

gentLED and Sony NEX-5N combine for Astro-photography

Dr. Robert Q. Kimball, Ph.D.

As a young man some fifty-five years ago, a glance at the moon through a neighbor's telescope changed my life. I've been hooked on astronomy ever since and even started college determined to become a professional astronomer. During my high school years, I learned to grind telescope mirrors and build a series of scopes, each larger than the one before. To see the really faint objects of interest to astronomers you needed "light gathering power" and bigger mirrors meant more light.

But there was another way to get the light you desperately needed. By placing your telescope on a motorized mount and tracking the stars carefully, you could accumulate tons of extra photons on photographic film. As obvious as this may seem, in practice it is very difficult to do. Staring into an eyepiece for hours, pressing buttons to keep the guide star under the cross hairs was backbreaking work. One bump of the eyepiece, a strong puff of wind, or a minute away from the eyepiece to stretch, and the pin point stars became curved star trails. Once you had an image captured you needed to develop the film which required another array of darkroom skills. Needless to say, the whole process was a nightmare, I was never able to take a picture I could admire with pride.

After a hiatus of forty working years, I retired from my college teaching position and moved to the beautiful state of New Mexico. Located in the south-western United States, the desert climate provides with warm nights and crystal clear skies. One look up at the star lit sky plunged me back into the field of astrophotography. This short narrative explains how the gentLED helped me take my first astro-photographic image of the Orion Nebula (M42) I can proudly share.



Computers have changed everything including the art of astrophotography. Today, amateur astronomers can use relatively small telescopes to obtain images only professionals could take when I was young. Now instead of guiding on a star for hours, any laptop connected to a webcam can follow the moving stars with precision. More importantly, today's astronomers can take a series of short images and stack them into one beautiful picture. Indeed, the really dedicated astrophotographers take hundreds of short images over several nights to build up their final image.



I started my renewed quest for an exceptional astro-photograph by purchasing a refracting telescope with a 110 mm lens and a good motorized equatorial mount capable of tracking the movement of the stars. I was fortunate to have a perfect location in my backyard where I could build a concrete pedestal. On top of the main telescope, I installed a smaller scope with a webcam that is connected to my Apple laptop. It is quite a feeling, to sit out on a warm evening,

comfortably watching a guide star on my computer screen. As the guide star moved ever so slightly, the computer would send pulses to the telescope mount to keep the star dead center. It took more than a year to find all the equipment I needed and to get everything working smoothly.

Just as I started planning my first imaging session, I ran into one problem I hadn't anticipated. I planned to use my Sony NEX 5N digital camera to take my pictures, but it lacked an easy way to activate the shutter to take the series of images I wanted. I tried pressing the shutter button, but that caused very slight vibrations and ruined the pictures. I was able to do pretty well with the camera's remote shutter release, but it was frustrating to sit next to the telescope for three hours watching the clock and pressing the remote. It also spoiled my dream of a completely automated system. This is the problem the gentLED solved beautifully for me.



The gentLED was so small and light weight that it mounted directly onto my telescope tube with a small strip of velcro. To the gentLED, I connected a very inexpensive intervalometer and I was in business. Once the telescope was guiding on a star close to my target, one push of the intervalometer's ON button and the Sony camera and gentLED were talking back and forth without my intervention. It never failed. From the very start, I was able to take three hour pictures by stacking lots of 5 minute images.

One of the most exciting objects in the sky for amateur astronomers is a bright nebula in the constellation of Orion. On a clear night you can see its faint glow below Orion's three belt stars. Nebulas are enormous clouds of gas set aglow by nearby stars. This was my first choice as a target.

Once the guide star was selected and the laptop tracking, I set the gentLED to actuate my Sony camera 36 times. Each exposure was five minute long. This meant I was collecting photons for three hours. Here is the result, and image I am proud to share.

