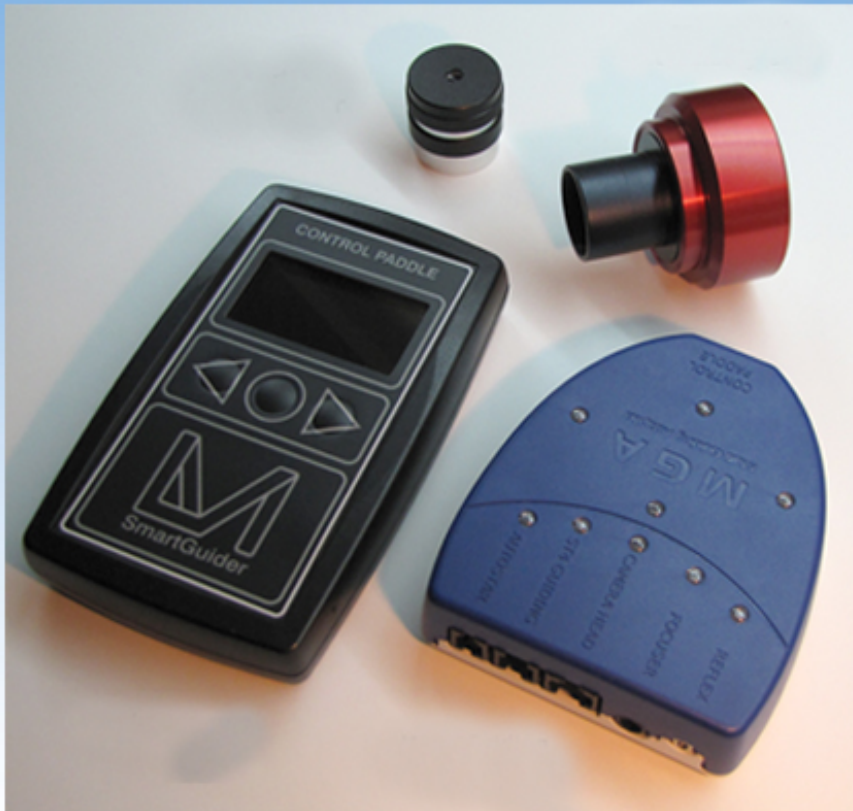


# SMARTGUIDER LVI SG2



## Troubleshooting + Tips and Tricks ENG version - FW 2.01

# 1. Introduction

The Smartguider camera is very simple and intuitive to use. However, as with any setup, when taking long exposure astro-images you may be faced with problems in autoguiding. The following are some messages which could potentially show during setup or while autoguiding.

For further information, please don't hesitate to contact LVI.

## 1.1 Messages learning

### 1.1.1 STAR LOST!

This message is accompanied by an audible signal until the star becomes visible again. It is displayed only during autoguiding and may occur if:

1. *The sky has clouded over;*
2. *Dew forms on the guidescope objective;*
3. *The guiding speed is too high;*
4. *The telescope was hit;*
5. *Strained cables*



**Cases #1, #2** - The SmartGuider can no longer find the guide star and starts beeping every second, for up to 30 seconds, until the star becomes visible again; otherwise, autoguiding is aborted.

**Case #3** - The mount guiding speed is too high and the guide star keeps wobbling in the field of view, so the camera can hardly track it. In this case, the guiding speed should be lowered through the mount control box. Typical suggested values are between 0.125x (12.5% of the sidereal rate) and 0.50x (50% of the sidereal rate).

**Cases #4, #5** - If the telescope gets hit or cables strained, the SmartGuider camera can lose the star for a while or permanently, depending how on much the telescope aim has been thrown off.



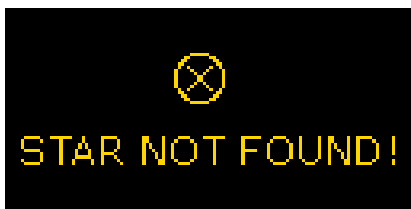
**During operation, the Control Paddle should be kept firmly in place on a stable surface, or hung up onto the mount.**

**Please do NOT touch or leave it in an unstable position!**

### 1.1.2 STAR NOT FOUND!

This message can be displayed after **STAR SEARCH...** and occurs if:

1. *The guide star is too faint (See page.5: 'Technical Specifications');*
2. *Dew forms on the guide scope objective;*
3. *The guide scope support and/or focuser are not sufficiently stable;*
4. *The guide scope focuser is moved in or out from correct focus position;*
5. *The SmartEye eyepiece is not perfectly parfocal with the camera.*



**Case #1** – Pick a brighter guide star.

**Case #2** – Clean the guide scope objective and/ or use some dew-removing device (e.g. a dew cap).

**Case #3** - Make sure your autoguiding setup is reasonably flexure-free.

**Case #4** – If the camera has been previously focused with the SmartEye eyepiece, make sure the drawtube holds firm and **NEVER** move it away from its position. This can easily throw focus off and cause vibrations: either way, the camera is very likely to lose the star, especially if a dim one was being used.

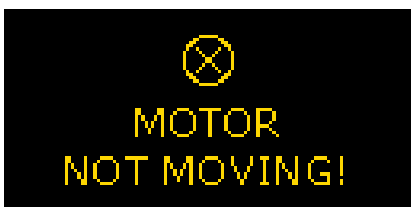
**Case #5** - If the guide star is bright enough (see page 5 'Technical Specifications') and all your gear is sturdy enough, then your SmartEye eyepiece might not be perfectly parfocal with the camera. In this case, please return it to either your dealer or LVI for service and fine-tuning.



**A rock-solid autoguiding setup is of utmost importance in order to make the SmartGuider camera flawlessly running with your telescope! A too flimsy gear will cause the camera to wobble and a higher chance of failure!**

### 1.1.3 MOTOR NOT MOVING!

The following message is displayed during calibration if:



1. *The SmartGuider camera cannot communicate with your mount;*
2. *The guiding speed is either too high or too low;*

3. *The guide star has been lost;*
4. *There is huge backlash in the declination axis.*

**Case #1** - Check your mount compatibility on the chart that can be found in the inner face of the SmartGuider case lid.

**Case #2** – Carefully take note of when this message is displayed. If it happens within about a dozen seconds since the start of step *1/6 Moving RA-*, the guiding speed must be lowered through your mount control box.

If it happens in a couple of minutes, the guiding speed must be increased. Suggested values range from 0.10x (10% of the sidereal rate) up to 0.50x (50% of the sidereal rate).

**Case #3** - See error message “**1.1.1 STAR LOST**”.

**Case #4** – Adjust your mount as to minimize the backlash between the worm and the gear. Such an error could be displayed during *3/6 Moving DEC+* calibration step.

#### 1.1.4 COMMUNICATION ERROR!



camera for service.

The following message is displayed if the cable connecting the Control Paddle and the camera head gets accidentally disconnected, or in case it's too long or faulty. This message could be displayed also in case of a faulty camera. In this occurrence, please contact your vendor or LVI to return the

#### 1.1.5 HOT PIXEL DETECTION



If a “star” about 3 pixels across unexpectedly appears quite far away from the sensor center, it can likely be a hot pixel. This happens most often in summer, when hot temperatures can randomly turn hot pixels on, especially if the camera has been heavily used for a quite long time. To make sure about the nature of that “star”, power off the camera for a while and then turn it back on with the nosepiece tightly capped. This operation can be performed also at daytime in a dark environment. Run **STAR SEARCH...** in this conditions, and if the

**STAR FOUND!** message is displayed, please return your camera to your dealer or LVI for service.

## MGA Controllbox

If you have a DSLR Camera connected to the MGA Box without Power on, there will be the possibility of unwanted/unexpected exposures. This is caused by the following problem:

**WITHOUT** power On at the MGA Box, the output signal of the DSLR port is **INDIFFERENT**. First of all must power connected to the Box and switched on, than there is a clear signal at the DSLR port. Please check the following sequence, when working with your DSLR

1. Connect MGA Box to the Controll Pad,
2. connect the guider head to the Controll Pad,
3. switch on power
4. connect your DSLR to the MGA Box and last
5. switch on your DSLR

The same unwanted exporure may happens, when you switch off the power of the MGA Box with connected DSLR. So first disconnect the DSLR, than switch down the power of the MGA Box.

Please keep in mind, that your DSLR **MUST** set to **BULB** for exposure times longer than 30 seconds !

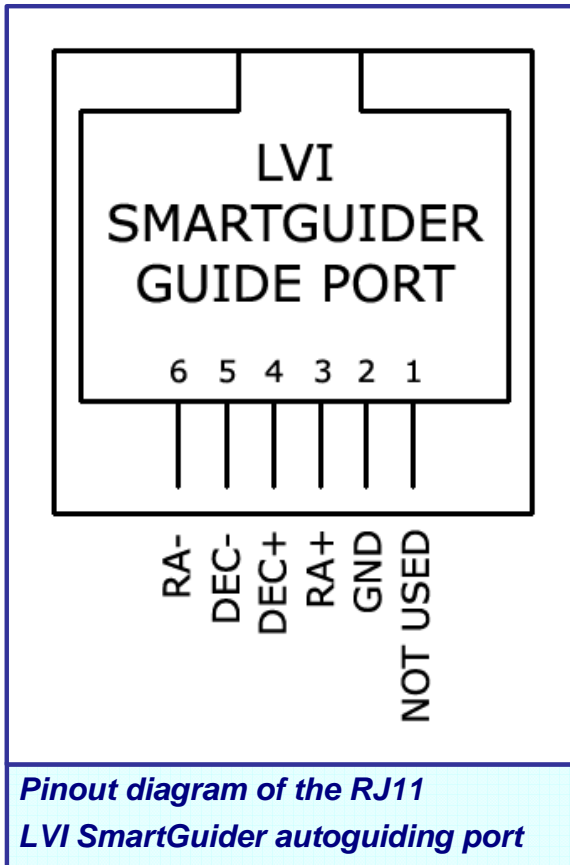
## 2. Autoguiding Port

The SmartGuider camera comes with an “open collector” autoguiding port, fully compliant with the ST4 standard. This means it can be plugged straight into all most popular equatorial mounts having such an autoguiding port.

However, there can be some exceptions: plugs other than RJ11, different pinout, or even electrical incompatibility could cause communication problems between the mount and the camera.

In this case, an additional cable or adapter is required to ensure compatibility of the SmartGuider camera with such mounts.

A detailed chart is available in the “Download Area” section of the LVI



website which shows the compatibility of the camera towards a broad selection of popular mounts, and a list of optional add-ons that are necessary for proper operation.

The same chart can also be found on the inner face of the Smartguider plastic case.

**For mounts, that doesn't have a ST4 compatible port, you need special cables to connect the SG2 to your mount.**

- For **Vixen** mounts

Company	Mount	Controll
Vixen	Atlux, Sphinx+Sphinx-D, GP2+GP D2	StarBook, SkySensor 2000 und SkySensor 2000PC

you'll need the **LVI-Vix Adapter** (#146 5045) cable.

- For **Takahashi** Montierungen und Steuerungen

Comany	Mount	Controll
Takahashi	EM 10/11, EM200, EM400 und EM 500	Gemma II

you'll need the Adapterkabel **LVI-TAK Adapter** (#146 5055) cable.

- Für Meade

Company	Mount	Controll
Meade	LX 200, RCX 400 und ACF	LX 200

you'll need the spezial cable **LVI-LX** (#146 5040). And for Meade Autostar #497

Company	Mount	Controll
Meade	LX90, LXD55/75 und ETX	AutoStar #497

you'll need the special cable **LVI-LXD** (#146 5035). You can order all cables online at <http://www.baader-planetarium.de/sektion/s21/s21.htm#kabel>. Please keep in mind, that you also need special cables to connect your DSLR to the MGA box.

Part number # 146 5010 is for

## **CANON EOS MODELL + PENTAX**

**300D, 350D, 400D, 450D, 500D, 550D, 1000D**

**\*ist, \*istD, \*istDL, \*istDL2, \*istDs, K100D, K110D, K10D, K20D, K200**

Part number # 146 5015 is for

## **CANON EOS MODELL**

**20D, 20DA, 30D, 40D, 50D, 5D, 7D**

**1D Mark II, 1Ds Mark II, 1D Mark III, 1Ds Mark III, 1D Mark IV, 5D Mark II**

Part number # 146 5020 is for

## **MODELLE NIKON + FUJIFILM**

**D200, D300, D300s, D700, D1, D1H, D1X, D2Xs, D2Hs, D2X, D2H**

**D3, D3X, F5, F6, F90, F90X, F100**

**S3PRO, S5PRO**

and part number # 146 5025 is for

## **MODELLE SONY + MINOLTA**

**$\alpha$  100,  $\alpha$  200,  $\alpha$  300,  $\alpha$  350,  $\alpha$  500,  $\alpha$  550,  $\alpha$  700,  $\alpha$  850,  $\alpha$  900**

**Dynax 5D, 7D – DiIMAGE 3, 4, 5, 7, 7i, 7Hi, 9**

## 3. Mount adjusting

Most of cheap mounts do usually deliver a tedious backlash which is often causing a poor stability but also an hard autoguiding when taking long exposed astrophotos. This is mostly true in declination (DEC) axis where the SmartGuider can move the telescope in different directions and the mount reaction might be too slow causing a star trailing along that axis. If a noticeable dead time (say a star stalling for 5 or more seconds) happens when inverting the telescope direction along the DEC axis, this mount requires a worm engagement.

Find here below a website list where to pick useful information how to adjust the backlash over a broad variety of mounts.

### 3.1 SKYWATCHER HEQ5/EQ6

<http://www.astro-baby.com/heq5-rebuild/heq5-we1.htm>

### 3.2 LOSMANDY GM8/G-11

[http://www.astro.uni-bonn.de/~mischa/mounts/g11\\_disassembly.html](http://www.astro.uni-bonn.de/~mischa/mounts/g11_disassembly.html)

### 3.3 VIXEN SPHINX

[http://enzerink.net/peter/index.php?option=com\\_content&view=article&id=48:vix-en-star-book-faq&Itemid=75](http://enzerink.net/peter/index.php?option=com_content&view=article&id=48:vix-en-star-book-faq&Itemid=75)

You will find this manual on our website under:

[http://www.baader-planetarium.de/sektion/s21/lvi\\_e.htm](http://www.baader-planetarium.de/sektion/s21/lvi_e.htm)



**If this troubleshooting guide didn't help solve your problems, LVI technical support will be glad to give you a timely assistance in getting rid of any kind of malfunction!**