Celestron CGE Mount & Tripod Review, (updated 2008)

I have been using the CGE complete with C11 scope for 4 years now. After the 1st year I wrote an initial review so I think it's about time I followed with an update to include more long term aspects of owning and using this mount.

This is review of the CGE mount & tripod only; I have not included the telescope because there are already many excellent reviews of the scope available on the internet and in magazines but there is a distinct lack of meaningful reviews to prospective owners on the CGE mount.

I say meaningful, because the only reviews I could find prior to purchasing the mount were by magazines, who IMHO tend to be a little biased towards suppliers/manufacturers to whom they are selling advertising space. Magazine reviews also tend to be based on short term tests.

So here it is; a warts and all long term review of the Celestron CGE Mount.

On Opening the Boxes
This mount is BIG and heavy!
For mounts with scopes up to 11" the mount comes in 3 cardboard boxes containing the following:

1 off 25lb Counterweight, (C11), (C8s have 11lb weight, C14s have 2 x 25lb weights)
1 off Tripod, including spreader.
1 off Mount, including Head, Electronics Column, Cables, Hand box, Screws & Manual.

Unpacking and first set up with any mount is a joy and the CGE is no exception, when assembling this you get a feel of quality and stability.

Then you step back and look at it and realize this mount is in no way a grab and go mount, you need a good 15 – 20 minutes just to set it all up and that's without switching on and aligning. To me this was not a problem because I intended to house it in a permanent observatory but for those looking for portability and quick set up, I would advise you hone your handling and set up skills and start body building now. My record set up time from planting the tripod to viewing was 15 minutes and that's with hauling the mount and scope out of a car boot so it can be done.

Weights:

Tripod	38lb
Electronics Column	3lb ish
Head	42lb
Counterweight	25lb
Dec Shaft	5lb

As you can see, setting up will give you a good workout and with an all up weight of 113lb, (8 stone), without scope, you had better make sure it sits on firm ground because it WILL sink into your prized back lawn.

Mount

The mount bears a passing resemblance to the Losmandy G11 and the Ci700, but Celestron have taken the G11/Ci700 concept and made it their own with the CGE.

The first thing to notice is that there are no motors sticking out at all angles, all motors/gears are totally enclosed with just 2 cables connecting the motor housings to the electronics column. The DEC motor housing does interfere with the RA motor housing when at the meridian, **meaning this mount cannot track across the meridian**; if the object you are viewing passes over the meridian the scope will stop and perform a meridian flip. Please note, the CGE is not alone in this, most goto mounts will not track far past the meridian before performing a flip. This has never been a problem to me because I am aware of it and if I am imaging I make sure my target is few degrees either side of the meridian before proceeding.

The motor cables are short, do not tangle and are fitted with RJ45 quick release connectors for ease of set up / take down. Easy that is until nights with sub zero temperatures when fingers are cold and plug shrouds are solid, making release difficult and fiddly. Again not a problem on permanent set ups. Just one point on the RJ45 connectors, they are delicate and can cause problems with the mount if they are damaged, I had an intermittent fault on the RA lead which was down to a faulty shield connection. New leads are cheap and easy to come by, just Google for screened RJ45 patch leads to find replacements, (Note! unscreened leads will not work).

Secondly, and to some more importantly, there are no setting circles or manual slow motion controls at all. In fact the mount is devoid of scales and graduations of any kind except for a small RA shaft altitude scale for polar alignment. This mount is a computerized mount only and it shows.

The counterweight shaft screws into the end of the mount dec' shaft and takes the 1 or 2 Celestron weights for whichever scope you fit. The shaft is a hefty 1 1/4" diameter with a butch look and feel to it. No bendy ¾" shafts here to wobble about.

Finish on the mount is matt black type crackle paint on motor housings and black anodizing with bronzed gold highlights in other areas, this colour scheme makes for a very striking effect and looks a treat with the colour coordinated scope perched on top. The crackle finish has proven to be a little fragile and will chip easily, a can of Halfords Matt Black paint comes in handy for touching up the inevitable chips.

RA Altitude adjustment is via a socket headed screwed rod through the base of mount which can be adjusted from the North and South end. Once polar alignment is achieved the altitude can be locked with 2 socket head grub screws, this is important because if not tightened there can be a noticeable shift in the alignment with scope position.

RA Azimuth adjustment can be achieved by slackening 2 plastic headed hand knobs and rotating the head, a small socket headed adjusting screw is provided for this purpose but so far I have never needed to use the screw, it being easier to push the head around by hand for alignment, (1 less tool to use).

There is no integral polar alignment scope included with the mount, instead you have to sight along the top of the RA axis to rough align. Then once you have switched on and performed an initial 2 star alignment, a Polar Align routine can be performed which points the scope to where IT thinks Polaris is, then you adjust the mount to bring Polaris into the eyepiece. This routine is quick and easy and is good for visual and web cam planetary imaging but you really need to drift align the mount to get an accurate polar alignment. An optional bolt-on polar alignment scope can be purchased separately to get a good rough alignment but you will still need to run the Polar Alignment and drift align routine for accurate alignment.

Each axis has 2 large anodized aluminium lock knobs/clutch levers, (latest models have 4 per axis). Both knobs on each axis need to be tightened fully during set up, to ensure the axis is clamped securely. The knobs are big and easily manageable to the gloved hand. Once these knobs are tightened on set up you don't touch them again until take down.

The scope dovetail on the Dec axis is in-keeping with the rest of the mount in that it is BIG. The dovetail takes the large Losmandy/Celestron dovetail and firmly clamps this with 2 very large anodized and knurled lock screws, again easily operated with gloved hands. Please note! The CGE dovetail bar is 3" and is slightly narrower than the Losmandy bar, not a problem on the CGE clamp as it will take this difference but beware on other mounts.

Electronics Column

The mount fits on to a black crackle finish aluminium electronics column or Pier as Celestron call it, I prefer to call it a column as pier brings to mind a tripod free scope and the mount definitely has a tripod.

This Column houses most of the electronics for the scope, it also acts as a large junction box for the Hand Box, mount cables, power cable, guider and PC connections. The column internals proved to be a little fragile and can cause problems. The rear of the sockets for the external connections are connected to the main circuit board using multi pin connectors and flying leads. These connectors are not of the highest quality and can come loose with normal handling. The same connectors are used in the shaft motor housings and can cause problems there also.

The Column fits snuggly onto the tripod with 3 off 3/8" UNC socket head screws and the mount head in turn fits onto the top of the Column in a similar manner.
Using the power lead supplied you can either connect the column to your car battery via the cigar lighter or run it from a power pack. This mount is not too power hungry but still requires a good 12 volt DC 1.5 amp supply. Do not use a regulated 13.8V power supply, this will void your guarantee with Celestron.

The Hand Box is basically Nexstar loaded with the CGE Firmware. The buttons are big and do not need 2 or 3 presses like other manufacturers and the big LCD display is clear and easy to read with a red adjustable backlight and contrast. My first hand box display died permanently on the first day but was quickly replaced by the dealer, This is not too uncommon a fault with these hand boxes and is not just a CGE problem. Just a note here, in very cold conditions the display may fade and sometimes disappear altogether, don't worry, stick the hand box in your jacket to warm it up a little and the display will soon return.

Not a lot more can be said of the column for the moment, it does its job and that's all but please note you WILL need tools to put this mount together, 2 Imperial AF Allen Keys are supplied and these are sufficient for basic set up and take down, (all screw threads on this mount are imperial UNC). ADM in the states can supply a range of hand knobs which replace the 3/8" allen head screws and makes set up virtually tool free.

Tripod

What a beast! Again in-keeping with the look and feel of the mount the tripod is big. At minimum extension the tripod top sits at 34", add to that the height of the column and mount and you only need to extend the legs by a few inches to have the scope at a manageable height, which makes for a very steady platform.

The stability of the tripod is further enhanced with a heavy duty plastic Spreader which tightens up on a screwed rod to firmly hold the tripod legs and stop torque twist of the head and mount. A

smaller hinged spreader bar at the base of the top legs is fitted as a stay to prevent the legs from being spread too far.

A nice touch to the tripod is a captive strap around the base of the legs which can be used to tie the legs together when transporting.

Switch On and Operation
When you first switch on, the mount needs to run to its home position with the scope pointing North. Each axis is fitted with micro switches for this position, so after pressing "Enter" twice the mount runs each axis until these switches operate.

Once the switch positions are found the scope knows where it's pointing and you may enter the time, time zone, date and grid co ordinates for your site which are all stored within memory and do not have to be entered again unless you take the scope to another site. The internal clock is a nice touch and means you do not have to enter the time and date every time you switch on.

The mount can now be aligned ready for the Goto function. A basic 2 star alignment using the default alignment stars will give semi reasonable Goto accuracy but if you want to get the object in the field of view every time a 2 star align on one side of the meridian with up to 4 calibration stars the other side of the meridian is easy and improves the accuracy tremendously. Alignment and calibration stars may be changed at anytime in the observing session to maintain the mounts accuracy but personally I have never need this even on an all nighter.

If ordinary Goto is not accurate enough, say when you are using a CCD for imaging, the mount has a Precision Goto routine which points to a star nearby the object you require. Centering the star in the eyepiece and pressing Enter will then slew the scope to accurately place the object bang on to the CCD chip. There is also a Sync function that can be used to improve pointing even more, but you won't need it ☺

There is a Solar System align routine which is useful for daytime observation of the planets.

It's worth a mention here that before the advent of the new flash upgradeable hand boxes pointing accuracy was a little hit and miss as alignment relied on a maximum of 3 stars. Some mounts would place the object in the centre of the FOV of a 20mm eyepiece reliably every time from the normal alignment routine whereas other mounts will require more care and attention during alignment. I actually had 2 mounts, the first when it worked, was deadly accurate with a basic 3 star alignment but during the course of trying to trace a fault, (faulty RA lead), the mount got swapped and unfortunately the replacement required a bit more care when setting up, but that's no problem now because I have the flash upgradeable hand box.

As for what objects to point the mount at, well the Hand Box is loaded with them, the lists include:
Messier
NGC
IC
Caldwell
Solar System
Named Stars
SAO Catalogue

To further assist location these catalogues are broken down into the following easy access menus:

Named Stars
Named Objects
Double Stars
Variable Stars

Asterisms
CCD Objects
IC Objects
Abel Objects
Constellations

The constellations selection is particularly useful, here the mount will guide you through the interesting objects within a chosen constellation.

Information about any object the scope is pointed to is available at the press of a button and the Tour of the nights best objects is always a worthwhile exercise.

The mount can be PEC Trained for more accurate unguided tracking and also connected direct to an ST4 type auto guider. I have not used the PEC function because I autoguide but I understand from others that it works and works well. I autoguide the mount and find it easy and a joy to use. I normally guide through the PC port on the column using Guide Master software as described in my Rough Guide to Autoguiding.

One final point, the mounts are usually shipped with a copy of Nexremote and a selection of PC leads including a USB to Serial adapter. This allows you to run the mount direct off a laptop, either through the handbox or without by connecting direct to the PC port. This is a powerful piece of kit and enables the mount to be run direct from a PC using most planetarium software packages. More importantly Nexremote allows the use of a wireless gamepad for basic mount controls. Is that Cool or what?

Conclusion

As stated at the outset, this is a warts and all review but please do not misinterpret the warts as dissatisfaction with this mount. Far from it, I am impressed with this mount and do not regret my choice. Experience since the early teething problems have more than made up for its faults; faults which I must add are mainly down to quality control issues which I hope Celestron have addressed now their future appears to be a little more secure.

Due to its size it will take anything up to and possibly past a 14" SCT with ease and will take the weight of all but the heaviest of accessories.

Tracking accuracy is second only to other high end mounts with a very low PE attributable to accurately machined phosphor bronze worm and wheels.

If you are thinking of investing in a high end, heavy duty GEM mount then the CGE is well worth considering, please do not let the warts mentioned in this review put you off. The warts are minor points only and are soon sorted if you are unfortunate enough to experience them. There are plenty of CGE owners out there who have never had a single problem with the mount but it is always better to know of any possible problems with a piece of kit before taking the plunge and investing your hard earned cash.

Thanks for looking and clear skies

Phil