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Accessories for NexStar telescopes (here focusing on NexStar N5):

Solid surplus tripod with homebrew wedge:
I got an used surplus tripod from the German military. It was built by Zeiss for Telefunken and probably never used. I did modify the tilting head on top of the tripod and can now use it to manually rotate the telescope in azimut and/or use it as a wedge.

Wheely bar under the tripod:
Someone posted the idea here in the group and I adapted it. I can now easily move the telescope fully equipped and mounted on the tripod out on my balcony.

Vibration Suppression Pads from Celestron:
I put them under the tripod when using the telescope on my balcony. It helps reducing and damping vibrations significantly.

Compass in base plate on wedge:
Helps to for a rough initial alignment during the night (I do not see Polaris from my balcony) but especially during daytime alignment.

Orthogonal marks on the OTA:
Essential help for proper alignment and thus good Goto and tracking performance. See the alignment guide from John Carlyle, Alain Fraysse, Carroll Morgan und Michael Swanson more details. I also posted a short guide on how to use barcode labels on my webpage.

Rechargeable sealed lead-acid battery, 12V, 24Ah:
Lasts almost forever. No problems even at pretty low temperatures.

Power supply distribution units:
I decided to optimize the wiring around my N5 and I am using a system called Miniatur-Rundsteckverbinder from a local company Firma Binder (www.binder-connector.de) located in Neckarsulm/Germany. More precisely I am using their series "712" connectors which supports protection class IP67 (protected against dust and can be plunged temporarily under water). The connector has 3 pins, polarity cannot be mixed up and it features a screw locking. The maximum voltage is 125 Volts, the maximum current per pin is 4 Amps. I built two power distribution units and attached one at my tripod and the other one on top of the OTA of my NexStar N5. The distribution units are comprised of 8 chassis sockets in a small black plastic casing. All 8 sockets are internally connected in parallel - so it is really nothing complicated. I use the 3 pins of the connectors as such: 1 = 12V continuous, 2 = Ground, 3 = 12V pulsed.
Thus I can power all kind of electrical accessories as digital camera, Telrad finder a.s.f. with the continuous DC supply but also the various heaters for the corrector lens, the eyepieces, the Telrad finder a.s.f. with a pulse width modulated supply voltage. I also modified my N5 by substituting the original power socket as well as adding another socket (at the side of the fork arm) which distributes the power to the accessories on the OTA by a spiral cable. Both sockets are internally connected to each other as well as to the N5 electronics.

Electric focuser with infrared remote control:
I built this unit to be able to focus the telescope using a remote control. Thus I do not need to touch the telescope and avoid any vibrations. The receiver does also allow to activate the green laser (see below) remotely. A more detailed description of the electrical focuser can be found on my webpage.

Anti Dew heaters:
I built a dewheater for the corrector lens using Konstantan wire and two dewheaters for the eyepieces of my binoviewer using arrays of small resistors. A homebrew controller switches the 12V supply to the dewheaters periodically. By adjusting the pulse width I can control the average power and thus heat generated by the dew heaters.

Binocular adapter (binoviewer):
A model from Zeiss/Baader-Planetarium. I read somewhere that it is not very useful on telescopes with aperture less than 8" but I have to disagree: it is great for the sun/moon/planets and bright star clusters with my N5 !

Telrad finder:
Projecting circles of 1/2, 2, 4 degrees diameter on a glass window in front of the stars. Great for learning the constellations and getting a feeling for arc distances between the stars. Modified with built in anti-dew-heater, blinking circuit, central power supply (see separate documentation on my webpage).

2.4 GHz video link:
I built a wireless video link to get rid of some of the various cables around my telescope. By means of this link I am able to transmit the pictures from my telescope to my receiver outside or inside my home. A video-camera, which is attached to the telescope provides the video signal which is fed to the 2.4 GHz transmitter. Both transmitter and receiver are powered by a 12V supply. I can watch the pictures next to the telescope using a small portable monitor, which features a built in 2.4 GHz video receiver. Simultaneously I feed the video signal from the output of another RF receiver inside my house to a frame grabber card in my PC for further processing. Please note that you need a ham radio license to build or modify a RF transmitter or receiver yourself. However there are also commercial devices operating at 2.4 GHz available which do not need a special license.

Wireless Serial RS232 Link:
It extends the possible range between the telescope and the PC up to approx. 300m (under free space conditions) while replacing the RS232 cable between the PC and the NexStar hand-controller. The link provides data-rates up to 115.2kbps supporting software and also hardware handshake. Thus I can control the telescope from inside the house. The link is based on a 1.9 GHz radio link. The standard used was generated by ETSI and is called DECT (digital enhanced cordless telecommunications). Chris is right: it is mainly used for digital cordless phones but can also be used for digital data transmission. This standard is used in most countries worldwide - unfortunately not in the USA. However there is a solution called WDCT (worldwide digital cordless telecommunications) which is based on DECT but essentially transferred in the 2.4 GHz frequency band. You can use this kind of equipment also in USA. Make sure to get the one with the RS232 connection - the latest ones are only for USB connections. In case someone is interested in more details on DECT/WDCT he should send me a personal mail and I will be happy to help.

Palm Pilot:
Used to control the telescope using the program Planetarium from Andreas Hofer (www.aho.ch) as well as to control the Casio Digital Camera using the program DiCaControl.

QV2800-UX digital camera:
I use it either with a wire remote control or with the RS232 cable and Dicacontrol running on the Palm Pilot.

Eyepiece projection adapter Baader OPFA3:
Together with the Casio Camera a nice way to shoot afocal pictures. You may have a look in my download section for more information.

Ray's brackets and the Baader Witty Adapter:
Ray's brackets allow the proper balancing of the telescope and provide enough clearance on the rear even with some accessories attached. Acts together with the Witty adapter from Baader as a nice experimental platform (see laser description below).

Green Laser:
I do not use it for alignment of the optics but for pointing to celestial objects. I was motivated by a thread from Frank and Hank in the NexStar Yahoo group. However I did not like the idea of using a laser pointer (always empty batteries, attachment and alignment to the OTA shaky). Thus I bought a surplus laser unit and built it together with a power supply in an insulating black plastic casing. Now it operates from the power supply of the telescope (accepts 8-32Volts) and by means of a precise tangential adapter (called Witty One from Baader Planetarium) I attached it to Ray's Brackets. I can adjust it very precisely in all directions. The 4mW seems to be the minimum power to be used to really see the laser in a very clear night. Please have a look at a more detailed description on my webpage.

I'm sure I forgot to describe the other half of the gadgets I accumulated in the meantime ;-)

Kind regards and have fun

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