

10Micron GM2000 Upgrade report

After using my GM200 mount for nearly 2 years, I was eager to test the improvements in the new Version 2 firmware, the amount of new and improved features certainly is impressive! The update was delivered on a CD including an updated printout of the user manual.

After installing the updater software I could connect to the mount as usual via the Ethernet port. The update went without a problem but when I tried to move the telescope via the hand pad after the update finished, it was not working properly, the telescope stopped moving after a few seconds when I tried to move it with the hand controller, so I loosened the clutches and put the mount in the "Reset at Home" position and did a home reset. After that I could control the mount with the hand controller without a problem. All settings, except the 5 star align that I did a few days earlier, were still there and I could still go to my custom park position. The faster slewing speeds are very impressive, they can be useful when a meridian flip is needed while tracking a satellite.

The first new feature I wanted to try was the satellite tracking option. So I downloaded a fresh TLE-file from <http://www.celestrak.com>. I used the "100 or so brightest" file. After doing a 5-star align and setting the clock of the mount correctly I noticed the first satellite that would pass by would be an Ariane-5 rocket stage. I chose this object and the mount slewed towards the southern horizon where it waited for some minutes. Then there was a long "beep" and I could see the mount was starting to move. As soon as the telescope was pointing high enough I could see the stars rushing by in a 140x magnification eyepiece. But one star in the field was not moving! It was not precisely in the middle, but still in the field of view, centring it with the hand pad was easy. Making a one second exposure with my CCD-camera was no problem, but this object is rather small, so no details were visible.

On the 3rd of March 2011 I had a very good look at the ISS with the Space Shuttle Atlantis docked to it. I could actually see the bottom side of the Shuttle and lots of details on the ISS itself, an incredible view with my 25cm SCT at 140x magnification! Satellite tracking is very smooth, with at certain specific speeds a minor vibration probably due to resonance. This will probably differ from setup to setup. When the satellite goes past the meridian for more than 20 degrees, the mount automatically performs a meridian flip and manages to pick up the satellite again.

I also ordered a GPS module to keep the time in the GM2000 set accurately, this is absolutely necessary when you want to track satellites. The only thing I noticed is that the time of the mount is always 1 second behind compared to a DCF77 clock and another GPS unit. But the pointing will be off by only 15" for every second the clock of the mount deviates from the correct time, so that is not going to be a big problem. Maybe it can be corrected in one of the next firmware updates.

The pointing accuracy is very good. I was imaging Simeis-147 for three nights in a row and did the same goto via Guide8 and made 12 - 10 minute exposures each evening. When I was stacking the images later on, the biggest shift between the images was 10 pixels, that is only 40 arc seconds! The GPS certainly made sure the time was correct because only a few seconds error in the system clock would give much bigger positioning errors.

Conclusion: after this firmware upgrade I am even more pleased with this incredibly well made mount then I already was!

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