D810A	Tested	(N)
Canon EOS 760D	Tested	Y	Nikon DSC D850	Tested	(N)
Canon EOS 77D	Tested	Y	Nikon DSC D90	(I) (B)	Y
Canon EOS 7D	Tested	Y	Nikon DSC Df	(I)	Y
Canon EOS 7D Mark II	Tested	Y	Nikon Z5	Tested	Y
Canon EOS 800D	Tested	Y	Nikon Z6	Tested	Y
Canon EOS 80D	Tested	Y	Nikon Z6 II	Tested	Y
Canon EOS 90D	Tested	(N)	Nikon Z7	Tested	(N)
Canon EOS M6 Mark II	Tested	(N)	Nikon Z7 II	Tested	(N)
Canon EOS R	Tested	(N)	Nikon Z50	Tested	Y
Canon EOS R5	Tested	(N)	Nikon Z9	(I)	(N)
Canon EOS R6	Tested	Y	Nikon Zfc	(I)	Y
Canon EOS Ra	Tested	(N)	Nikon DSC D6	(I)	Y
Canon EOS Rebel SL3	(I)	Y	Nikon DSC D3500	(I)	Y
Canon EOS Rebel T1i	Tested	Y	Nikon DSC D4s	(I)	Y
Canon EOS Rebel T7	Tested	Y	Nikon Z30	(I)	Y
Canon EOS Rebel T7i	Tested	Y	Nikon Z8	Tested	(N)
Canon EOS RP	Tested	Y			

Canon EOS 5DS	!	N
Canon EOS 5DS R	!	N
Canon EOS Rebel T8i	!	Y
Canon EOS M6	!	Y
Canon EOS M50 Mark II	!	Y
Canon EOS M200	!	Y
Canon EOS 1D X Mark III	!	Y
Canon EOS Rebel T3	!	Y
Canon EOS Rebel T6	!	Y
Canon EOS Rebel XSi	!	Y
Canon EOS Rebel T2i	!	Y
Canon EOS Rebel T3i	!	Y
Canon EOS Rebel T4i	!	Y
Canon EOS Kiss X2	!	Y
Canon EOS Kiss X3	!	Y
Canon EOS 850D	!	Y
Canon EOS R10	!	Y
Canon EOS R5 C	!	N
Canon EOS R6 Mark II	!	Y
Canon EOS R7	!	N
Canon EOS M50	!	Y

FUJIFILM		
Model	Status	Live Mode
Fujifilm GFX 100	!	N
Fujifilm GFX 100S	!	N
Fujifilm GFX 50 R	!	N
Fujifilm GFX 50 S	!	N
Fujifilm X-A5	!	Y
Fujifilm X-E3	!	Y
Fujifilm X-E4	!	Y
Fujifilm X-H1	!	Y
Fujifilm X-Pro2	!	Y
Fujifilm X-Pro3	!	Y
Fujifilm X-S10	!	Y
Fujifilm X-T10	!	Y
Fujifilm X-T2	!	Y
Fujifilm X-T20	!	Y
Fujifilm X-T3	!	Y
Fujifilm X-T30	!	Y
Fujifilm X-T4	!	Y
Fujifilm X-H2	!	N
Fujifilm X-T5	!	N

SONY		
Model	Status	Live Mode
Sony A7	Tested	Y
Sony A7 II	!	Y
Sony A7 III	Tested	Y
Sony A7 IV	!	N
Sony A7S	!	Y
Sony A7S II	!	Y
Sony A7S III	!	Y
Sony A7C	Tested	Y
Sony A7R	Tested	N
Sony A7R II	!	N
Sony A7R III	Tested	N
Sony A7R III A	!	N
Sony A7R IV	Tested	N
Sony A7R IV A	Tested	N
Sony A6000	Tested	Y
Sony A6400	!	Y
Sony A6500	!	Y
Sony A6600	!	Y
Sony ZV-E10	Tested	Y
Sony A9	!	Y
Sony A6300	!	Y
Sony A5100	!	Y
Sony A1	!	N
Sony A7R V	!	N

Sony Setting Requirements before connecting:

- USB Option: setting option according to the camera menu: USB settings, select [PC Control], or Network, turn on [Ctrl w/Smartphone]
- Complete the above settings, restart camera and connect the ASIAIR

Notes:

- When connecting the camera, please keep only one SD Card in the camera card slot

- ! Untested
- Ⓡ It means you need to use shutter release cable with ASIAIR Mini
- N Live Mode is not supported

#Live Mode requires the DSLR/MILCs camera equipping with a total pixel number less than 26M

DSLR Cameras may only be used as the Primary Camera, therefore for Preview, Real-time Stacking, and Scheduled Imaging. When in use, connect the DSLR Camera directly to the ASIAIR device via a data cable. Prior to connecting to the App, perform the following settings:


Shooting Mode: M

Shutter Mode: Bulb

Image Format: RAW (RAW+JPEG is not selectable)

Image Quality: L (Maximum Size)

Additionally, for DSLR cameras with settings related to "Power Saving Mode", Wi-Fi, noise reduction, and mirror lock functions, these features must be disabled. When performing scheduled imaging, ensure that the camera's storage has sufficient remaining space (refer to the "Estimation Space" in the ASIAIR scheduled imaging settings interface; it must exceed this value) and that the battery is adequately charged.

The ASIAIR Mini supports external shutter release cables, overcoming the 30-second exposure limit of some DSLR cameras. Cameras marked in the table  have not yet undergone practical testing and will be continuously updated in future releases.

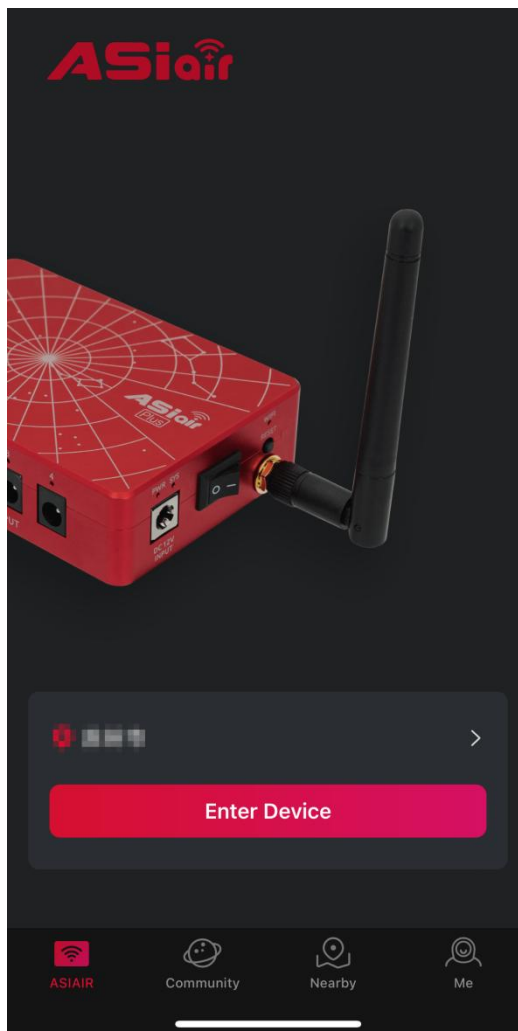
3. ASIAIR App

This chapter primarily introduces the main functions and user guide of the ASIAIR App.

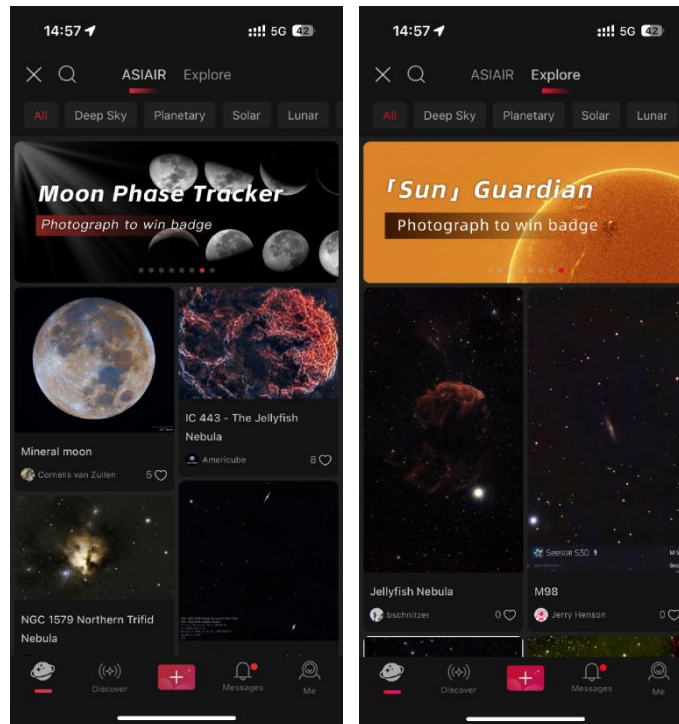
3. 1. Home

3. 1. 1. ASIAIR Page

Launch the ASIAIR App, and enter the “ASIAIR” page. Tap “Enter Device” to access the ASIAIR control page.



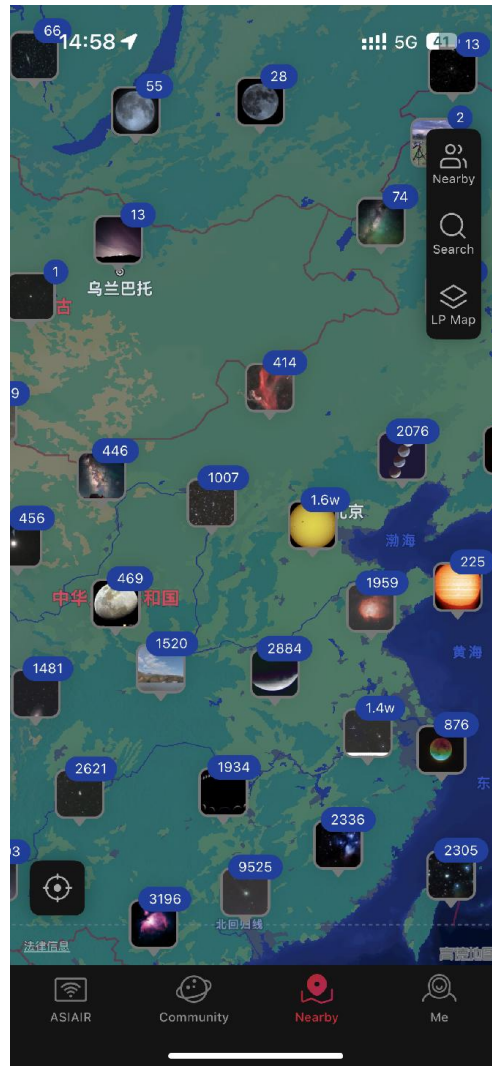
3. 1. 2. Community Page



“**ASI AIR**” Page: You can browse a wide variety of astrophotography images captured with ASI AIR.

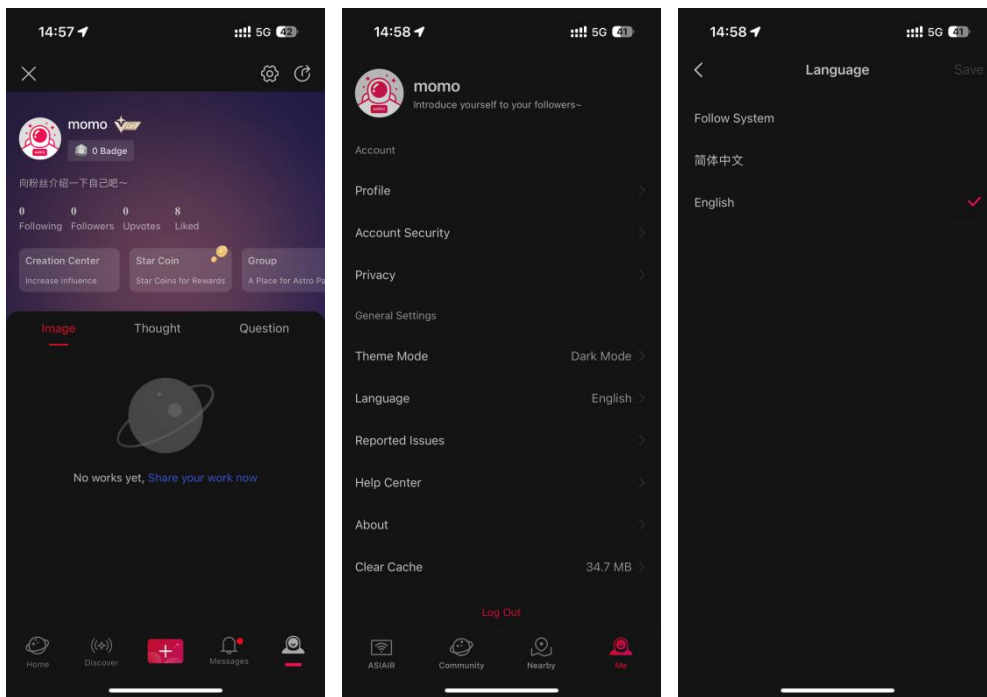
“**Explore**” Page: You can enjoy astrophotography works created by users around the world.

3. 1. 3. Nearby Page




“Nearby” Page: Assists in locating nearby star points, viewing local astronomy enthusiasts, and accessing regional light pollution maps.

3. 1. 4. My Page

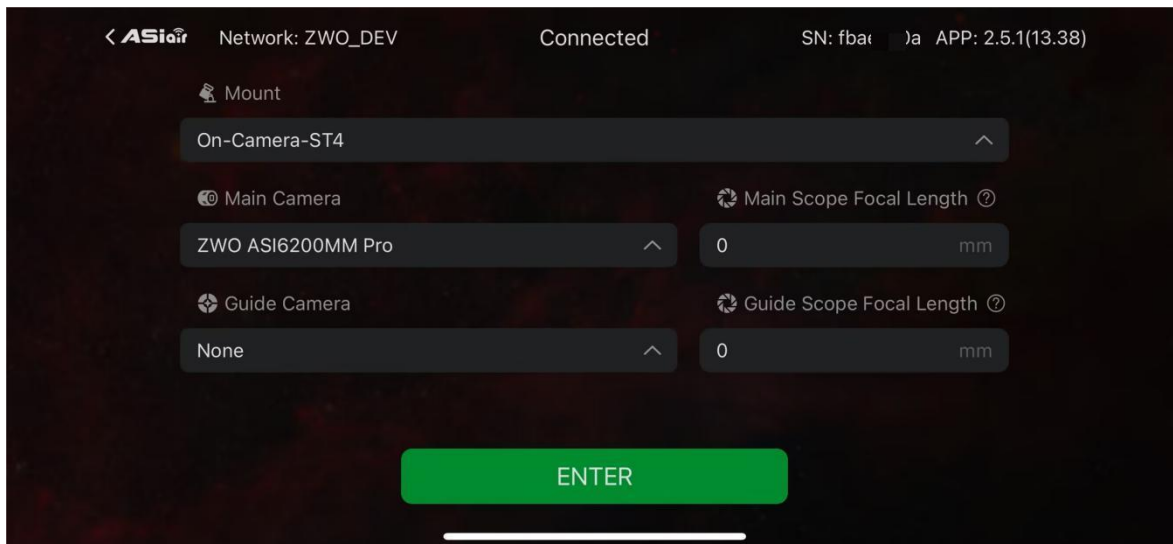


"Me" Page: Allows publishing and viewing your own astrophotography works.

Click  the icon to open the settings page, where you can view and configure various options. For example, the "Language" feature enables changing the App's display language.

3. 2. Basic Configuration

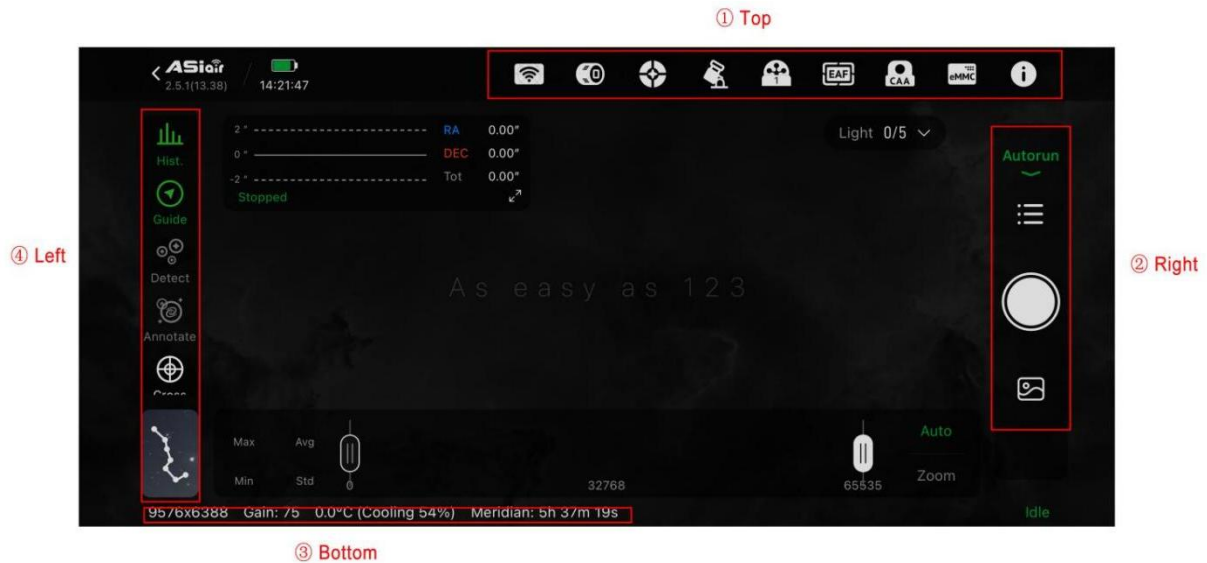
3. 2. 1. Device Information Page



Complete the "Network Connection" process as per section 2.3 (Network Connection) and select the device according to your connection type.

After configuration, click "Enter" on the page to access the App operation interface.

Please ensure the latitude and longitude information in "Location Information" corresponds to the current geographic coordinates of the ASIAIR device. If the automatically obtained data is inaccurate, you can set it manually by clicking.



① Top

Device detailed configuration entry area. Click any icon to slide out its corresponding settings page. From left to right: ASIAIR Settings, Primary Camera Settings, Guiding Settings, Equatorial Mount Settings, Filter Wheel Settings, Electronic Focuser Settings, Storage Space, and About. If the corresponding device is connected and powered on, the icon will be lit; otherwise, it will be grayed out.

② Right side

Main function switch corresponding to primary parameter settings and operation areas. Tap “Preview” to switch between Focus, Polar Alignment, Scheduled Imaging, Multiple Targets, Real-time Stacking, and Video modes.

③ Bottom

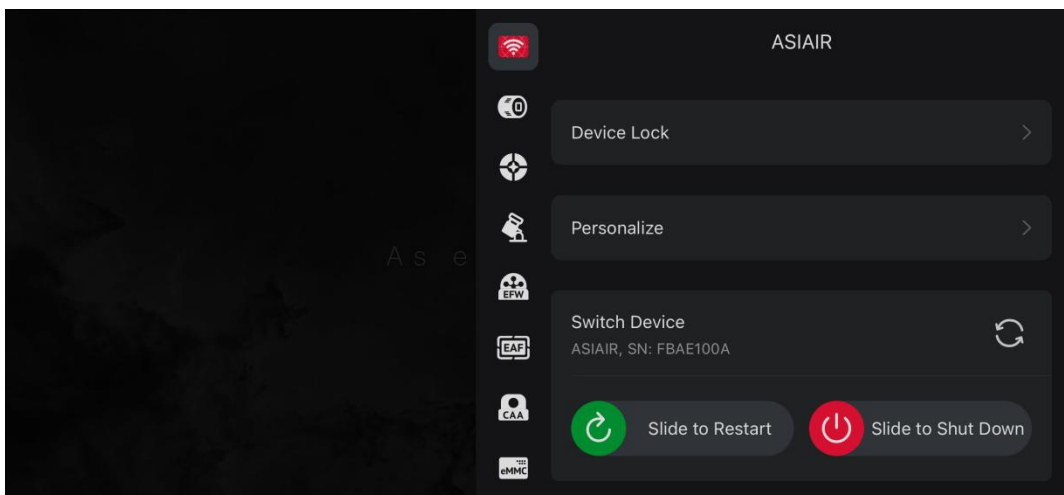
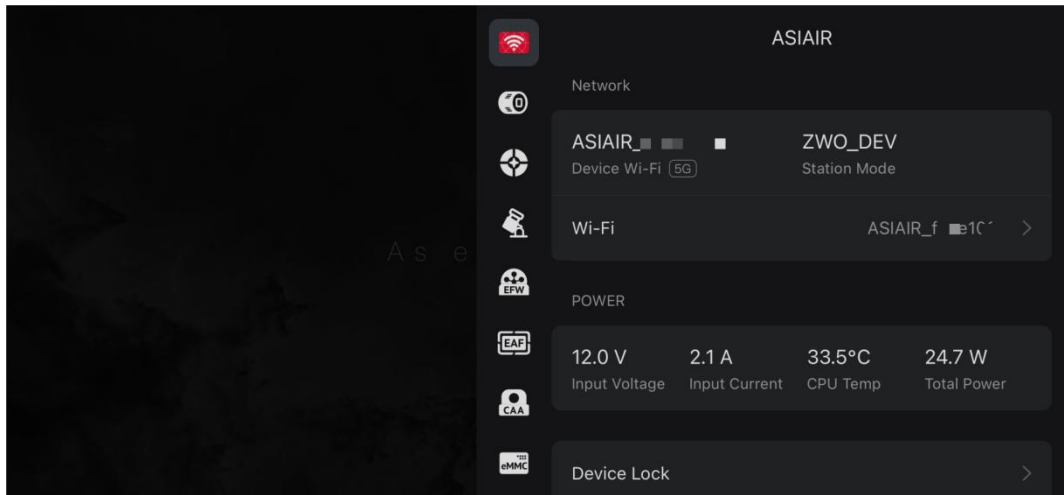
Displays the current working status of the ASIAIR Mini, including camera information such as resolution, gain, temperature, and cooling power.

④ Left side

Displays available tools in the current functional mode, including Histogram, Focusing, Guiding, Analysis, Crosshair, Annotation, and Star Point Detection. Tap an

icon to enable or disable the corresponding tool.

3. 2. 2. ASIAIR Settings



This page contains most of the basic settings related to ASIAIR.

Network: Customize the ASIAIR Mini Wi-Fi hotspot name and password, switch between 2.4GHz and 5GHz Wi-Fi hotspot bands, and configure Wi-Fi bridge mode.

Power Monitoring: Real-time display of input voltage, input current, CPU operating temperature, total power, and other information.

Personalization: Adjust system sound modes, temperature units, etc.

Switch Device: Display the ASIAIR box names and their serial numbers (SN).

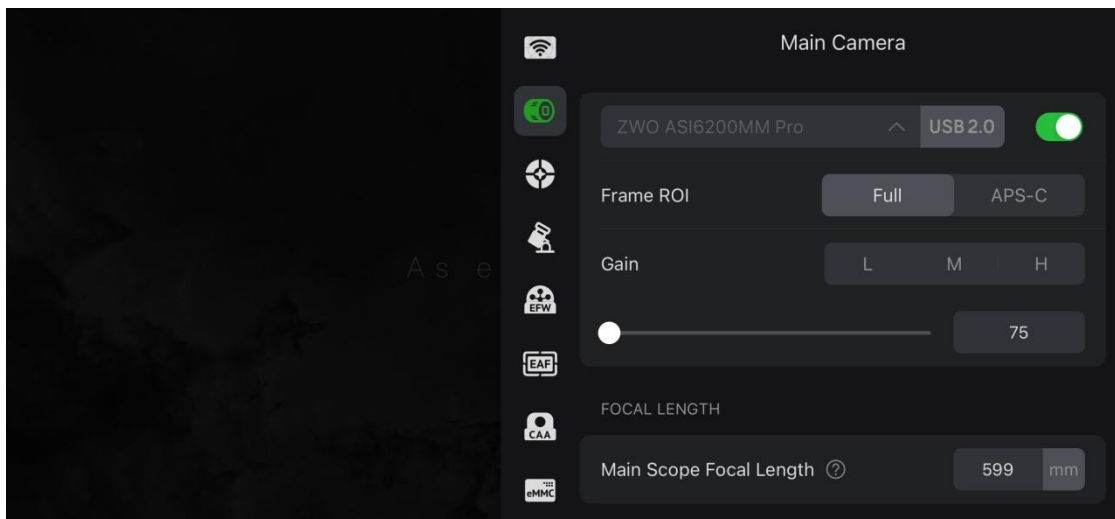
Switch Device: After configuring bridge mode, multiple devices can be switched within the home local area network.

Soft Restart/ Shutdown: For safety reasons, a soft shutdown operation is provided. You may select either the “Slide to Restart” or “Slide to Shutdown” function.

Wi-Fi Bridge Mode: After following the App instructions to configure, the ASIAIR device can be connected to the home LAN via bridging, enabling “Play Anywhere” and eliminating the distance limitations of AP hotspots; Furthermore, mobile devices can continue to access the home LAN and maintain internet connectivity, ensuring that “Astrophotography and Social Interaction ” are both seamlessly maintained.

Soft Shutdown: **Soft shutdown** will simultaneously exit the App; please wait patiently for 5 to 10 seconds before disconnecting the device power.

3. 2. 3. Primary Camera Settings



Select the Primary Camera and power it on. When switching cameras, please first turn the switch off, then turn it on again after switching.

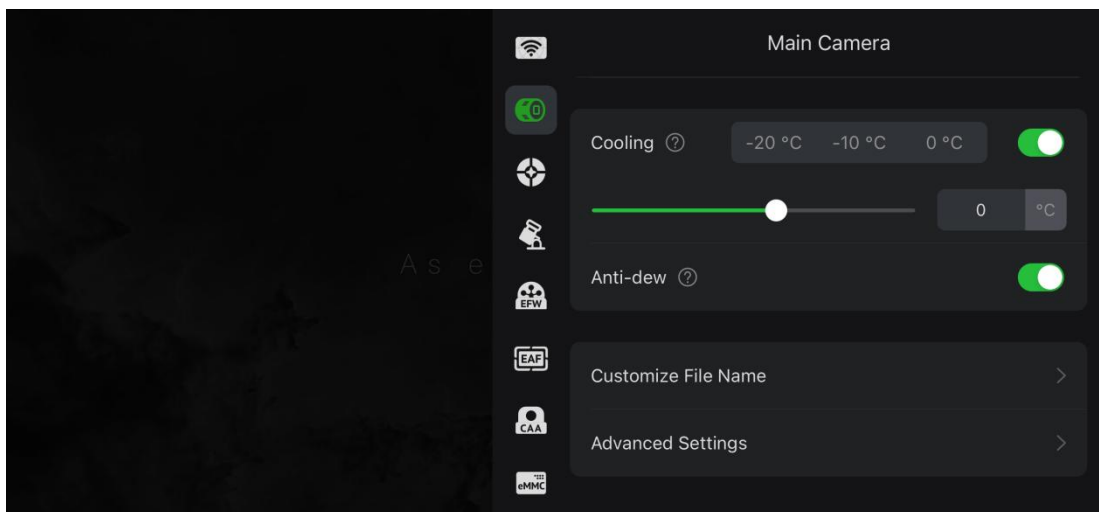
Next, set the Gain and enter the focal length of the primary lens.

Gain: refers to the camera's signal amplification factor; generally, a medium gain

setting is chosen. If the image from the camera appears too dim or lacks detail, increase the gain setting or adjust the gain slider manually to improve brightness and signal.

If you are using a cooled camera model, the cooling function is enabled by default when the app starts. You can set a target temperature as needed. Some camera models also include a built in window heater to reduce dew formation.

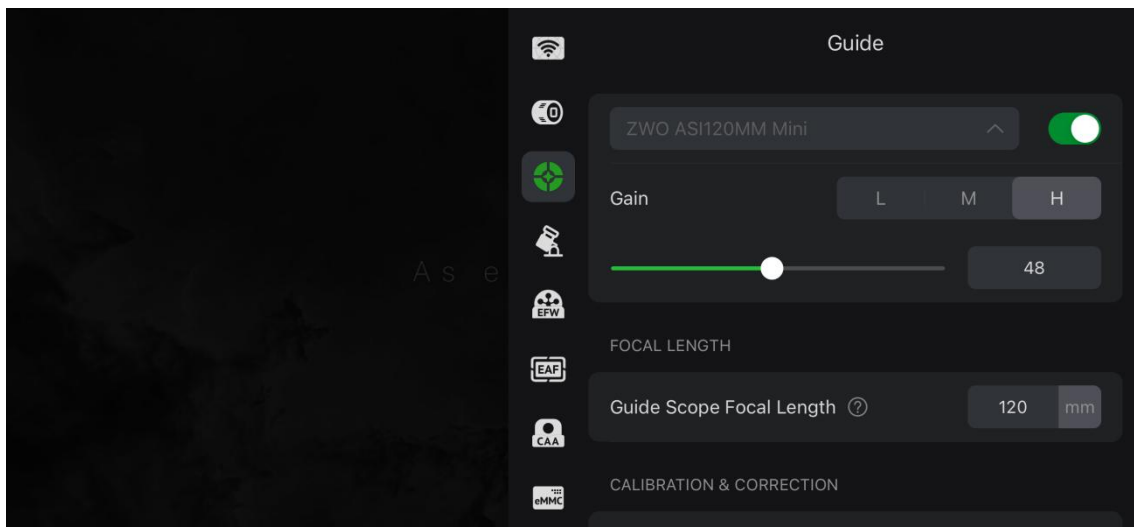
A DSLR Camera can also be used as the Primary Camera. For models that do not support long exposures, a Shutter release cable is required. For DSLR Camera models supported by ASIAIR, please refer to section “2.6. DSLR Camera Connection.”



Filename Configuration: Used to edit the saved filename for downloaded photos. The filename can be customized, with optional content including camera model, Gain, temperature, etc.

Advanced Settings: Advanced settings include auto white balance, Mono Bin, continuous Preview, automatic Cooling upon camera connection, and automatically activating the heater window during Cooling.

3. 2. 4. Guiding Settings



Select and activate the Guide Camera here. It is recommended to set the Gain to “High.” Please ensure the focal lengths for both the Primary Camera and the Guide Camera are accurately entered.

Gain: Gain controls the amplification of the camera signal. For guiding, the goal is to detect sufficiently bright stars within short exposure times, so a higher gain setting is generally recommended.

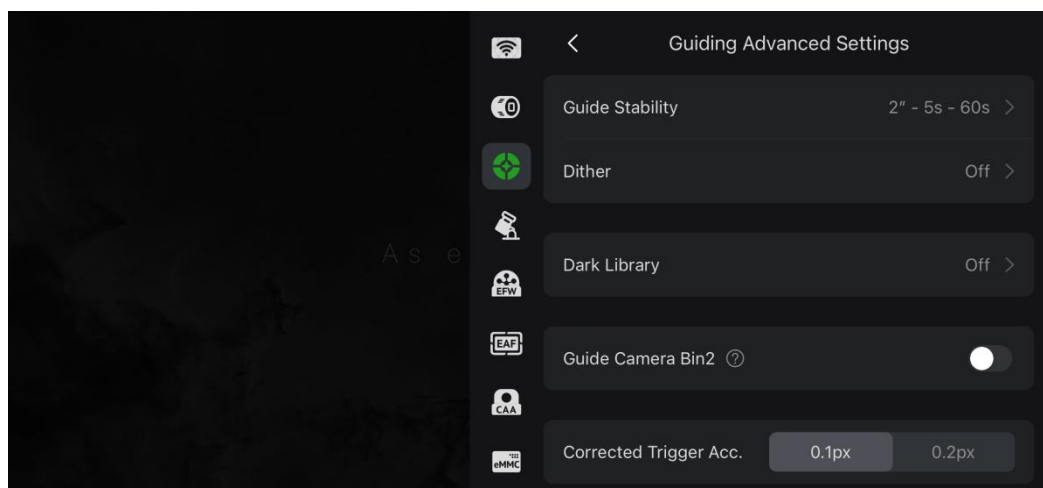
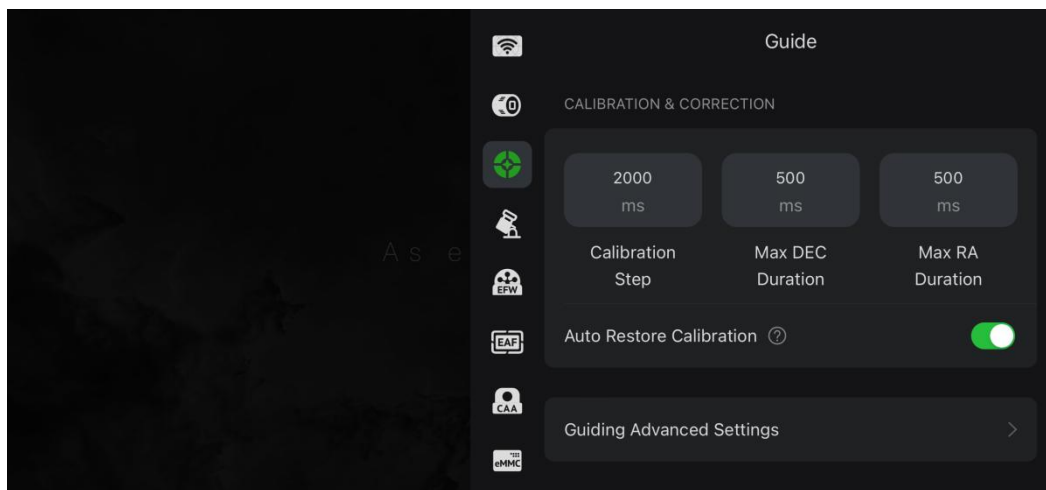
However, use gain cautiously. Excessive gain can over amplify the background signal, reducing contrast and causing stars to blend into the background. This can make accurate star detection more difficult and lead to guiding instability.

Aim for strong star visibility with clear contrast between the stars and the background.

Focal Length: refers to the focal length of the guide scope or off-axis guider (OAG) scope focal length, matched with the guide camera.

For example, if you install the guide camera on a ZWO 30F4 mini guide scope, enter 120 here (unit: millimeters, mm). If you are using a DUO series ASI camera or an OAG, enter the focal length of the **main** telescope, which corresponds to the primary camera's focal length. You may also click 'Fill in Primary Camera Focal Length' to fill this automatically.

Pro tip: Prior to your imaging session, set the guide camera to infinity focus. This adjustment can be completed in daylight using a distant object such as a building or horizon feature.



Calibration Settings:

Calibration Duration: This parameter pertains to guide calibration; it is recommended to maintain the default value of 2000 milliseconds.

Maximum Declination Correction Duration: It is recommended to retain the default value or set it to less than the guide camera exposure time.

Maximum Right Ascension Correction Duration: It is recommended to retain the default value or set it to less than the guide camera exposure time.

Use Last Calibration Data: If the astrophotography equipment has not been moved or disassembled since your last session, you may enable this option.

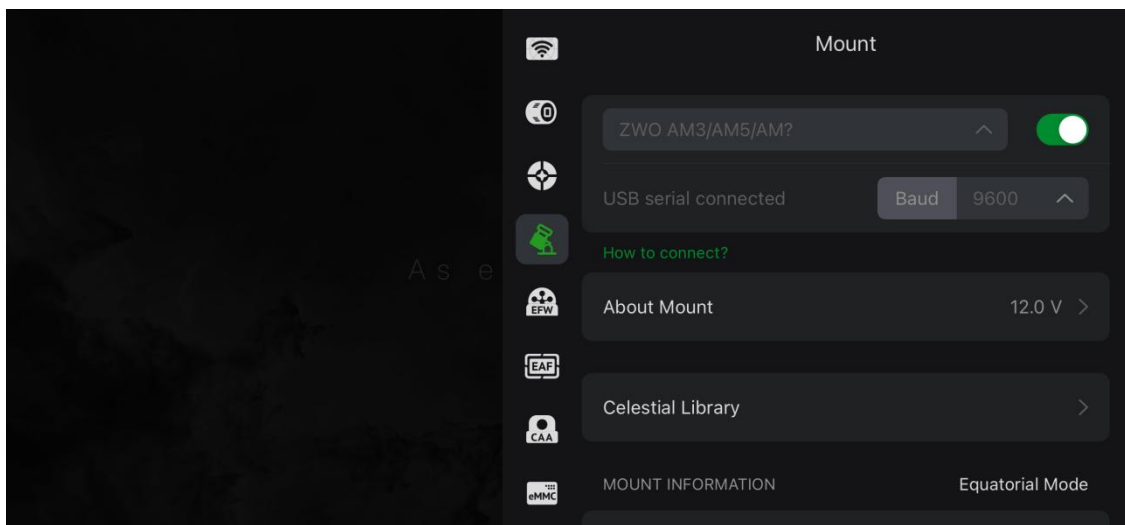
Guiding:

Guide Camera Bin2: Generally, this function is not used; it can be enabled when star points are indistinct.

The “Guiding Stabilization Settings” and “Dithering Settings” can typically be left at their default values. Dithering can be enabled as needed. If you are new to using ASIAIR, it is recommended to leave it disabled until you are familiar with basic operation.

Guide Dark Frame Library: This function performs dark frame calibration on guide camera images. Typically, current guide cameras have sufficient performance, so this function is generally unnecessary.

3. 2. 5. Equatorial Mount Settings

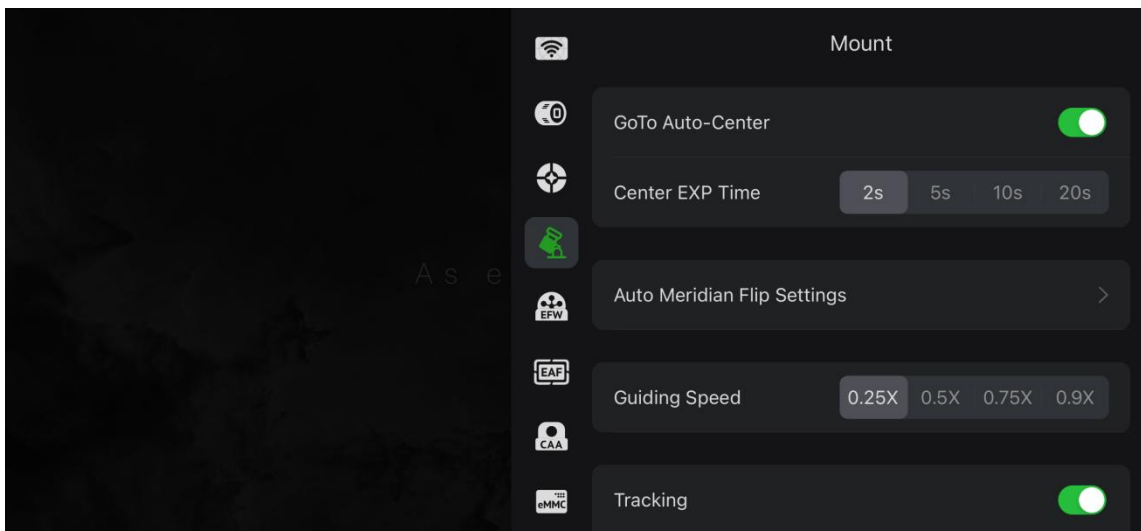


Select the corresponding equatorial mount model or connection method here, then tap the switch to connect. For detailed equatorial mount connection methods, please refer to sections 2.4 and 2.5 covering equatorial mount connections.

Equatorial mount information: Records the location and time data where the equatorial mount is situated, as well as the current pointed location of the mount (the default initial position is generally the mount zero position). We can directly determine our current Location Information from the smartphone’s built-in positioning data by selecting “Location Information” under “Equatorial mount information” to provide the correct location for the equatorial mount.

If the equatorial mount’s geographic location and time data are inaccurate, you can synchronize the smartphone’s positioning information to the equatorial mount. Clicking “Sync to Equatorial mount” will then transfer the positioning information from the smartphone to the equatorial mount. Similarly, the time zone and time information in “Equatorial mount information” are also acquired from the smartphone.

If the Right Ascension and Declination display as 00°00’00”, please try restarting the equatorial mount and reconnecting.



GoTo Auto Centering: It is recommended to enable GoTo auto centering.

Centering Exposure Time: The default value is 2 seconds.

Culmination Flip: You may use the default settings initially or adjust according to your preference.

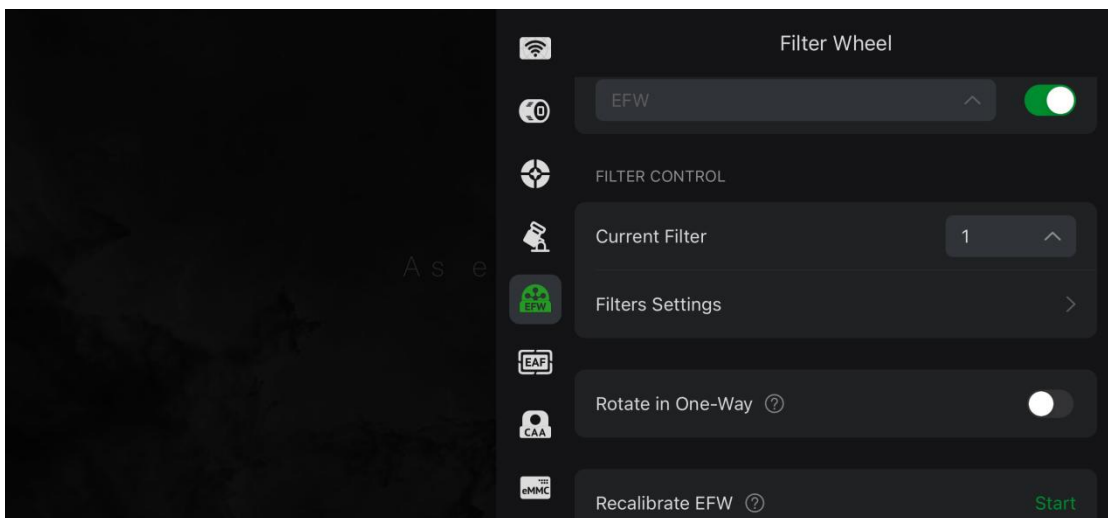
Guiding Rate: This setting is available on certain equatorial mounts. Guiding Rate refers to the multiplier of the equatorial mount’s correction movement speed during guiding ; the default is 0.5X.

Tracking: It is recommended to keep tracking enabled when starting imaging.

Tracking Rate: Refers to the tracking rate of the celestial object during imaging; the default is sidereal.

Zero Position: Return the equatorial mount to its initial zero position. We recommend performing the zero position (Go to Home) operation each time before starting to use the equatorial mount and before powering off and packing the equipment after completing astronomical imaging.

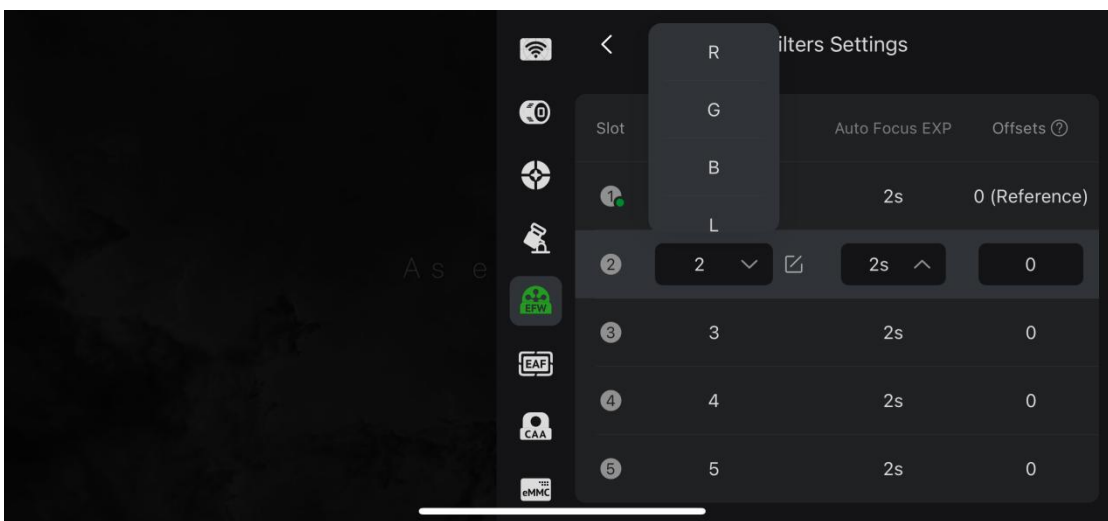
3. 2. 6. Filter Wheel Settings



After connecting the filter wheel, it can be configured.

Aperture Position Control:

Current Position: After manually selecting a number, the filter wheel will rotate to the corresponding aperture position.

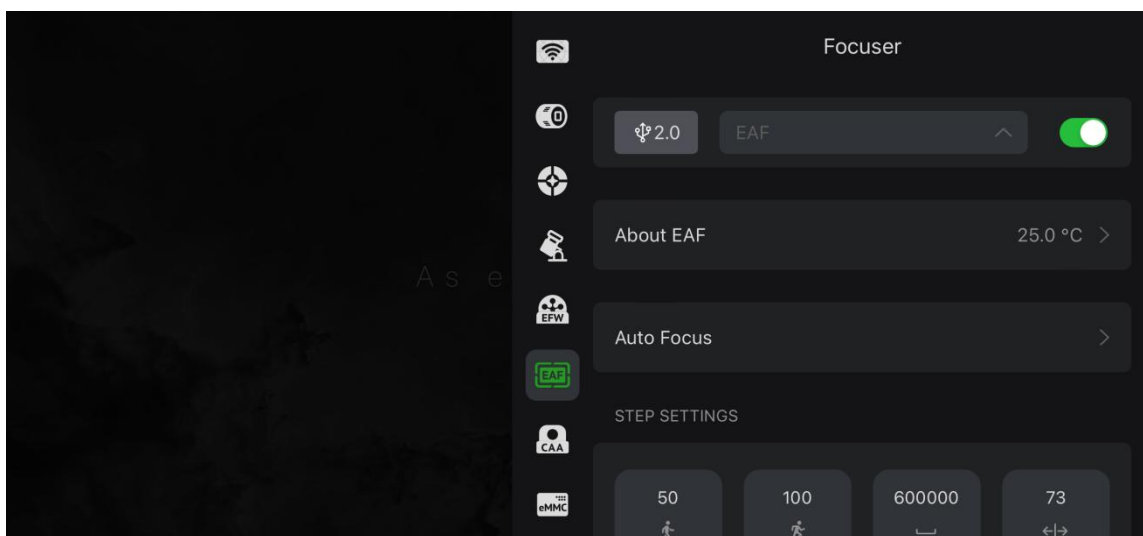


Filter: The filter name and autofocus exposure time can be set for each aperture position. Aperture position names can be selected based on the filter types used or customized with different names.

Unidirectional Rotation: Enable this function to restrict the filter wheel to rotate only clockwise for filter switching.

Recalibrate Filter Wheel: If the filter wheel aperture position is abnormal, click 'Start Calibration' to reset the aperture position.

3. 2. 7. Electronic Focuser Settings



Once the electronic focuser is connected, tap to establish connection and configure various parameters. For detailed settings, please refer to the ZWO EAF manual.

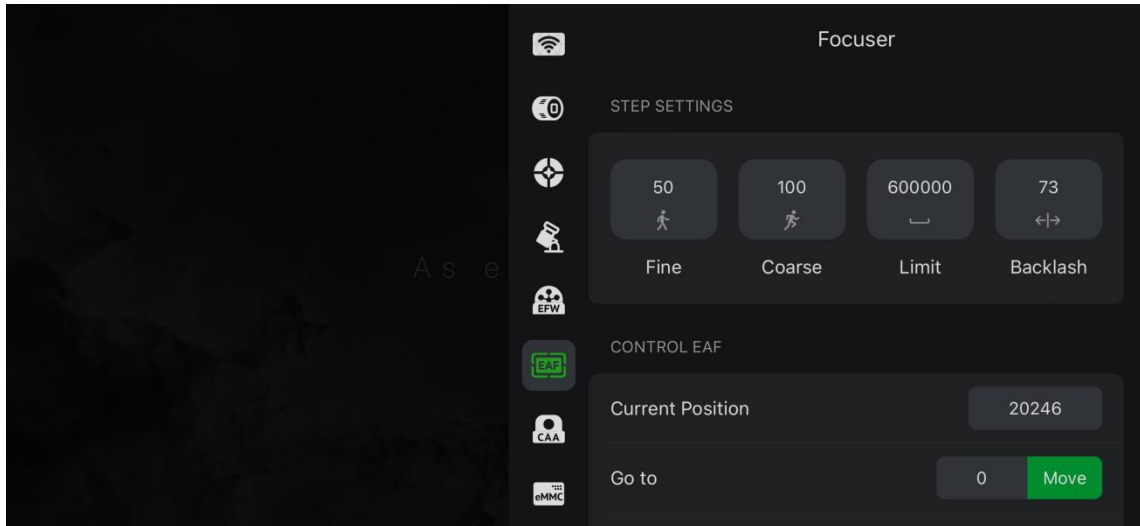
Current Position: Displays the current EAF focusing position. The current position can be redefined via the input field.

Move To: Moves the EAF focusing position to a specified value. Enter the target position in the input box on the right and click Move.

Reverse: Inverts the moving direction of the EAF.

Beep: Provides beep notifications upon completion or failure of movement. One beep indicates completion; two beeps indicate failure.

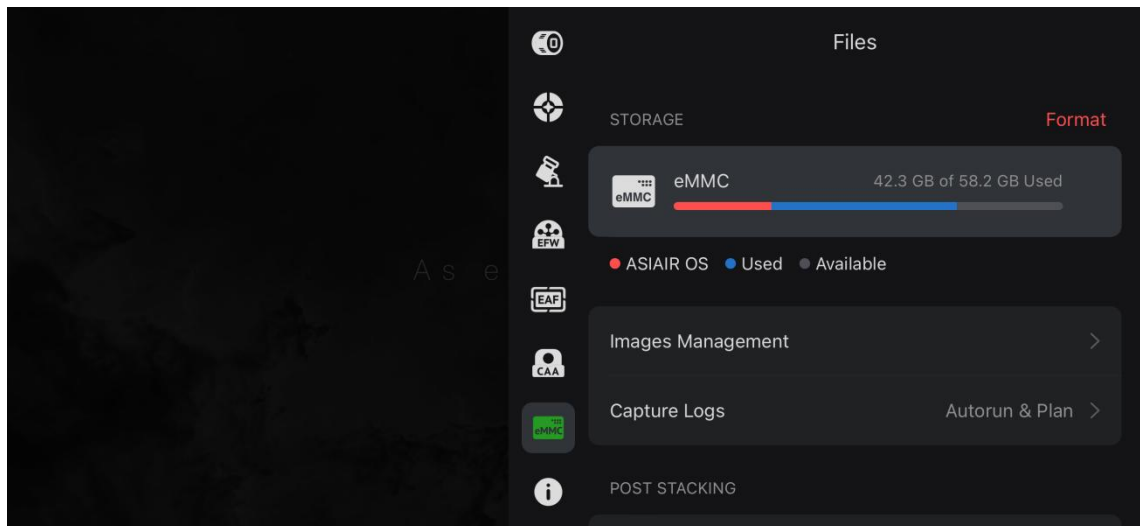
#Suggestion Enable the beep function.



Movement Step Settings: Configure the number of steps per movement for fine and coarse adjustments; the travel limit defines the maximum position accessible to the EAF.

Backlash Steps: The number of additional steps applied to compensate for backlash when the EAF reverses direction.

3. 2. 8. Storage Settings



Storage Device: Displays the storage capacity and usage of the ASI AIR Mini. The ASI AIR Mini features built-in eMMC storage and supports external USB storage

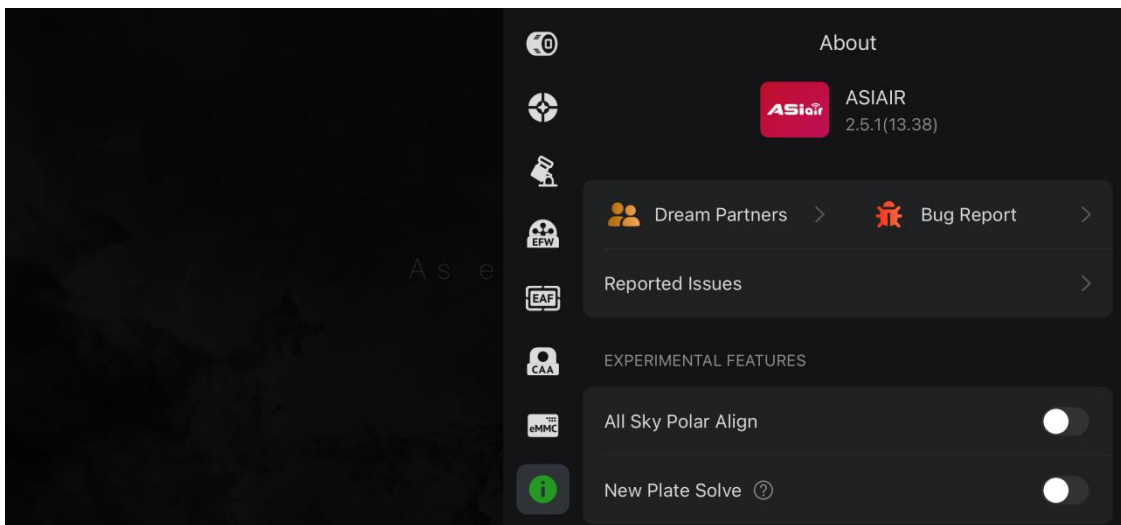
devices.

Image Management: Enables categorized image management, including preview, export, and deletion of stored images.

Imaging Log: You can view the imaging logs for Scheduled Imaging and Multiple Targets modes.

Post-Processing Stacking: Used to stack videos that have already been captured and processed to obtain a higher signal-to-noise ratio and clearer images.

3. 2. 9. About



ASIAIR Mini 2.5.1(13.38): “2.5.1” is the App version number, and “13.38” is the firmware version number.

Feedback: You can report any issues encountered during use here.

Reported Issues: You can view issues that have already been reported here.

Experimental Features: Includes certain features currently in the testing phase. Experimental features do not guarantee stability; please use with caution.

All-sky Polar Alignment: Supports polar alignment anywhere within the sky, unlike previously when polar alignment required the lens to point near the south/north celestial pole; this method no longer has that limitation.

New Solving Algorithm: An optimized solving algorithm for scenarios with a low number of star points and high sky quality, providing advantages in dark zones and when using narrowband filters.

Firmware Restoration: This feature allows your device to revert to a previous firmware version.



3. 3. Shooting Guidance

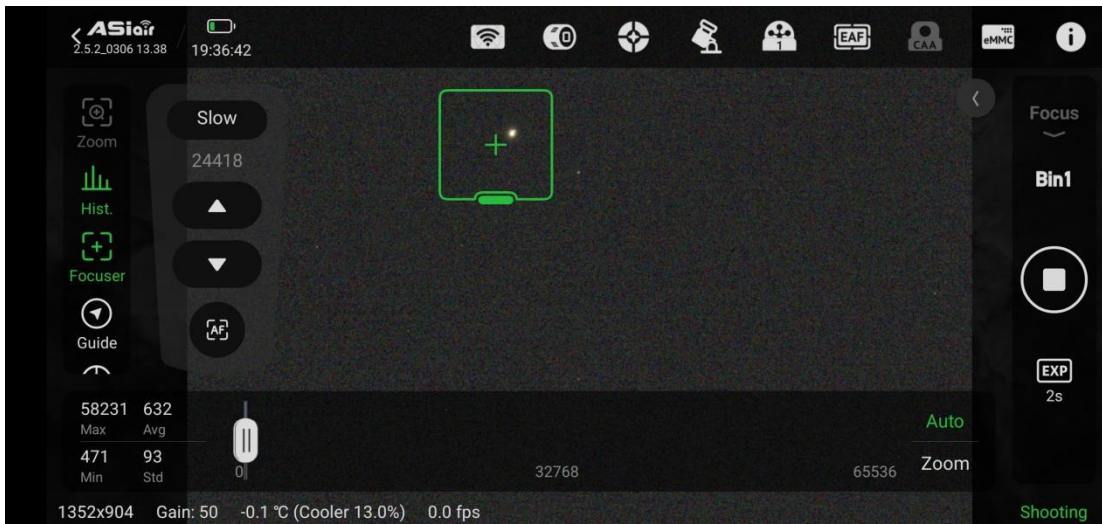
(Example with FF80 + ASI2600MM Pro + OAG + ASI220MM Mini + EAF)



One of the primary goals of ASIAIR is to simplify the workflow of deep sky astrophotography. To better understand how it streamlines the process, let us first review a typical deep sky imaging session, assuming the equipment is already set up and post processing is not included.

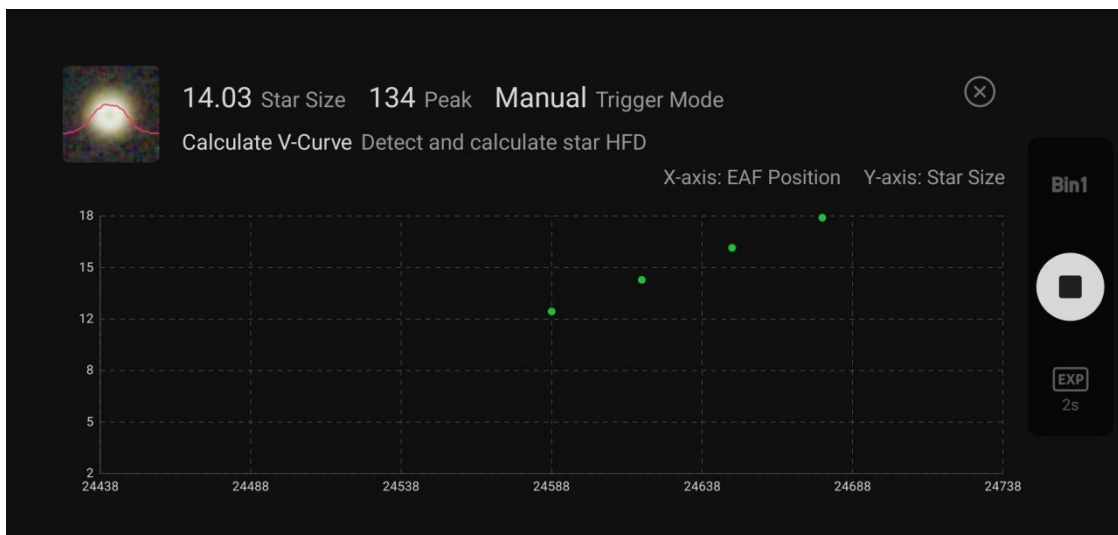
1. Telescope Focusing (Primary Telescope, Guide Scope)
2. Polar Alignment
3. Select Target GoTo
4. Preview Capture and Compose
5. Start Guiding
6. Scheduled Imaging
7. Multiple Targets Imaging

3. 3. 1. Focusing

- ① Open the ASIAIR App, select “Primary Camera Settings” in the upper device settings area, and connect the device while also connecting the EAF.
- ② Switch to “Focusing” mode in the right operation area, then tap  the “Start” button to view the real-time refreshed image; manually click the icon  and adjust the focuser until the star point becomes progressively clearer.



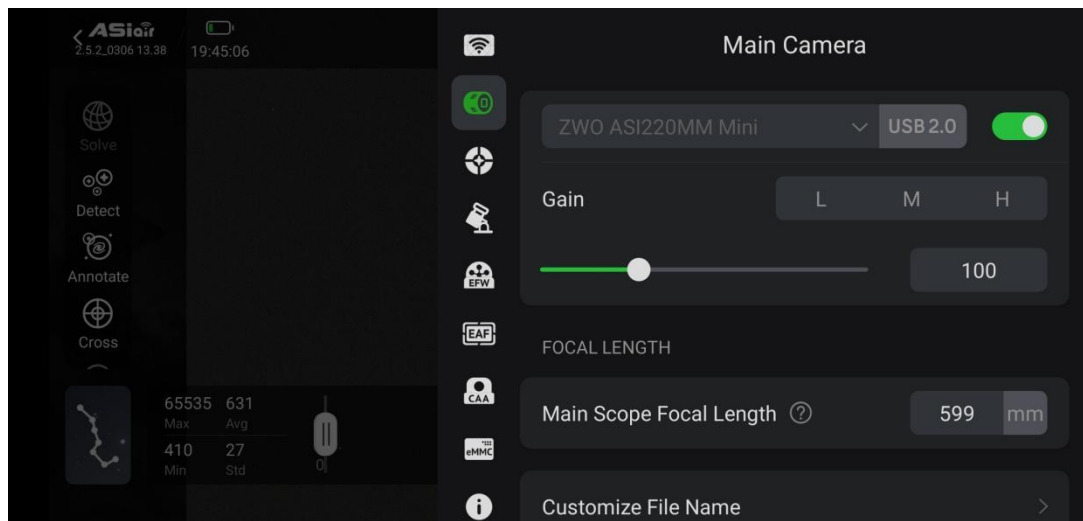
- ③ Drag the green box to select a bright star, then tap on the left side . The “Focusing Magnification” button allows you to observe focus details and complete focusing according to the principle that “the smaller the HFD value under Bin 1, the better the focus” (focus can be gradually adjusted from the maximum Bin down to Bin 1). After completing coarse focusing, you may click  the “AF” button to enter automatic fine focusing.




④ OAG Guide Camera Focusing

Select “ Primary Camera Settings ” in the top device settings area, configure the

guide camera as the primary camera, and connect it.



- ⑤ Switch to the "Focusing" mode in the operation area on the right, then tap  the "Start" button to view the real-time refreshed image and manually adjust the guide camera focuser until the star points become progressively sharper.

The independent Guide Camera requires separate manual focusing or installation of the EAF for automatic focusing;

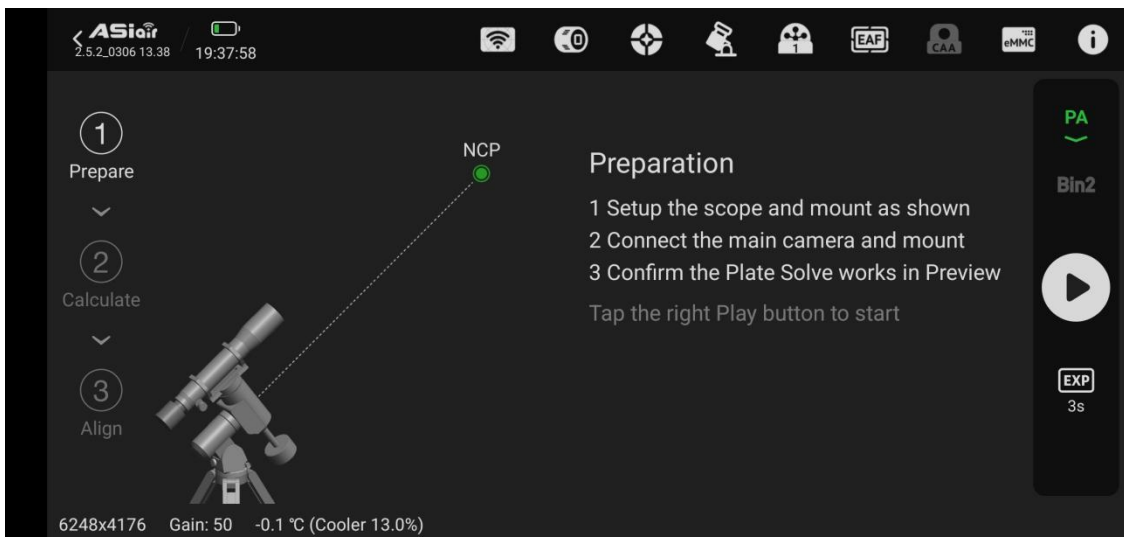
After Guide Camera focusing is completed, please switch the Primary Camera to the cooled camera.

3. 3. 2. Polar alignment


Preparations:

- ① It is recommended that the telescope (with the equatorial mount at zero position) points toward the true north or south direction and roughly adjust the equatorial mount's altitude angle to match the local latitude;
- ② Ensure the Primary Camera and equatorial mount are properly connected to the ASIAIR;

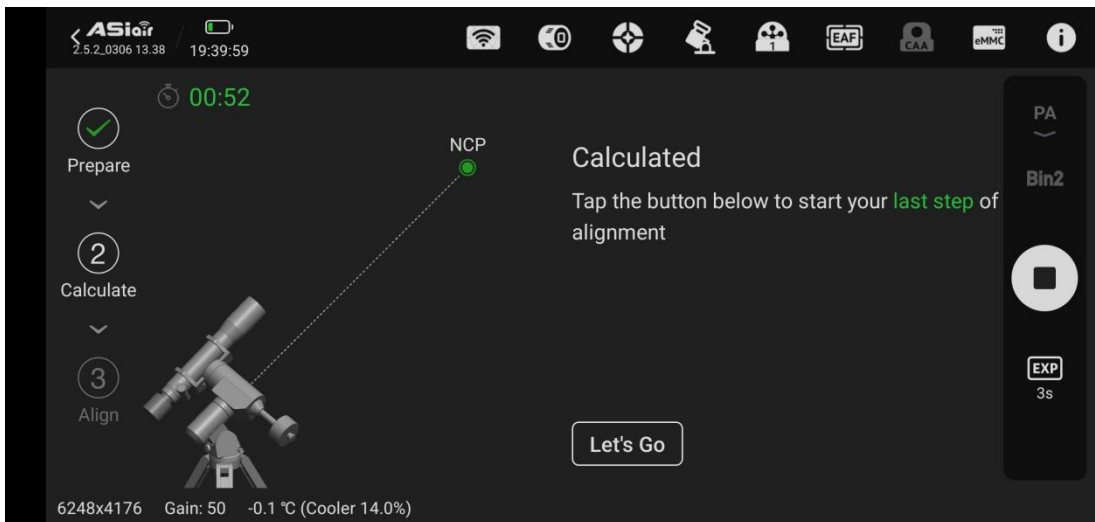
- ③ Ensure the telescope's pointing direction is unobstructed. Capture an image showing star points in "Preview" mode to verify that the "Plate Solving" function operates correctly. (Please refer to Section 3.3.9.2 for details.)



Polar deviation calculation:

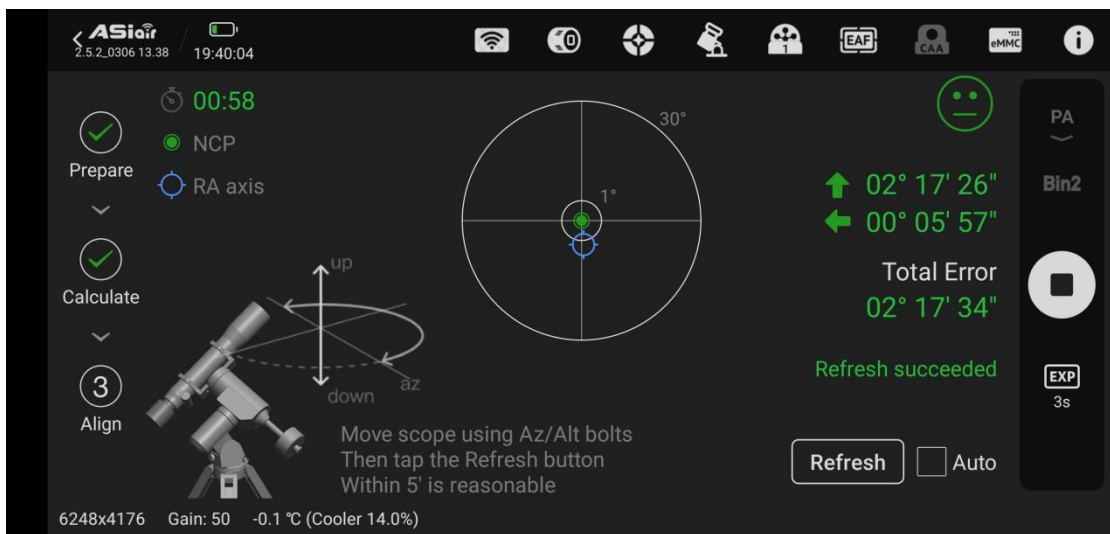
Tap the operation area on the right.  Press the button to start the polar alignment procedure. The equatorial mount will capture and analyze images at its current position, then automatically rotate approximately 60 degrees to capture and analyze again. The polar deviation is calculated based on the analysis results from these two different positions.





Adjust the equatorial mount:

After successful polar deviation calculation, click “Start Calibration” to enter the equatorial mount calibration page. According to the calculated offset values, manually adjust the mount’s altitude angle and azimuth angle to align the right ascension axis of the equatorial mount parallel to the celestial pole axis.



Adjust the mount’s azimuth and altitude angles according to the green values on the right (before adjusting, first loosen the mount’s azimuth lock screw and altitude tensioner). Select the “√” box at the bottom right for Auto Refresh, which allows real-time updating of the equatorial mount’s deviation values during adjustment.

ZWO Equatorial Mount Azimuth and Altitude Angle Adjustment Method are as follows (The adjustment method may vary depending on the equatorial mount; please refer to the manual provided with your equatorial mount):

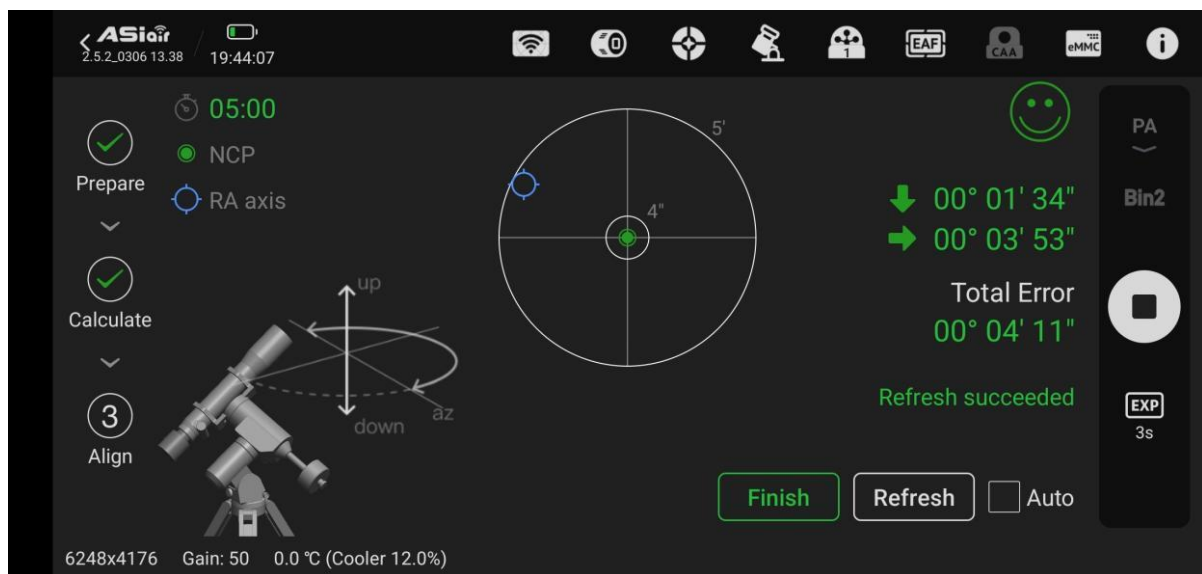
Arrow pointing left: Loosen the left azimuth fine-adjustment knob and tighten the right azimuth fine-adjustment knob;

Arrow pointing right: Loosen the right azimuth fine-adjustment knob and tighten the left azimuth fine-adjustment knob;

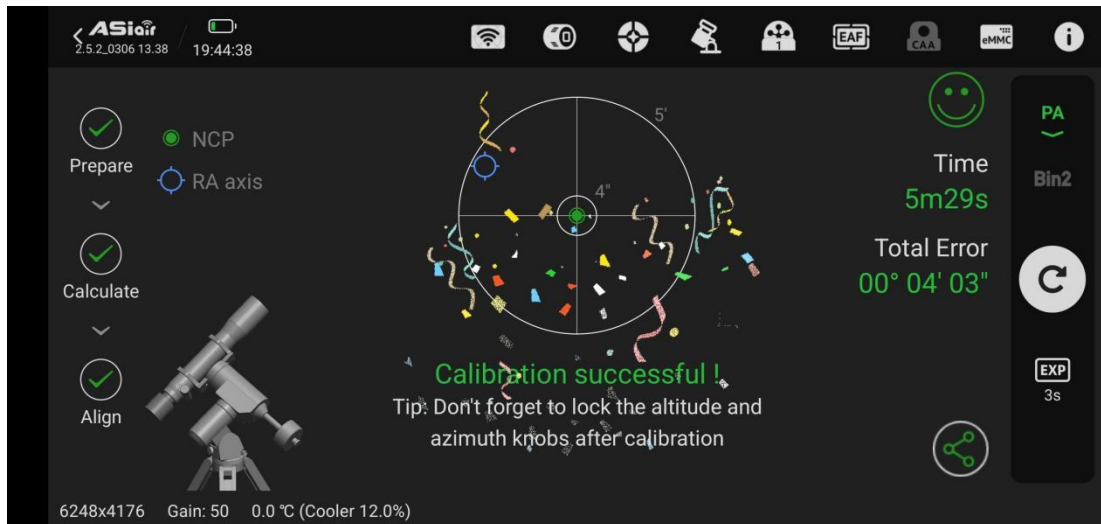
Arrow pointing up: Turn the altitude angle fine-adjustment knob clockwise;

Arrow pointing down: Rotate the altitude angle fine-tuning knob counterclockwise;

A total error within 5' (arcminutes) is considered acceptable; the smaller, the better.



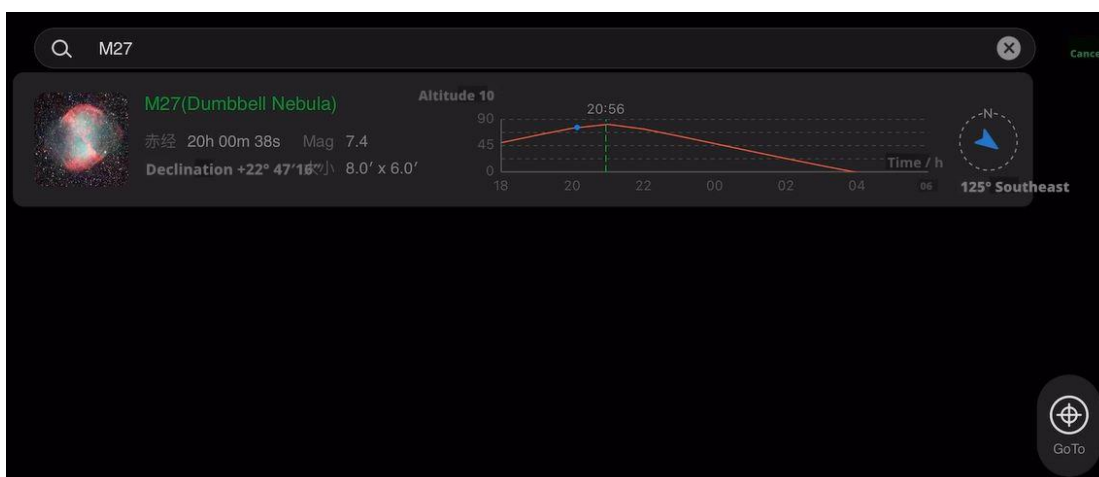
After adjustment, promptly lock the azimuth lock screw and altitude angle tensioner. Click Finish to obtain the ranking data.



After completing polar alignment, to prevent mechanical interference between the rear of the telescope and the tripod during GoTo operations, it is recommended to first set the equatorial mount to the zero position.

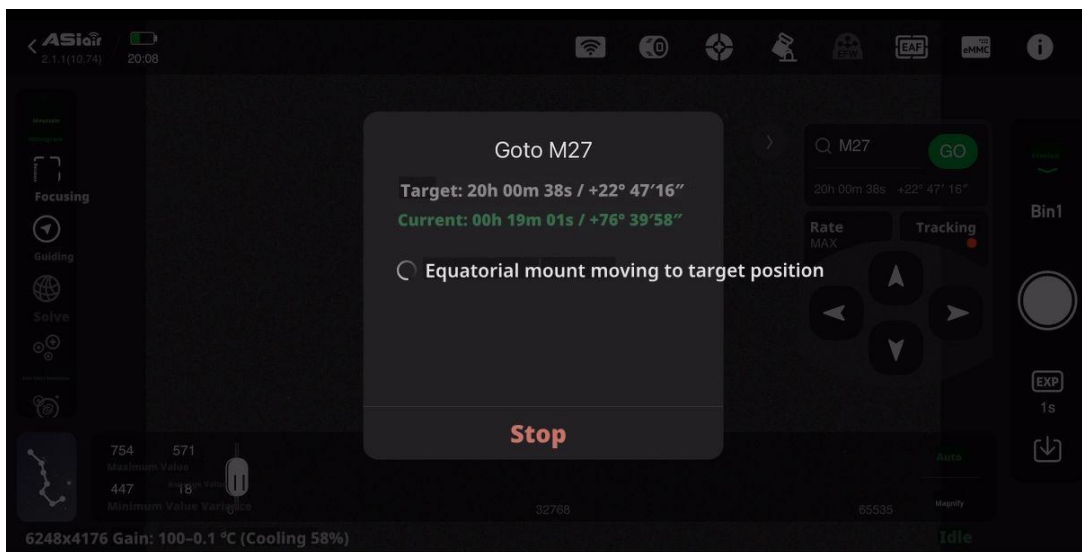
3. 3. 3. GoTo

① Upon completing polar alignment, switch to “Preview” mode, tap the search box on the equatorial mount control panel (MCP) to access the Celestial Object Library, and select a suitable imaging target with an appropriate altitude angle from the “Best Tonight” list.

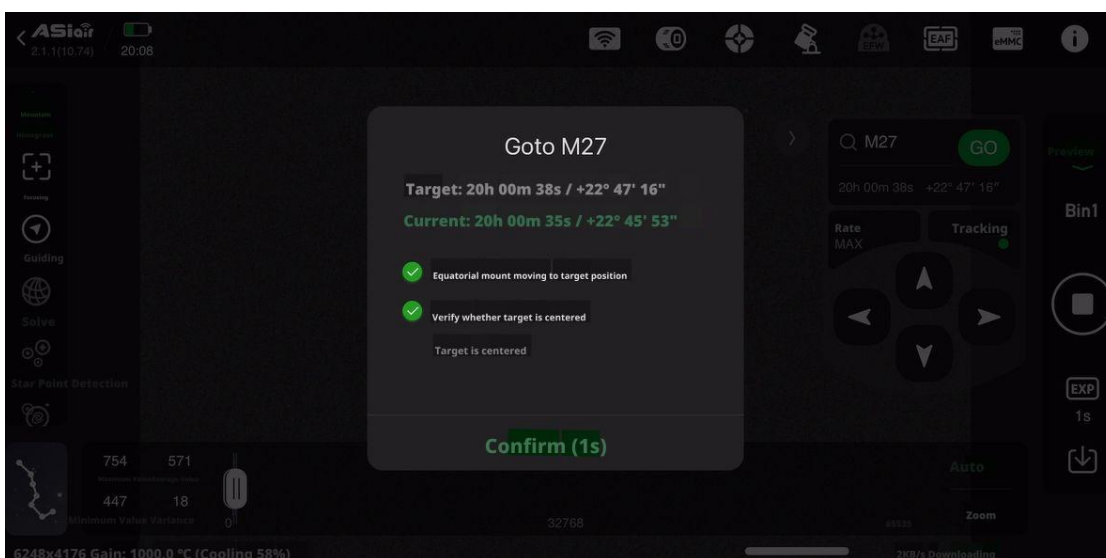


② After selecting the target, you will return to the Preview interface. Tap the “GoTo” button on the equatorial mount control panel, and the equatorial mount will

move to the target position.



③ According to the default settings, GoTo will automatically complete the “Centering Composition.”

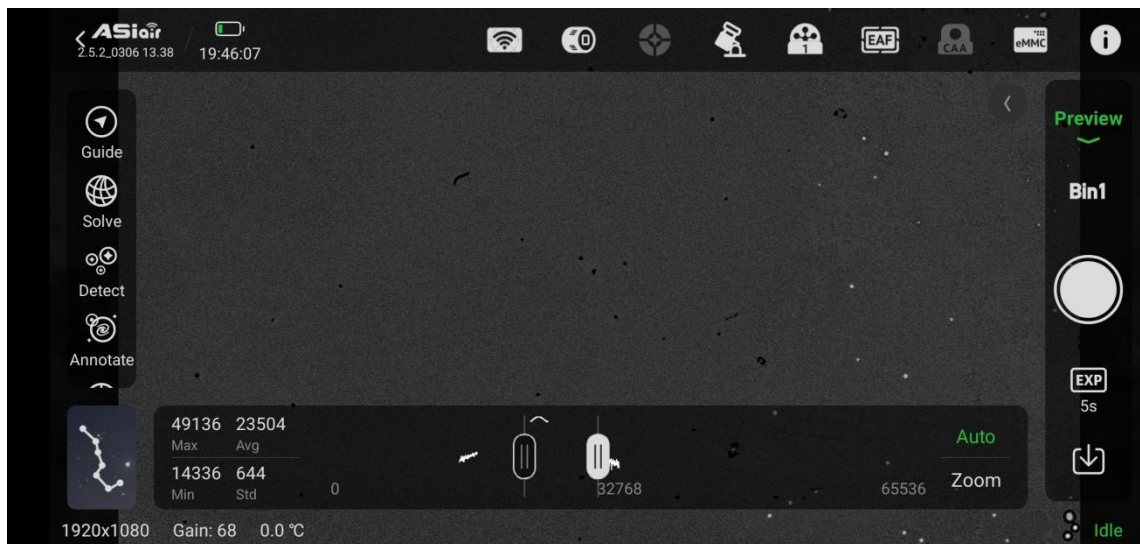


3. 3. 4. Preview and Composition

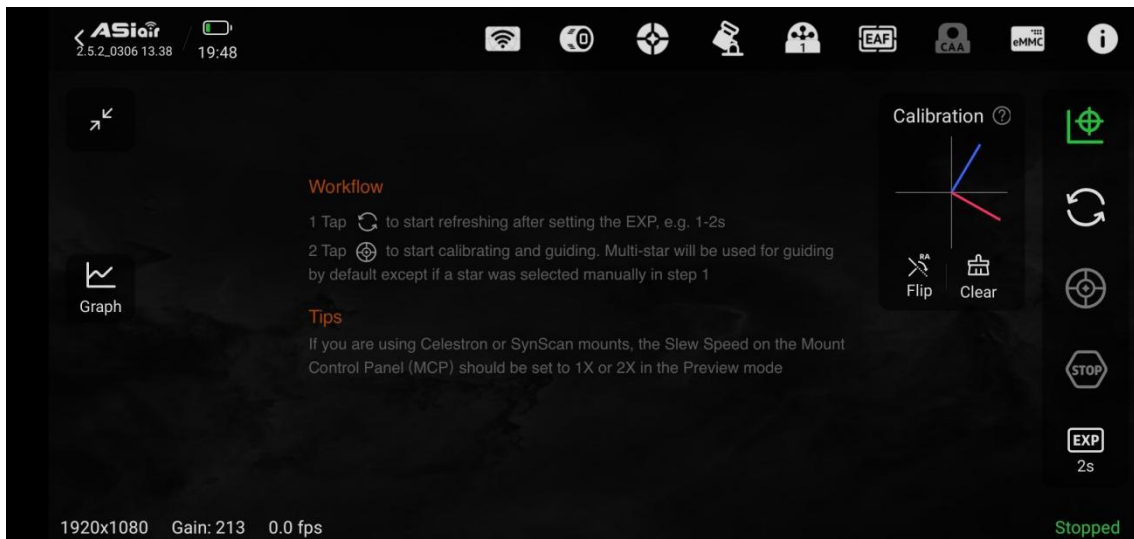
After the “Parsing Centering” following GoTo is completed, click the capture button in the right navigation bar to obtain a short-exposure preview image of the target. You can analyze this preview image to complete your composition.



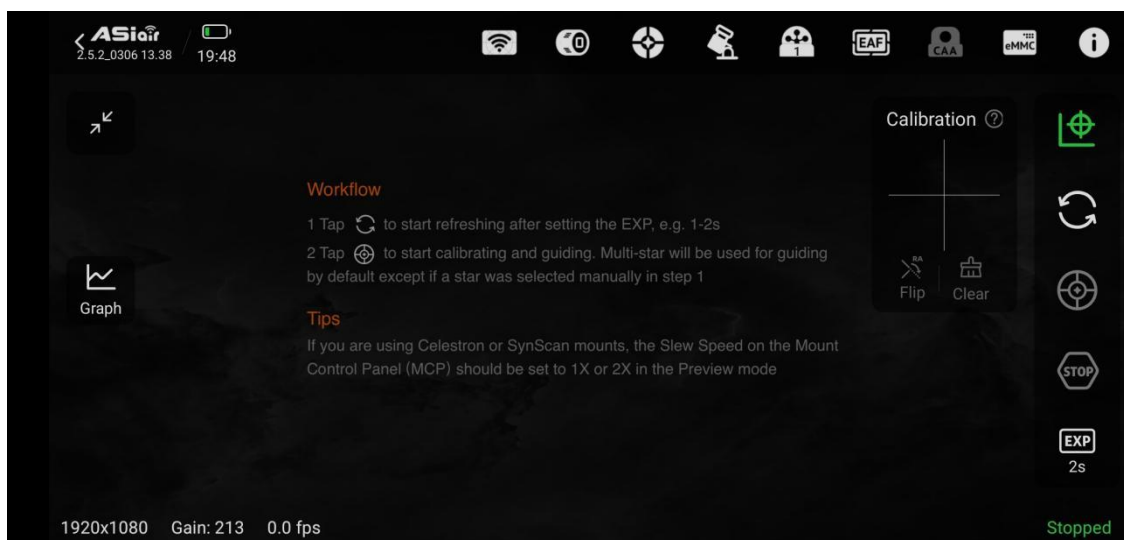
3. 3. 5. Start Guiding





Tap the icon “Guide” will display a floating window with simplified guiding information (hereafter referred to as the “Guiding Floating Window”), which shows “Guiding Stopped.” Tap anywhere on the Guiding Floating Window to enter the guiding interface.



You can click the “Minimize” button at the top left corner of the page to return to the main interface.



Click the icon  and a list of corresponding exposure times (unit: seconds) will appear, ranging from 0.001 seconds to 5 seconds. Select an exposure time, recommended 1–2 s, then click  button. The guide camera will then refresh in real time according to your selected exposure time, continuously generating images.


Click the icon  Begin calibration. Before calibration, you may manually select

a star point for guiding (manual single-star guiding). Note: please do not select the brightest star; generally, select a star point of medium brightness in the image. You may also directly tap the button; ASIAIR will automatically select a suitable star point to begin the calibration process (automatic multi-star guiding). Guiding will start once calibration is complete.



Toggle for graphical display of guiding calibration data. This graph shows the star point motion trajectory generated by the guiding pulses sent by ASIAIR during calibration. The blue and red lines represent the RA and Dec guiding rates and directions calculated as calibration results; they are typically approximately perpendicular.



We can click  to view the guiding operational status. We can observe the red and blue polylines being gradually drawn within the curve graph display area. As shown in the interface above, the lower-left corner displays "0.2 fps" indicating the update rate of the guiding display or the curve plot. On the left side of the curve, an "X: 50" button indicates that this curve can display up to 50 guiding results simultaneously, or accommodate polylines corresponding to 50 iterations. You may also click the 'X: 50' button to switch to 'X: 100' or 'X: 200'.

On the guiding interface, the left side contains the toggle button for the Guiding Curve, while the right side contains the guiding settings and activation button.

Blue represents the Right Ascension axis, red represents the Declination axis, and the combined tracking error RMS value for both axes is 17.48 arcseconds.

For the ZWO ASIMount, 'Right ascension correction', 'Declination correction', and 'Declination direction' can be set to their default values of '70%', '100%', and 'Auto', respectively. During actual guiding, you may also try slightly reducing the 'Right ascension correction' and 'Declination correction' values.

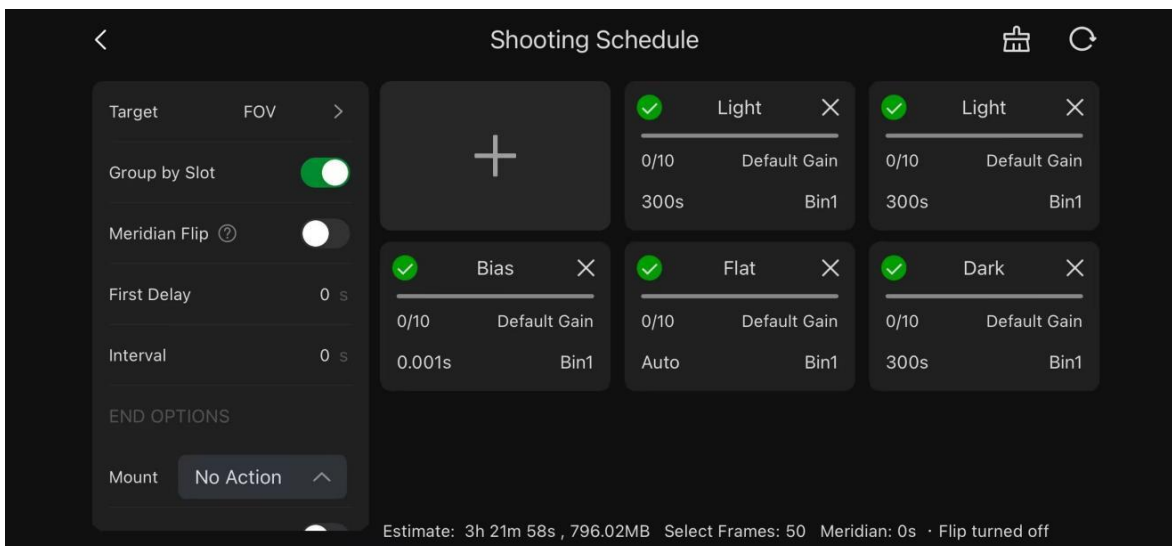
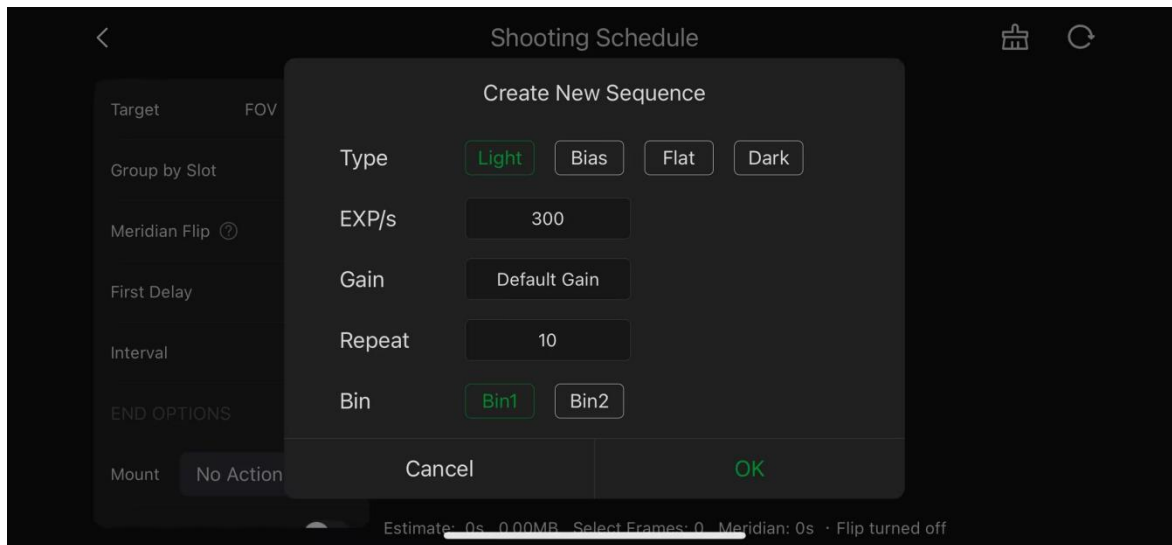


Yes, it is the Stop Guiding button.

The setting option above the Guiding Curve is generally kept at the default. When the Guiding Curve fluctuates significantly, you can lightly tap the area behind the Correction Line to display the correction signals on the image, assisting in troubleshooting guiding issues.

Immediately after calibration during the initial guiding phase, the Guiding Curve and error statistics may be inaccurate. Please patiently wait for 10–20 frames, then tap the 'Clear' button at the lower left corner of the curve graph and recheck.

3. 3. 6. Scheduled imaging



Many of the stunning deep-sky images you see are created through stacking and post-processing. The longer the cumulative exposure time on deep-sky targets, the clearer the resulting image. You need to capture multiple sets of photos and perform stacking using dedicated software.

Step One: Before executing the “ Scheduled Imaging ”, you need to perform guiding so that the equatorial mount can accurately track the target. Switch to “ Preview ” mode, take an exposure image with visible stars, and use the guiding tool to complete guiding.

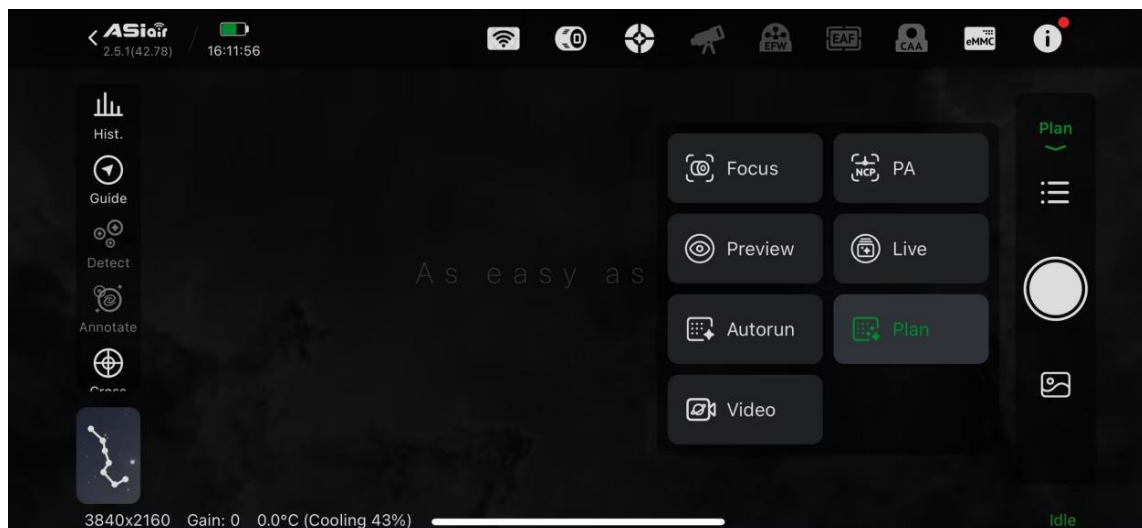
Step Two: Switch to “Preview” mode, select the desired imaging target on the equatorial mount panel, perform GoTo to the target, and take an exposure image to adjust focus and composition ;

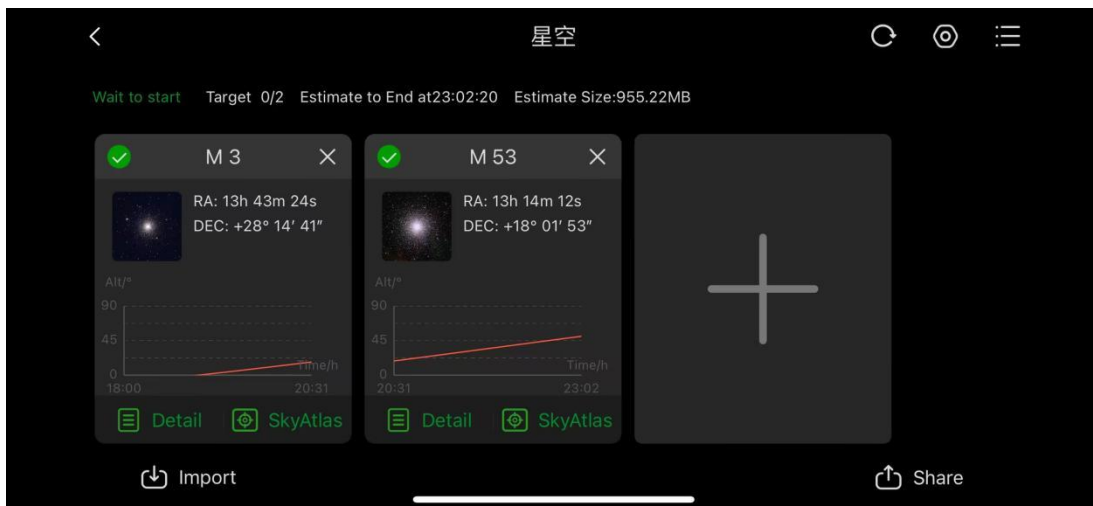
Step Three: Create the imaging plan. It is recommended that the plan includes Dark frames, Flat fields, Bias frames, and Bright Field frames. Once the plan is created, click the Start button to begin scheduled imaging. During scheduled imaging, ensure that the camera, guiding system, equatorial mount, and other devices remain properly connected.

During the scheduled imaging process, if you wish to modify the imaging plan, you must reset the current scheduled imaging progress.

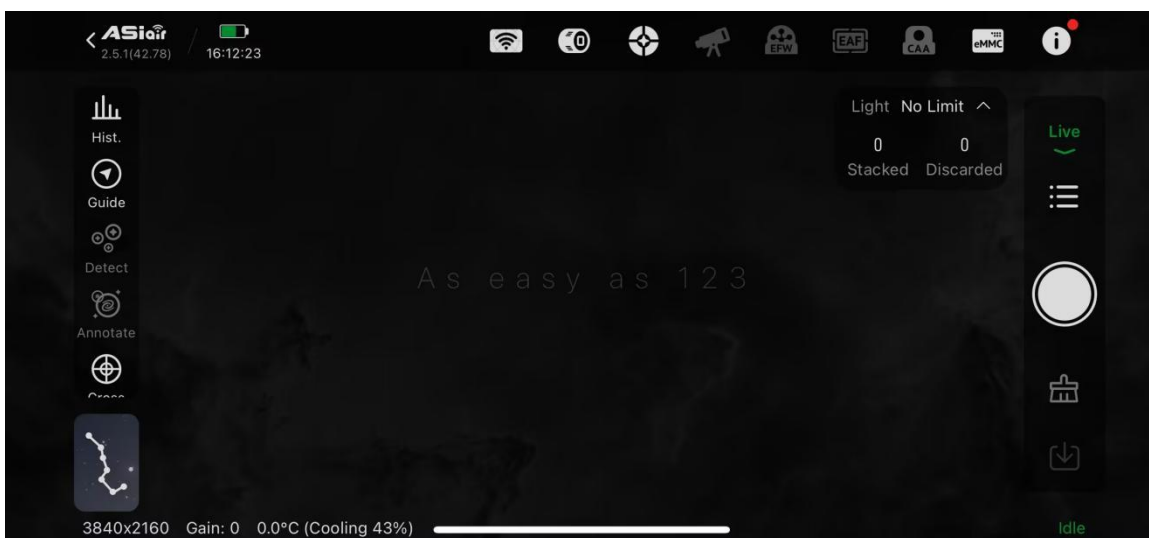
3. 3. 7. Multiple Targets Imaging

Click “Preview” to switch to “Plan” mode. Here, you can add and select multiple celestial objects for imaging. Return to “Preview”, and after clicking the “Start” button, ASIAIR will image the celestial objects sequentially.





3. 3. 8. Real-time Stacking



Real-time stacking of images can be performed within ASIAIR.

Step 1: Switch to 'Preview Mode.' On the equatorial mount panel, select the target you wish to image, GoTo the target, and take an exposure to adjust the image and composition.

Step 2: Switch the App to “Real-time Stacking” mode, and select the frames to stack in the settings. It is recommended to first stack Dark frames, Flat Fields, and Bias Frames; When stacking Bright Field frames, it is advisable to first stack Dark frames, Flat Fields, and Bias Frames to obtain higher quality images.


During stacking, it is recommended not to change the image size. If the image size is changed, previously stacked image data must be cleared before stacking again.

3. 3. 9. Others

3. 3. 9. 1. Equatorial Mount Control Panel


The ASIAIR App provides a highly convenient and powerful tool for mobile equatorial mount control, target selection, performing GoTo, and target framing. This tool is called the “Equatorial Mount Control Panel (MCP). Let’s overview the Control Panel from top to bottom:



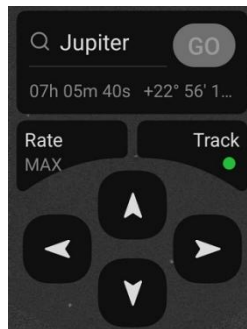
 Jupiter Target search box: Tap to enter the “Celestial Object Library” interface.

We have carefully selected more than 14,000 solar system and deep-sky celestial objects, and there is a “Best Tonight” list to facilitate easier selection of imaging targets.

Considering that users may wish to image targets not included in the Celestial Object Library, the option to add custom targets is provided.

 GoTo button: After selecting a target celestial object in the Celestial Object Library, you will return to the MCP interface. At this point, tapping this button will cause ASIAIR to control the equatorial mount to move to the region of the sky where the

target is located and complete automatic centering framing.



Direction buttons and speed slider: These can be used together to select different movement speeds, thereby moving the equatorial mount's right ascension axis or declination axis to achieve your preferred framing or other requirements.

Tracking: Click 'Tracking'; green indicates that the equatorial mount tracking is enabled, while red indicates it is disabled.

The current celestial object library contains: deep-sky object catalogs (NGC/IC/M/SH2/C/LDN), solar system object catalogs, prominent star catalogs, double star catalogs, comet catalogs, and others. Updates will continue to be released.

The equatorial mount control panel is only applicable to GoTo equatorial mounts and is not available when using On-Camera-ST4 driving.

3. 3. 9. 2. Auxiliary Tools

① Left Side of the Control Panel

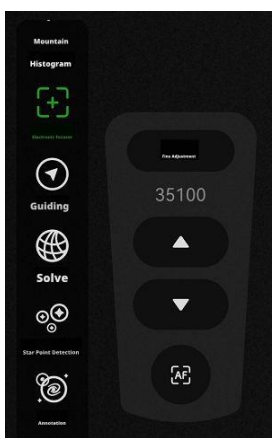
Histogram

The image histogram is a distribution graph of pixel brightness and pixel count within the current image. The horizontal axis represents pixel brightness values, the vertical axis represents pixel quantity, and it concurrently displays the maximum value, minimum value, average value, and standard deviation. By dragging the two triangular buttons on the histogram coordinate system, manual stretching of the histogram can be

performed. You can also click the zoom button to enlarge the statistical interval for fine-tuning. It is recommended to enable the histogram auto-adjustment button, as the software will automatically stretch the histogram.

Electronic focusing 

After connecting the electronic focuser (ZWO EAF), you can use the electronic focuser control panel to perform coarse and fine adjustments to achieve telescope focus. Click to enter the electronic focuser control panel.



Guiding 

Enable Guiding Floating Window

Solve 

Analyze the current image to determine the true sky coordinates (equatorial celestial coordinate system) to which the current equatorial mount is pointing. This function is used for equatorial mount pointing calibration. After completing plate solving, click the “Sync to Equatorial Mount” option in the pop-up dialog.

Plate solving remains an essential feature for both “GoTo Auto Center” and “ Polar Alignment ”.

Star Point Detection 

Calculates the average size of the star points detected in the current image.

Annotation 

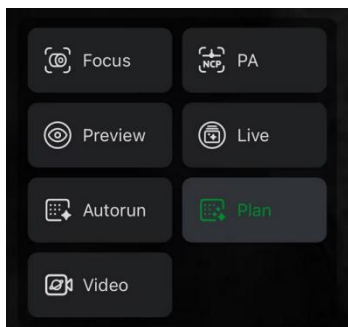
Annotate celestial objects within the captured images.

Crosshair 

The crosshair assists in better composing the imaging target.

② Right side of the control panel

Preview 



Click Preview to switch between : Focusing, Polar Alignment, Scheduled Imaging, Multiple Targets, Real-time Stacking, and Video modes.

Scheduled Imaging: Enables the creation of personalized imaging plans and allows imaging according to user preferences.

Multiple Targets: Multiple celestial objects can be selected for imaging. During the session, ASI AIR will perform imaging sequentially.

Real-time Stacking: In this mode, images are stacked concurrently during imaging, enabling real-time acquisition of higher-quality images.

Video Mode: This mode supports recording of imaging videos.

Bin 




During precise focusing, focus is achieved following the principle that a smaller HFD value at Bin 1 indicates better focus (adjusting gradually from the maximum Bin to Bin 1).

Bin1: indicates a single pixel; Bin2: indicates 2 pixels combined into 1; Bin3: indicates 3 pixels combined into 1; Bin4: indicates 4 pixels combined into 1; Binning can enhance the signal-to-noise ratio of the image and improve image clarity.

Start 

Click “Start” to initiate the capture process.

Exposure 

Click “Exposure” to set the exposure time, ranging from 0.001 s to 1000 s.

4. Appendix

This chapter primarily covers image export, firmware upgrade, Disclaimer, and after-sales warranty.

4. 1. Image Export

After completing image capture, the images must be exported to a computer for post-processing. Since the ASIAIR Mini supports external USB drives, images stored on the eMMC can be “exported” to a USB drive, which can then be directly connected to a computer to access the images; It can also connect to a Type-C interface to directly access images in the eMMC.

4. 2. Firmware Upgrade

ASIAIR Mini will continuously add new features and optimizations through updates, comprising firmware and App updates, with firmware distributed together with new App versions. After downloading the latest version of the ASIAIR App, the next time you connect to the ASIAIR Mini device and open the App, you will be prompted to update; click confirm and patiently wait a few minutes for completion.

The firmware of ASIAIR Mini refers to the suite of programs running on ASIAIR OS.

If the firmware upgrade fails, you can exit the App and restart the device to retry.

4. 3. Wi-Fi Recovery

If the ASIAIR Mini Wi-Fi signal cannot be found, first try resetting the device; please refer to sections “1.4 ASIAIR Component Names” and “1.5 Status Indicators” for detailed instructions.

4. 4. **Safety Summary**

① **Environment**

Operate within an environment ranging from 0°C to 40°C under favorable weather conditions (no rain, snow, heavy fog, thunderstorms, strong winds, or extreme weather).

② **Inspection**

Ensure that the input power voltage is within 12V, the current exceeds 2A, and that the total system power consumption does not exceed 10A.

Ensure adequate ventilation around the ASIAIR Mini during operation.

Ensure that the cables connecting the ASIAIR Mini to other devices are free of entanglements, with special attention to communication and power supply cables to the equatorial mount.

③ **Operation**

If the ASIAIR Mini operates for an extended period under extreme high temperatures, its internal temperature may reach 70°C. Do not touch immediately after powering off.

Do not operate the device under prolonged undervoltage conditions.

4. 5. **Disclaimer**

This product is not a toy. Do not allow children to access this product or its components and wiring. Please exercise caution when operating in the presence of children.

You should read the entire User Manual and familiarize yourself with the product's functions before operation. Improper operation of this product may result in damage to

the product and property loss. For beginners in astrophotography, this product requires a period of familiarization and some basic astronomical knowledge before safe and proficient use.

For additional terms of service, please refer to the 'Service Agreement' within the App. ZWO shall not be liable for any losses incurred due to users failing to follow the User Manual when using this product.

Subject to compliance with laws and regulations, ZWO reserves the final right of interpretation of this document. ZWO reserves the right to update, revise, or discontinue this document without prior notice.

4. 6. After-Sales Service Information

We provide a two-year warranty service for our products. Within two years, if the device fails to operate normally, we will provide free after-sales repair service.

Beyond the two-year warranty period, we offer lifetime repair service, charging only for parts required for repair or replacement. Warranty terms do not apply to damages caused by misuse, abuse, accidental drops, or logistics-related incidents. Return shipping costs for repaired devices shall be borne by the buyer.

This manual may be updated without prior notice.

You can obtain the latest version of the User Manual from the official ZWO website.

<https://www.zwoastro.com/cn/support/manuals>

If you have any questions or suggestions regarding the manual, please contact us at the following email address: support@zwoptical.com