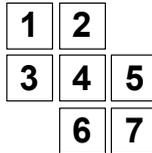
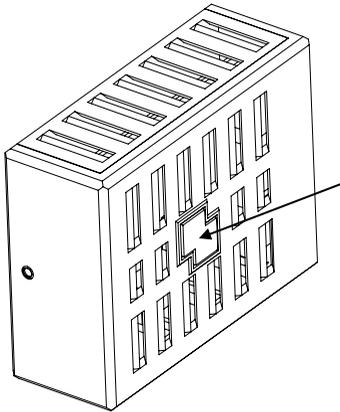
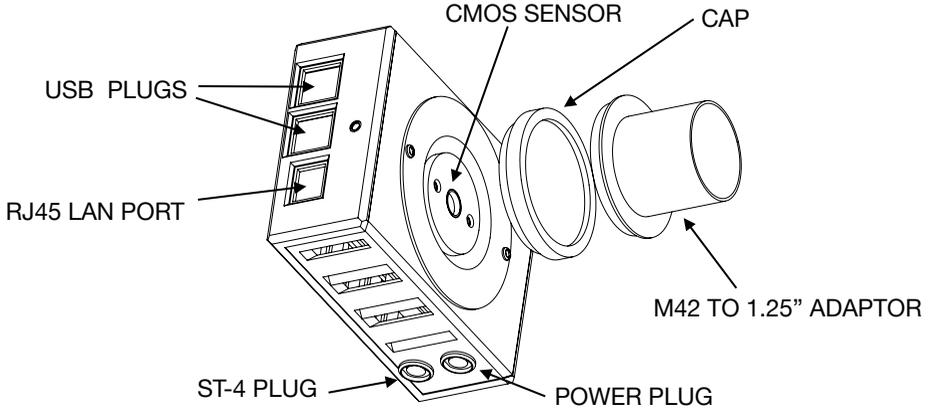


AstroMuch operating manual

一、AstroMuch contents

1. AstroMuch main part



- LED INDICATOR
1. CMOS ACTING
 2. RA+ ACTING
 3. DEC- ACTING
 4. POWER ON
 5. DEC+ ACTING
 6. RA- ACTING
 7. DSLR ACTING

2. USB power cable: USB 5V M9 2-pins aero-connector.
3. ST-4 cable: 5-pins aero-connector to ST-4 cable.
4. Air tight box

II. Operating requirements

1. Mobile or tablet device with GPS and Wi-Fi connection.
2. Devices above run HTML5 standard web browser.
3. 5V USB power supply and more than 2A current.
4. For equatorial mount GOTO function, USB to RS232 cable or USB to LAN port cable is needed.
5. DSLR camera USB connection cables.
6. USB flash disk named “ASTROMUCH”, at least 32GB capacity, formatted in FAT32 format, for the management of astrophotos

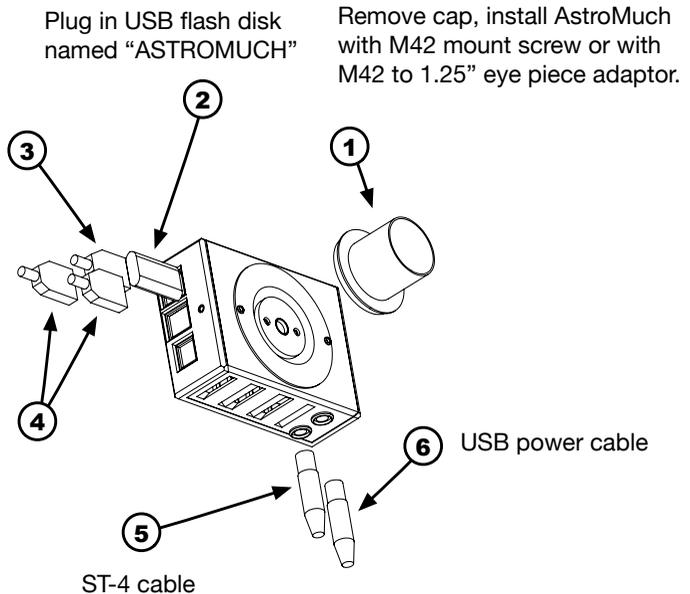
III. Installation

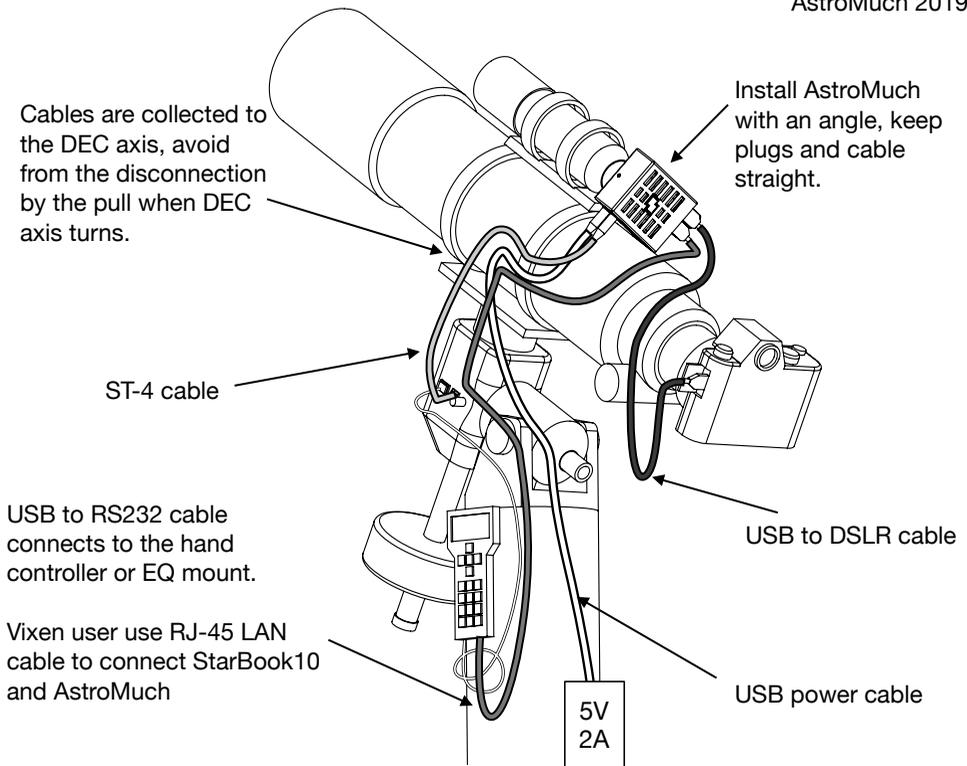
Suggest you install AstroMUCH by the steps below.

USB to RS232 cable linked to supported EQ mount.

Vixen StarBook10 can use RJ-45 LAN cable to control GOTO.

USB cable to DSLR cables. AstroMUCH can control more than one DSLR cameras. If you want to control more than two DSLRs, you can install USB HUB to connect more than two DSLRs.





IV. Software operating

1. Connect to AstroMuch

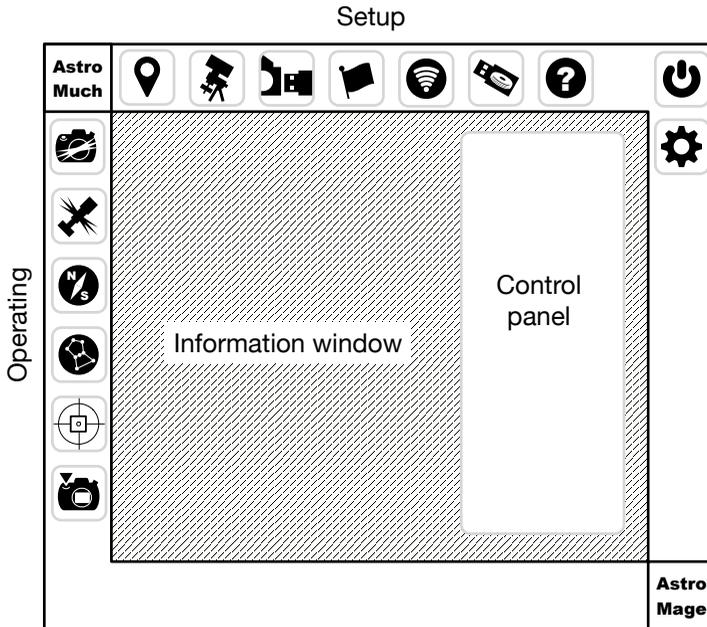
Plug in power cable, wait for up to 30 seconds, the 1, 4, 7 LEDs on the back will lit up while available. You can scan a Wi-Fi hotspot named “AstroMuch-xxx”, default connecting password is “am168888” (xxx is the serial number of your AstroMuch).

AstroMuch has two control pages :

- **AstroMuch** operating on shooting → <https://10.1.1.1>
- **AstroMage** photo database browsing → <http://10.1.1.1>

※ Please allow every question about security while browse to an encrypted webpage in HTTPS protocol. Rename Wi-Fi SSID to other than “AstroMuch-xxx” and the connecting password to number and alphanat mixed one.

2. Interface



Setup:

- | | | | |
|---|---------------|---|------------------|
|  | GPS & Time |  | Connection |
|  | Mount & Gears |  | Storage & update |
|  | DSLR setup |  | Help |
|  | Languages |  | Shutdown |

Operating:



DSLR focusing



NightMap



Guider focusing



Auto guiding



Pole alignment



DSLR scheduling

3. Quick work flow

A. First time connect to AstroMuch



Connection

The SSID and the passphrase should be changed to other settings that AstroMuch can be fully operated.

B. For auto guiding only



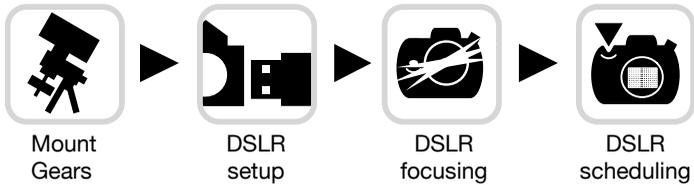
Guider
focusing



Autoguide

Focusing the guider and do the auto guiding.

B. For DSLR sequence exposure control only



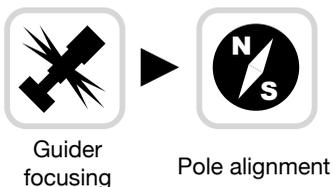
Setup Gears information and DSLR, then focusing the DSLR and scheduling the exposure sequences.

C. For Equatorial mount control only



Send GPS and Time from you mobile device to AstroMuch, pick up object and goto from NightMap.

D. For pole alignment only



Focusing the guider and do the pole alignment

E. Full session

- | | | |
|-----------------|---|---|
| 1 |  | <ul style="list-style-type: none"> • Send GPS and time to AstroMuch • Save GPS to the location pool |
| GPS & Time | | |
| 2 |  | <ul style="list-style-type: none"> • Choose the supported mount from the menu • Send GPS and Time to your mount • Add telescopes to the data pool for paring to DSLR |
| Mount & Gears | | |
| 3 |  | <ul style="list-style-type: none"> • AstroMuch can control many DSLRs at once • Find the USB connected DSLRs • Pair the telescope to DSLR and get the FOV |
| DSLR setup | | |
| 4 |  | <ul style="list-style-type: none"> • Live view streamed from DSLR to your mobile device • Put the bright star in the center square • Use focusing bar to find the minimal FWHM • Also alignment your mount to one star • Test focus shot image can be put to plate solving for mount alignment |
| DSLR focusing | | |
| 5 |  | <ul style="list-style-type: none"> • Pointing the star and pick up the star for focusing • Use focusing bar to find the minimal FWHM • AstroMuch can guide on defocused star image, but accurate focus will see more stars) |
| Guider focusing | | |
| 6 |  | <ul style="list-style-type: none"> • Goto the median equator and find a star to detect the azimuth pole alignment error • Goto the horizon eqator and find a star to detect the altitude pole alignment error |
| Pole alignment | | |

7



NightMap

- Pick or search object from the NightMap
- Test shot image to view the pointing accuracy, and the image can be put to plate solving for the mount alignment
- Test shot image is moving while slewing the mount for a better composition

8



Auto guiding

- Three resolutions and FOVs
Middle/Wide is 1600x1200 in 2.3 μ m/pixel
High/Narrow is 1600x1200 in 1.12 μ m/pixel
Full is 3200x2400 in 1.12 μ m/pixel
- Default resolution is High/Narrow, it is very robust, you can use this option all the time
- Pick a star, calibrate the movement
- Auto guiding start automatically while the calibration is done
- Two correction modes
Soft correction is good for all the mounts.
Intense correction is for just in case you find each correction is not enough to move back to the right position.
- Aggressive in percentage are default in 70%

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DSLR scheduling

- Multiple DSLRs can be scheduled in different ISO, while the shutter speed should be the same for dithering together
- Auto dithering between frames, dithering counts 10 times star-in-place, than go on to the next frame
- Also can schedule dark frames

FOR THE DETAIL OPERATING, PLEASE PRESS “HELP” TO SEE MORE INSTRUCTION ON THE FLY.

4. Specification

Installation	<ul style="list-style-type: none"> • M42 x 0.75 • 1.25" to M42 adapter
Guider CMOS	<ul style="list-style-type: none"> • 3200 x 2400 pixels • 1.12 μm/pixel
Operating Voltage	• 5V/2A
Operating environment	<ul style="list-style-type: none"> • Temperature between -40°C ~ 50°C • RH < 95%
Dimention	
Weight 360g	

5. Warranty

One year hardware warranty.
Software life time updatable.

6. Contact information

Inventor

Yabu Gaillé

teachbio@me.com

<https://www.facebook.com/piggybio>

<https://www.facebook.com/astromuch>

+886-972-345602