NYX-88 Strain Wave Gear Mount

Product Manual

Version 1.2- 2026-3-03



Version History

Version #	Implemented By	Revision Date	Reason
1.1	*Evans Souglakos*	*25/Feb/2025*	*Initial Document*
1.2	*Evans Souglakos*	*03/03/2026*	*New dashboard, update Unity3 screenshot.*

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PREFACE

INTRODUCTION

Thank you for purchasing the Pegasus Astro NYX-88 Mount.

Strain wave drive technology results in a smooth, backlash-free mount operation with extremely high torque, without the need for counterweights. A fully CNC machined aluminium 6061 and stainless-steel body, black and blue anodized, and a selection of branded internal parts, ensure that NYX-88 will perform flawlessly for many years.

This hybrid combination of a stepper motor & belt system along with sophisticated electronics drives the Right Ascension axis down to 0.10 arcseconds of resolution. Mount has an electronic brake on the RA axis to prevent backsliding when power is off as well as safety limit stops during slew or tracking.

NYX-88 is compatible with ASCOM, ASCOM Alpaca, INDI, and any software that supports the LX200 command set.

AIM OF THIS DOCUMENT

The purpose of this document is to support the user in the operation of the NYX-88. Please read carefully the manual before using the NYX-88 mount.

Any equipment damage or injury caused by improper mount operation is the end user's responsibility.

Pegasus Astro has developed this instruction manual to inform all users about the product, and the correct methods of interaction with the device and guarantee optimum safety conditions during its entire life cycle: transport, storage, installation, usage, and maintenance.

UPDATE OF THIS DOCUMENT

Pegasus Astro reserves the right to improve the product through modifications even though they may not be described in this edition of the manual. Furthermore, our company also reserves the right to change or update this manual based on future revisions.

WARRANTY PERIOD

The product guarantees quality for three years from the date of purchase.

If defects are found in the product, please contact us to examine the issue and we will either repair it or replace the product/part with a new one.

Damage caused by consumer responsibility, normal wear and tear, and minor defects that do not interfere with use are not covered by warranty or replacement even within the warranty period.

Pegasus Astro will not be liable for any problems caused by the installation of parts purchased or manufactured separately by the customer.

For any issue, please contact via email: support@pegasusastro.com

PRODUCT OVERVIEW

KEY FEATURES

1. High-precision strain wave gears on both axes ensure high payload and a smooth, backlash-free operation without the need for counterweights for payloads up to 14 Kg / 31 lbs)
2. Lightweight CNC-machined aluminium alloy AL6061 used for aircraft makes the mount an excellent choice for your setup.
3. Can be used as a German Equatorial or as an Altazimuth mount.
4. Wi-Fi and USB2 connectivity in the mount can work simultaneously.
5. A power-off brake is installed on the RA Axis and provides an instant safe stop during a planned or unplanned power interruption.
6. DC 12 Volts Battery Operation with reverse polarity protection
7. Universal saddle plate that accepts Vixen and Losmandy 3'' dovetails.
8. Integrated ST-4 Autoguiding Port.
9. QHY PoleMaster adapter (optional) can be placed on the front which allows you to install the PoleMaster and perform a quick and precise polar alignment.

10. ASCOM 7, ASCOM Alpaca INDI, LX200 protocol support. Sky-Safari works out of the box with the mount.
11. Automatic Home (Optical) Sensors on both axes.
12. Firmware Upgradable via USB cable or Wireless (over the air). An easy firmware upgrade process allows you to stay up to date with bug fixes and the latest features of the mount.

TECHNICAL DATA

Product Name	NYX-88
Material	CNC machined 6061 aircraft aluminum alloy
Mount Type	German Equatorial or Alt-Azimuth
Transmission	Strain Wave Gear and Belt resulting reduction 400:1 (RA Axis) and 300:1 (DEC Axis), backlash-free
Motors	2 x Stepper Motors NEMA17; 0.9° per step
PE Cycle	432s, Cycle error < ± 20 arcsec
Latitude range	0° – 90° adjustable
Azimuth Adjustment	±5° adjustable using double screw knobs
Counterweight shaft thread	Tap size M12 (1.75mm thread)
Payload Capacity	14 Kg without counterweights, 20 Kg with counterweights
Body Weight	5.0 Kg
Safety / Power Off Brake	On Right Ascension Axis
Saddle	Vixen and Losmandy 3-inch dual saddle
RA Motor Resolution	0.15”
Max Slew Rate	4°/sec
Power Input	DC 12V – 14 VDC (unregulated) - GX12 Socket ~0.4A idle, ~0.5A during tracking, ~2Amps during slewing
Power Output	Up to 7Amps - GX12 Socket – pass through input voltage
Guide Port (EXT)	ST-4
Guide Speed	Adjustable (0.25x, 0.5x, 1x)
Home Sensors	Home Optical Sensors (both axes)
Software Security Stop	± 30° past meridian (±120mins)
Communication	USB2 and Wi-Fi (2.4GHz)
Operating Temperature	-20° C to + 50°C
Warranty	3 years
Made in (designed, assembled and tested)	Greece. We carefully curate the entire manufacturing, testing and packing process.

PACKAGING

Mount comes inside a hard-shell carry case. All parts are specially packed inside this case. When you receive your new NYX-88 mount, pay attention to check that no part has been damaged during shipment.

MOUNT CARE AND HANDLING

- Handle the mount like a precision instrument.
- Excessive moisture for long periods can damage electronics and connectors.
- Do not touch the power cords with wet hands. There is a risk of electric shock.
- Never touch the internal electronic board as it produces high voltage and may get hot when in use.
- Do not disassemble or modify the product. The product may be damaged.
- Do not allow solvents or chemicals to come into contact with the device. Wipe the mount with a soft cloth.
- Mount electronics are not waterproof and they should be kept clean and dry.
- Store mount indoors in a dry room when not in use for a long time (preferably inside the carry-on case).
- Mount does not require re-greasing on both strain wave gears or any other internal mechanical part.
- Re-greasing the pitch elevation mechanism might be required after a long time of usage.
- The load capacity of the mount is 14 kg without counterweights (20 Kg with counterweights). Overloading the weight can cause damage to the mount.
- Telescope equipment is usually heavy, so be careful not to drop it when transporting or installing.
- Persistent rubbing with a cloth on logo marking areas may wear them.

HIGH TORQUE WARNING



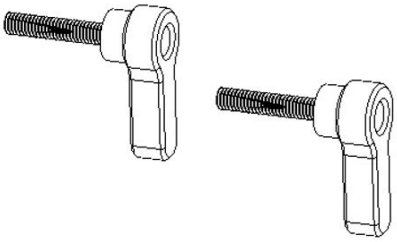
NYX-88 produces very high torque on both axes which can be dangerous if cables, your hand fingers or any other obstacle collide with the mount or stuck between moving parts!



In this unlike event, mount can easily crash or cut anything that is left unattended. Mount parts can also get damage due to the strong torque.

Take extra care of your gear, setup mount limits and most important, do not touch the mount when in slew.

INCLUDED ITEMS

 NYX-88 Body	 Power Supply 12V / 5A with GX12 jack
 Hard Shell Case - Carry Bag	 USB2 Type A to B Cable
 2 x Altitude Locking Knobs	

MOUNT KEY POINTS



[1]	**Dovetail Saddle and Clamp Knobs**: Saddle is compatible with Vixen and Losmandy 3-inch dovetails. Use the two knobs or insert an Allen hex tool (5mm hex key) to secure your telescope onto the saddle.
[2]	**Altitude Adjustment Knob:** Use this knob to adjust the altitude (pitch) from 0-90 degrees.
[3]	**Altitude Locking Screws:** After polar alignment, tighten these screws on both sides to fully lock the altitude (pitch).
[4]	**Azimuth Adjustment Knobs:** Rotate these two knobs to adjust the azimuth base of the mount (± 5 degrees).
[5]	**Home Indicators:** These line indicators match homing encoders when mount is instructed to move home.
[6]	**Altitude Lever**: For improved handling, grip, and precision in tilt adjustment, use the altitude lever. Simply unscrew it from its storage position and attach it to the tilt adjustment knob.

All electronics and connections are integrated into the non-moving part of the mount and are accessible from the back of it.



[7]	**Power Input (12V):** The GX12 type socket ensures a secure, lockable connection. Use the included PSU (12V/5A) to power on the mount.
[8]	**Power Output (12V):** The GX12 type socket ensures a secure, lockable connection. The input voltage is passed through this output. This output can deliver up to DC 12V/7Amps (for this purpose, a higher power PSU is required).
[9]	**USB Socket:** Connects the mount to your PC via a USB2 interface**.**
[10]	**ST4 Guiding Port:** Connect an ST4 camera for mount guiding in this port. This EXT port has a multipurpose role and can be used to plug the optional NYX Hand Controller.
[11]	**Red LED Indicator:** Light blinking pattern shows different mount states.
[12]	**Power Switch:** Turns on or off the mount.

Mount connections should be established before turning ON the mount, to avoid the risk of damaging the electronics. The USB port is an exception and can be plugged or unplugged when mount is in operation.

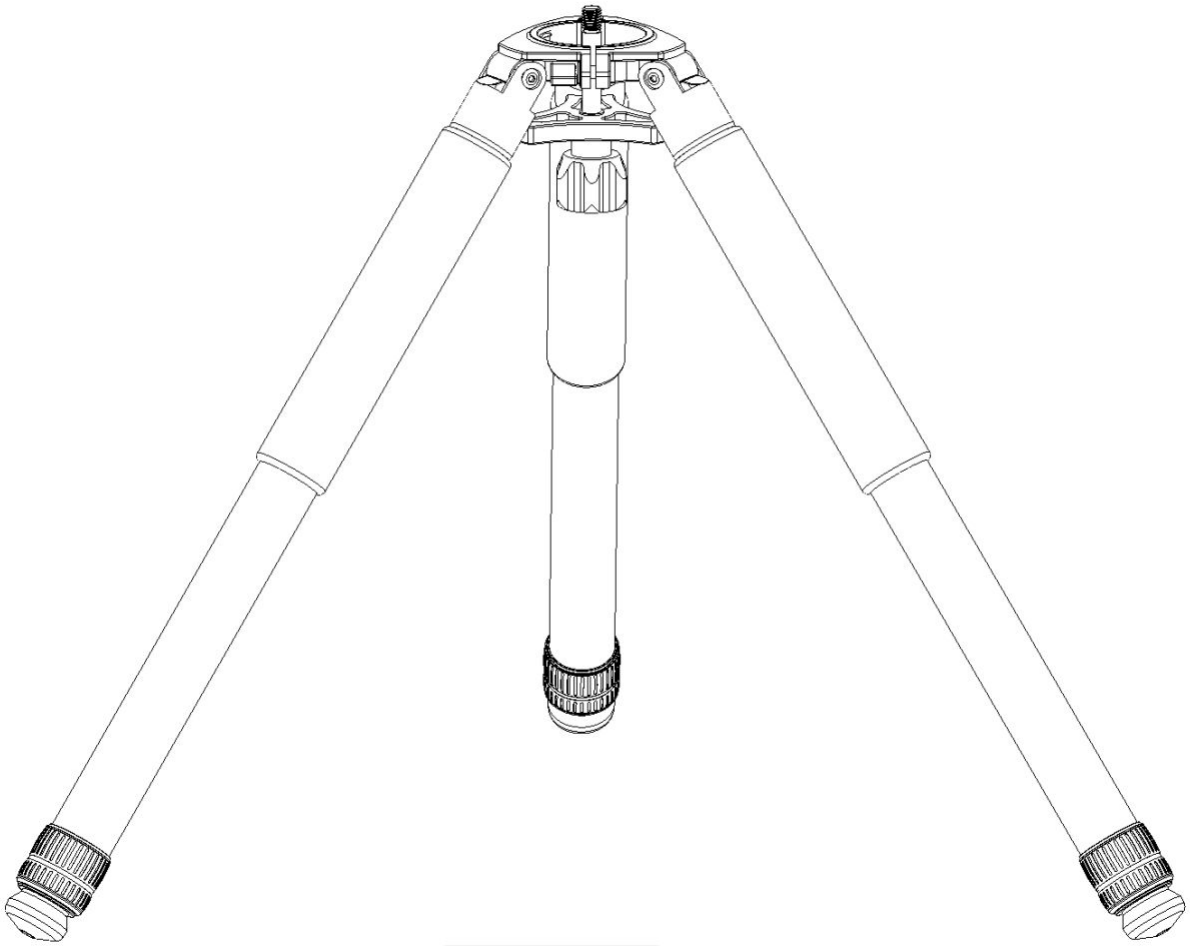
As the mount steps up the input voltage up to 30V DC it is important that you will not undervalue the risk of electric shocks.

Keep this mount back plate clear of dew and water.

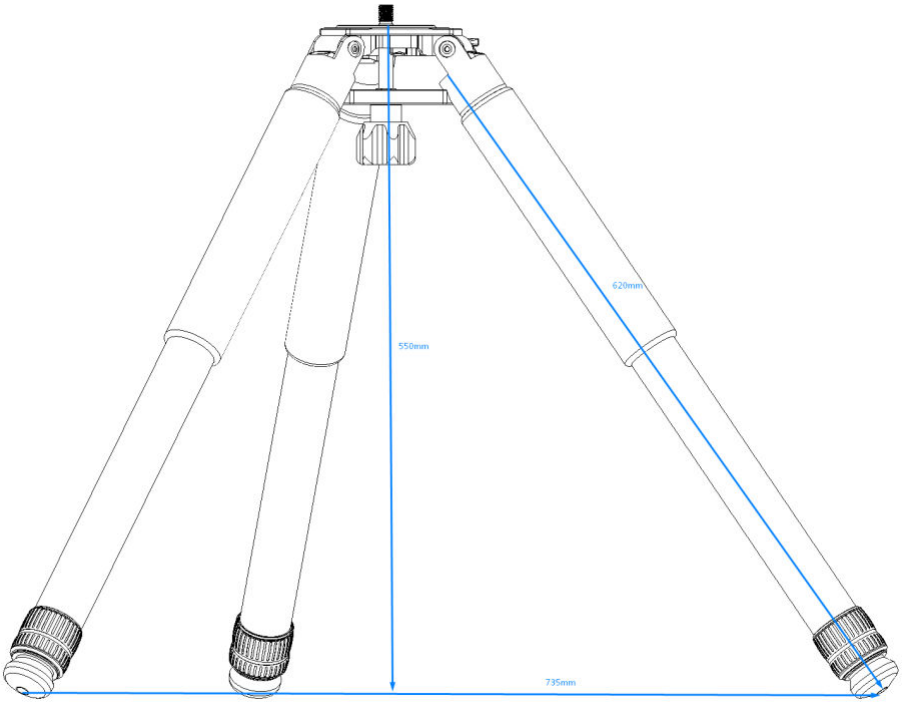
CARBON FIBER TRIPOD (PEG-TRPD88)

The tripod legs are rigid and lightweight, made from carbon fibre. We strongly suggest using this tripod with imaging equipment for up to 15 kg.

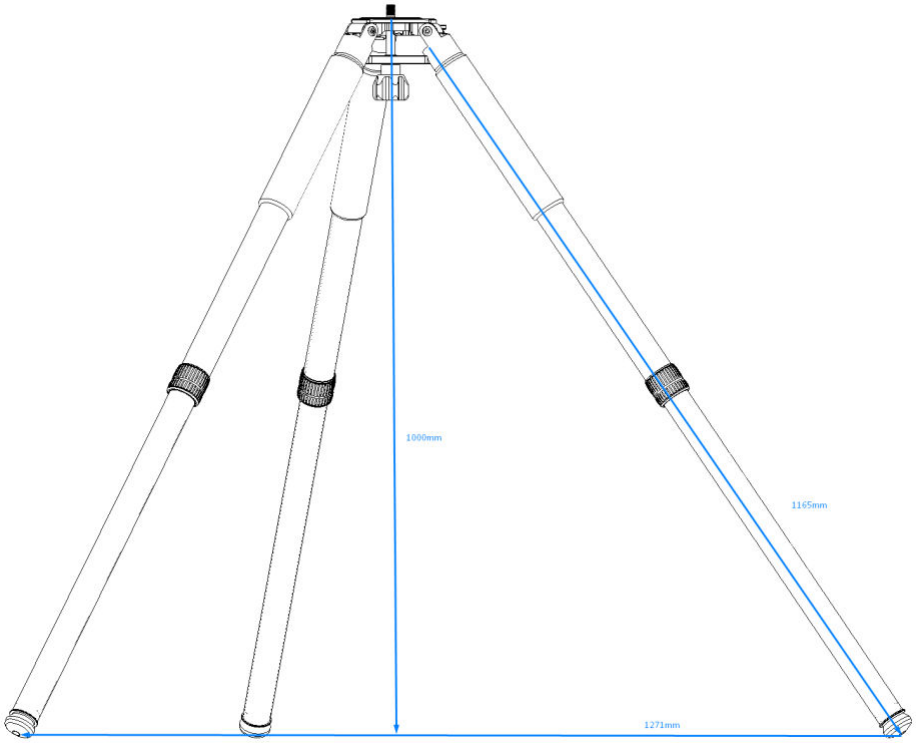
Specifications	**In the box**
▪ Length Retracted: 65 cm ▪ Max length: 120 cm ▪ Weight: 2000 gr ▪ Max Load Capacity: 50 Kg ▪ The angle of legs: Fixed 35°	▪ Carbon Tripod ▪ Mount Adapter ▪ Carry / Store bag ▪ 2 x Allen hex keys ▪ Triangular plate with M12 locking knob ▪ Metallic (3 pcs) nails to replace rubber foot pads



Tripod with retracted legs.

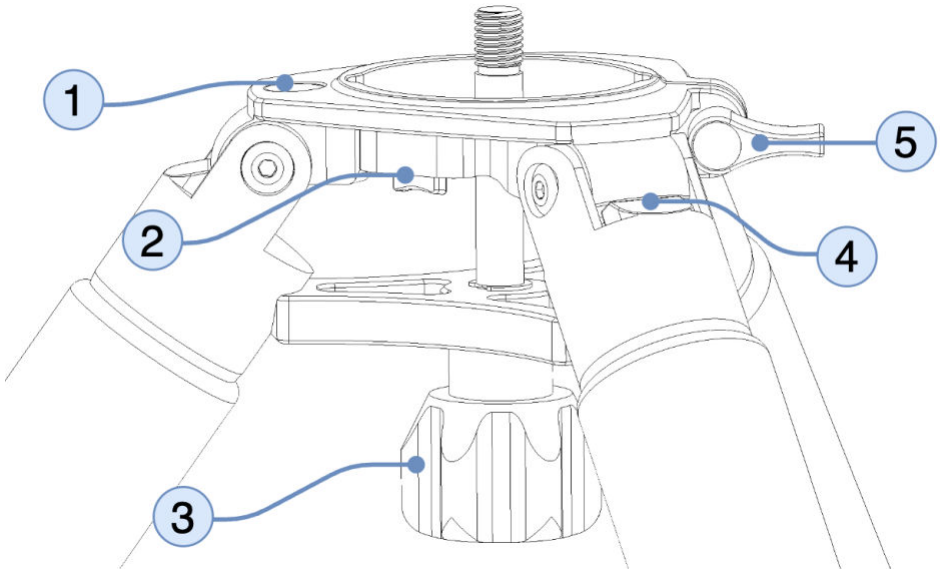


Tripod with legs fully extended.



SETTING UP THE CARBON FIBER TRIPOD

1. Expand the tripod legs on level ground.
2. Locate the locking clamps on the legs and turn counter-clockwise to unlock them.
3. Extend the tripod legs to the desired height.
4. Make sure the tripod top is level and then lock the clamps.
5. Extend the angle (fixed at 35°) on each leg to increase the angle diameter between the legs.



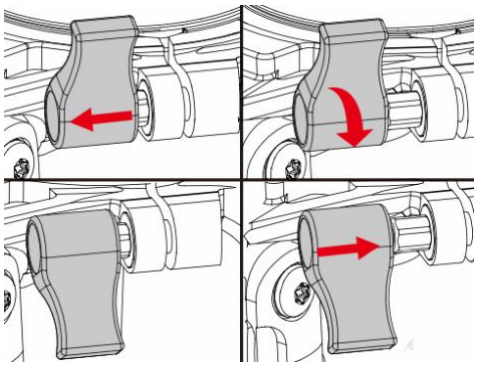
1	Level Bubble
2	Tray Safety Button. Press to release the adapter
3	Hand Knob
4	Extend Leg Angle. Legs form a fixed 35° angle.
5	Tray Fixed Knob

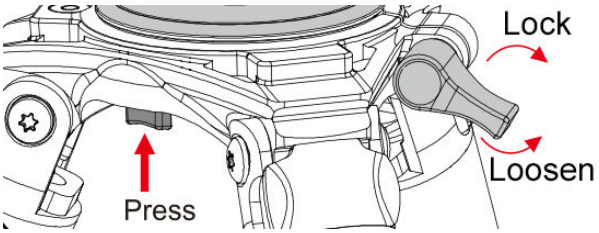
To insert an adapter:

1. Release the **Tray Fixed Knob** as shown in the figure below.
2. Place the adapter on top of the tripod.
3. Lock the **Tray Fixed Knob** to secure the adapter to the desired orientation.

To release an adapter:

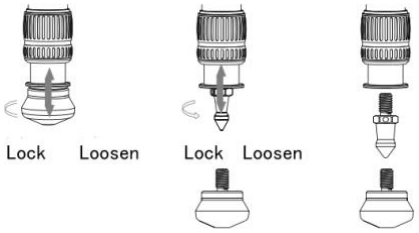
1. Unlock the **Tray Fixed Knob**.
2. Press the **Tray Safety Button.**
3. Slide out the adapter.





The tripod bag includes, in the zipper, three (3) foot nails that you can exchange with the stock foot pads.

As shown in the figure, the foot pad and foot nail can be exchanged according to the terrain and your shooting requirements.





Use a wrench which is in the fitting bag through the torque hole to lock the foot nail easily)

HALF PIER ASSEMBLY

A pier extension (+18 cm / 7”) is an optional accessory that allows you to increase the pier height.

Half pier extension is provided with the two options bellow:



SKU: **PEG-HP88-NYX-TRPD**

A 18 cm (7”) pier extension includes all necessary adapters and 3 rods for assembly.

(The Half Pier supports up to 6 standoffs, with an option to purchase 3 additional rods separately. SKU: PEG-STDOFF-RODS).

This half pier is ideal for mounting the **NYX88 on the Carbon Tripod** (PEG-TRPD88).

The Half Pier is essential for preventing your telescope from colliding with the tripod legs.



SKU: **PEG-HP88-EQ6-TRPD**

A 18 cm (7”) pier extension includes all necessary adapters and 3 rods for assembly.

(The Half Pier supports up to 6 standoffs, with an option to purchase 3 additional rods separately. SKU: PEG-STDOFF-RODS).

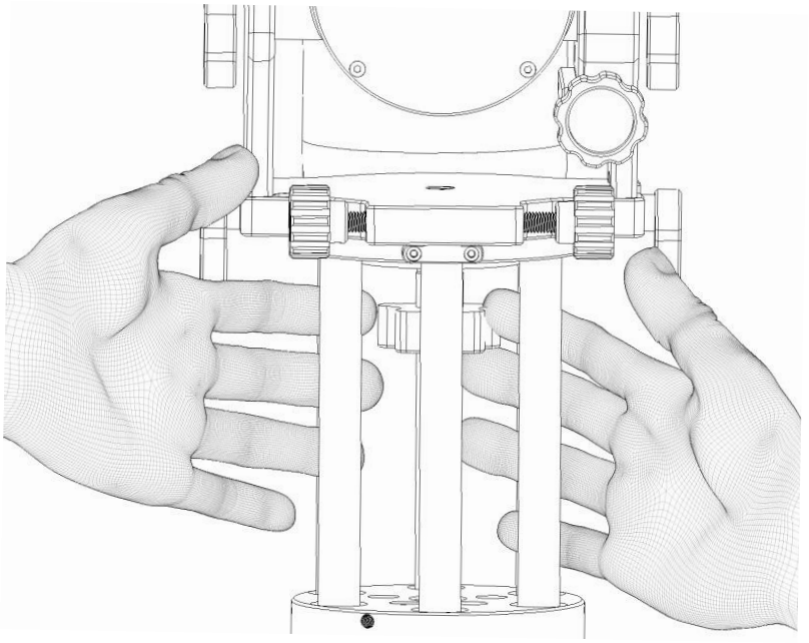
This half pier is ideal for mounting the **NYX88 on the classic steel EQ6 Tripod**.

The Half Pier is essential for preventing your telescope from colliding with the tripod legs.

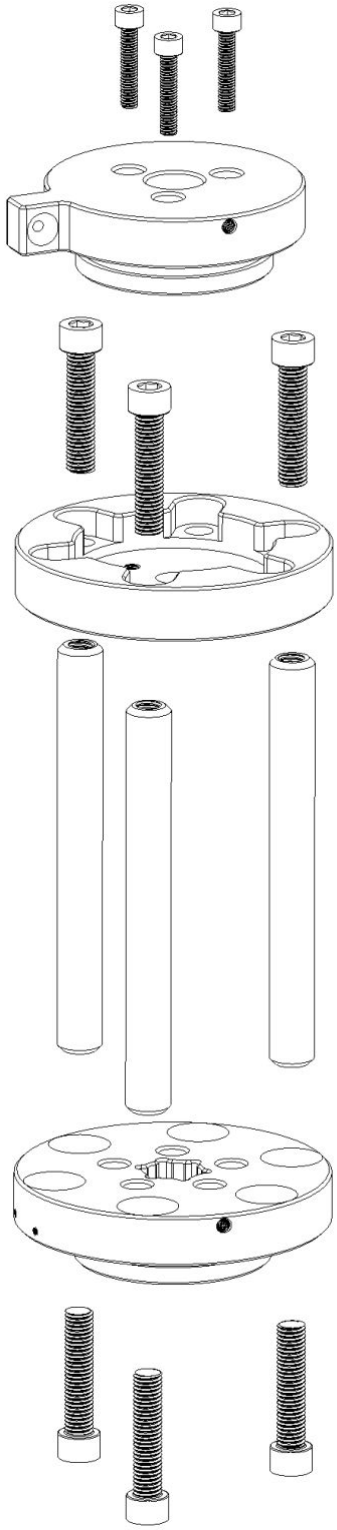
The figure below shows how to tighten the M12 short margarita knob that is included with the mount.

- Make sure that you have placed this margarita knob inside the standoffs, before the full assembly of the half pier.
- No extra force is required. Just tighten the knob ap.

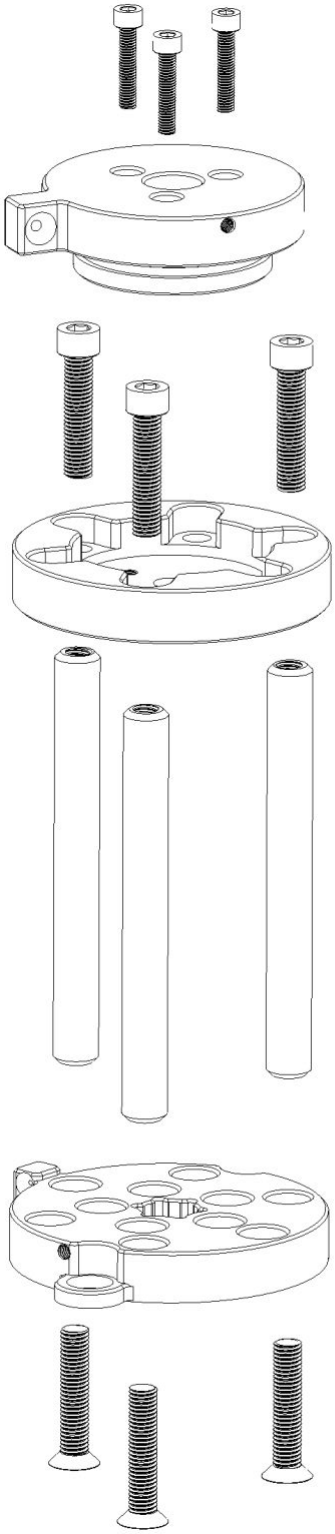
The use of this margarita knob is to additionally secure the mount on the pier. The 2 x “azimuth locking knobs” and “azimuth bolts” already hold the mount in place.



ASSEMBLY OF **PEG-HP88-NYX-TRPD**



ASSEMBLY OF **PEG-HP88-EQ6-TRPD**

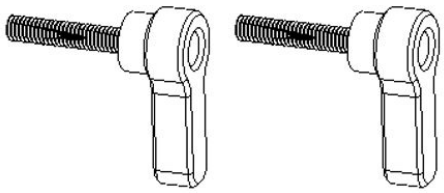


INSTALLATION AND USAGE

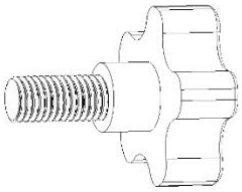
PUTTING ON THE MOUNT TO THE TRIPOD.

1. Carefully remove the mount from the hard-shell carry case.
   Please note, that the below mount head parts are not initially screwed on the mount head.
2. Locate them inside the case and have them ready for the next steps. Please make sure to use the plastic spacers on each of these screws. These spacers prevent any damage to the anodization of the mount body.

   - **2 x Azimuth Locking Knobs** (M6 screws)



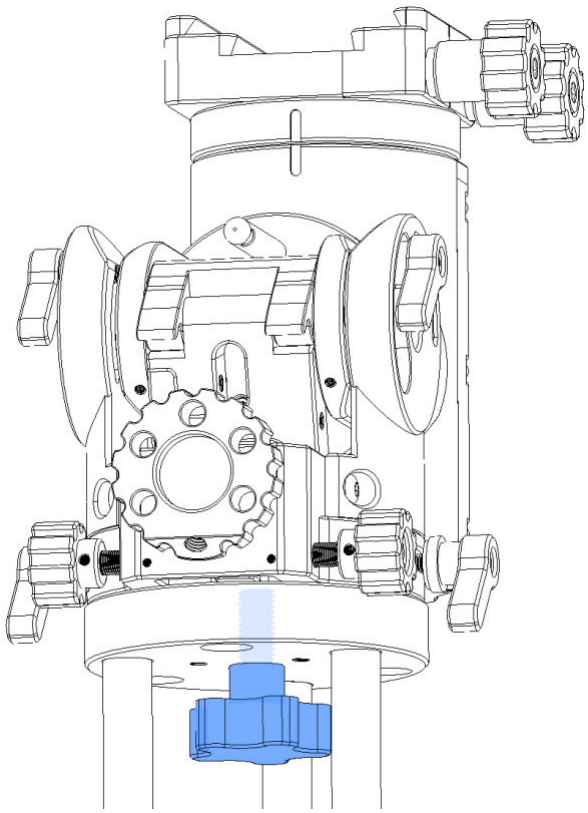
   - **1 x Hand Knob** (M12 screw)



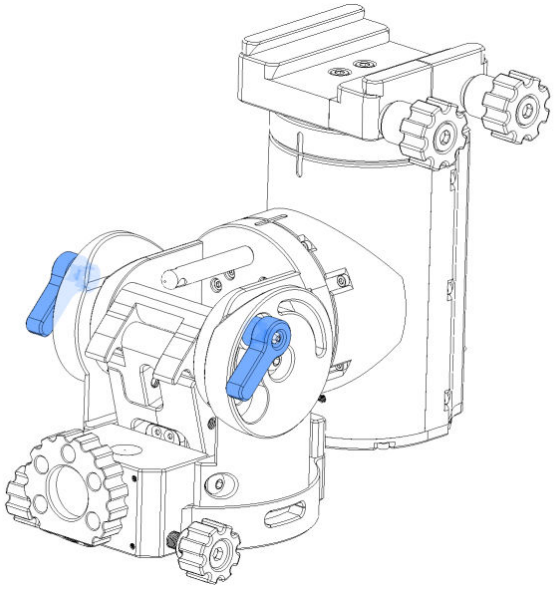
   - **1 x Altitude Lever** (secured on the mount when mount is inside the case)



3. Ensure that the two azimuth adjustment knobs are loose so the azimuth dowel can be placed between the two azimuth adjustment knobs.
4. Gently lower the mount onto the tripod adapter as shown in the figure below.
5. Secure mount with the M12 Knob (as shown at image below)



6. Insert the 2 x **Azimuth Locking Knobs** on the left and right side (do not fully tighten them yet).

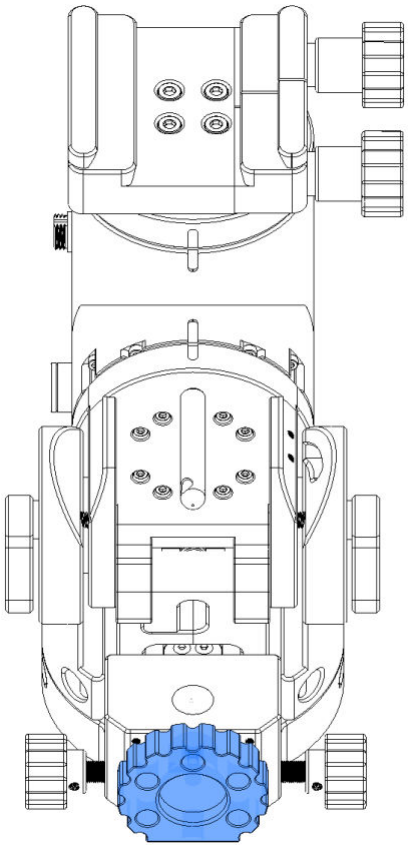


ALTITUDE ADJUSTMENT

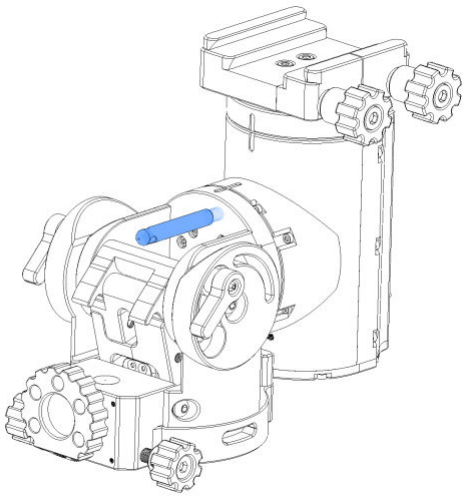
Adjust the pitch of the mount by turning the **Pitch Adjustment Knob** anti-clockwise -> to increase pitch degrees or clockwise -> to decrease pitch degrees. (check image below)

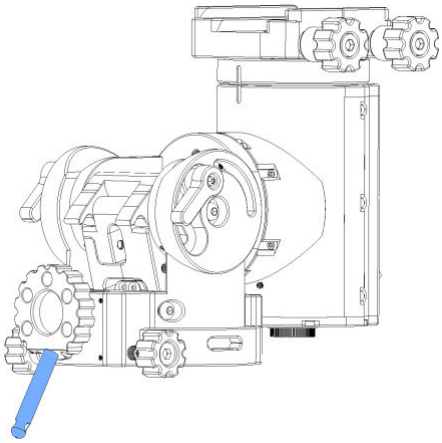
The altitude (pitch) of the mount can be adjusted from 0 – 90 degrees.

- If you are in Equatorial mode, set the mount pitch level to the degrees of your observing site latitude. You can consult the pitch indication dot on the side of the mount.
- If you are in Alt-Azimuth mode, set the mount to a pitch or latitude of 90° (figure on the right)



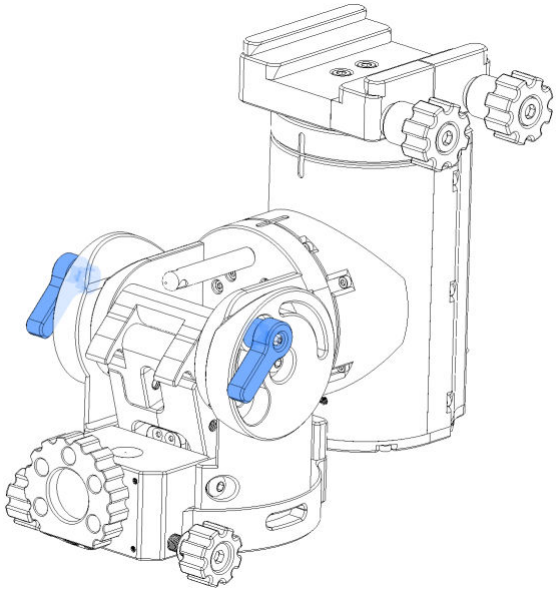
For improved handling, grip, and precision in tilt adjustment, use the altitude lever. Simply unscrew it from its storage position and attach it to the tilt adjustment knob.





ALTITUDE LOCKING KNOBS

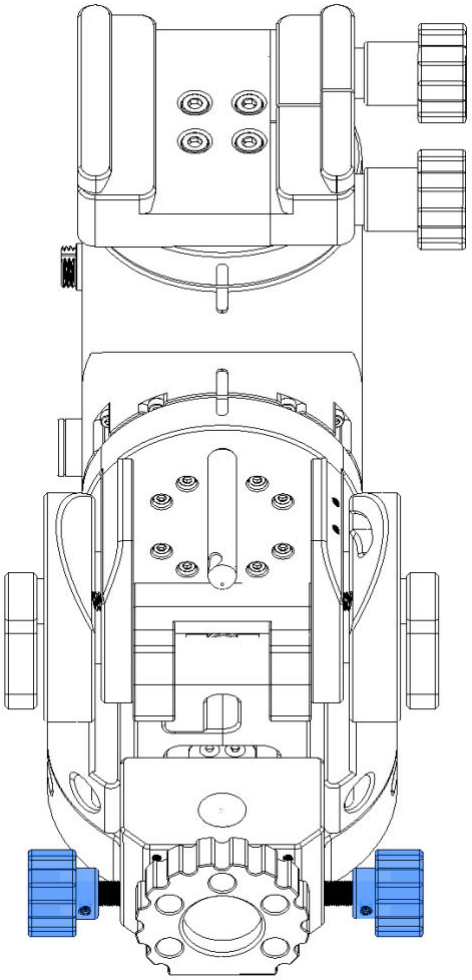
Extra altitude locking knobs exists on both sides of the mount, allowing you to securely lock the altitude of the mount. **It is strongly advised to tighten these set screw when the mount is loaded with long or heavy telescope setups.**



AZIMUTH ADJUSTMENT

1 Loosen the two azimuth locking knobs at the side of the mount.

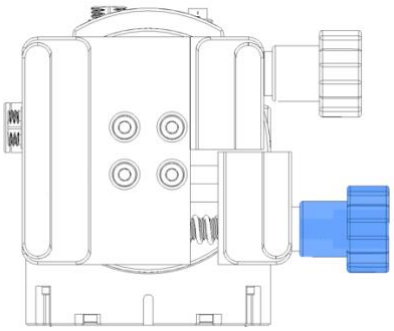
2 Turn the azimuth fine adjustment knobs to fine-slide the mount left or right in the azimuth axis.



3 When you finish, gently tighten both Azimuth locking knobs to secure the mount's position.

TELESCOPE PLACEMENT

1. Loosen the two clamp knobs at the side of the Universal Saddle.



2. Align the telescope with the saddle and gently place the dovetail onto the saddle. The saddle can accept a Vixen Style or a Losmandy 3-inch dovetail.
3. Tighten both Clamp Knobs to secure the telescope. You can use the two Allen hex keys (6mm tool) on the clamps to apply more strength.
4. Keep supporting the telescope until you are sure that it has been firmly attached to the saddle. If the telescope setup is heavy, it is advised to get additional help from another person.
5. The telescope has now been placed and secured onto the mount

Before placing the telescope in equatorial mode, please ensure that the Universal Saddle is upwards - counterweight tap points down.



You can still use the pitch and azimuth knobs but we strongly suggest to avoid large movements on the pitch knob when the telescope assembly is heavy (above 15 Kg) as it stresses the pitch adjustment mechanism.

BALANCING OF TELESCOPE

Both mount axes use a high-torque strain wave drive combined with a synchronous belt reduction system, providing exceptional torque capacity and smooth operation. This design eliminates the need for perfectly balanced axes during normal operation, allowing the mount to operate without counterweights.

When the motors are powered off, however, the weight of the telescope may gradually rotate the motor shaft, causing the axes to slew toward the ground under gravity.

To prevent this on the Right Ascension (RA) axis, the mount incorporates a power-off electromagnetic brake that locks the motor shaft whenever power is removed. The brake is designed to safely hold payloads of up to 20 kg.

The Declination (DEC) axis does not include a power-off brake. For this reason, the telescope should be mounted as close as possible to the DEC balance point to prevent unwanted movement when the mount is powered off.

DEC balancing is only important when the mount is unpowered. During normal operation, balancing does not affect tracking or slewing performance, as the energized motor actively holds the declination axis in position.How to balance the telescope on the declination axis:

1. From the mount's initial position rotate the declination axis only to 90 degrees (figure below).
2. Loosen saddle knobs (or tube rings) and carefully slide the telescope left or right.
3. With the telescope tube horizontal, slide the dovetail onto the saddle (or the telescope tube inside the rings) to the direction where is the least heavy part side.
4. Slowly release the telescope and examine the mount for any rotational movement on the declination axis.
5. If there is movement, adjust the telescope position to the opposite direction.
6. The final position of the telescope should remain stationary without support.

DO NOT TRY TO MOVE THE AXIS LEFT OR RIGHT. A **VERY ROUGH BALANCE** IS ONLY REQUIRED. IF YOUR TELESCOPE REMAINS STATIONARY WITHOUT SUPPORT THEN YOU ARE GOOD TO GO

PAYLOAD CAPACITY AND COUNTERWEIGHTS

Mount support payloads up to 14 kg without counterweights. With the addition of counterweights, the payload can be increased up to 20 kg.

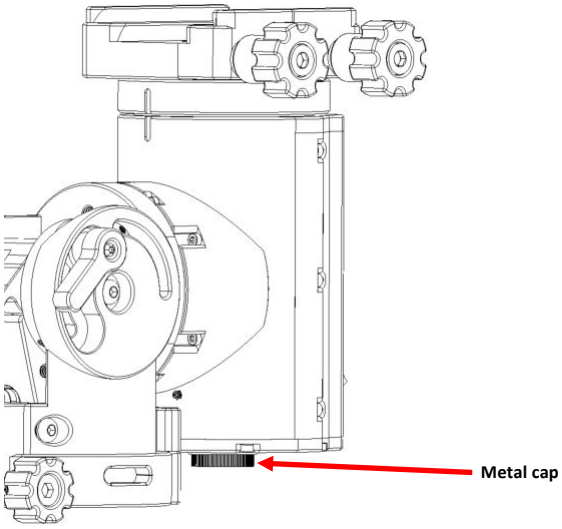
Please pay close attention to the following:

- Large telescope dimensions in combination with a weight close to payload limits might affect mount tracking performance. The heavier and longer the telescope tube (off-center), the more the mechanical stress on the motors and strain wave gearbox. Large tubes such as Newtonian OTAs might require an extra 5 kg counterweight to ensure the stability and smooth operation of the mount.

- A heavy telescope setup can easily tip off the tripod, especially if a 3rd party tripod is lightweight, with a small leg radius and there are no counterweights installed. Please pay extra attention to this as there is a danger of crashing the telescope setup onto the ground and heavily damaging your precious equipment.

Compatible Counter Weights and Shaft

NYX-88 supports an M12 shaft. As we care about in mount's portability, we designed an M12 screw hole that accepts shafts and counterweights from other manufacturers and can be easily found across every region in the world.



To install a shaft and counterweights:

1. Unscrew the metal cap.
2. You will see the M12 screw that allows the connection of a counterweight shaft.
3. Install the counterweight shaft and tighten it clockwise.
4. Place the counterweight(s). As you cannot manually balance the mount due to the strain wave gear axis lock, place these weights at the end of the shaft.

Do not remove any screws as they secure the counterweight shaft with the mount's head.

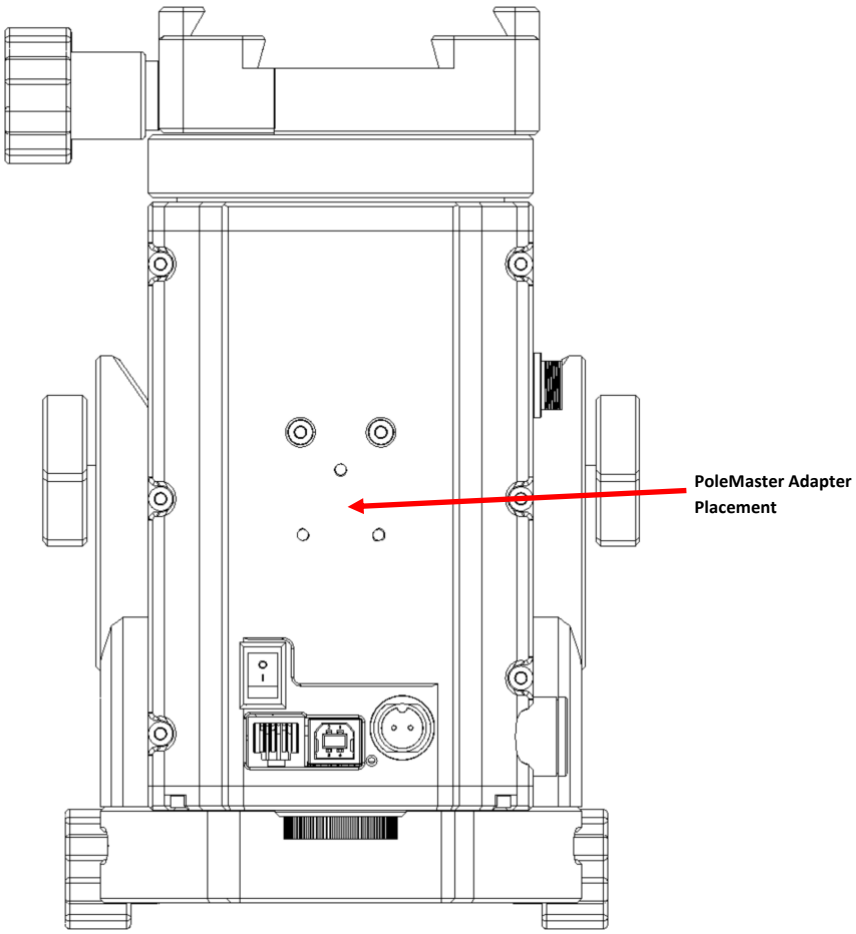
QHY's PoleMaster Installation

The QHY's PoleMaster is an easy, convenient and fast way to achieve excellent polar alignment. PoleMaster uses a high-sensitivity camera to capture an image of the northern sky to calculate where the true north is. It displays this information on a screen so you can quickly adjust the mount.

This small camera device has been recognized by astronomy enthusiasts around the world and has become a must-have for anyone using an equatorial mount for visual use or imaging.

On the front of the head, you can locate the PoleMaster ring adapter that has 3 x M3 screws where you can attach a QHY PoleMaster. The adapter has a locking knob so you can attach and detach the PoleMaster camera on demand.

Place the camera with its USB cable extended on the left as you look at the figure below and secure it with PoleMaster's screws.



Mount Modes

USE OF EQUATORIAL MODE

Our planet has a spin axis, tilted at 23.5°, relative to dead vertical to its orbit plane. As Earth rotates around this axis, the stars appear to move against the background sky throughout the night, rising in the east and setting in the west.

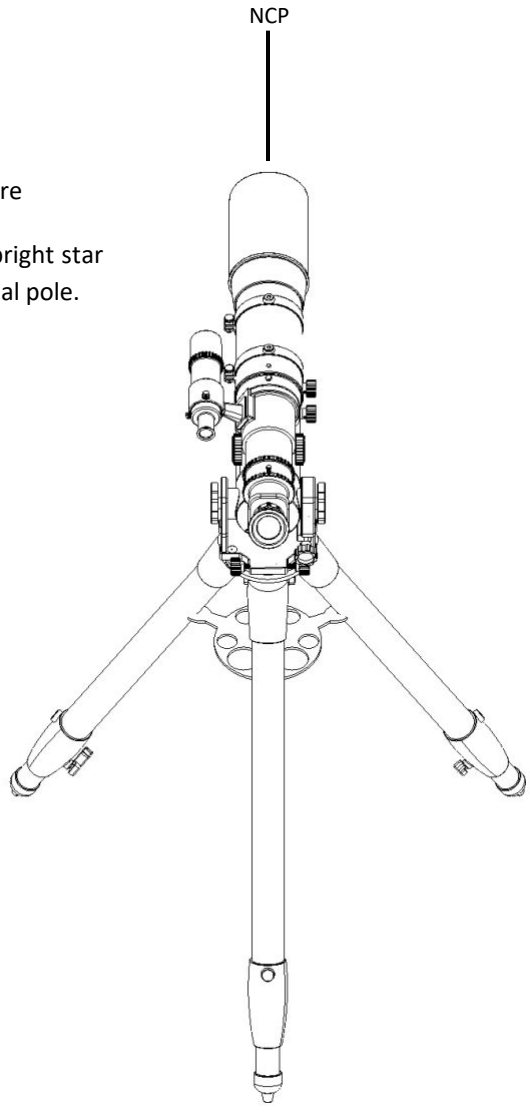
To follow this movement, the telescope has to be moved slowly in the opposite direction to Earth's rotation: in other words, following the stars.

To do that you need to adjust the mount's pitch set to be the same as your local latitude so that the polar axis is lined up and points at the north celestial pole (NCP) - (or south SCP for the Southern hemisphere).

The north (or south) celestial pole is the point that the sky rotates around.

Example is for Northern Hemisphere

In the northern hemisphere, the bright star Polaris sits very close to the celestial pole.



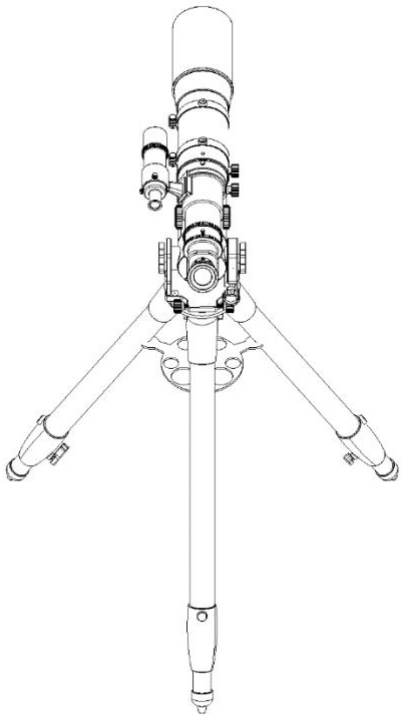
You don't need to be overly accurate in your polar alignment for visual observations.

- For observing in Northern Hemisphere, you need to find Polaris, the brightest star near the North Celestial Pole) in the QHY PoleMaster (not included) or polar align software (e.g. Sharpcap, N.I.N.A., etc). Then use the pitch adjustment knob and the two azimuth adjustment knobs to move the Polaris to the proper position.
- For observing in Southern Hemisphere, locate the 4 dim stars which form the "Octans" pattern.

For imaging purposes, you must be very accurate so different types of precise polar alignment methods can be used.

Once the mount has been lined up on the celestial pole, your scope will track the stars with ease.

1. Level the tripod with as much accuracy as you can. You can consult the electronic leveler (pitch and roll readouts) from our software or the classic bubble leveler of the mount.
2. Point the mount to the north (or south) celestial pole. The polar-scope adapter of the NYX-88 should look at the north (or south) celestial pole.
3. Adjust the mount's pitch (altitude) setting so that it's the same as your local latitude.
4. To make azimuth adjustments, unscrew the two azimuth knobs to move the mount head and scope left or right, slightly parallel to the horizon.
5. The telescope's initial (home) position, in the equatorial mode, should be as in the image below.
6. If the zero position is not as described, the first start alignment position will have a high GoTo offset. After the first star sync, there is no actual difference.



Initial (Home) Position

USE OF ALT-AZIMUTH MODE

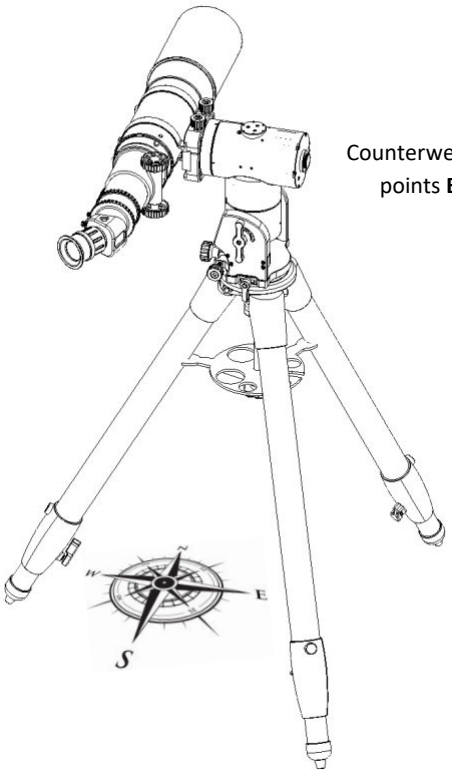
The Alt-Azimuth mount setup is a simple two-axis mount for supporting and rotating the telescope about two perpendicular axes: one vertical and the other horizontal. Rotation about the vertical axis varies the azimuth (compass bearing) of the pointing direction of the instrument.

Alt-azimuth mounts track in iterative up/down - left/right movements. With these two motions, you can point a telescope to any object in the sky. Its biggest advantage is the simplicity of its mechanical design.

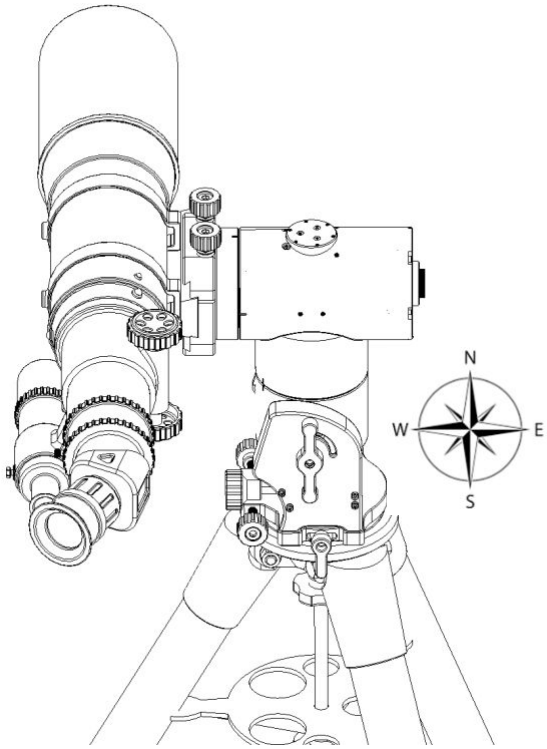
The primary disadvantage is its inability to follow astronomical objects in the night sky as the Earth spins on its axis. For the visual observer, an Alt-Az setup seems more convenient as it prevents any awkward position of the telescope eyepiece during the observation of different celestial targets.

To use the NYX-88 in ALT-AZ mode you need to:

Telescope to **North**



Counterweight tap points **EAST**



THIS IS AN EXAMPLE FOR NORTH HEMISPHERE. FOR SOUTH, KEEP THE SAME ORIENTATION,

1. Level the tripod. You can use the electronic leveler or the classic bubble leveler of the mount.
2. Adjust the mount's altitude (pitch angle) up to 90 degrees.
3. **Rotate the declination axis to 90 degrees** so that the telescope points to the horizon.
4. Practically **THE TELESCOPE SHOULD POINT NORTH** as shown in the figure.
5. Counterweight tap **SHOULD POINT EAST**
6. Ensure to click **Reset Home Position** when you start ALTAZ (this is only required on the first session or when you switch from EQ to ALTAZ mode)

As the mount has internal cables between non movable part and RA/DEC axis, a hardware limit encoder is installed and prevents any twist and cut of the motor cables.

Mount 's ALT-AZ orientation should be done the way that was described to prevent a limit sensor trigger that might disallow you to move to a target visible in your night sky.

MOUNT LIMITS

To protect the mount and telescope from possible collisions, NYX-88 provides limit functions.

Mount operations that are subject to limits are:

1. Tracking
2. GoTos
3. Manual slews are initiated by the direction pad, towards the limit direction.
4. Zero position
5. Park

When a limit condition is detected, the following actions are performed:

- Both motor axes (Ra and DEC) are immediately stopped.
- Tracking is stopped.

To remove the mount from the "limited" state use the direction pad to slew the scope away from the limit point.

NYX-88 incorporates three (4) software limits. The software limits are configurable by the software. Hardware limits are not configurable and have to do with hardware limit sensors for your mount and telescope equipment protection.

Software limits:

- Horizon Limit
  - Is configurable from -30° to +30° (By default a horizon is applied to an altitude of -10°)
- Overhead Limit
  - Is configurable from +60° to +90° (Default +90°)
- Meridian Limit.
  - The meridian limit (E or W) can be set from -120 to 120 minutes (pre or past meridian).
- Custom user limits on RA axis. (east or west).

Note that:

- RA axis supports an "Hour Angle" or Azimuth range of ±180 degrees.
- Dec axis supports an allowed Declination or Altitude range of ±90 degrees.

MOUNT POSITION

The NYX-88 mount includes built-in non-volatile FRAM memory, capable of retaining data even when the mount is powered off. Unlike conventional memory technologies, FRAM supports more than 10 billion read/write cycles, providing an essentially unlimited operational lifetime.

This allows the mount to continuously store the exact position of both axes in real time. When the mount is powered on again, the last known position is automatically restored during the boot sequence, eliminating the need for repeated initialization after every shutdown.

In addition, the NYX-88 features home optical encoders on both axes. When the Home command is issued, the mount uses these encoders to accurately return both axes to the Home (initialization) position, aligned with the reference line indicators on the mount.



INDICATOR LED

A red indicator led is located at the back of the mount. The table below shows the different conditions of this lamp.

Condition	**Status**
During mount start-up – firmware load	LED turns ON. Indicates that firmware is loaded.
During mount slewing	LED remains ON.
During mount tracking (any tracking mode)	Blinking fast every 0.25 seconds.
Abnormal state.	LED is Off.

MOUNT CONNECTIONS

POWER INPUT

A circular GX12-2 male connector (labelled IN) is placed at the non-moving part of the mount to ensure a secure lock and disallows any cable drag during tracking or slewing of the mount.

Power input requires 11 (minimum) - 14.0V (maximum) DC and at least 3 Amps of current. The socket, internal wires and electronics can pass up to 10 Amps of total current. Voltage not in this range might cause permanent damage to the motor board.

NYX-88 mount consumes 0.3A on idle operation, ~0.5A during tracking and ~2.0Amps during slewing (peaks up to 2.5Amps).

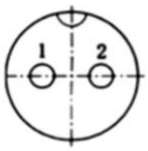
The package of the mount comes with a stock PSU which outputs 12.5V / 5Amps. The output socket of the PSU is a GX12-2 pin female connector.



Do not use an un-regulated AC-to-DC adapter. Use the stock PSU (12V/5A) that comes along with the NYX-88. If there are higher power requirements we strongly suggest to get or our certified Pegasus Astro 12V/10A PSU. (PEG-PSU-25)

Do not use step-up controllers to increase the input voltage as this has zero effect to mount operation, torque, tracking and stability of the mount. Mount has its own internal step-up regulator and drives the motor at higher voltage levels than the actual voltage input.

Power input has reverse polarity protection in case you accidentally reverse the wires or poles. In such a case the mount will not turn on.

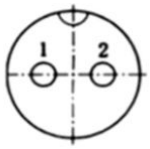


1	GND
2	VCC (11-14V)

POWER OUTPUT

A circular GX12-2 male connector is at the left (labelled OUT) of the power input connector. This port can pass up to 7 Amps of total current and provides the same voltage level that receives from the input. In short, **it is a pass-through port.** (Mount requires 2.5A and another roughly 7A is available for your equipment – when you use a 10A PSU).

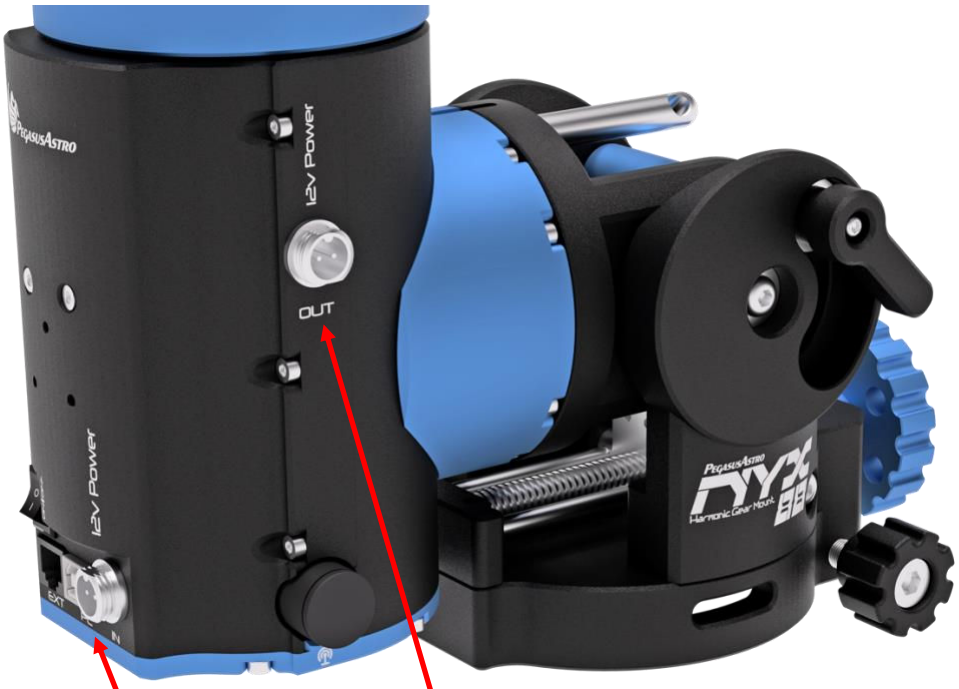
Reverse polarity protection is applied in the mount electronics only and not in the pass-through power output.



1	GND
2	VCC (same as input)

You can use this power output socket to provide power to your imaging equipment. E.g., if you own a Pegasus Astro Powerbox you can power it from this power output (figure below). The cable you need to provide power to the mount from our Powerbox products is the ***PEG-CABL-GX12***.

Please note that you will need a higher current PSU to provide power to the NYX and all of your equipment (at least a 12V/10A PSU).



Below you can see some optional cables we offer for your “power distribution” needs.

Cigarette Lighter Adapter to GX12 (1.8m)
CIGLIGHT-ADAPTERGX12



Use this cable to provide power to NYX-101 by using a battery pack

Adapter 2.5 x 5.5mm female to GX12 female (30cm) **PEG-ADAPT-25GX12**



If you own a PEG-PSU-25 you can convert the 2.5mm socket to GX12 and provide power to NYX-101

Power cable 2.1mm Male to GX12 female
PEG-CABL-GX12



If you own a PegasusAstro Powerbox use this cable to provide power to NYX-101 mount

USB2 PROTOCOL

Plug the stock USB2 type A to B cable into the USB socket of the mount and your computer. Mount is automatically discovered from the Unity platform or our ASCOM driver.

Any driver that is required to discover the NYX-88 via USB is in the Unity Platform package and automatically configured during Unity installation.

Read more in the "How to initially connect the mount" section of this manual.

WI-FI NETWORK

NYX-88 mount can be operated by its Wi-Fi transceiver:

- **Wi-Fi Hotspot**: NYX-88 creates, during startup, a Wireless Access Point that allows a mobile client to connect directly to the mount.
- **Wi-Fi Client**: Mount can be configured (via Unity Platform). to connect during startup, as a client, to a 2.4GHz Wi-Fi network (such as your home's wireless network).



Only 2.4 GHz wireless networks are supported. Mount cannot discover and connect to 5 GHz networks.

CHANNEL ROUTING

Unity platform driver prefers the (wired) USB2 connectivity and communicates with the mount via the USB cable. If the mount is connected to the same Wi-Fi network as your PC, Unity software automatically discovers the mount through the Wi-Fi network and keeps the Wi-Fi channel **as a backup communication route**.

In case you unplug the USB cable, all traffic is automatically re-routed to the Wi-Fi channel, without communication disruption. (So, Wi-Fi instantly becomes the active channel).

- If the USB cable is re-plugged, the driver automatically switches the traffic through the USB channel.
- If the USB cable is not available, the software communicates with the mount through Wi-Fi only.

The ASCOM driver supports multi-clients and exchange information with the Unity Server that runs in the background. The USB vs Wi-Fi channel preference, selection and seamless operation is also applied in the ASCOM driver.

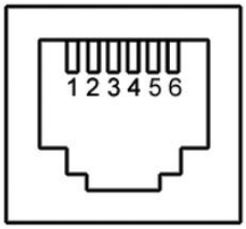
EXTERNAL PORT (ST-4)

Ext port has a multi-functional role. Currently, and by default, is an ST-4 auto guider input where you can connect a guiding camera.

NYX hand controller with a display (NYX-HC) is also available to be connected into this socket.



The pinout of the 6P6C socket (image below) is for the ST-4 connectivity and moves the mount in one of the four directions by grounding the direction pin. The pulse time of the correction is proportional to the duration of each contact.



1. VCC (3.3V)
2. GND
3. RA+
4. DEC+
5. RA-
6. DEC-

DO NOT plug a 3rd party hand controller or anything different than an ST-4 guiding camera into the EXT port. Only ST4 cameras and certified Pegasus Astro products are compatible with the EXT port.
Otherwise, there is a high risk of severe damage to the electronic board of the NYX-88 mount.

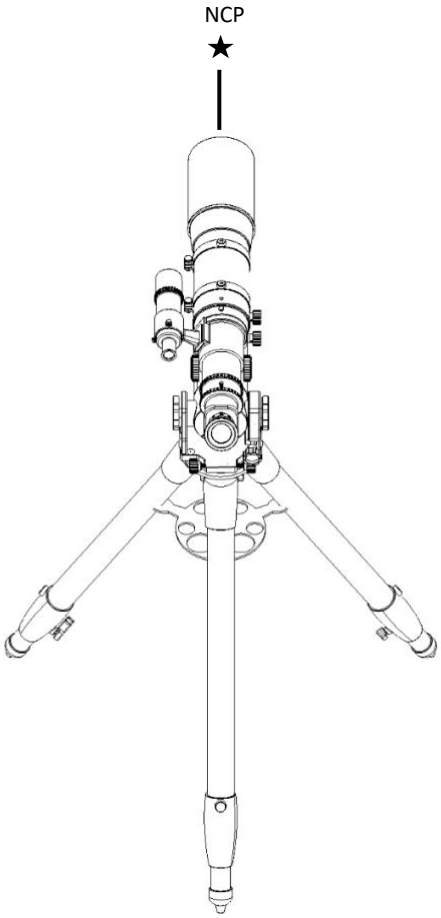
FIRST TIME OPERATION

The default factory mount mode is the **Equatorial (German Equatorial Mode)**.

If you intend to use the mount in Equatorial mode for visual observations, you have to orient the mount tripod and telescope to the NCP (Polaris) or SCP (Octants) if you are located in the Southern hemisphere.

For imaging purposes and especially for deep sky astrophotography, you will have to perform a **precise polar alignment**. For more details, please check the **Polar Alignment** Section of this manual.

After completing the mount's polar alignment process, please ensure that the telescope points roughly to the NCP or SCP. Telescope's initial position should be as in the image shown below.

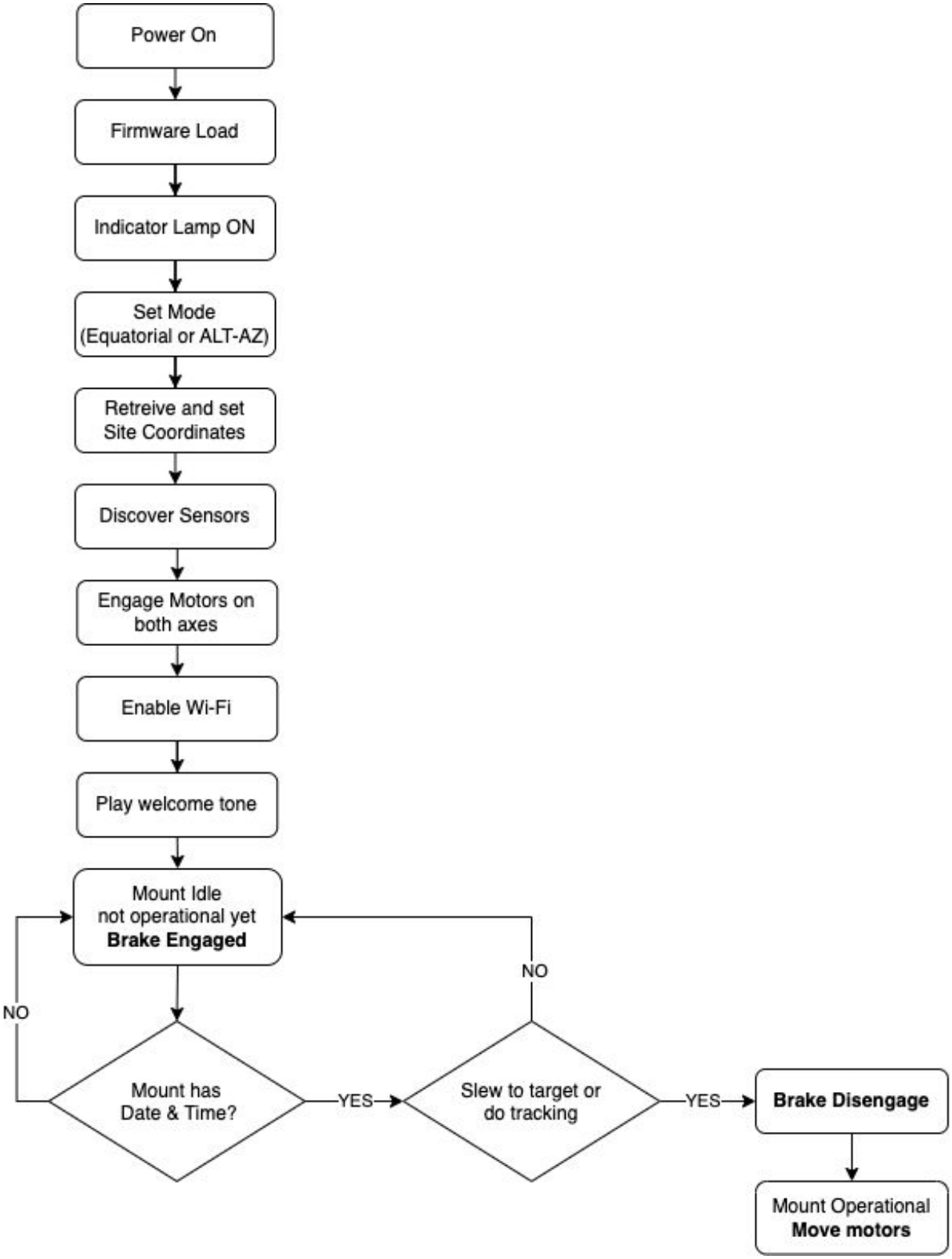


Plug the USB cable into the mount and your computer. Then, turn the mount's power switch ON.

Mount will initiate the boot sequence, the indication LED with turn on, and after 10 seconds you should hear a four notes welcome melody confirming that the mount's firmware was loaded successfully. This is the time that the mount is in a fully operational state.

South

BOOT SEQUENCE



How to Initially connect to the mount

The mount needs your location coordinates and altitude to perform all astronomic calculations.

The current date and time are automatically pushed from the software but site coordinates should be *entered by the user, as the mount does not have a GPS installed.

- Mobile IOS / Android application automatically pushes your current location to mount, taken from the GPS of your mobile phone.

There are two ways to initially connect to the NYX-88 mount.

This can be achieved via:

- USB cable and using the **Unity Platform** (only by Windows OS).
- **Mobile** (Android or IOS) application by connecting to the NYX-88 Wi-Fi Access Point (hotspot).

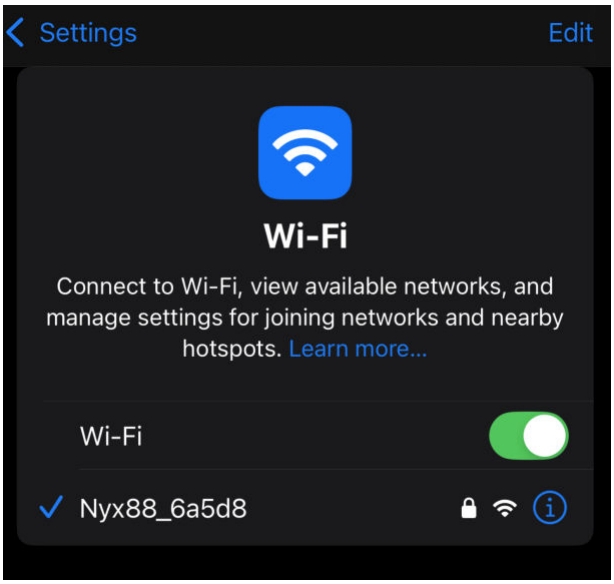
Wi-Fi Access Point and Mobile application

By default, NYX-88 mount launches a Wi-Fi hotspot access point which is accessible through the mobile application. You will have to connect to the network below and open the mobile application.

The default access point credentials are:

Name (SSID)	Password
Nyx88_xxxxx	12345678

An example of what you should see in your mobile Wi-Fi discovery is the screenshot below:





- Download the "**PegasusAstro Unity**" application from Apple App Store or Android Play Store.
- Connect your mobile device to the mount's Nyx88_xxxxx Wi-Fi access point. Alternatively, if the mount is already connected to your local/home network, you may connect your mobile device to the same network instead.
- Run the mobile application. NYX-88 mount will be automatically discovered.
- If your current location differs from the mount's, a message will appear asking you to push the current location to the mount.
- Finally, the screen at the left will be visible.
- From this point, you can operate all the basic functions of the mount.

During boot process the electric brake in the Right Ascension axis is engaged and is released only when the NYX-88 mount is fully operational (right ascension motor is locked and ready to accept slew commands).

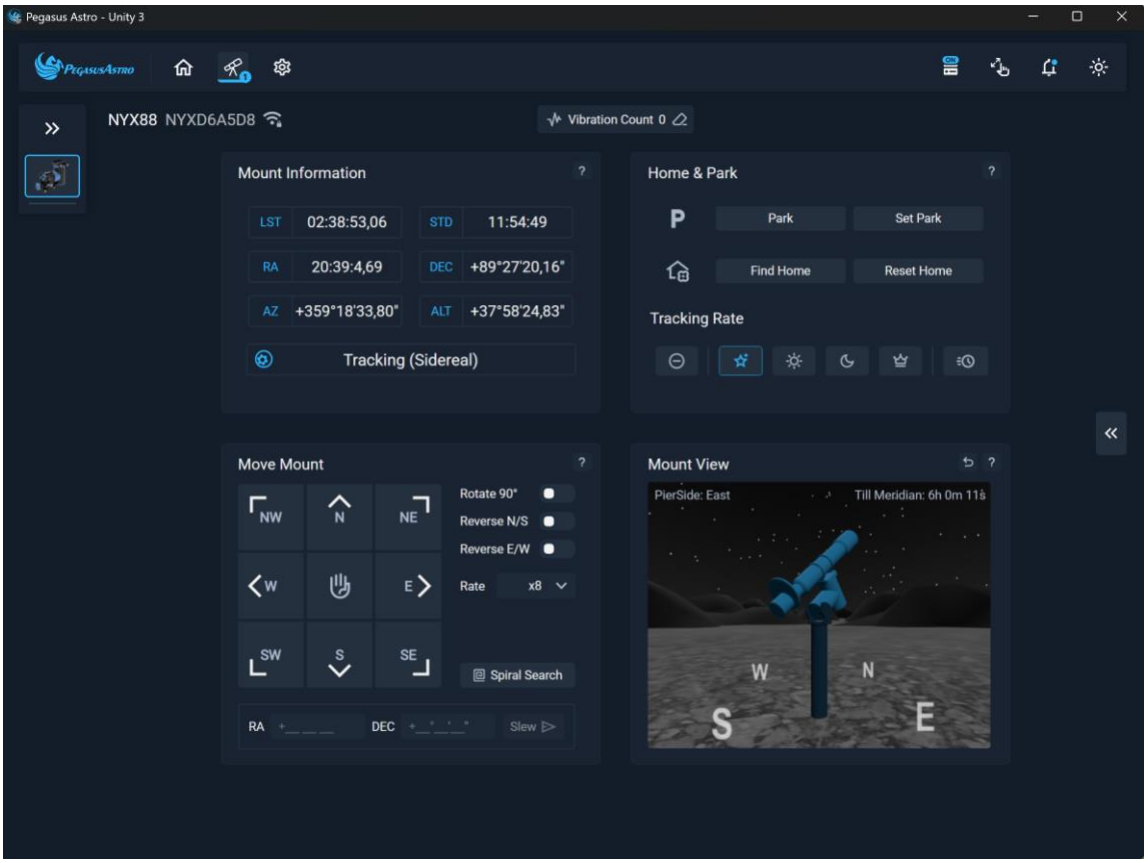
USB Cable and Unity Platform

If you use a Windows PC, the alternative approach and most preferable is to connect and configure the mount through Unity Platform (Windows-based software) and a USB cable.

- Plug the USB cable into the mount and your computer.
- Make sure that the NYX-88 mount switch is ON. (LED indicator should turn ON)
- Download and install Unity Platform from: https://pegasusastro.com/download/
- Open the Unity application and after a while, you should see the screen below.



- Click the discovered NYX-88 mount to enter the control panel. Please note that the **NYX[xxxxxx]** is the unique identification code of your NYX-88 mount.
- The NYX-88 control panel will load and the following screen will be visible.

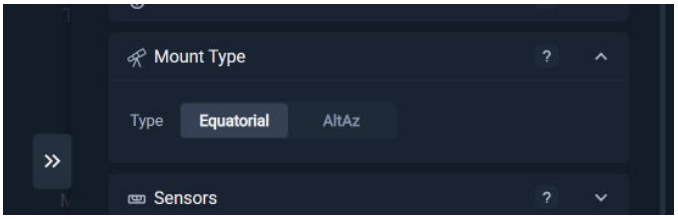


SET MOUNT MODE

Click **Settings Tab -> Mount Type**

The factory default mode is Equatorial. In the drop-down menu, you have the option to select **Equatorial** or **Alt-Az** mode. A change in the mode requires a mount reboot (which will be initiated automatically after answering 'YES' to the confirmation dialog) to apply the mode.

The mode is stored in the mount's internal memory and retrieved during boot.



SET SITE LOCATION

Locate **Information -> Site Information** and click the green (+) arrow. This allows you to add a new site by entering its coordinates and then pushing them into the mount.

- Enter your site coordinates (latitude, longitude) and your approximate altitude and press **Save.** Note that you can use the altitude reading reported by the barometric sensor.



Click the **Push to Mount** button to push your observing site coordinates into the NYX-88 mount.

Positive latitude is above the equator (N), and negative latitude is below the equator (S).

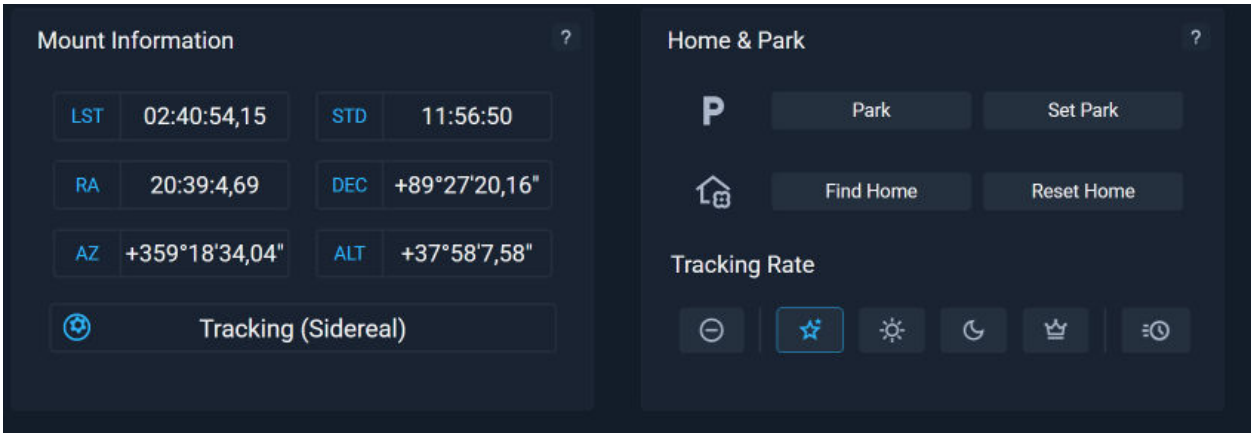
Positive longitude is east (E) of the prime meridian, while negative longitude is west (W) of the prime meridian (a north-south line that runs through Greenwich in the U.K).

Always include a + or - sign before latitude and longitude degrees.

You can store multiple sites pre-sets in Unity and when required, push the selected site coordinates into the mount. For each new site entry, click the + button to enter a new site. You can edit or delete each site pre-set.

MOUNT INFORMATION

The panel below displays all transmitted mount information and continuously updates them.



LST refers to the Local Sidereal Time, which is the right ascension (RA) that is on the meridian at your observing location. Objects with an RA equal to the LST are transiting, appearing at their highest point in the sky for the day.

RA (Right Ascension) and **DEC** (Declination) are the coordinates on the sky that correspond to the longitude and latitude on Earth. RA measures east and west on the celestial sphere and is like longitude on the Earth. Right Ascension is measured in hours, minutes, and seconds. Declination is measured in degrees, arcminutes, and arcseconds. There are 60 arc mins in a degree and 60 arcsec in an arcmin. Declination tells you how high overhead your object eventually will rise.

STD: refers to Standard time which is the local time for a site when daylight saving time is not in use. Note that the mount does not use daylight savings for its celestial calculations.

AZ: Azimuth is the angular distance of an object from the local North, measured along the horizon.

ALT: refers to Altitude which is the angular distance of an object above the local horizon. It ranges from 0 degrees at the horizon to 90 degrees at the zenith, the spot directly overhead.

Tracking shows the current rate at that your mount tracks the sky.

Status prints your mount's condition messages. It reports if the NYX-88 mount:

- Is Tracking
- Is Slewing
- Is Parked
- is Parking
- Is slewing home
- is At Home
- Reached a mount limit: parking, horizon, overhead, meridian, hardware limit sensor.

- Encounter a motor drive error.

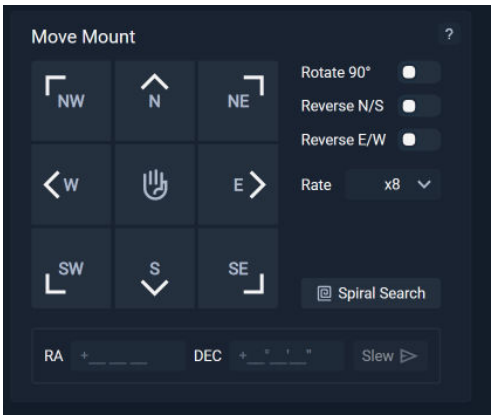
VIRTUAL KEYPAD

You can move your telescope in any direction and with different speeds/moving rates. To achieve that:

- Click the **Rate** drop-down menu to choose a move rate.
- Press and hold each **direction button (N, S, W, E, NW, NE, SW, SE)** to move the telescope with the selected move rate.
- Release the mouse button to stop the slew in this direction.
- The center button  is an **emergency stop** button for any kind of slew or telescope movement. Just press this button to stop any movement.
- You can also rotate or reverse the buttons, by using the **three sliders**, to match these buttons with your FOV movement orientation.

About key direction movement:
Keypad moves mount to cardinal directions (N, S, E, W) and not to just a direction like left, right, up or down.

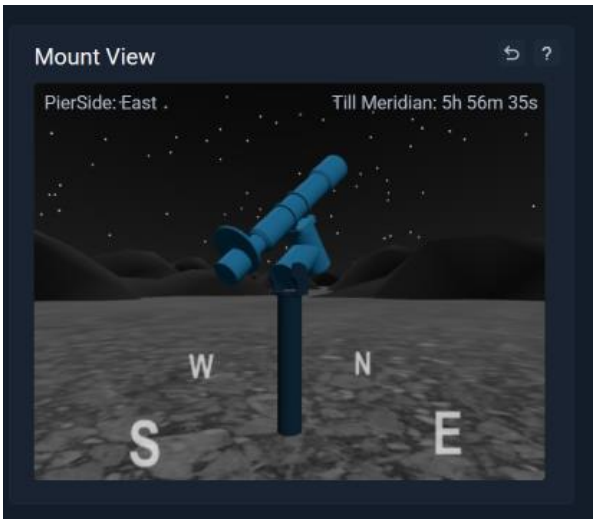
An impression that manual slew direction is wrong can happen when the mount points close to NCP, as the scope moves rightwards, towards actual North. If you keep going past North and then press the South button it moves in the same direction as before because now that's where South is from its last stationary position. Alternatively, if you pressed North a second time instead, the mount reverses direction compared to the first time you pressed North button because that's where actual North is now.



Mount supports custom rates for each axis (in degrees per second). Currently, the rates in the software are fixed to the most useful rates (there are eight available rates: x2, x8, x16, x64, x128, 1.0°, 2.5°, 5.0°) to e.g. **Centre, Guide, Move or Fast Slew** the mount to a target.

3D Mount View

The 3D View displays how the mount is oriented based on the current RA and DEC coordinates.



The model is updated frequently (every 0.5 seconds). A compass is also displayed to point out how the mount is placed inside the 3d environment.

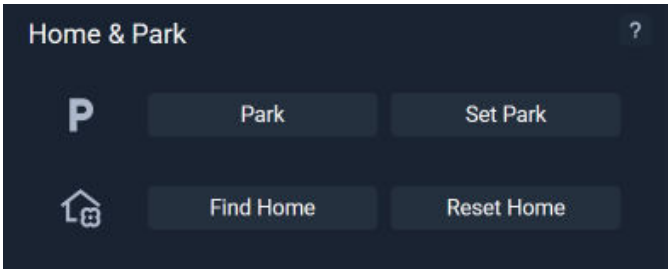
PARK AND UNPARK

The park position allows you to simply turn off the power switch and the mount will keep stored in its memory the information regarding the last position. After unparking, you can continue your observing session with aligned information retrieved from memory and re-used by the mount.

It is strongly advised to **Set a Parking Position** that will allow you to park the mount to the exact position on request.

Click **Park** to store your current position as your new parking position. Please note that the mount should have valid observatory site coordinates to properly set a new park position.

On Park command both axis motors are disengaged to save power and right ascension electronic brake is instantly engaged to prevent any telescope slippage.



After that, you can click **Park** when you finish your observations or **Unpark** when you start a new observing session.

When mount is **at Park** you cannot perform a Go-To or a Slew movement. Keypad buttons do not work.

Click **Unpark** button to start operating the mount.

HOME POSITION

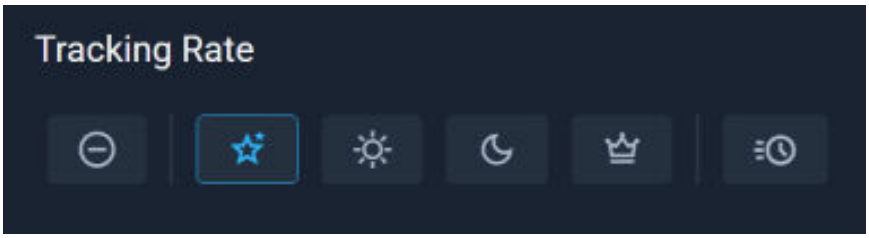
The home (or zero) position is typically a position in which the mount and telescope are in line with the meridian and pointed straight north (or south in the Southern hemisphere). The telescope will be oriented directly above the polar axis (concentric to the polar axis). The zero position of the mount should be always the initial telescope position that points to the NCP (Polaris) or SCP (Octants).

In short, this should be the position the mount always starts up when you do not unpark from a saved park position.

You can reset the zero initial position by clicking the **Reset Zero** button. This assumes that your telescope points to the NCP and it will initialize the mount RA and DEC coordinates from this position.

TRACKING RATES

NYX-88 mount is capable of the following tracking rates:



Stop Tracking: Stops any applied tracking rate and sets the mount to idle.

Sidereal: is the apparent rate of motion of stars across the sky, which is slightly faster than the rate of motion of the sun.

Solar: as the name implies, the telescope tracks the sun which also moves across the sky at a different rate than the stars or the moon.

Lunar tracking follows the moon, which moves across the sky at a different rate than the rest of the stars.

King developed the algorithm known as the King Tracking Rate, which corrects the tracking rate of a telescope to account for atmospheric refraction.

Custom sets custom rates for RA and DEC axis. Mount supports custom rates on both axes for satellite tracking, comets, minor objects, etc. This is implemented by the ASCOM driver and works with software that supports custom rates. E.g. SkyTrack

Click a button to apply the desired tracking rate to the mount. The button will change color confirming that the selected rate is now active.

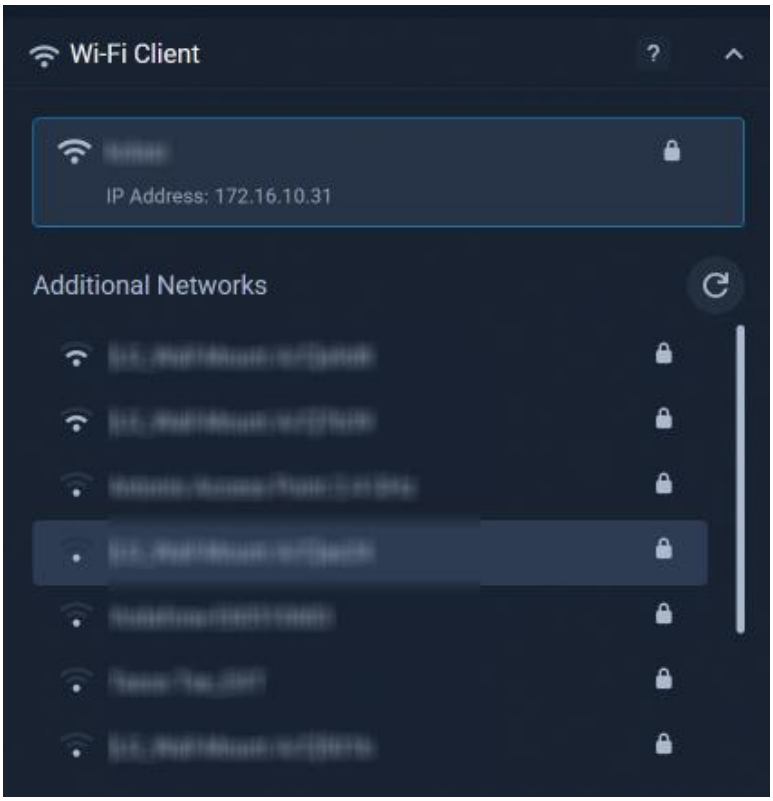
Wi-Fi Client Configuration

Apart from the Wi-Fi hotspot that is initiated during boot, you can connect the NYX-88 mount to a 2.4GHz * Wi-Fi network. Wi-Fi Access Point and Wi-Fi Client can work simultaneously.

* Please note that 5.0 GHz networks are not supported.

To do that:

- Locate **Wi-Fi Client**
- Click the **refresh** button to discover the wireless networks in your area. This discovery can take 5-10 seconds.

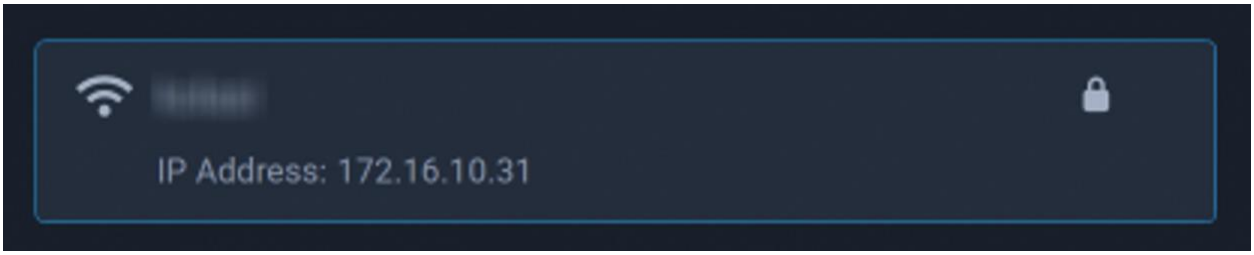


- Select your preferred network SSID from the list on the right and enter the network WPA/WPA2 password. Notice that in this list, you can also view the signal level quality of each discovered network.
  * If the SSID network is open (does not require a password) then just click **Connect**.
- Click **Connect** button to connect to the wireless network.

This Wi-Fi client setting is automatically stored in the mount's internal memory and retrieved during boot.

NYX-88 mount will keep trying to re-connect to the configured wireless network, even if the network is lost due to bad reception.

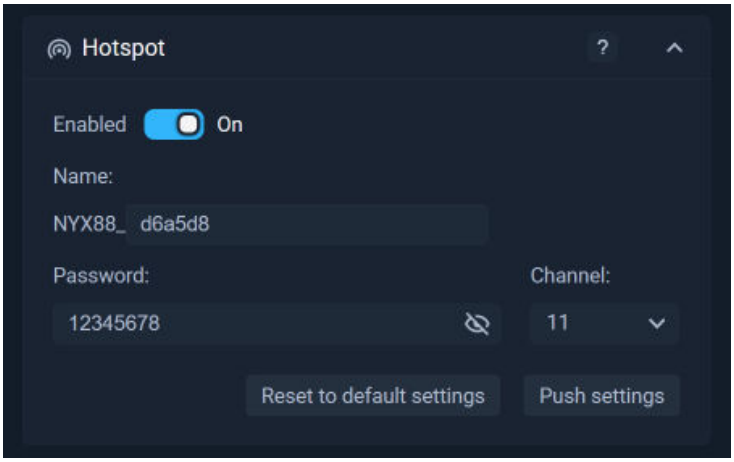
If the password is valid and the network is reachable (with a good signal), the NYX-88 mount will connect to the wireless network and report the assigned IP address (as shown in the screenshot example below)



Wi-Fi Hotspot Configuration

Wi-Fi Hotspot SSID name and password can be modified by the user. The name of the access point has always a prefix of "**NYX88_**" and allows up to 20 characters after that. Password can be up to 30 characters.

Type a new network SSID name and password and click "**Push settings"** button. Please note that the mount's wireless subsystem will reload to apply the access point configuration change.



- You can enable or disable the hotspot by sliding the enable button ON or OFF.
- You can change the hotspot channel if your area is fully crowded with Wi-Fi networks. **Channels 1, 6, and 11 [default] are the best channels for 2.4 GHz Wi-Fi.** These are the only channels in the 2.4 GHz frequency band that don't overlap with each other. You'll only want to consider using a different channel if each of these channels is overcrowded in your coverage area.
- Wi-Fi hotspot has been configured from the factory with a channel width of 20 MHz which improves reliability. 40 MHz Wireless-N is rarely optimal, as it will interfere with nearly the entire spectrum of Wireless-N channels.

CONSIDERATIONS ABOUT WI-FI CHANNELS TO IMPROVE NETWORK CONNECTION

- Wi-Fi is a line-of-sight radio technology, which means that it operates not by surrounding your device with a wireless signal, but by connecting directly to it, through whatever walls, subflooring, or other electronic devices are in its way. Each solid object between the antenna of your wireless access point (router/modem) and your computer will diminish the signal. Repositioning things by inches can make a world of difference.
- Sources of interference are not always obvious. Many times, you may be receiving interference from hidden wireless networks or even some electronics. Interference from electronics is more prevalent with the 2.4 GHz radio spectrum. If you are using a low channel width on a free channel and are still seeing wireless disconnects (even while near your wireless access point), then the issue could be something else occupying that spectrum. Try experimenting with other channels.
- In a crowded wireless landscape, wireless performance will often degrade and improve on its own, as other people use their Wi-Fi networks. Experimenting with channel settings can help here as well, since some of your competition may rarely use their Wi-Fi, while others are continually transferring data from many devices. If you live in an apartment complex, for example, and your neighbour has their router against a shared wall, sharing a wireless channel will not become a noticeable problem until they get home, connect with their smartphones, and start streaming to their television. However, at that point, your Wi-Fi may become completely unusable until you change the wireless channel.

RESET TO DEFAULT THE WI-FI CONFIGURATION

Click the “Reset to default settings” button to reset to default all Wi-Fi client and hotspot settings.

CHANNEL INFORMATION

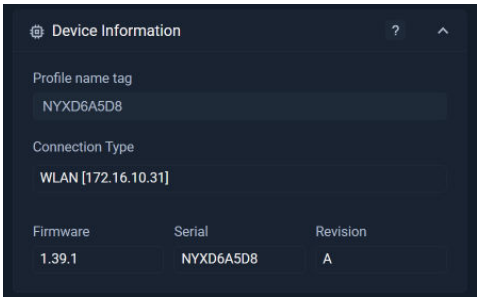
This section displays the **available and active channels** that Unity has discovered and utilized.

Unity Platform discovers and talks to the NYX-88 mount by using two different channels, simultaneously:

- USB (via USB cable)
- Wi-Fi (via the mount’s Wi-Fi Client connected to your network access point)

USB-ONLY CHANNEL USAGE

Communication with the mount happens only through a wired USB2 cable. The below screenshot (connection type) shows the condition where the mount communication happens with USB or WiFi channel.



USB AND WI-FI CHANNEL USAGE

Communication with the mount happens with the USB cable and Wi-Fi client. Notice that *Channel info displays two icons: a USB and a Wi-Fi.*



When mount is plugged with a USB cable and the Wi-Fi client is connected, the **preferred channel** is always the **wired USB** cable. Wi-Fi acts as a fallback channel.

In case the USB cable is disconnected, for any reason, Unity will instantly switch to the 'on-hold' Wi-Fi channel, **without service disruption**.

Wi-Fi channel configuration does not require an IP address setup. The mount automatically receives a network address from your local network (via DHCP) and continuously broadcasts its presence inside the network, so Unity Platform can discover it.

AXES CONFIGURATION

SLEW RATES

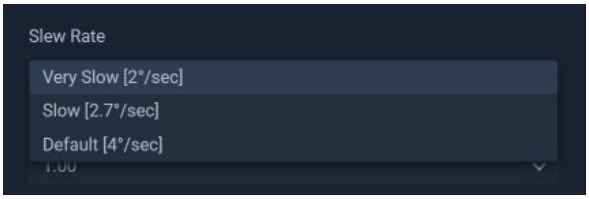


The slew rate is the maximum speed in degrees that both mount axes will accelerate and reach when slewing to a target. NYX-88 accepts three different slew rates through the Unity Platform.

The selected slew rate is stored in the mount's internal memory and retrieved on boot.

Any motor axis movement cannot exceed the applied slew rate. This is also applicable to the keypad buttons.

Available **slew rates** (three pre-sets) are shown below:



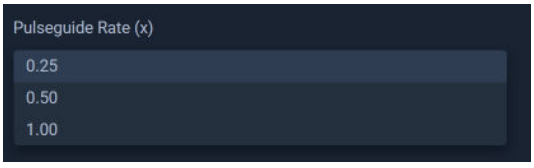
By factory default, the applied slew rate is 4.0 degrees per second to both mount axes: right ascension and declination.

When there is a heavy payload on the mount (imaging or visual telescope set up close to the mount's weight payload limits), it is recommended to lower the slew rate so motors can output a higher torque.

It is not a very wise choice to move a heavy payload on a counterweight-less mount, meaning that the tripod can tip over by the momentum of the fast-slewing speed.

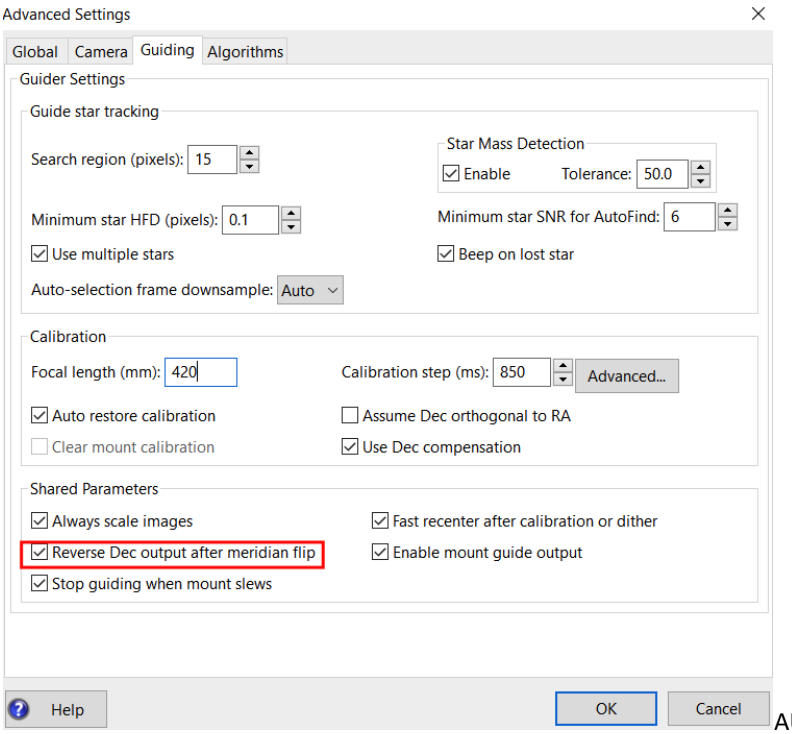
PULSE GUIDE RATES

ASCOM pulse-guide or hardware ST4 port pulse-guide can be configured from this menu. Select x0.25, x0.50 or x1.00 rate. We recommend the factory default x0.50 pulse-guide rate setting for ASCOM pulse guiding (such as with PHD2).



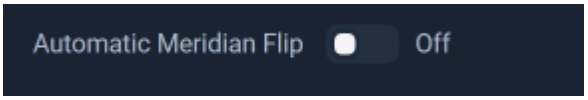
The selected pulse-guide rate is stored in the mount's internal memory and retrieved on boot.

If you use PHD2 for autoguiding make sure to click the "**Reverse DEC output after meridian flip**" in the advanced settings of PHD2.



AUTOMATIC MERIDIAN FLIP

This option initiates an automatic meridian flip when your mount reaches the meridian configured limit. E.g., as your mount tracks the sky, when it reaches the meridian limit, it will automatically slew to the opposite side of the pier.



Automatic Meridian <u>does not work</u> when a **negative meridian time limit** has been configured to NYX-88. (e.g., -10 minutes)

Automated meridian flip setting is stored in the mount's internal memory and retrieved on boot.

Pay extra attention that an automatic meridian flip will not cause a collision of your telescope to any stationary object or cause a cable snag as your telescope change pier side.

Automatic meridian flip does not communicate with your imaging software. By the time your mount reaches the meridian limit, it will start slewing both axes to the opposite way in order to perform the meridian flip. This could be an issue if you have set your imaging sequence and your camera exposes photos.

For a more sophisticated and controllable method of the meridian flip, it is strongly advised to disable the "**Automatic Meridian Flip** "function in Unity Platform and use your imaging software (E.g. N.I.N.A.) to control the meridian flip.

N.I.N.A or any other modern imaging software can calculate the meridian limit time and automatically perform the flip. Please note that the Meridian limit **at the NYX-88** settings should be set, for example, to +5-10 minutes. This allows any software to perform the flip without any hard meridian limit hit.

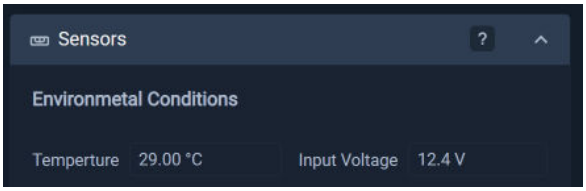
NINA Meridian flip settings (NINA > options > imaging) can be seen below:



ENVIRONMENTAL CONDITIONS

NYX-88 mount integrates a set of sensors that report:

- Mount Temperature (in °C or °F).
- Input Voltage (in Volts).



*Units, imperial or metric are switchable from Unity Platform (Preferences -> Personalisation -> Units)

ELECTRONIC LEVELLER

The NYX-88 mount includes a built-in electronic leveler that displays the mount's pitch (altitude) and roll angles in degrees. The leveler also indicates where the Polar Star should appear relative to the mount axis.

For a quick polar alignment, use the mount's ALT/AZ adjustment knobs to position Polaris inside the white circle shown on the display.

In Equatorial Mode, the leveler can be used to set the mount altitude (pitch) and quickly locate the North or South Celestial Pole (NCP/SCP). For proper setup, adjust the mount altitude so that the pitch angle matches your observing site's latitude.



In Alt-Azimuth Mode, the leveler displays the tripod's tilt across both axes, allowing precise leveling. Adjust the tripod until both pitch and roll readings are as close to 0° as possible.

MOUNT LIMITS

Here you can set the following limits for the mount:

- Elevation Limits
  - Horizon Limit is the minimum elevation in degrees of the mount relative to the horizon.
  - Overhead Limit is the highest elevation in degrees above the horizon that the telescope will slew.
- Meridian Limits
  - Pre-meridian or past meridian in minutes.
- Custom Limits
  - You can define custom East and West Right Ascension (RA) axis limits to prevent the telescope or mount from colliding with the tripod or nearby obstacles.
  - To set a limit, manually move the RA axis to the desired position and press the Set button.
  - To remove previously stored limits, press the Clear button.

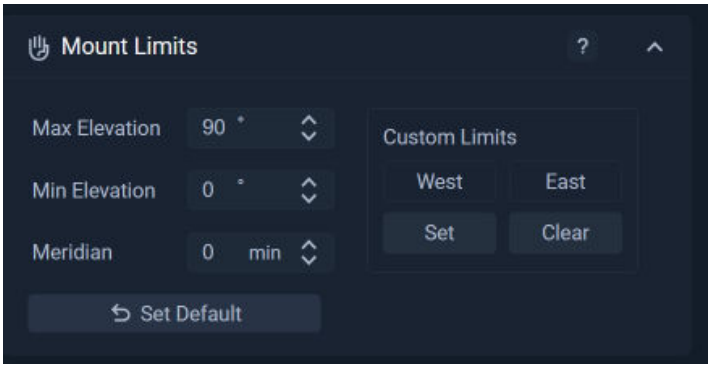
To remove previously stored limits, press the Clear button. The Elevation Limit slider can be set in two positions.

- The lower that corresponds to the lower horizon limit that the mount can slew. You can set a low slider position from 0° to -30°.
- The higher that shows the overhead (maximum altitude) that the mount can slew. You can set a high slider position from 60° to 90°.

The Meridian Limit access positions from -120 to 120 minutes, pre or past meridian. Move the slider up or down to set the meridian limit.

Note that manual slews, GoTos and tracking operations are affected by the meridian limit and when reaching there, the mount will stop any motor movement.

Limit settings take immediate effect, are stored in the mount's internal memory and are retrieved on boot.



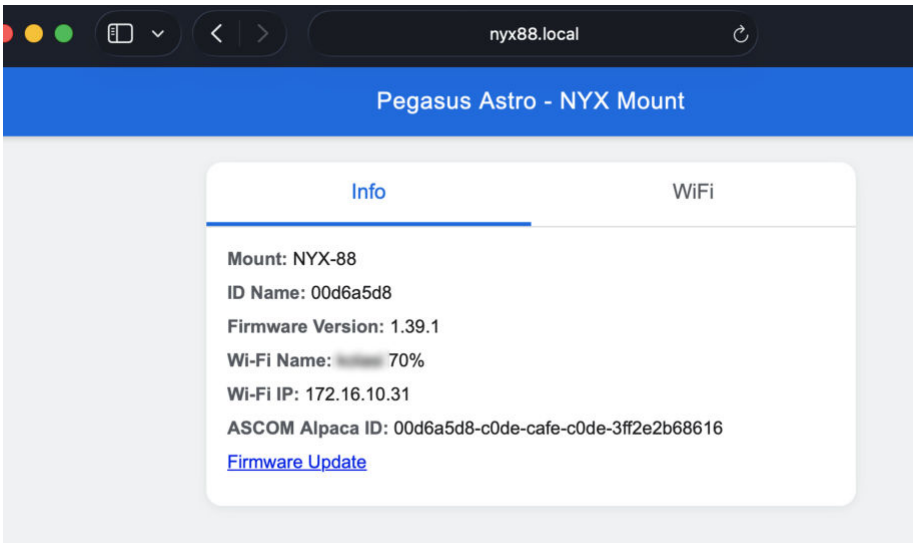
When you hit a limit, the Unity Platform health status dashboard will display the limit type.

WEB DASHBOARD

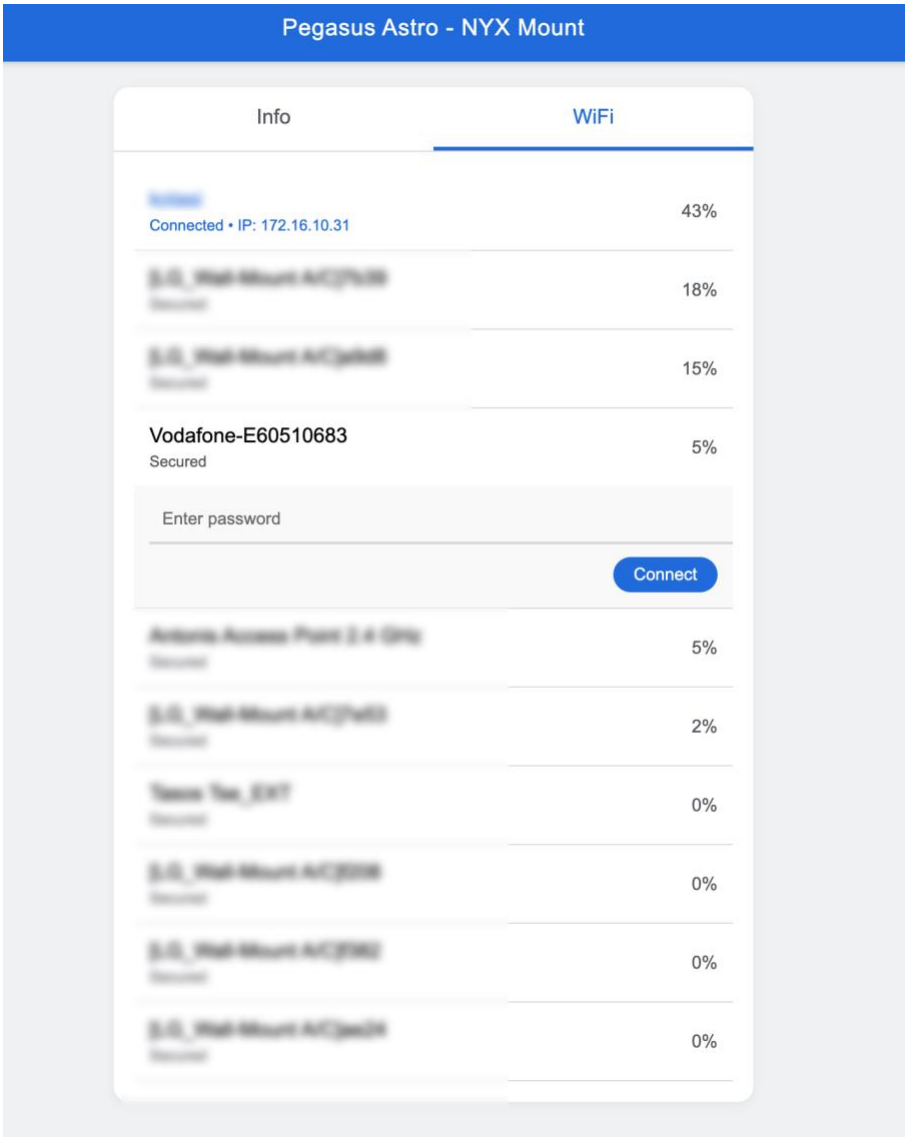
When the mount is connected to your local network or when your device is connected directly to the mount's Wi-Fi hotspot, you can access the NYX-88 dashboard using any web browser.

Browse: http://nyx88.local

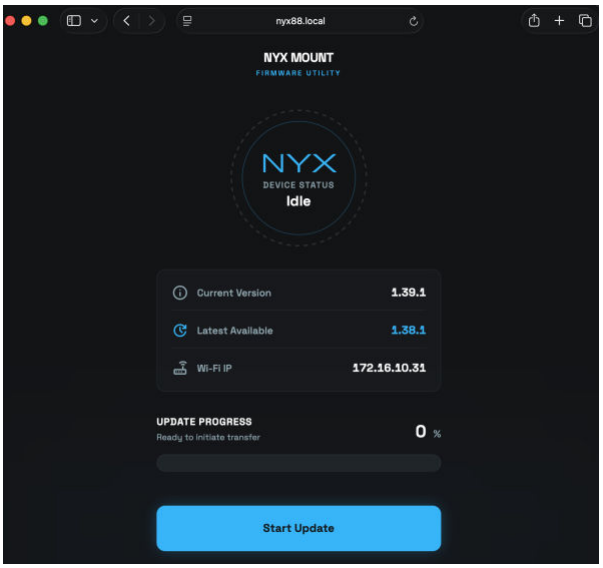
The dashboard provides useful system information, including the mount serial number and Wi-Fi connection status. It also allows you to easily connect mount to preferred Wi-Fi network and perform firmware updates directly from the browser interface.



Wi-Fi tab allows you to connect NYX mount to any discovered Wi-Fi networks in your area.



Select Firmware Update to update your mount to the latest available firmware version. The firmware is automatically downloaded from the internet and installed onto the mount. The update process is simple, reliable, and designed to be safe.



POLAR ALIGNMENT

A precise polar alignment can provide you with many benefits when it comes to astrophotography, including better auto-guiding accuracy. This means that you'll be able to capture longer exposures without the worry of tracking errors.

Modern imaging software like SharpCap or N.I.N.A. can help you align the RA axis of your telescope mount with the NCP by comparing images. This works by taking an image plate solving then rotating along the RA taking another and plate solving then rotating some more and taking a third and plate solving. After three images it knows your error and goes into a plate-solving loop and gives you azimuth and altitude adjustments

Process of polar alignment

- Level the tripod: Make sure that the tripod of your telescope mount is as level as possible. An uneven tripod will result in an inaccurate position of your mount in relation to the altitude scale. the tripod needs to be pointing North before leveling. Otherwise, you'll have to rotate the tripod and possibly re-level.
- Knowing your latitude, adjust the position of the telescope mount to align with the North celestial pole. The NYX-88 mount has a latitude scale with an indicator of what latitude your mount is currently in line with. You can also consult the NYX-88 electronic leveler to verify and adjust the altitude (pitch) of the mount.
- Adjust the azimuth. Use the azimuth adjustment knobs for moving the mount left to right. You have to loosen one, tighten the other. Turn the knobs a few times while looking through your live image of the electronic polar scope. Polaris should have moved to either the left or the right. Continue this balancing act until the Polaris appears in the approximate horizontal plane that was displayed in the PolarScope.

A couple of useful links for more information:

https://astrobackyard.com/polar-alignment-in-sharpcap/

https://astrobackyard.com/polar-alignment/

https://www.youtube.com/watch?v=JI1tzoBhkH8



A polar alignment within one arc minute of the pole is usually considered to be excellent and good enough for long-exposure imaging.

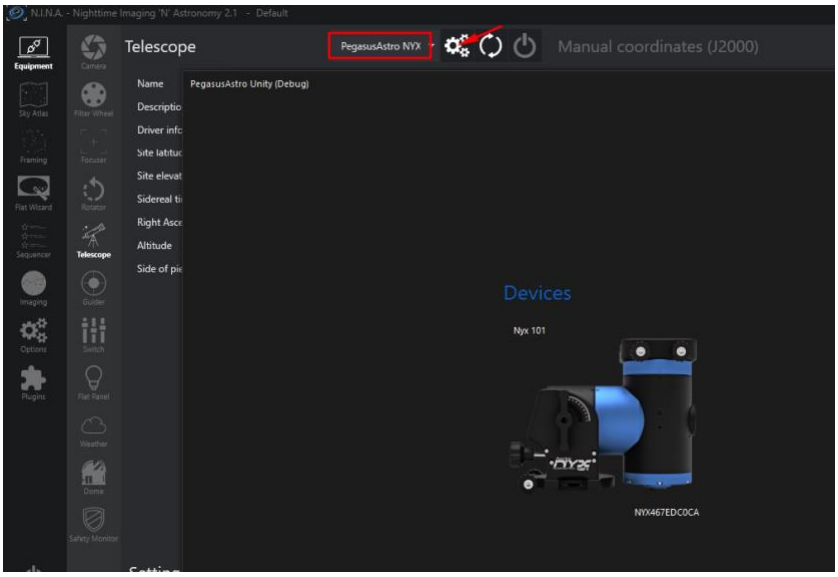
If you are experiencing tracking issues or severe star-trailing in your images, it may be useful to re-check your Polar alignment.

ASCOM SOFTWARE

Our ASCOM 7 driver supports multiple clients and pulse-guiding commands. The ASCOM driver is installed automatically during Unity Platform installation. If you encounter any issues, please make sure you always have the latest ASCOM release installed -> https://ascom-standards.org/

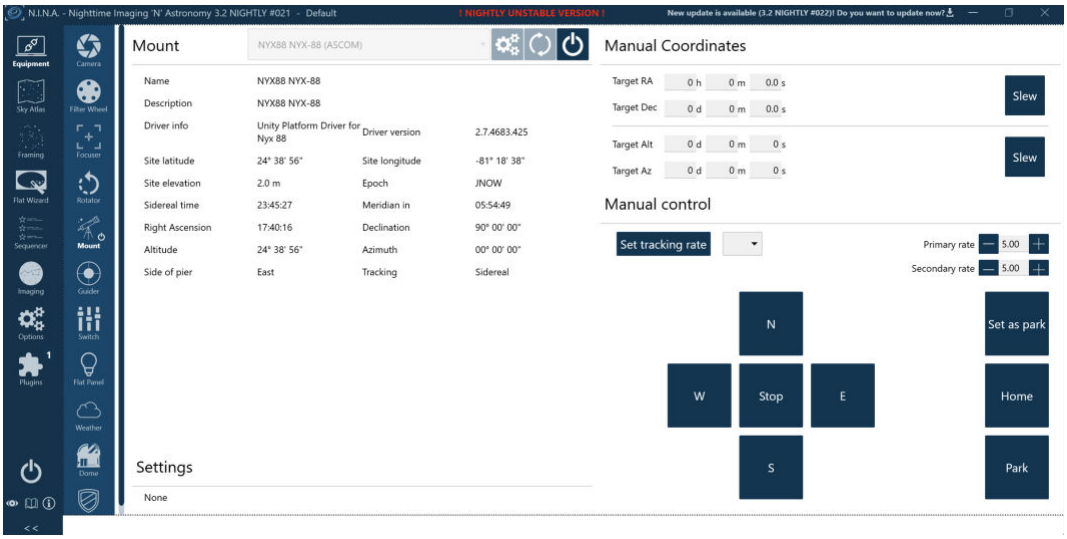
Use any ASCOM-compatible software to control the mount. We use the “Nighttime Imaging 'N' Astronomy” software in this example.

Click ASCOM Telescope settings and select the discovered NYX-88 mount.



Connect to the ASCOM driver.

All mount information and standard operations such as keypad control, target slewing / GoTo, target sync and all supported ASCOM methods are available through the driver.



SKY SAFARI (LX200)

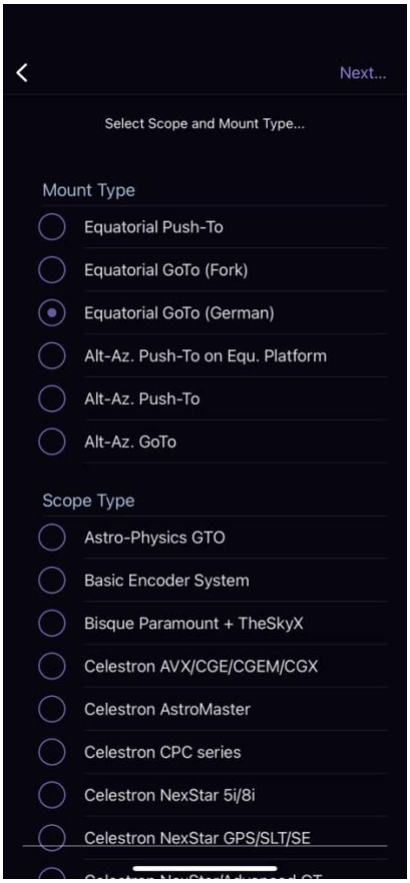
NYX-88 mount can communicate with any software that supports the basic LX200 command set.

Make sure that you have first connected the NYX-88 with Unity mobile software in order to push coordinates and current datetime to mount.

In the below example, we use the *Sky Safari Plus 7*. *(You need the Plus or Pro version to have the telescope connect functionality).* To do that:

- Open Sky Safari Plus 7
- Go to **Settings -> Telescope -> Presets**
- Select **Add Preset -> Other**

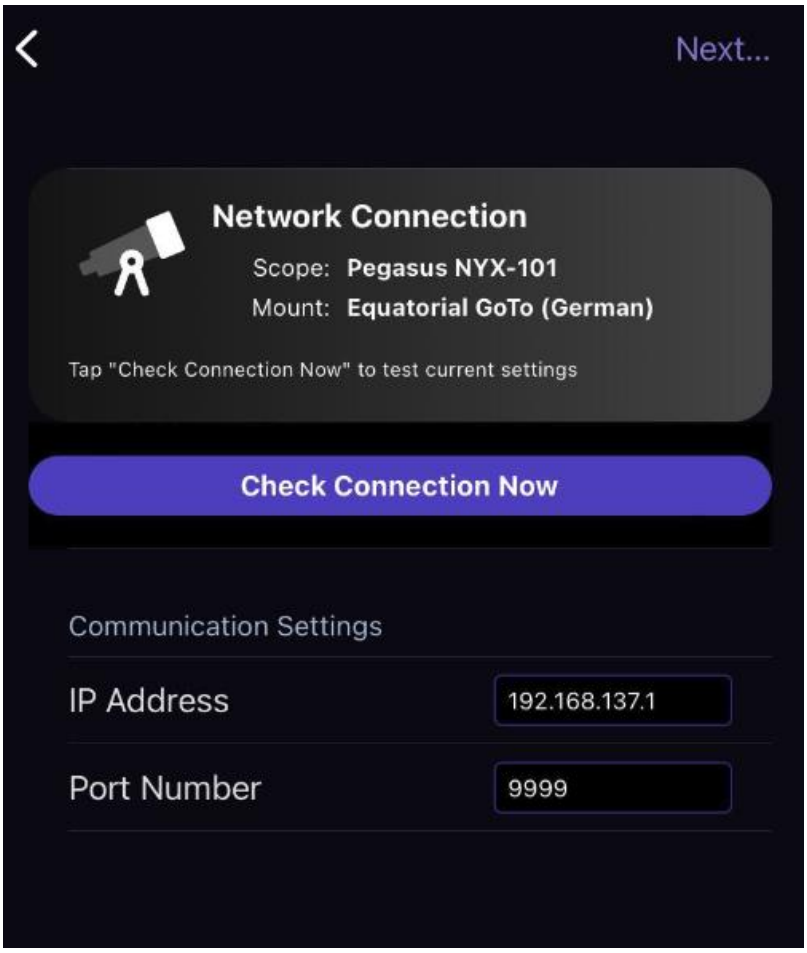
You have to select the **Equatorial Goto (German)** or **Alt-Az. GoTo**



From the **Scope Type** list, choose **Pegasus NYX-88.** Any Meade driver should work as it uses the same basic LX200 commands as NYX-88 does.

Press Next…

On the screen below you need to type the:



- wireless IP Address that your mount has acquired, or
- fixed IP: **192.168.137.1** that the NYX-88 Wi-Fi hotspot always uses.

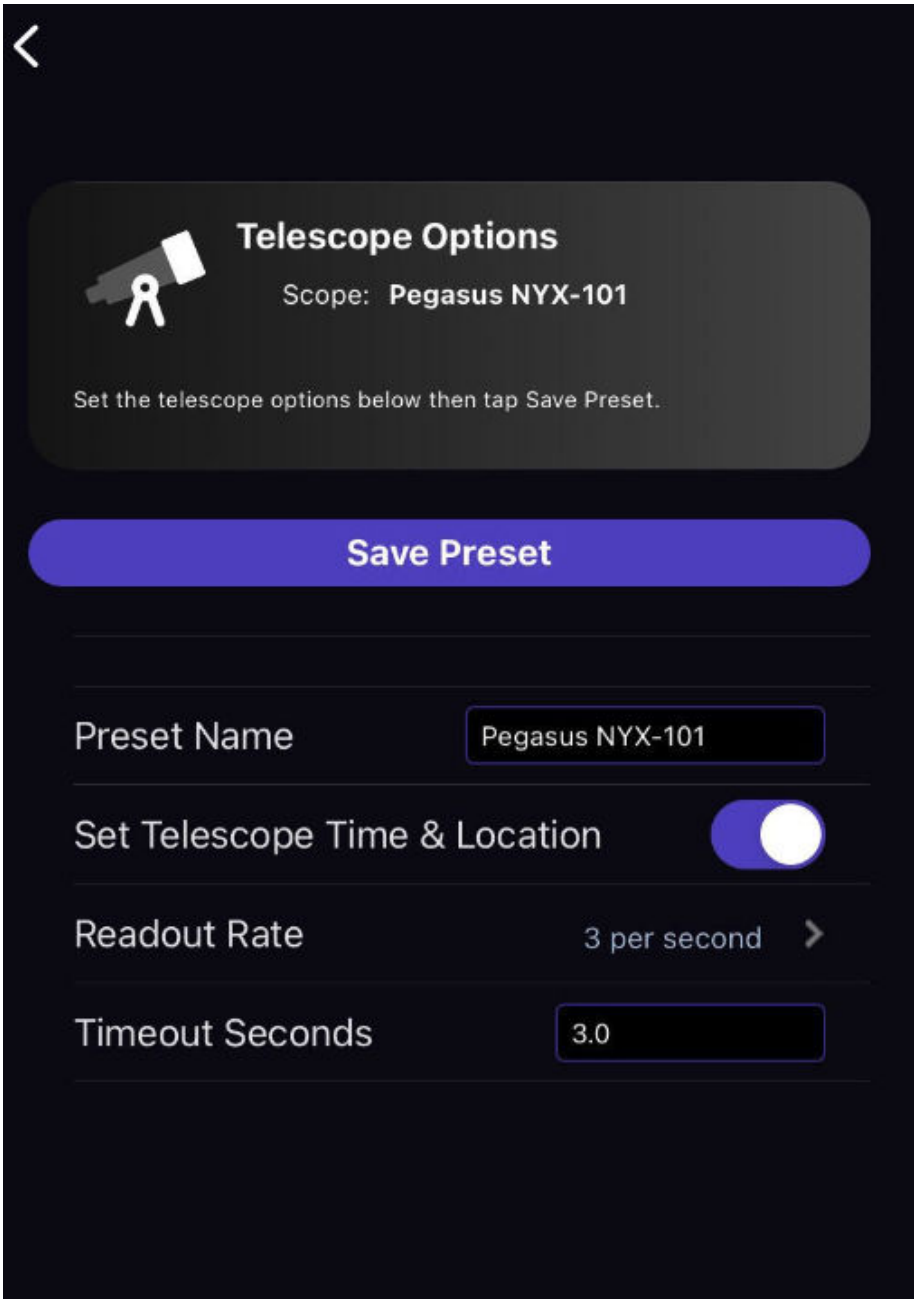
  To use the fixed IP, please ensure that your mobile device is connected to the NYX_xxxxxxx wireless network.

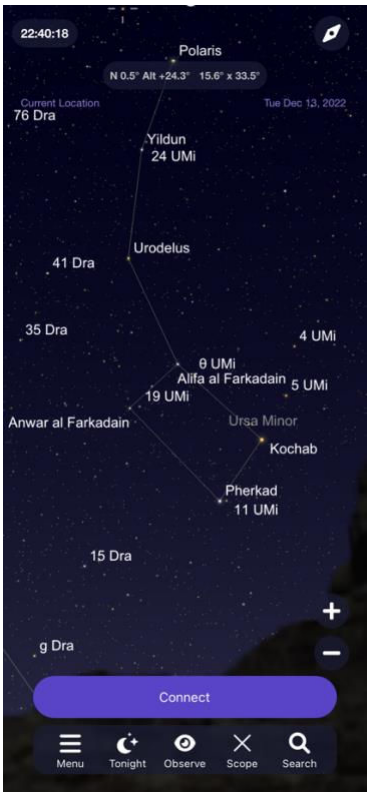
- Keep the Port Number as is (9999).

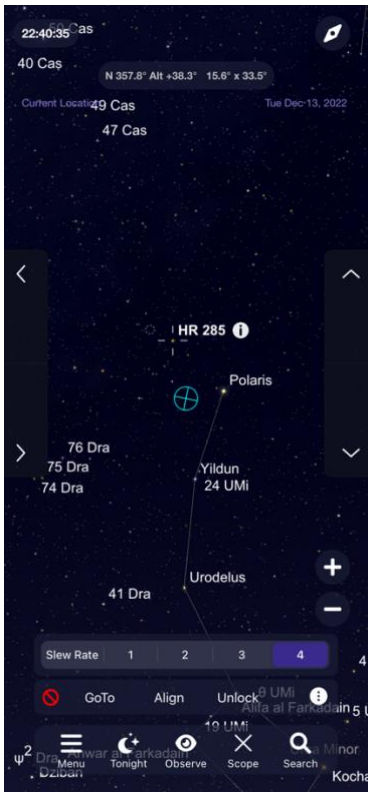
- To verify that your communication with NYX-88 is successful, press "**Check Connection Now**".
- On success, you will see the message "Connection verified"

Press **Next..**

- Enter a Preset Name (You can keep the Pegasus NYX-88)
- **Tick** the "Set Telescope Time & Location". **This is important as the mount needs time and location to calculate limits and unlock its brake.**
- Press **Save Preset.**
- Exit Settings.







As you are at the main sky view, select the **Scope** icon and Press **Connect** button.

The application will communicate with NYX-88 and available controls will be visible.

From there, you can select Slew Rates, Move with arrow keys, GoTo, or Sync to targets.

ASCOM ALPACA

The NYX-88 mount is fully compatible with any software that supports **ASCOM Alpaca**.

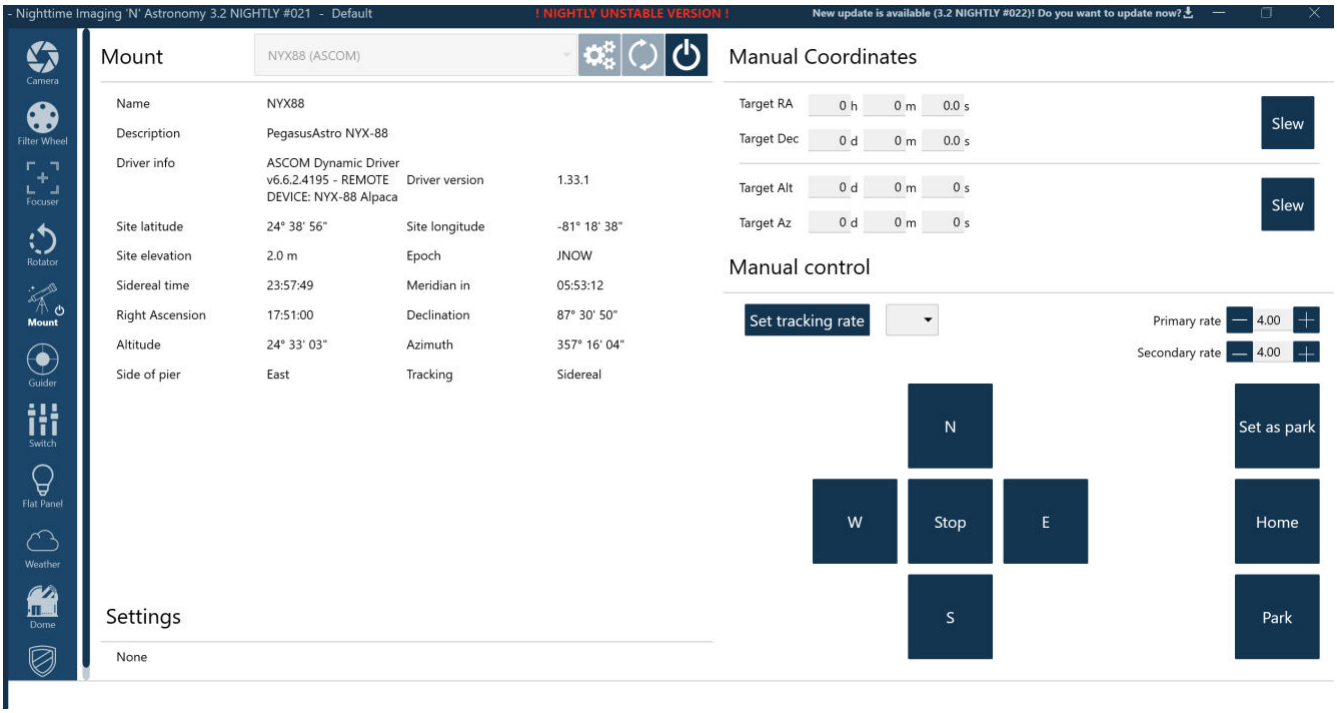
To establish communication, ensure the mount is connected to your Wi-Fi network as a client or directly access it through the mount's hotspot.

In below examples we are going to connect mount with ASCOM Alpaca with:

- N.I.N.A.
- SkySafari

USE ALPACA WITH N.I.N.A.

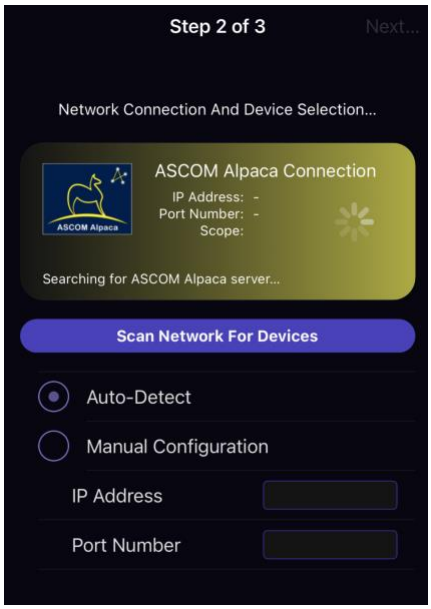
Select discovered NYX88 (via Alpaca) from NINA's Mount list and just press Connect button.



USE ALPACA WITH SKYSAFARI

- Open Sky Safari (Plus or Pro)
- Go to **Settings -> Telescope -> Presets**
- Select **Add Preset -> ASCOM Alpaca**
- Select **Auto Detect and Click -> Scan Netwotk For Devices**





NYX88 will be quickly discovered and selected. Press **Next…**

Remember to enable -> Set Telescope Time and Location. Save Preset and you are ready to go!

