



Cercis Astro

DslrStar™ Controller - Model 400 Astronomical Digital SLR Camera Accessory PRODUCT & ORDERING INFORMATION



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® 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.

Computer Interface Screens

The Main Program Box is shown at left, along with dialog boxes (Auto Dark Sequences with Dark Image Temperature Select, Image Sync, Exposure Sequence, Remote Sequences, FITS Header info) shown. See others on reverse. The Real-Time Clock of the DslrStar records the time and temperature when a photo is taken. This can be matched to the time recorded by the camera.

Main Program Box:

- Minutes: 0, Seconds: 0, Series of: 1
- Type: Light (selected), Dark, Flat, Bias
- Use Camera Tv:
- Buttons: Expose, Abort, Focus Mode..., Sequence..., Remote..., Auto Darks..., Image Sync..., Viewer, Help
- Select Camera: Canon-EOS 3000
- Buttons: Disconnect, Settings...

Auto Dark Sequences Dialog:

Temperature	Tolerance	Exposure	Count	Completed
10.0	1.0	300.0	5	1

Remote Sequences Dialog:

Type (Type)	Count (n)	Delay (d)	NU (NO)	Exposure (t)
Light	10	30	YES	300
Flat	5	0	NO	5
Dark	30	0	NO	300
Bias	30	0	NO	0

Exposure Sequence Dialog:

Type	Count	Exposure	Delay	TL	Av	ISO	Quality	White	Save As	Suffix
Light	10	300.0	30	BULB	400	RAW/LARGE	Auto	M42		L

FITS header Info Dialog:

Key	Type	Value	Comment
SIMPLE	Boolean	TRUE	
BITPIX	Integer	16	0 unsigned int, 16 & 32 int, -32 & -64 real
NAXIS	Integer	3	number of axes
NAXIS1	Integer	898	fastest changing axis
NAXIS2	Integer	607	next to fastest changing axis
NAXIS3	Integer	3	fastest changing axis
BSCALE	Real	1.0	physical = BZERO + BSCALE*array_value
BZERO	Real	32768.0	physical = BZERO + BSCALE*array_value
CBLACK	Integer	4820	Initial display black level in ADUs
CW/WHITE	Integer	16976	Initial display white level in ADUs
END	String		

Batch Convert Dialog:

Files to convert: image_5.crw, image_1.crw, image_2.crw, image_3.crw, image_4.crw

Convert to: TIFF files, 16 bit (*.tiff)

Save Path: C:\Astro Images\

Compatibility

The DslrStar controller is compatible with: Canon 300D Rebel, 350D XT and 400D Xti, and Canon Digital EOS 5D, 10D, 20D and 20Da¹, and 30D. Also supported are Nikon D50, D70 / D70S, and D80; 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++^R, Visual Basic^R, 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

¹Including Hutech spectrum-enhanced versions..

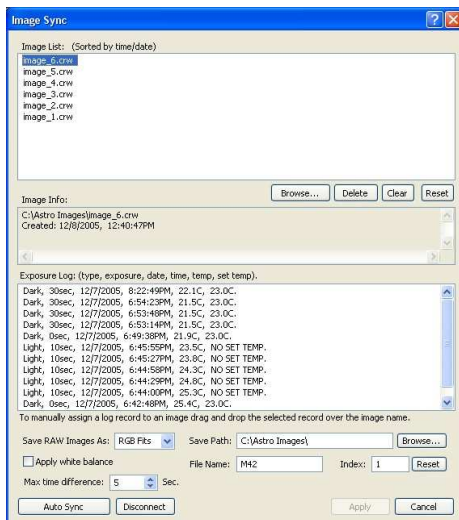
Specifications subject to change with notice. All specs @ 25C DslrID-408B



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Image Sync (screen shown) - allows user to select images to synchronize with auto dark images.



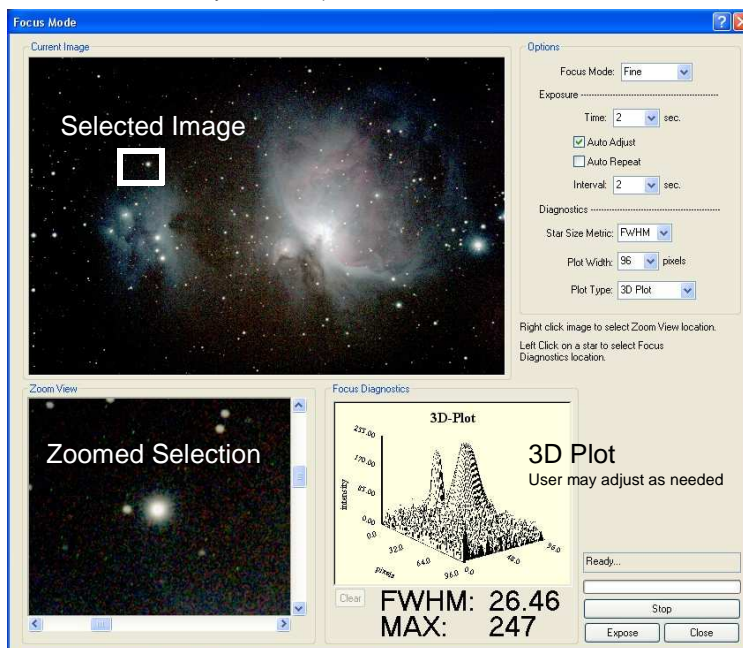
Temperature Sensor

DslrStar includes internal temperature sensor; an external precision temperature sensor is also available.

Power Requirements

The DslrStar controller requires power via standard 12V DC power jack or optional auto jack. A 20mm 3V lithium coin-battery provides power for on-board clock; this Energizer CR2032 or equivalent battery must be replaced ~1-2 years.

Focus Mode (screen shown) - obtains the best focus when camera is attached to telescope. For each exposure, the dialog displays the full image resized to fit the dialog; a full size view of a selected area of the image; and focus diagnostic information on a selected star (i.e. star full width at half maximum (FWHM) in pixels, maximum intensity of the star (0-255 scale), a 2- or 3-dimensional plot of the star, or a running plot of either the max intensity or FWHM).



Features	
DslrStar Controller	DslrStar Windows Software
Store ≤ 32 exposure sequences incl type, duration, delay, & mirror lockup use	Remote Control Camera, incl Tv, Av, ISO, mode, quality & white balance
Via Add/Edit/Delete sequences Keypad: Clear exposure log, reset controller	Control exposure-save path, with auto file naming & indexing
Store ≤ 400 exposure records, incl type, duration, time, date, tem, set temp	Create, save and load sequences from the hard disk
Accurate thermistor-based temperature sensor input—measures exact temperature of each exposure	Single/Series/Programmable-sequence exposures, w/ individual control of camera settings for each set in a sequence
Create AutoDark sequences specifying temp, temp tolerance & exposure time—controller monitors, takes darks in specified tolerance; auto-retrieval using exposure log information	Focus assist zoom view + 2D & 3D star plot diagnostics, FWHM, & metric trend plots. Auto-focus, auto repeat/adjust prevents image saturation
Opto-isolated BULB output - safe connection to DSLR camera	Full control of DslrStar Controller settings from computer
IR-Remote LED output—future support of wireless remote cameras	Load/Save/Edit controller sequences from computer
Four-digit red LED display of menus & status Standard 12V car battery power requirements, with protective fuse	Load/Save/Edit/Create AutoDark controller sequences, incl auto-creation from previously saved images' temp info
TTL-level auto-guider port - telescope guidance with compatible software	Auto Synchronize images w/controller exposure log for easy temp recording
Real-time clock w/ battery backup + Non-volatile storage of sequences & logs	Image viewer window—view as downloaded, or files w/ info for view & edit
USB computer interface - no USB-to-serial converters or PCMCIA parallel cards	Batch-convert dialog—convert multiple image files to any supported format
Sturdy all-metal enclosure	Windows Common Object Model (COM) interface—allows 3rd-party software use
Information	
Specifications subject to change without notice. Made in USA DslrD-4/08 Rev.B	

DslrStar Controller/Software	Part No
DslrStar (incl Windows Software CD, AC Adapter, USB cable)	400*
Bulb Cable	Part No
5D, 10D, 20D, 20Da cable incl Canon Manual Remote Switch	A610
Canon 5D, 10D, 20D, 20Da Basic Cable (incl A612)	A611
Canon 300D, 350D, 400D Cable (also used w/ A611)	A612*
IR Emitter (for Nikon D50, D70, D70s)	A613
Accessories	Part No
Auto-Guider Cable	A614
Temperature Sensor Cable	A615
Power Adaptors & Accessories	Part No
Adapter—US 120V, 9V, 500mA, 1.3mm ID/3.5mm OD cntr pos	A604P*
Adapter—International 90-264VAC/47-63Hz, ID1.3 /OD3.5 mm cntr pos, incl 4 Plugs US, Europe, UK & Aus	A605P A,E,K,S
Auto Power Plug Cable (Cigarette Lighter Plug)	A616
350D AC Pwr Adapter - use AC pwr source I/O camera battery	A631
USB/A-to-Mini-USB all Canon EOS cameras 5-pin male, 15 ft	A637

*DslrStar incl CD, A604P, USB Cable & A612 Excel, C++, Visual Basic, Windows are registered trademarks of MicroSoft Corp.

Operating & Mechanical Data	
Dimensions (4.68 X 3.68 X 1.18 in.) & Weight (oz)	11
Weight—shipping (estimated) lb	3
Operating/Storage Temp Range	-35 to +50 C (-30 to 120F) C (F)