



Cercis DslrStar digital single lens reflex camera astrophotography controller is designed to provide an integrated astrophotography system for DSLR cameras. It allows long exposures—either by computer control or standalone—and stores exposure information (time, temperature and type) in its non-volatile memory.

The DslrStar includes a full-function Windows<sup>®</sup> control program. DslrStar hardware connects to the camera's bulb connector, and has a computer USB interface. DslrStar has 4.7" X 3.7" X 1.3" sturdy metal case, with AC transformer for power, USB cable, and software CD included. Optional automotive jack or bulb cables are offered. A fully functional 30-day trial of software is available for download from the website: [www.cercisastro.com](http://www.cercisastro.com).

### Installation

#### DslrStar Installation in 3 Easy Steps

**First** - Install the Camera Manufacturer Software and Drivers;

**Second** - install the DslrStar Windows Software (please download the latest release version)

**Third** - then install the DslrStar USB Drivers.

### FAQs About DslrStar

#### 1) Software Activation

Follow instructions included with the DslrStar and software CD to install and activate. Currently, the software is activated by emailing or calling CercisAstro with two identifications (A) the CD Key, and (B) the unique activation key generated by the software. Cercis Astro will reply with an activation code which will permanently activate the software. Cercis Astro allows the purchaser to install the software on multiple PCs, but each installation will require activation.

#### 2) DslrStar USB Drivers

To install the USB drivers, turn on the DslrStar controller by plugging in the power cord. Connect the supplied USB cable to the controller USB port and then to a USB port on the computer. The Windows "New Hardware Found" wizard will start. Follow the wizard instructions to install the USB drivers.

#### 3) Camera ISO, Tv, Av Settings

When selecting ISO, Tv, or Av settings in the software, check the camera to determine which settings are supported (particularly Tv & Av). Canon cameras only allow supported settings to be used and not all cameras support all settings. DslrStar will give Invalid Parameter Error if an unsupported setting is selected.

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#### Compatibility

The DslrStar controller is compatible with: Canon 300D, Digital Rebel, Kiss; Canon 10D; Canon 350D, 400D, Digital Rebel Kiss XT; Canon 5D, 20D, 20Da and 30D<sup>1</sup>. Nikon D50, D70 and D70S are supported; these utilize the IR-LED connection with A613 IR emitter.

The USB port is compatible with any USB 1.1 or higher host controller. The AutoGuider port is compatible with any telescope with TTL- level guider inputs, and software includes ASCOM driver/hub. Input power to the DslrStar controller is 9-15 VDC at 200 mA max.

Included with the DslrStar software installation are full featured Windows COM interfaces for the DslrStar controller—including access to the BULB exposure, temperature monitoring, and AutoGuider hardware. With the COM interface DslrStar can be directly controlled via many programming languages (C++<sup>R</sup>, Visual Basic<sup>R</sup>, etc.), allowing third party developers to incorporate DslrStar functions into their existing or new products.

#### System Requirements (recommended minimum):

**Memory:** 256Mb **Speed:** 500MHz  
**Graphics:** 24 bit high color

<sup>1</sup>Including Hutech spectrum-enhanced versions..





### 4) Fuse & Battery

If your DslrStar does not illuminate (the LED display or USB and BULB LEDs do not light), the fuse may be blown. Replace with a 400mA TR5 (Wickmann 37204000411 or equivalent) slow-blow fuse, available from Cercis Astro (5 pack \$5), as well as electronics distributors or electronics stores. Replace the fuse (dark red cylinder adjacent to large capacitor) by removing only the four hex-head outermost screws using a 5/64" hex key. Also remove these same four screws to replace the Lithium 3V 20 mm coin battery (Energizer CR2032 or equivalent).

### 5) Using Mirror Lockup

If mirror lockup is manually set in the camera, it also must be selected in the software settings dialog of the DslrStar. The camera will hang up (not respond) if its settings conflict with the DslrStar software. If your camera fails to respond, restart the software and turn the camera off to reset it. Reset mirror lockup in the camera and the software.

### 6) Darks, Lights, Flats & Bias Frames

The DslrStar controller and software can take all the reduction frames if the user sets up the sequences, and sets the camera at the appropriate targets to take Lghts, Darks and Flat Frames. If you want to keep the camera hooked up to your scope and want to take Darks, Flats, and Bias frames, you will have to cover the scope for darks or bias frames. And aim at sky at dusk or dawn or a white screen for flats.

### 7) Auto Guider

An auto guider is a separate CCD camera or webcam. The autoguiding function provides a hardware port that interfaces to the telescope's autoguider port. The DslrStar software (Version 1.03.100 or higher), includes ASCOM driver/hub which allows third party autoguiding software to interface to DslrStar hardware guider port. The Operating Manual (PDF) includes pinout diagrams for autoguider port and system configuration. This is in the Controller Hardware section. Download file from: <http://www.cercisastro.com/dslrstardocs.pdf>

### 8) ASCOM Drivers

Effective with DslrStar Version 1.03.100, ASCOM driver is now available.

### 9) DslrStar-to-Camera (BULB) Interface and DslrStar-to-Computer Interface (USB)

The DslrStar interfaces to the camera's bulb connector (for Canon 300D, 350D, 400D use the supplied A612; add A611 (N3-to-sterio plug) to the A612 for Canon 5D, 10D, 20D, 20Da or 30D). For computer control, the DslrStar uses a USB cable to connect it to a computer. The computer is also connected to the camera via the camera's USB port (Yes - your computer will need 2 USB ports - one to connect to the DslrStar & one to connect to the camera). Refer to DslrStar Interface connection diagram on website.

### 10) Canon Cameras

For best results, use a spectrum-enhanced (Hutech-modified) camera. However, if you want to use the digital camera for both astro and regular terrestrial photography, select a standard camera. A spectrum-enhanced (which exchanges the filter in front of the CCD to increase IR spectrum - great for astrophotography, but gives everything a reddish cast) camera requires several adjustments in order to be used for terrestrial photography. The 5D, 10D, 20D/20Da, and 30D have more features - some of which are not needed or used with the DslrStar; the 300D does not have mirror lockup. There's several knowledgeable people on the yahoo user group (registration req'd) who'll give you more feedback if you post a question. Just starting astrophotography and want a DSLR camera? Check Astromart DSLR Cameras or CCD classifieds or a camera retailer.

### 11) Nikon Cameras

For bulb exposures, IR-Remote must be enabled from the Windows Software Settings dialog.

### 12) RAW + JPG

DslrStar software does not support RAW + JPG; use RAW only mode. RAW + JPG will hang up the software.:

### 13) Using DslrStar for Short Exposures

In standalone mode, the shortest exposure for DslrStar is 1 sec, For eclipse exposures, there are a couple of possibilities:

1. Using the computer controlled sequences - This is the best technical solution because it gives you complete control of the camera settings including exposure times using the cameras' Tv setting. The downside is that you will need a laptop along with you.

2. It is possible to take camera Tv exposures with remote sequences. Set the camera to "Manual" and the "Tv" to whatever exposure time you want. In sequences, set the exposure time to 0.0 (zero) this will send a shutter trigger pulse to the camera shooting off the exposure at the "Tv" exposure time setting. You will need to manually change the "Tv" value as the eclipse progresses.

- 2a. The method above also works with the camera set to any automatic exposure mode - most likely the Aperture priority auto exposure mode. In this case, the camera would be determining the exposure time "Tv", you would have to determine ahead of time if the camera is choosing a good value and perhaps change the camera exposure compensation setting. (Yes, it's kind of difficult to "determine ahead of time").

### 14) Firmware Updates

DslrStar Version 1.04 and later, allow the user to upgrade firmware via Cercis downloadable files. Prior versions (1.01, 1.02, 1.03) do not allow user-upgrade; therefore, the DslrStar must be returned to Cercis to perform the upgrade.

Autoguiding - The pre-Version 1.04 firmware will fail autoguiding if the Menu button on DslrStar controller is pushed. A work-around is possible: in Sequence add/edit, increase delay between exposures. During the first delay, begin autoguiding.

