RainbowAstro Mount Protocol

mount firmware version 190402 or higher

baudrate : 115200

Must be case sensitive.

Contact: bjjeong@rainbow-robotics.com

Contents	Send command	Return	Remarks
~~set high precision data~~	~~:SPH#~~	~~N/A~~	~~Must send it when connected.~~
~~set echo on~~	~~:SPE#~~	~~N/A~~	~~Must send it when connected.~~
unpark, tracking on	:CtA#	N/A	
tracking off	:CtL#	N/A	
get current RA	:GR#	:GR09:14:46.1#	09hour 12min 46.1sec
get current DEC	:GD#	:GD+05*01'10.5#	+05deg 01min 10.5sec
get current altitude	:GA#	:GA+10*20'30.0#	+10deg 20min 30.0sec
get current azimuth	:GZ#	:GZ270*10'20.0#	270deg 10min 20.0sec (0deg - north, 90deg - east, 180deg - south, 270deg - west)
get local time	:GL#	:GL00:09:47#	0hour 9min 47sec
set target RA	:SrHH:MM:SS.S#	1	ex) :Sr01:20:30.4#
set target DEC	:SdsDD*MM:SS.S#	1	ex) :Sd+10*20:30.0#
slew to target(by RA,DEC)	:MS#	:MM0#	Before sending this, you must set target RA, set target DEC. After slewing is completed, MM0 is returned. If slewing fails, a value other than MM0 is returned.
set target altitude	:SasDD*MM:SS.S#	N/A	ex) :Sa+10*20:30.5#
set target azimuth	:SzDDD*MM:SS.S#	N/A	ex) :Sz100*20:30.5# (0deg - north, 90deg - east, 180deg - south, 270deg - west)
slew to target(by alt,az)	:MA#	:MM0#	Before sending this, you must set target alititude, set target azimuth. After slewing is completed, MM0 is returned. If slewing fails, a value other than MM0 is returned.
		:MML#	The altitude of the target is lower than the lower limit.
		:MMU#	The altitude of the target is higher than the upper limit.

		:MME#	Slewing was canceled by the user.
find home	:Ch#	:CHO#	Mount is to find the mechanical origin. If the mount succeeds in homing, it returns CHO. If homing fails, a value other than CHO is returned. The reason for the failure of homing is that it started from a distance from home position. Try homing again and you will succeed.
		:CH0#	ra axis homing failed. (number 0. not alphabet O)
		:CH<#	dec axis homing failed.
stop slewing, stop homing	:Q#	N/A	
set speed "max"	:RS#	N/A	
set speed "find"	:RM#	N/A	
set speed "centering"	:RC#	N/A	
set speed "guide"	:RG#	N/A	
manual DEC + move	:Ms#	N/A	Must send :Q# for stop
manual DEC - move	:Mn#	N/A	Must send :Q# for stop
manual RA + move	:Me#	N/A	Must send :Q# for stop
manual RA - move	:Mw#	N/A	Must send :Q# for stop
change guide speed	:Cu0=D.D#	N/A	(number 0) value range : 0.1 ~ 1.0 ex) :Cu0=0.1# - guide speed 0.1x ex) :Cu0=1.0# - guide speed 1.0x
get guide speed	:CU0#	:CU0=1.0#	(number 0) value range : 0.1 ~ 1.0 ex) :CU0=0.1# - guide speed 0.1x ex) :CU0=1.0# - guide speed 1.0x
check slewing, parking	:CL#	:CL0#	not slewing (number 0). Slew is complete. firmware version 190322 or higher
		:CL1#	under slewing. Slewing did not complete.
star sync	:CkDDD.DDD+DD.DDD#	N/A	star's RA deg, Dec deg ex) :Ck100.000+10.000# - Ra 100.000 deg, Dec +10.000 deg
check tracking	:AT#	:AT0#	tracking off state (number 0)
		:AT1#	tracking on state

check homing	:AH#	:AH0#	not under homing (number 0). or Fine home is complete. If you want check homing result, please use " :GH# "
		:AH1#	under homing. Homing did not complete.
get homing status	:GH#	:GHO#	Mount found home. (alphabet O, not number 0)
		:GH0#	did not fine home yet. or ra axis homing failed. (number 0. not alphabet O)
		:GH<#	dec axis homing failed.
get observer's longitude	:Gg#	:Gg-127*20'10.0#	deg, min, sec, EAST -, WEST +
get observer's latitude	:Gt#	:Gt+36*20'60.0#	deg, min, sec
set observer's longitude	:SgsDDD*MM'SS#	N/A	ex):Sg-127*30'20# deg, min, sec, EAST -, WEST +
set observer's latitude	:StsDD*MM'SS#	N/A	ex):St+37*20'30# deg, min, sec

For auto guide use :RG#, manual move and stop slewing protocol.

If you want to ignore the ACK, empty the receive buffer immediately before sending the protocol.

Please distinguish between the number 0 and the letter O.