

G-Lec S-Drive II

Quick Start Guide



Version 0.1, April 2010
refers to S-Drive Firmware 1.4, G-Lec Software 3.5.19

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About this manual

This manual is intended as a quick guide, to get you started with the newly developed S-Drive II. It will be replaced with a fully fledged manual, including more examples, troubleshooting etc. as soon as possible. For the time being, in case of questions, please do not hesitate to contact G-Lec Vision GmbH (see chapter Contacts for details). Any feedback helps us improve our products and documentation, and thus is highly appreciated.

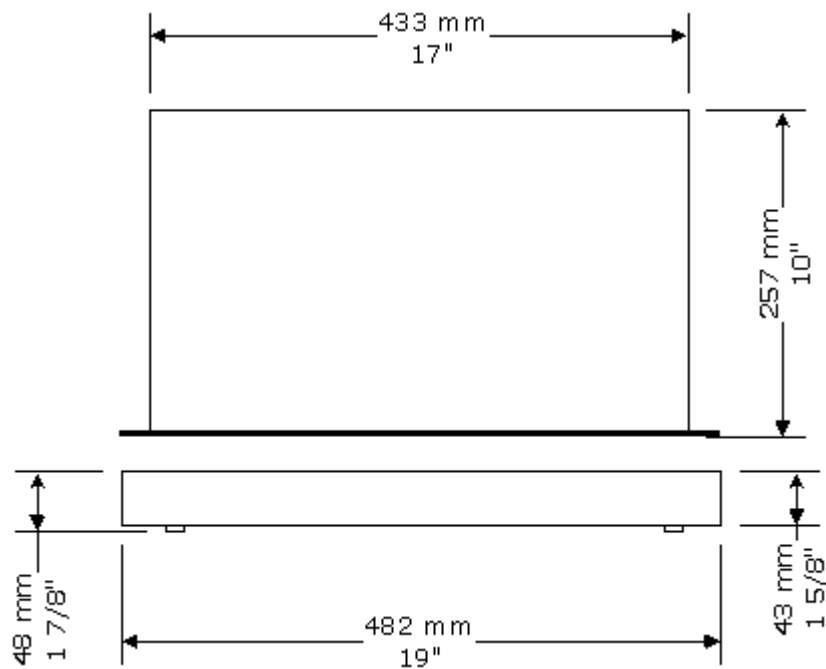
Safety Precautions

- This equipment must be earthed
- IP 20. Do not expose to rain, moisture, dust or heat (like direct sunlight)
- No user-serviceable parts inside, do not open.
- CAUTION: high voltage, possible hazard when unit is open and connected to mains voltage
- This unit outputs laser radiation: Class 1 FDA and IEC laser safety compliant ('safe under all conditions of normal use')

S-Drive II Features

- Wide-range mains voltage (90-240 volts, 50/60Hz). Take care for your local mains connector – direct power intake is Neutrik PowerCon
- DVI-D, single link, video input
- DVI-D, single link, video thru (internal splitter)
- USB 1.1 for control purposes
- Fiber optic connectors (SC, 50/125 μ m) for G-Lec signal (to/from panels)
- Alphanumeric display to show important data (input resolution; cropping area)
- Indicator LEDs for mains, DVI, Fiber Sync

- Input: DVI-D, any resolution up to 1920x1200 pixels, minimum frequency 47 Hz
- Color space: RGB
- Auto-sync: the S-Drive II allows for any sync setting (+/+, -/-, +/-, -/+))
- EDID: S-Drive II sends its own EDID. The data of an optionally connected display is not processed nor forwarded
- Fiber output: a selectable rectangle, being cropped out from the input signal. Cropping area is transparently defined with the G-Lec software. Cropping details are stored in built-in non-volatile memory.



- weight: 2.1 kg/4.62 lbs

System requirements

- G-Lec Phantom Frames, with accessories (power supplies, cabling, suspension etc.)
- Mains power (90-240 V, 50/60 Hz)
- DVI-D source (standard computer, video converter or similar). Please note that it needs to be DVI-D. Any hard-wired adapter VGA-DVI will output DVI-A, and will not work. In turn, adapters HDMI-DVI will work.
- Any computer running Microsoft Windows – Windows on Mac computers work only with Bootcamp (Windows in virtual environments, like VM-Ware, Parallels etc. has problems with USB handling)
- The G-Lec software, downloadable at <http://www.g-lec.com/en/software.html> (in order to retrieve the latest serial.dat file, an active internet connection is recommended during installation)
- Optional: appropriate TFT-Display (DVI-D In)
- Cables (USB, DVI-D)

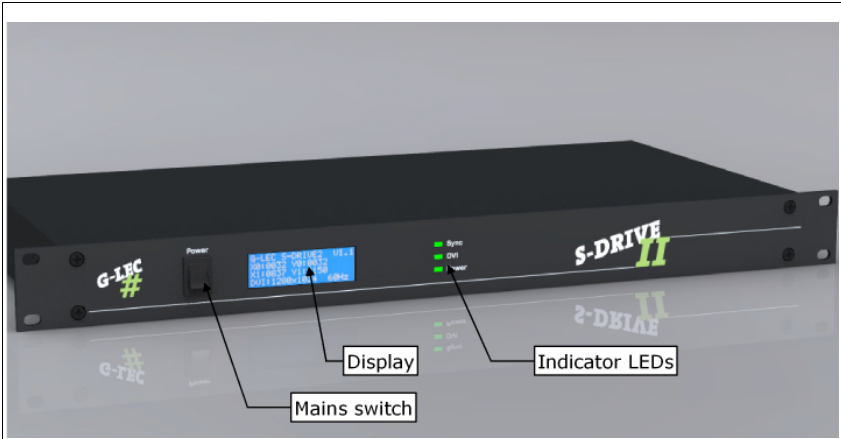


Fig. 1: Front View

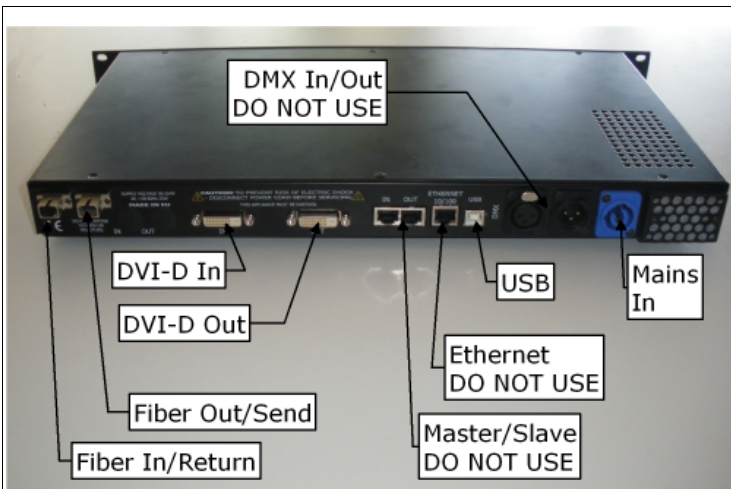


Fig. 2: Rear View

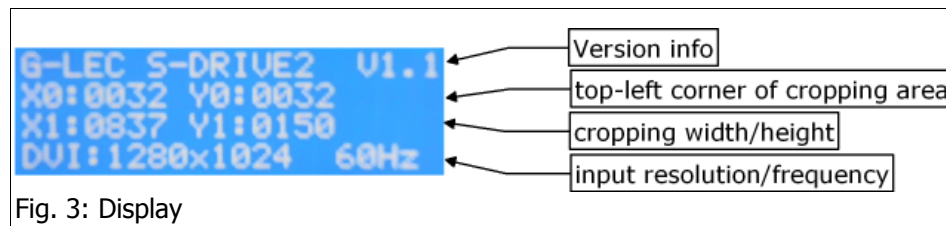


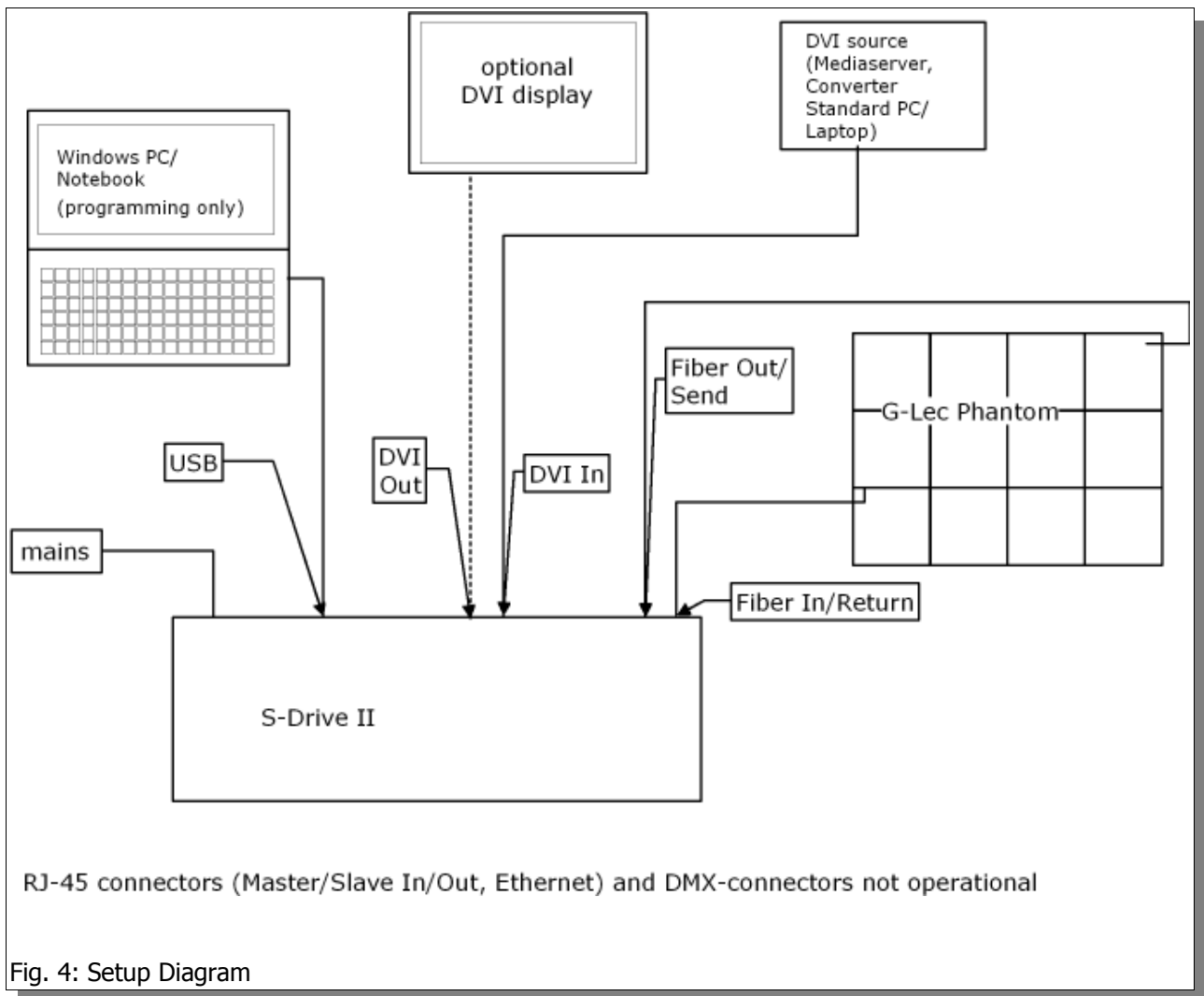
Fig. 3: Display

Indicator LEDs:

Sync: Steady On: DVI present, Fiber chain established
 Blinking: Fiber chain established, DVI failure
 Off: Fiber chain failure

DVI: Steady On: DVI present
 Steady Off: DVI not present (not connected or no signal)
(version 1.4) Fast Blinking: DVI present but cropping area entirely outside DVI size

Power: On: unit powered up
 Off: unit switched off



Installation

- (1) Hook-up the components as shown in above diagram:
 - Mains power supply
 - Fiber cables to/from G-Lec Phantom Frames
 - DVI-D from appropriate DVI video source
- (2) On your control PC, install the latest G-Lec software (from <http://g-lec.com/en/software.html>). It's recommended to install software and drivers prior to connecting the USB cable (however, if Windows doesn't find the drivers later, you might point it manually to [G-Lec program folder]\drv – in standard XP installations: c:\program files\G-Lec Phantom II\drv). Connect USB cable.
- (3) Make sure DVI is properly recognized by the S-Drive (DVI LED lit, and resolution properly displayed)
- (4) Power up everything, make sure the Sync LED is On
- (5) If everything is properly set up, now, the red indicator LEDs at the panels should be off, and the panels are supposed to show some random parts of the DVI input signal

☞ DVI is used as time base for the entire system, and is therefore required for ALL operations. Even showing the serial numbers, or programming the frames or S-Drive, will not succeed without a DVI source

☞ Make sure you have the latest G-Lec software running (AboutUs, Version 3.5.1/9, Nov. 2009, or later). The 'Variable Cropping' feature is required for the S-Drive II

☞ Whilst officially DVI is plug'n'play, it's strongly recommended to switch the S-Drive and the DVI source off prior to connecting the DVI cable, to avoid possible damage. Furthermore, many computers scan for connected peripherals (like displays) at startup time only. Hence, if the computer doesn't find the display 'S-Drive2', reboot the system.

Adjusting the panels

- (1) Make sure everything is properly connected, and DVI is present (all indicator LEDs at the S-Drive must be lit, the S-Drive's display should show the correct DVI resolution, and the panels should at least show some random parts of the DVI signal)
- (2) Start the G-Lec software
- (3) Open the Properties menu:



- (4) Within the Properties window, select your appropriate frame model (Phantom 60, Phantom 30...), and set the input resolution to the same values which are currently present at the S-Drive's input. Close the Properties dialog.
- (5) Open the Show Serial dialog:



(Make sure you click **Show** Serial – **Get** Serial is the wrong option here)

- (6) In the Show Serial dialog, click 'Begin Detect'. A long list will start to run through, and one by one, the panels are supposed to show their serial number (a 1...4 digit decimal number).

☞ If you get the message '*exit, failed open device (DEV0)*': check USB is connected properly, and check the drivers are installed correctly. Sometimes unplugging and replugging the USB cable might do the trick (wait approx. 10 seconds to allow for USB synchronization)

☞ Clicking 'End Detect' will cause the list to run again: the panels will resume normal ('video') operation, without uploading position or brightness.

Close the Show Serial dialog.

- (7) Open the Create Groups dialog:



- (8) In the Create Groups dialog, hover the mouse over the appropriate number/arrangement of panels, starting from the top-left corner. Click on the suitable bottom-right panel (e.g. in a setup with 4 panels wide, 3 panels high, click on the panel in 3rd row, 4th column). Click 'Finish'.

☞ In order to create more groups, click 'Next'.

☞ You may delete groups later from the Main window.

- (9) In the Main window, double-click the gray handle of the group (or right-click, 'edit'). The Edit Groups window will open. Enter the ID numbers shown on the panels (see step (6)) into the appropriate input fields.

☞ When setting-up a chessboard, you might leave the numbers at '0' (zero) intentionally. Close the Edit Groups window.

- (10) Position the group inside the black window according to your needs (drag-and-drop the gray handle). You might wish to use the 'Center' button at the top:



☞ The Center button works correctly only if the video resolution is set properly (see step (4))

☞ Watch the exact pixel readings at the bottom of the Main window.

☞ In order to move a group pixel-by-pixel, you can use the arrow buttons at the top of the main window, or the arrow keys of your keyboard.

- (11) At the top of the Main window, use the Brightness slider to adjust panel brightness to your needs (brightness and positions are stored inside the frames, thus need to be uploaded, and do not change on the fly).

- (12) Click the Variable Cropping button at the top of the Main window:



A green border must appear around your group(s), indicating the computed cropping area. Additionally, the Variable Cropping is displayed at the bottom of the Main window, like:

Variable Cropping area: 128 x 96

- (13) Click the Upload Data button:



The Upload Data window pops open.

(14) In the Upload Data window, select the options your upload requires:

☞ Phantom 60 and Phantom 30-1 do not understand any Gamma command: do not use either 'Global Gamma' nor 'Keep Gamma' with those.

☞ 'Wait answer' tells the software whether it should expect the return line connected. You may uncheck this box in order to perform uploads without return line (this affects the setting in the Show Serial dialog, see step (6))

☞ In order to update only specific groups in a multi-group setup, use the 'Selective Upload' dropdown list.

(15) Click 'Upload'. A list with valuable information will run through, ending with the message 'Upload successful' (hopefully:-) - and your panels toggle back to normal video mode, showing your video signal in correct position and correct brightness

After uploading, check your S-Drive II display: the cropping reading must match the cropping data in the software's Main window (see step (12)).

Close the Upload dialog.

(16) Click 'Save Project', to save your setup:



☞ Make a habit of frequently saving your work. Upon upload, all Information is stored in the frames and the S-Drive only, and there is no way to retrieve it back from there. Furthermore, upon Exit, the software actually doesn't ask whether you want to save. In other words:

SAVE YOUR WORK OFTEN!!!

(17) Close the software. You may disconnect USB now. Your panels are ready to work.

☞ If you need to edit an existing project, you can load it, edit it, and upload again. Please be aware that currently the information for whether Variable Cropping is used is not stored in the project. Make sure to click 'Variable Cropping' again, to see the green border (see step (12)).

☞ Do NOT use the Zoom in the software. Currently there is a bug in the software, and using zoom might confuse your data. (If you accidentally used the Zoom, zoom out again, and click each group, move it with the arrow keys by at least 1 pix, upload/save again).

Understanding Variable Cropping

Due to data rate limitations, the fiber optic link can transmit only something like 400,000 pixels (exact number depends upon resolution, frequency, and shape). Whereas the S-Drive 1 was merely a converter and always converted the entire input signal (including 40 trailing blanking lines at the top) to fiber optic protocol (and thus was limited to 640x480 pixels), the S-Drive II accepts any input resolution, and crops the needed part and sends it to the panels. The software is written in a manner to make this calculation process as easy and transparent as possible.

Imagine just one panel you might wish to locate at $x = 200$, $y = 100$ (the top-left pixel of the panel shall show the pixel in row 100, column 200, of your input feed).

With S-Drive 1, the S-Drive wouldn't do any cropping, and wouldn't need to be programmed. The panel would be programmed to 200 x 140 (remember the aforementioned blanking lines).

With S-Drive II, the S-Drive would be programmed to cropping start at 200 x 100 (automatically allowing for the blanking lines), and the panel would be programmed to 0 x 0. (Cropping width/height is calculated by the software too, based on maximum height/width of panels in your setup. S-Drive will default to minimum cropping dimensions of 150 pixels in smaller setups).

(examples and screenshots are on following pages)

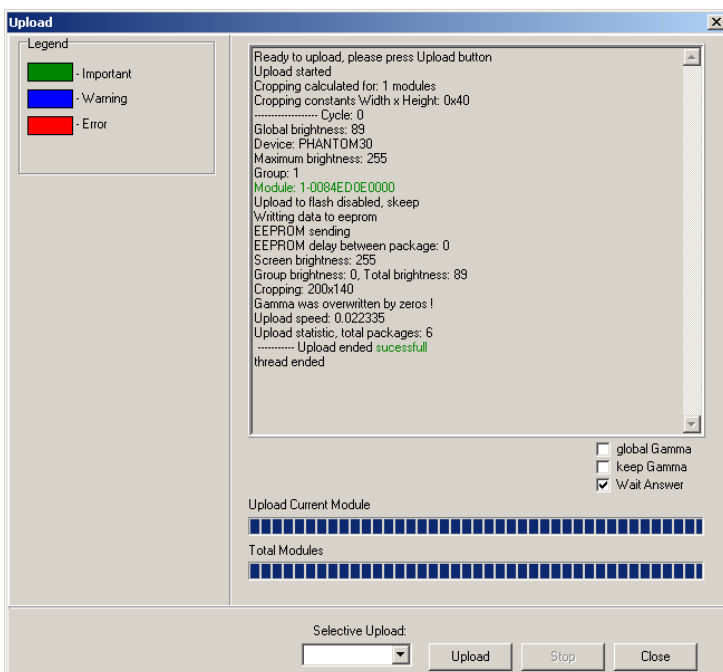
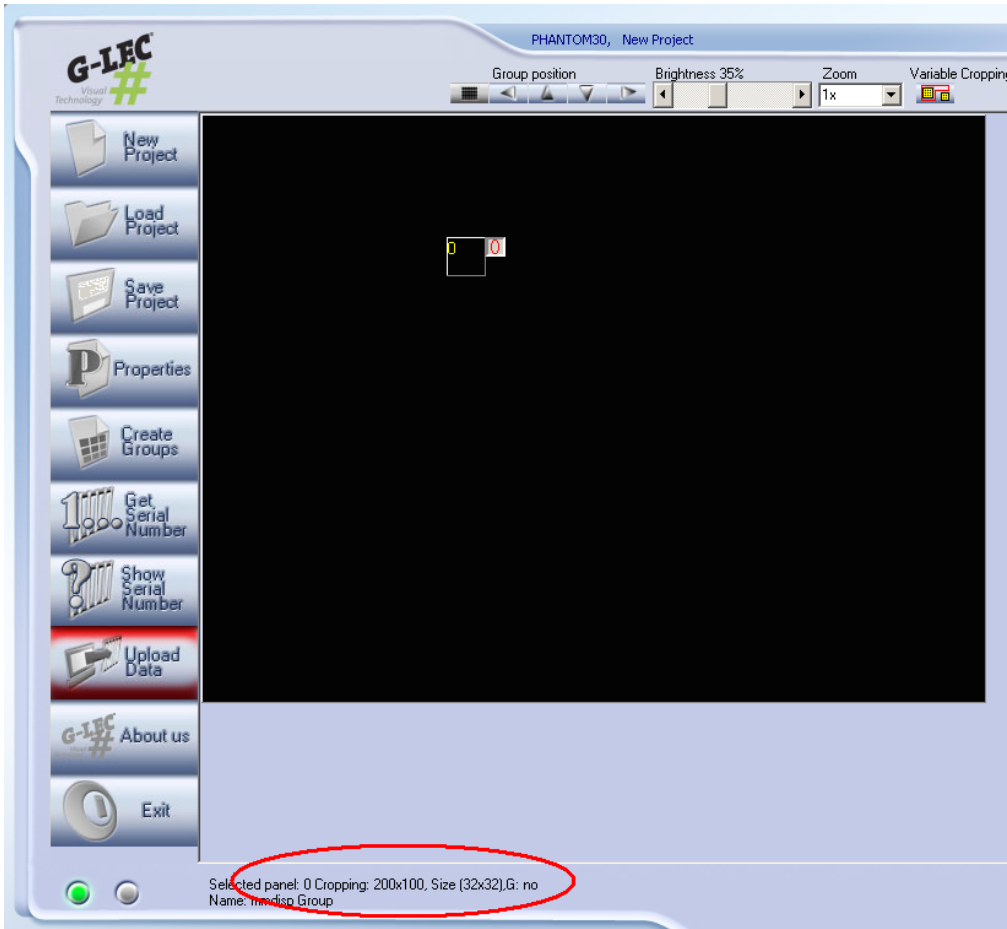
In any case, you do not have to do all the calculations: it's the software which does it for you. All you have to do is click



Things you should keep in mind:

- 👉 Unlike with S-Drive 1, some important data – the cropping coordinates - are stored in the S-Drive II. When using another S-Drive as backup, and expecting immediate switch-over (well, plug-over), make sure to program both S-Drive II to the same cropping coordinates prior to your show.
- 👉 Outside the cropping area, no meaningful video signal is being transmitted. Hence, if you forget to activate 'variable cropping' when uploading, it's likely that your panels are outside the variable cropping area, and don't show proper content. In that case: activate Variable Cropping, and upload again.
- 👉 When using S-Drive II, it's common to position frames at $y < 40$ (see above explanation) – in fact at least one panel **will** be at $y < 40$, since it's the S-Drive who cares for the overall offset. If such a panel is connected to an S-Drive 1 later, it will be in the blanking area. It will show its serial number, but if not uploaded correctly, it will flash randomly. Just do a proper upload, and enjoy.
- 👉 The same is true for $x > 640$ and $y > 480$ (520), which might occur in larger setups. Again: make up a new project, do a proper upload, and off you go.
- 👉 S-Drive II prior version 1.4 only: if the entire variable cropping area is outside the video input resolution (e.g. after unintentionally toggling resolution to a smaller one), it's possible that the panels do not show anything, not even their serial number. The only hint is the message ERR in the S-Drive's display. In that case, either toggle resolution back to a higher one, or blindly program variable cropping into the resolution (just make a new project, one panel, no number, switch on variable cropping and upload) – and try again. S-Drive II version 1.4 and above will temporarily reset to cropping coordinates of 0, 0, 150, 150 in that case (a 150 px square in the top-left corner of the screen), and panels will at least show their serial number. S-Drive will show a meaningful message in the display (cropping area outside video area), and the DVI LED will blink.
- 👉 The maximum cropping area is approx. 400,000 pixels (width x height). If this is exceeded, distortions in your content will appear, squares being rectangles etc. Furthermore, there is a max. cropping width of approx. 1,000 pixels. Full details of this will be given in the full user manual.

Example 1 – see text above: 1 panel located at 200x100, Variable Cropping not activated – no green border around the panel



Watch the messages:

Cropping: 200 x 140

Variable Cropping is not mentioned

Example 2 – see text above: 1 panel located at 200x100, Variable Cropping activated – green border around the panel

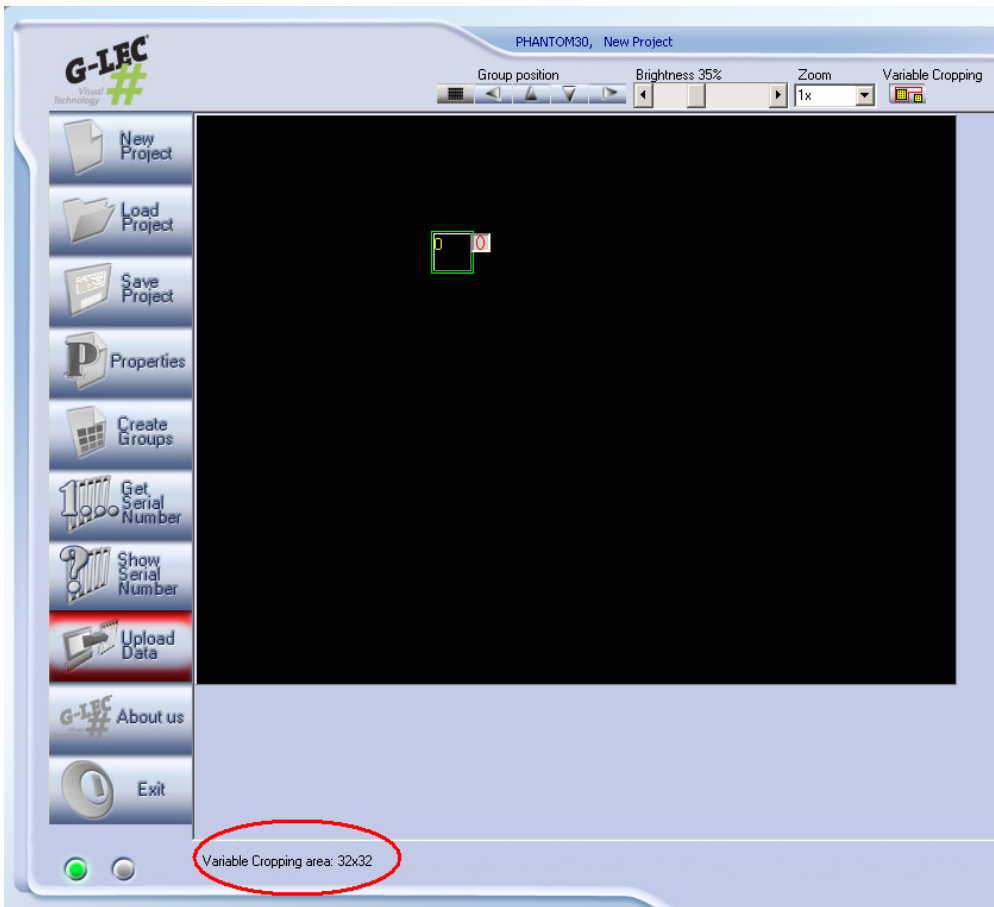


Fig. 7: 1 Frame at 200 x 100, Variable Cropping

Watch the green border around the frame, and the reading at the bottom.

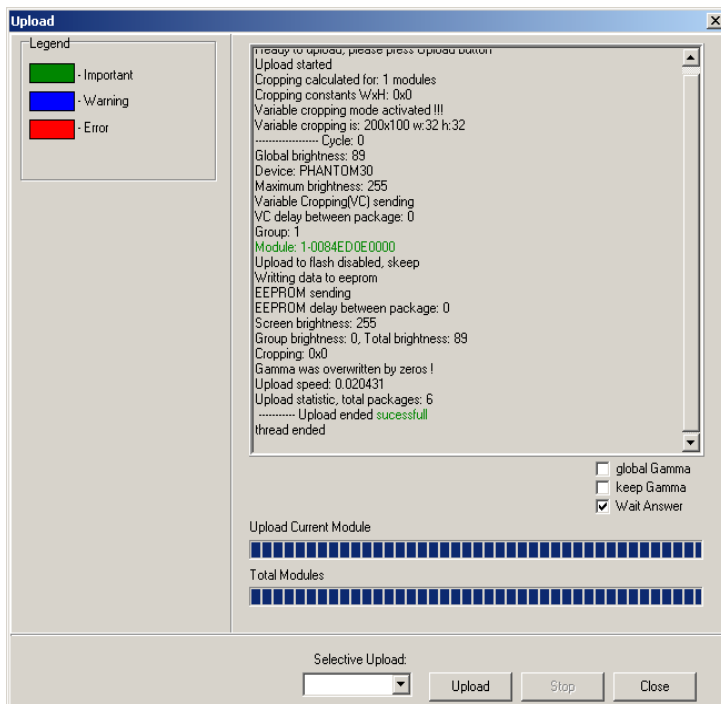


Fig. 8: Upload, Variable Cropping activated

Watch the messages:

```

...
Variable cropping mode activated !!!
Variable cropping is: 200x100 w:32 h:32
----- Cycle: 0
Global brightness: 89
Device: PHANTOM30
Maximum brightness: 255
Variable Cropping(VC) sending
VC delay between package: 0
Group: 1
Module: 1-0084ED0E0000
Upload to flash disabled, skip
Writing data to eeprom
EEPROM sending
EEPROM delay between package: 0
Screen brightness: 255
Group brightness: 0, Total brightness: 89
Cropping: 0x0
Gamma was overwritten by zeros !
Upload speed: 0.027881
Upload statistic, total packages: 6
----- Upload ended successful
thread ended
    
```

Contact, Help, Support

Please find useful information, software updates etc. at our website: <http://www.g-lec.com/en/software.html>

In case of questions and urgent problems, please write to info@g-lec.com

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