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SMART GUIDER 2

Imaging Control System

The Ultimate Tool for Astro-Photographers

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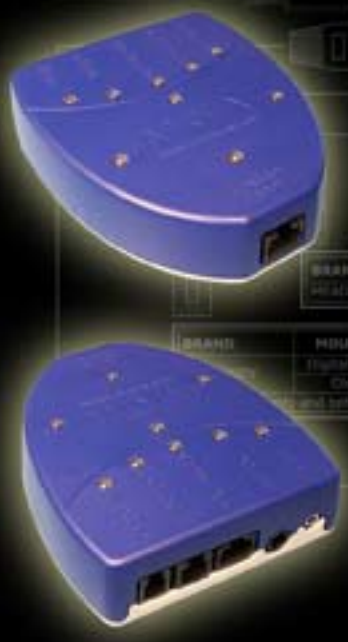
SG 2 - AUTOGUIDING AND BEYOND

The **LVI SmartGuider 2 Imaging Control System (SG 2)** goes way beyond the simple concept of mere autoguiding. Any Astro-Photographer very well knows that perfect autoguiding is vital for achieving pinpoint resolution in spite of the many hours required for collecting light with various filters and modern CCDs and DSLR-cameras. But that's not all. Successful imaging is the result of a complex process that requires various electronical components to flawlessly cooperate in unison.

SG 2 - DOES EVERYTHING

The **LVI SmartGuider 2 Imaging Control System** constitues an integrated solution which governs the whole process required to produce unparalleled astrophotos with the least amount of effort and in a fun and easy way. No laptop required! No problems in the field! Perfect imaging control is performed with the help of the matured SG2 guiding camera, the SG 2-REFLEX remote control software for DSLR-cameras, Feathertouch(TM) and Baader-Steeldrive(TM) focus control software and the MGA adapt-all mount relais box with additional remote thermo probe.



THE MGA (MULTI GUIDING ADAPTER)

The **LVI SmartGuider 2 Imaging Control System** comes complete with the dedicated MGA opto-relais box which connects onto all of your imaging equipment (mount, DSLR, focuser).

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ADVANCED DSLR CONTROL with SG 2 - REFLEX

The SG 2 REFLEX-software implemented into the MGA-device controls a variety of Canon, Nikon, Pentax and Sony cameras by offering the same control parameters that are usually managed by second party commercial software.

1. **Single shot exposure** or multiple exposure control
2. **Bracketing** - when activated the camera automatically images in a user-defined sequence
3. **Time out control** between consecutive exposures - for sensor cooling
4. **Mirror lock** - prevents vibrations caused by mirror flip prior to releasing the shutter
5. **Dark frame capture** - when activated, the camera automatically starts taking darks
6. **Time Out** - When activated the DSLR starts to capture images after a preset time only
7. **Statistical info** - two screens in the SG2 hand control unit display all preset parameters

ADVANCED SG 2 - FOCUS CONTROL

The SG 2 FOCUS-software in the MGA unit controls the Starlight-FeatherTouch MSM-motor focuser - as well as Baader-Steeltrack focusers equipped with Baader-Steeldrive. The MGA also does supply power to the focus motor through 3xAA batteries mounted inside the MGA unit - and it supports following operations:

1. **Focuser model selection** - selects your model of focuser from an internal database
2. **Automatic calibration** - automatically calibrates for absolute focus position (homing)
3. **Temperature compensation** - compensates for temperature induced focus offset by reading the thermo probe which is part of the MSM or SteelDrive-motor focuser
4. **Temperature coefficient self-learning** - automatic „self-learning" function of temperature coefficient
5. **Permanent saving** - permanently saves a preset T-coefficient
6. **Manual adjustment** - supports manual fine adjustment/override of preset T-coefficient
7. **Statistical info** - provides statistical info and displays preset parameters via the SG 2 hand control

AUTOSTAR & LOSMANDY

AUTOSTAR & LOSMANDY - and Vixen & Celestron & Skywatcher and and ….
The autoguiding port in the MGA unit features state of the art optocoupled ports enabling non-simultaneous corrections of RA and DEC axis individually. These elaborate control functions are vital for perfect autoguiding also with older Losmandy #492 „Digital Drive" (and the like) mounts. A dedicated AUTOSTAR port enables perfect autoguiding with all Meade mounts equipped with Autostar #497 (LX90 and LXD55/75). It offers an ease of use never before thought possible.

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ADVANCED SG 2 · AUTOGUIDING

The LVI SmartGuider 2 Imaging Control System allows stringent control over a widely extended range of parameters to achieve professional guiding results. Newly implemented software functions:

1. **DITHERING** - enables an ever so small small frame displacement between single guiding frames when activated. This procedure kills cold pixels („black holes" in the raw image) prevailant in any guiding camera, while the celestial target remains perfectly stationary at the imaging sensor of the CCD- or DSLR-camera

2. **PULSE GUIDE** - controls and finetunes the duration of corrective pulses. Together with the AGGRESSIVENESS-function, this new function helps to eliminate overcorrection (hysteresis)

3. **THRESHOLD** - supports the removal of hot pixels by adjusting the background noise level. Pixels having an ADU value lower than threshold value are not considered by SmartGuider 2 camera while searching for a guide star. This avoids hot pixels from beeing recognized as fake stars.

4. **MAX EXPOSURE** – limits maximum exposure time to adjust on camera sensitivity

SG 2 · SPECIFICATIONS

SG 2-GUIDING CAMERA

Image sensor.....Mono 1/3" Aptina MT9V032
Sensor format.....752x480 pixel (6 micron square)
Active area.....4.51x2.88mm (5.35mm diagonal)
Exposure time.....AUTO, 0.001 - 4 seconds
MAX Exposure.....MANUAL 1 - 4 seconds
Telescope interface.....1.25" nosepiece w. M28.5 filter thread
Dimensions and weight.....Diam.x H = 65x50mm, weight = 110g
Limiting magnitude star.....Up to Mv=9 with 80mm aperture

SG 2-HAND CONTROL UNIT

Housing.....ABS black color
Keyboard.....soft key panel, with 3 backlit buttons
Display.....graphical 2.5" LCD, 128x64 pixel, backlit
Dimensions and weight.....LxHxW: 55x96x28mm, Weight: 220g
Power supply.....6-14V DC, 90-120 mA

SG 2-MGA UNIT

Output ports.....DSLR-REFLEX, FOCUSER, ST4, AUTOSTAR, GUIDER
Dimensions and weight.....LxWxH=118x102x33mm, Weight=125g
Battery holder.....3xAA batteries for FOCUS motor power supply

SG 2-FEATURES

- Automatic Star-Search function
- Noise threshold adjustable to eliminate hot pixels
- Real time display of focus and star position. On the 2.5" LCD screen.
- Automatic RA&DEC calibration in permanent memory
- Screen brightness and beep sound adjustable
- Dithering for controlled guide star displacement.
- Aggressiveness and Pulse Duration adjustable
- Sub-pixel 2X autoguiding (enabling ultrashort guide scopes)
- Advanced control of DSLR-REFLEX and FOCUS software

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AUTHORIZED LVI SG 2-DEALER: