

CRUX equatorial mount Introduction

HOBYM observatory

JUN. 2018



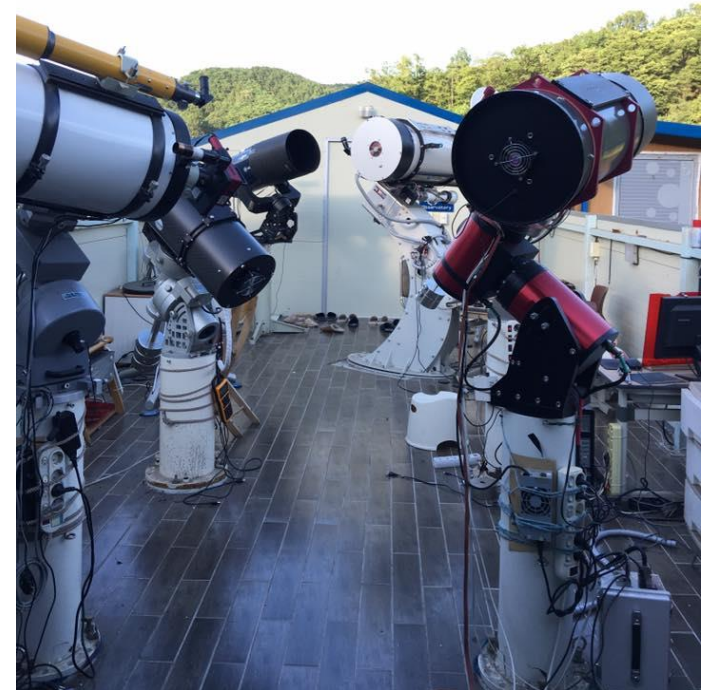
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Company Information

Hobym observatory

- It was found at 2009 as a personal observatory in Chung-nam, S.Korea
- Currenty we are use the observatory not only for star gazing but for LAB, test field, demonstration and manufacturing facility.
- We startet our business about an year ago but successfully launched our CRUX mount to Europe and Japan market



Company Founder

- **Hobym observatory founder, Mr. In-Jun Hwang, has long experience in amateur astronomy and he started to design his own mount and telescope scene 2009.**
- **He is the one of the most famous astro-photographer in South Korean and published many books about astrophotography.**
- **His 30years field experience inspired him to make our CRUX mount to solve many problems which he met on the conventional equatorial mounts**



Overseas partners

Europe

- TechnoSky (Italy) <http://shop.tecnosky.it/>
- Astromist (France) <http://astromist.com/>
- Astrograph (UK) <http://astrograph.net/>

Japan

- TOMITA - <http://www.y-tomita.co.jp/>

Hongkong

- Sun east technology -
<http://www.tan14.com.hk/suneast/>

Product Information

Line up

- **Currently we have 4 models which use harmonic gear**
- **Each model have different size, weight and payload but commonly applied our technology to satisfy astro photographers**



CRUX 200



CRUX 320



CRUX 170



CRUX mini

Common features - Harmonic gear

- Crux mounts feature Harmonic Drive Technology. This technology gives Crux mounts the following advantages over traditional drive systems for astronomy applications
- They have zero backlash and therefore makes pointing and guiding extremely accurate.
- They have very high torque. This makes it ideal your use with all loads. For instance the length of a refractor normally requires a much more powerful mount than a typical weight capacity suggests. The load limits for Crux mounts are for all types of telescopes and also for imaging

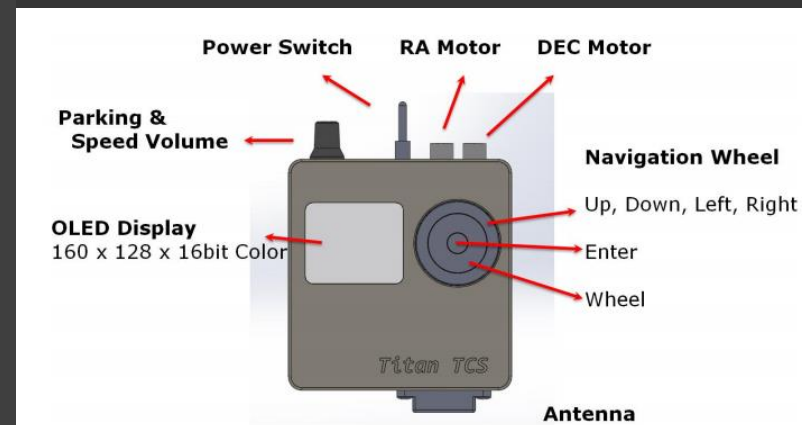


Common features - Harmonic gear

- Harmonic Drive motors are very responsive and therefore react instantly to guiding commands. When combined with the zero backlash this allows for extremely accurate tracking. There is none of the high frequency oscillation normally associated with traditional drive systems.
- The high torque of the motor permits use without a counterweight, further reducing the overall weight. If a counterweight is added, the load capacity can be increased significantly. Note that this counterweight is not used to balance the telescope in the normal way. It is simply helping the drive system and making the load safer.

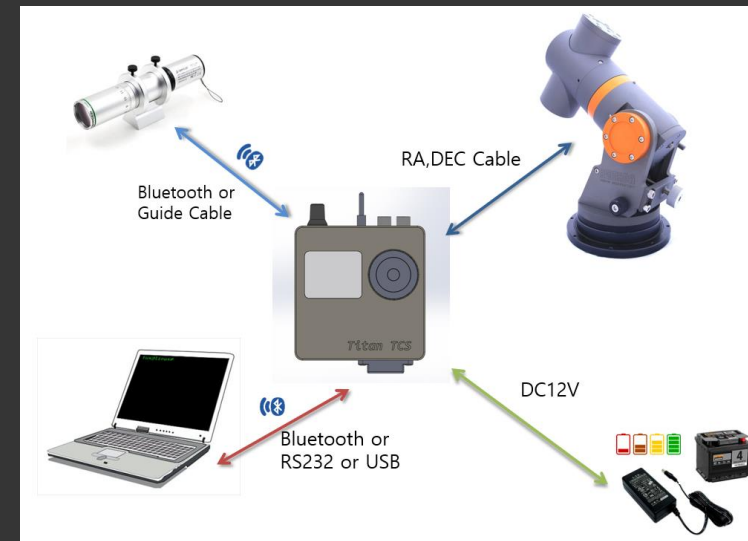
Common features - controller

- Supplied with all Crux Mounts is the Titan TCS Controller. This provides GOTO functionality (12000+ object database) and all other mount control and connectivity.
- It is based on the LX200 protocol and is therefore fully ASCOM and INDI compliant.
- It also features wireless connectivity in the form of Bluetooth, with WiFi being added shortly. Thus it allows easy integration with Tablet applications such as Sky Safari.



Common features - controller

- One significant function of the Crux mount and TCS Controller is PEC training. This is where, using a guide system (like PHD2), the drive system is trained. This, once completed permanently (unless reset by the user) lowers the PE of the mount to typically $\pm 2\text{-}5$ arc seconds dependent on the mount.
- This enhanced error can then be combined with guiding leading to extremely low PE of typically 0.1 arc sec.



CRUX-mini

- Are you looking for a mount with light weight, higher payload? CRUX mini will be the answer.
- It is only 2.5kg(5.5lb) but you can load 4kg(6.6lb without balance weight) to 8kg(20lb : with balance weight) on the mount
- You can attach 4" refractor, 6" Newtonian or RC on CRUX mini



CRUX 170HD

- Crux 170HD is our 1st product
- It has 18kg(40lb : with balance weight) of payload but weight is only 4.7kg(10lb)
- Because of it's light weight and high payload, you can bring the mount everywhere and with your 5" refractor or 8" Newtonian or RC with cooled CCD camera



CRUX 200HD

- The Crux 200HD is a true observatory class mount system but one which is also portable.
- It weighs only 11.5kg yet can be used with telescope systems up to 40kg
- Without any counterweight the mount has a load capacity of 18kg. By adding a 5.0kg counterweight, the maximum capacity is increased to 35kg. If a 15.0kg weight is added, the capacity increases further to 40kg.



CRUX 320HD

- The CRUX 320HD is working horse for your observatory but it is portable also.
- It weighs only 23kg yet can be used with telescope systems up to 60kg.(without counter weight : 25kg)
- It is possible to customize the length of RA axis depends on your optical tube.



Sample images



CRUX 170HD



CRUX 200HD

Your benefits

Benefits

- **Exclusive sales partner in US.**
 - We are looking for a exclusive sale partner who are passionate, experienced and have a good reputation in U.S. market
 - You can sell CRUX products exclusively and you can make partners in U.S. market and supply them.
 - You can setup Sales price by yourself.
 - No need to guarantee about sales quantity.
 - No need to get stocks but if you want, you can keep.

Our requests

Requests

- **Marketing activity**
 - Bring CRUX products to national wide star party or astro-equipment show more than twice a year and present it to end users, medias and so on.
 - Expose CRUXs to main banner of your website and Youtube channel if possible.

Requests

- **Provide repair service to customers if they need.**
 - Every Crux products have very high durability but accidentally, customer can break sometimes.
 - All CRUX product's mechanical parts and electronical parts are separated so it is very easy to repair.

Appendix

CRUX mini specification

CRUX mini	ITEMS	SPEC.
General	TYPE	German equatorial mount
	Weight(without counter weight)	2.5kg
	Optional counter weight	2.7kg
	Payload	4.0kg
	Payload (with counter weight)	8.0kg
	Operating voltage	12V DC
Mount	Dimension	230mm x 105mm x 90mm
	Backlash	0
	Periodic motion	+ 20", with PEC +5"
	High speed mode	2000x sidereal rate (12V DC)
		Computerized GOTO
	Optional parts	Weight shaft
		Laser pointer adaptor
		2.7kg counter weight
Telescope Control system	Dimension	83mm x 87mm x 36mm
	CPU	ARM Cortex M4F
		120Mhz operation, 150DMIPS
		1024KB Flash memory (SRAM)
	Communication protocol	Meade LX 200 compatible
	PEC Function	Available
	Object database	More than 12,000 objects
	OLED display	1.69", 160x128 pixels
	Wireless control	Bluetooth
	Ports	RS232, USB, Autoguider

CRUX 170HD specification

CRUX mini	ITEMS	SPEC.
General	TYPE	German equatorial mount
	Weight(without counter weight)	4.7kg
	Optional counter weight	2.7kg
	Payload	10.0kg
	Payload (with counter weight)	18.0kg
	Operating voltage	12V DC
Mount	Backlash	0
	Periodic motion	+ - 20"
	High speed mode	1000x sidereal rate (12V DC)
		Computerized GOTO
	Optional parts	Weight shaft
		2.7kg counter weight
Telescope Control system	Dimension	83mm x 87mm x 36mm
	CPU	ARM Cortex M4F
		120Mhz operation, 150DMIPS
		1024KB Flash memory (SRAM)
	Communication protocol	Meade LX 200 compatible
	PEC Function	Periodic motion control under + - 2"
	Object database	More than 12,000 objects
	OLED display	1.69", 160x128 pixels
	Wireless control	Bluetooth
	Ports	RS232, USB, Autoguider

CRUX 200HD specification

CRUX mini	ITEMS	SPEC.
General	TYPE	German equatorial mount
	Weight(without counter weight)	13.0kg
	Payload	18.0kg
	Payload (with counter weight)	40.0kg
	Operating voltage	12V DC
Mount	Backlash	0
	Periodic motion	+ - 3" with PEC
	High speed mode	700x sidereal rate (12V DC)
		Computerized GOTO
	Optional parts	Pier
		5kg counter weight
Telescope Control system	Dimension	83mm x 87mm x 36mm
	CPU	ARM Cortex M4F
		120Mhz operation, 150DMIPS
		1024KB Flash memory (SRAM)
	Communication protocol	Meade LX 200 compatible
	PEC Function	Periodic motion control under +-2"
	Object database	More than 12,000 objects
	OLED display	1.69", 160x128 pixels
	Wireless control	Bluetooth
	Ports	RS232, USB, Autoguider

CRUX 320HD specification

CRUX mini	ITEMS	SPEC.
General	TYPE	German equatorial mount
	Weight(without counter weight)	23.0kg
	Payload	25.0kg
	Payload (with counter weight)	60.0kg
	Operating voltage	12V DC
Mount	Backlash	0
	Periodic motion	+ - 20"
	High speed mode	600x sidereal rate (12V DC)
		Computerized GOTO
	Optional parts	Weight shaft
		7kg counter weight
Telescope Control system	Dimension	83mm x 87mm x 36mm
	CPU	ARM Cortex M4F
		120Mhz operation, 150DMIPS
		1024KB Flash memory (SRAM)
	Communication protocol	Meade LX 200 compatible
	PEC Function	Periodic motion control under +-2"
	Object database	More than 12,000 objects
	OLED display	1.69", 160x128 pixels
	Wireless control	Bluetooth
	Ports	RS232, USB, Auto guider

Contect

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- **Please visit our website**

- www.hobym.net (We are preparing English website, you can find English information on our UK dealer's websit.
http://astrograph.net/epages/www_astrograph_net.sf/en_GB/?ObjectPath=/Shops/www_astrograph_net/Products/AGCRUXMINI)

Thank you
