

The EQMOD DriftMeter application is designed to verify that the values reported by the mount for the RA motor position change at a rate equivalent to sidereal. The DriftMeter cannot measure drifts caused by external influences such as polar alignment or flexure.

To do this the drift meter application simply runs maintains its own simulated" motor position and compares this with the real value read from the mount. Please note that the drift meter cannot detect mechanical problems but simply verifies that the mounts tracking rate is reported by the mount stepper control firmware. Please note the DriftMeter test only requires connection to the mount and can be run at any time (i.e. the mount doesn't have to be set up for astronomical use)

1. Run EQMOD_RA_DRIFT_METER.exe
2. Hit choose scope and select EQASCOM from the list.
3. Make sure RA Auto Sync is selected in EQASCOM
4. Make sure PEC is disabled (Apply PEC is unchecked).
5. Hit start tracking.
6. Watch the RA display it should remain constant to 4 or 5 decimal places. If you are drifting the Shift Meter needle will move around the dial.
7. If you have drift, adjust the drift compensation slider in EQASCOM.
8. Stop tracking.
9. Reset the test from step 5. Repeat until you find the value that works best.

The RA Shift difference shows the cumulative shift over the period of the test.

So far only V1.06 mounts have been reported as requiring drift compensation (value =3). You can check your mount version by looking in the message center after EQASCOM starts up (mount version 000106 = V1.06).

Drift Compensation

With V1.06 mounts it was noticed that the commands EQASCOM uses to set tracking rates no longer resulted in accurate sidereal tracking. To provide a fix for this a drift compensation slider was introduced into EQASCOM whereby a small offset to the "rate command" can be applied. For V1.06 mounts it was found that a value of 3 was necessary. With V1.08 mounts however no compensation is required so it looks as though this might have been a temporary firmware glitch introduced by Synta.

In addition to correcting for V1.06 mounts the drift compensation slider might be useful to compensate for any other linear drift present (perhaps due to an object moving at non sidereal rate) although this can also be done using the custom tracking option. Please note that polar alignment errors also result in RA drift and over shorter periods this may appear linear although it is not and is in fact sinusoidal over a complete 23 hours 56 mins rotation.

Auto RA Sync

There are two modes that EQASCOM can operate in when tracking. With Auto RA Sync enabled EQASCOM will regularly poll the mount controller for the position of the motors. In between polls EQASCOM applies an "emulation" based upon incrementing the polled position at sidereal rate. When Auto RA sync is disabled then EQASCOM only reads the mount motor position whilst slewing once tracking is started it maintains its own emulated position of where it thinks the mount should be. At one time it was believed that the tracking of early mount was susceptible to communications interruptions and that polling for motor position could actually introduce tracking errors. This is why the option to disable the Auto RA Sync was introduced.

With the benefit of hindsight it appears that the "communications interruption" theory was wrongly attributed and that no real evidence of such a problem actually existed. For the most accurate reading of mount position is strongly advised to leave Auto RA Sync enabled (checked).