



EUVISION
IMAGE TECHNOLOGIES

Service notes for Euvision splitter units
Split 16 4x4 / Split 16 Gold / 3xVision / Split 4 EU

Rev 1

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Introduction

The following operations can be performed in case of malfunctions or unusual behaviour of the splitter units. Anyway, splitter units are complicated powerful video devices built using advanced technology. Euvision strongly feels that it's very important that only qualified personnel open the top cover of the unit. Please observe the following precautions when servicing the device in order to avoid injuries or damages the device itself:

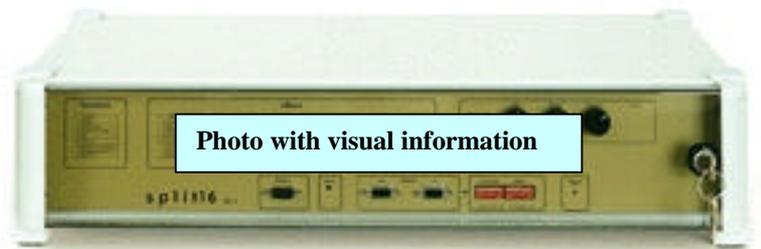
- *Always keep the main power cord disconnected from the mains when the top cover is open*
- *Always work in a static-free ESD protected area*
- *Use grounded soldering / de-soldering irons when replacing components on the main board*
- *Always use a marker to paint a dot on trimmers to be adjusted, so that you can bring them back to their starting position in case of mistakes*

How to read this guide:

This guide uses an easy to read structure to allow you promptly identify the fault and fix it. The following example explains the various sections of each fault report. In the next pages you will find a complete list of all the known faults.

Symptom: *here you will find a detailed description of the symptoms identifying the problem.*

Problem: *here you will find a brief list of the causes which make the problem arise*



Solutions:

A detailed list of fixes, workarounds or things to try to solve the problem can be found here.

Contacting Euvision:

In case your symptom is not reported here or the listed solutions do not solve the problem then please contact Euvision for servicing. Should you need any spare parts then please contact Euvision as well. Original spare parts ensure your Splitter unit always offers its best to you.

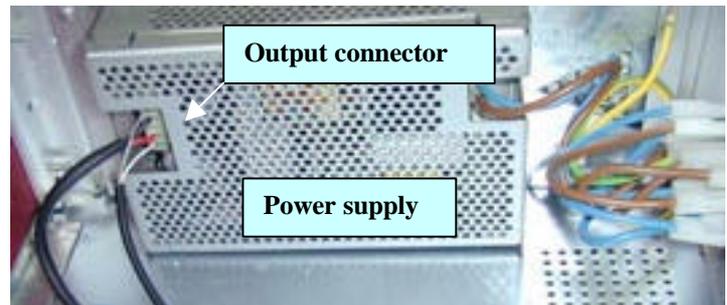
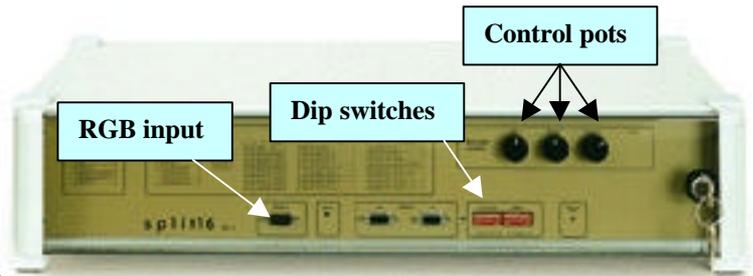
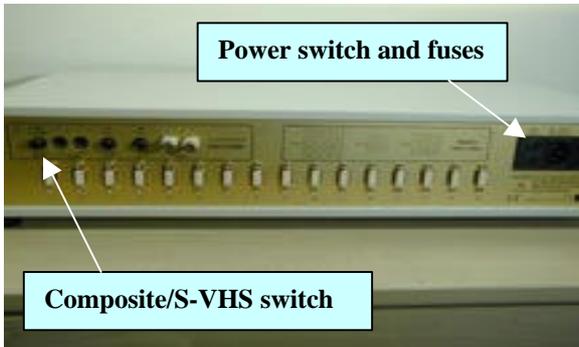
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all monitors show a black screen, the unit seems to be dead.

Problem: this may be caused by several problems. Please check the following list



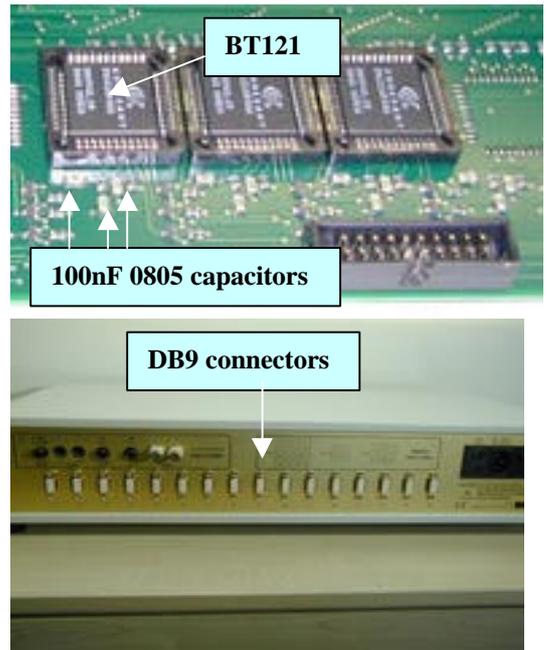
Solutions:

- The unit is not powered. This can be easily verified: if the unit is operational then both the lights on the front panel are lit.
 - ✓ Check the power switch on the rear
 - ✓ Try changing the power cord
 - ✓ Check the two fuses near the power switch. Please replace with exactly the same type of fuse.
 - ✓ Verify your power line. Try connecting another appliance to the same power outlet to verify that the power is effectively present. Please remember that the splitter's power supply must be in the range from 110 to 240VAC with 50 to 60 Hz.
- The monitors are not powered. Videowall systems are built of several monitors, each of which drains power from the mains. If all of them are turned on at the same time then the power drain (which is bigger in the power on phase) can make safety switches engage, turning the Videowall immediately off.
- The image is present but too dark to be seen. Try adjusting the three pots on the front panel of the unit to their middle position. If this is the problem then the image should appear.
- The unit is set to operate in RGB mode. Check the dip switches on the front panel to see if the RGB mode is selected. When this mode is turned on then the video input used is the RGB one, located on the front panel, while when it's off then the video decoder inputs, located on the rear panel, are used.
- The unit is set to operate in the wrong video mode. The video decoder of the unit has a switch which lets the user select between a composite and S-VHS input (which are both located on the rear panel). Try pushing the composite/S-VHS switch. If the wrong input is selected then doing this should solve the problem
- The video input is missing. Try connecting the video signal directly to a monitor instead of connecting it to the splitter. Or, better, try connecting a test signal coming from a surely working test pattern generator to the video input of the splitter. With this operation you can verify that the video signal entering into the splitter is effectively present. If it is not then try replacing the video connection cable coming from the video source or refer to the user manual of the video source itself.
- The monitor input is set to the wrong input. Check that input selection is correct. Most monitors have a rear switch which selects the input, while others have an On Screen Display; in the latter case please check the monitor's user manual. Another problem could be with the priority setting of the monitor. If priority is set to a different input than RGB and this input is fed, the monitor displays the prioritized input so in this case you should disconnect the input or change the priority.
- The power supply of the unit can be broken or defective. Open the top cover of the unit and use your tester to check the voltage of the supply lines going from the power supply to the main board. These voltages are: +5V, +12V and (only used for 3xVision and Split 4EU) -12V. If one of these power lines dropped at zero volts then try replacing the power supply unit (contact Euvision for spare parts)
- The power supply connector can be defective. Check the output connector of the power supply. The heat can loosen the connections. If necessary, replace the connector and increase the size of the cables bringing power to the main board. This is a rare case and can verify only on old pre-series models.

- The video decoder can be defective. Try bypassing the video decoder by plugging an RGB video source in the front panel connector and by switching to RGB mode using the dip switches on the front panel. If this solves the problem the video decoder have to be changed. Please contact Euvision for spare parts.

Symptom: *one of the outputs shows no image (black screen)*

Problem: *this may be caused by several problems. Please check the following list*

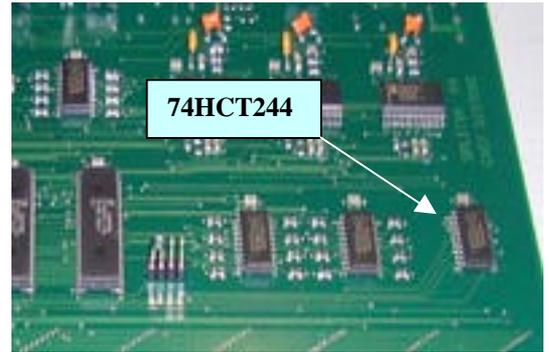


Solutions:

- The output cable can be defective. Try replacing the RGB output cable. If this solves the problem then the wire of the cable can be internally broken. Anyway most often the problem can be fixed by checking the connections inside the DB9 connector ends of the cable. This is especially true for the video sync wire, since monitors engage a screen saver protection when no sync signal can be found.
- The monitor can be defective. Try plugging the cable of a working output into the monitor with no image on it. If the image appears then you have to replace the output cable, otherwise (in case the image does not appear) the monitor is probably defective. Try checking the monitor's input selection, power supply cable of the monitor and its fuses and/or power switch.
- The output board of the splitter unit can have loosen contacts. Check and eventually renew loosen contacts on the connector board, which is mounted right behind the rear panel of the unit.
- The RGB D/A converter of the output is defective. Use a chip extractor tool to remove the faulty IC (BT121) integrated circuit then insert a new one in its socket (contact Euvision for spare parts).
- One or more of the 100nF SMD coupling capacitors around the RGB D/A converter opens or goes short-circuit. Replace all the three capacitors with 100nF 0805 parts. This problem is a rare one and verifies only on older models of the unit (contact Euvision for spare parts).

Symptom: *two of the outputs show a black screen. The outputs are one of the following couple: 1&2, 3&4, 5&6, 7&8, 9&10, 11&12, 13&14 or 15&16*

Problem: *sync signals are shorted or the sync generator integrated circuit which drives the outputs in couple of two is defective and must be replaced.*

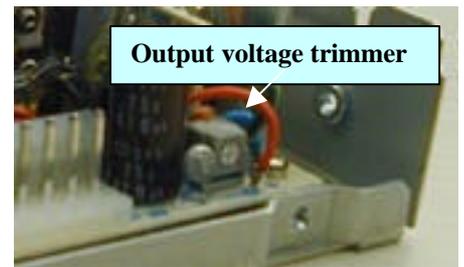
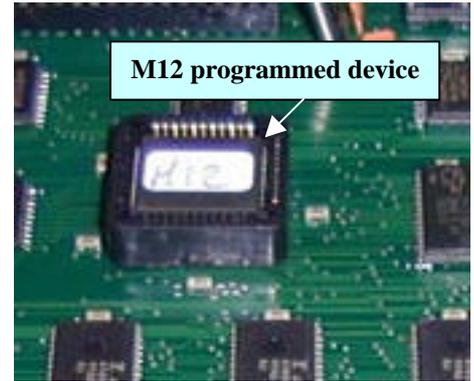


Solutions:

- Check if the sync signal on one of the two cables is shorted. Since the sync signals are shared between two outputs shorting one output means shorting also the second.
- Try connecting the two cables one at time and check if the video is output. If this is true and the cables are working check if there's a short or a very low impedance on the input of the monitor and that the pinout of the cable is correct.
- The driver of the sync signals could be broken. Replace the 74HCT244 integrated circuit located on the main board near the border, on the power supply side of the unit. This IC is the driver for all the 16 outputs.

Symptom: *the lower row of monitors shows coloured pixels superimposed over the image*

Problem: *supply voltage is not correct or the M12 programmable integrated circuit does not work correctly.*

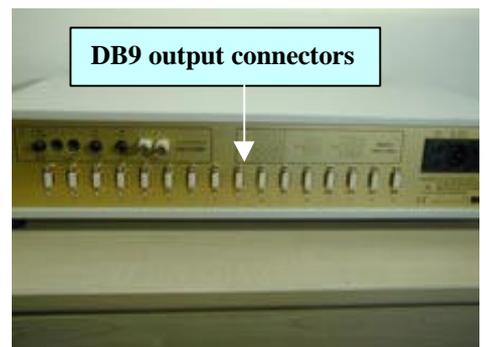
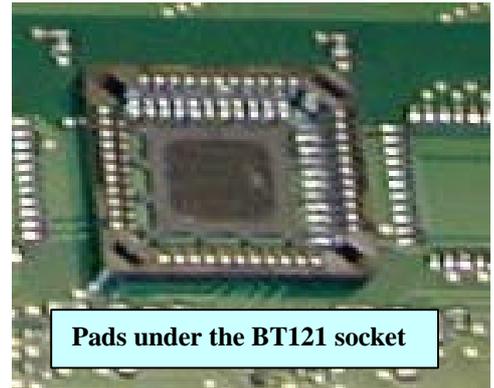


Solutions:

- The first thing to try is to check the power supply unit, since the +5V supply line may have dropped below +4.8V, causing the problem. If this is the case then the problem shows itself when the device is powered, but if the voltage dropped too much then the problem may remain visible even after power on. In either case the problem can be fixed in the following way:
 - ✓ Firmly connect a voltage meter to the +5V supply line coming from the power supply
 - ✓ Turn the unit on
 - ✓ Wait some minutes to let the power supply rise its temperature. Meanwhile find the voltage regulation screw located on the power supply.
 - ✓ Now turn the screw slowly and smoothly to make the tester read +5.1 +/- 0.02V
- If the above does not solve the problem then use a chip extractor to remove the M12 integrated circuit and then replace it with a new one (contact Euvision for spare parts)

Symptom: *one of the outputs lacks of a base colour (red, green or blue)*

Problem: *this may be caused by several problems. Please check the following list.*

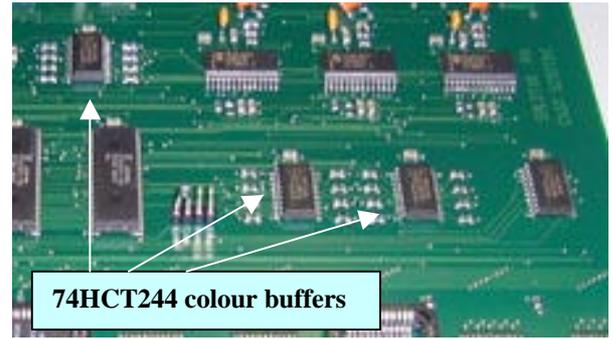


Solutions:

- The monitor is defective. Try feeding a test signal directly into the monitor to verify this. If the base colour does not appear, even using a well-known test signal, then the monitor must be repaired or replaced.
- The RGB cable is damaged. Try replacing the RGB cable or verify the cable connections at both ends. This is especially true for the Red, Green and Blue signal wires.
- The output connector of the splitter may have loosen contacts. Check the output connector board mounted right behind the rear panel of the unit.
- The RGB D/A converter integrated circuit which drives the output is broken or defective. Remove the BT121 component with a chip extractor and replace it with a new one (contact Euvision for spare parts).
- The solder pads connecting the socket under the BT121 integrated circuit to the main board may have loosen contacts. Extract the BT121 component using an appropriate tool, then re-solder the socket and insert the component back.

Symptom: *one of the three base colours (red, green or blue) is clearly distorted on all the outputs.*

Problem: the data of the video A/D converters which digitize the incoming image to be processed do not match the ones fed into the device' raster memory. This is caused by the buffering circuitry surrounding the A/D converter, which is defective.

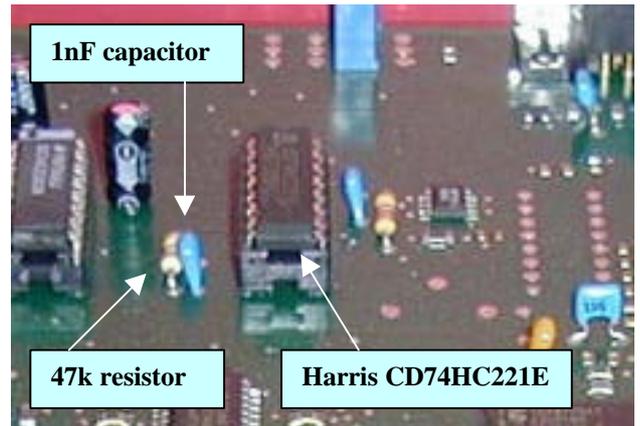


Solutions:

Replace one of the 74HCT244 integrated circuits which surround the A/D converters. There are three converters and three buffers. One each for the red, green and blue chroma signals.

Symptom: *the image luminance and contrast vary on their own; the image gets distorted or too dark; colour gets distorted. The quality of the image is not the one shown when the same video source is connected directly to a monitor.*

Problem: copyright protected material is encoded with a special video protection called “MacroVision” to prevent its illegal duplication. Video Tapes, Satellite transmissions and DVD are most likely MacroVision protected. This modification is only needed on old models.

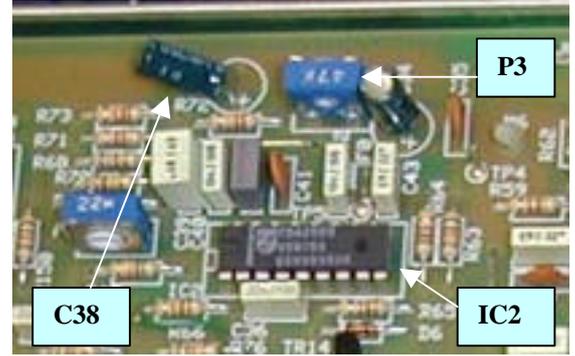


Solutions:

- The following modifications to the main board must be done:
 - ✓ Replace the 47k resistor marked in the picture with a 68k one.
 - ✓ Parallel the 1nF capacitor shown in the picture with a 47pF capacitor.
- If necessary replace the integrated circuit shown in the photo with a “CD74HC221E” built by Harris semiconductors. **WARNING!** the integrated circuit must be the brand/model specified: **no other similar or equivalent integrated circuit will replace this one** (contact Euvision for spare parts).

Symptom: after some operation time, black bands become visible on the screen, disturbing the image.

Problem: the integrated circuit marked IC2 on the video decoder reaches a temperature at which its operating parameters vary.

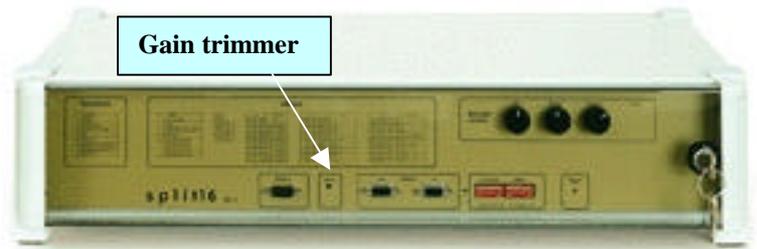
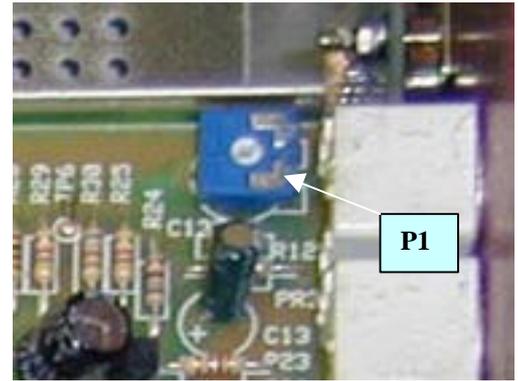


Solutions:

Use a screw driver tool to slowly and smoothly adjust the P3 variable resistor (47k) shown above, turning its screw toward the C38 capacitor.

Symptom: *the white temperature of the Videowall system is different from area to area.*

Problem: this happens when 4 or more Split 16 units are connected together to create large Videowalls. The video decoder used for the Split 16 units has a preset trimmer to adjust the white temperature; but, due to the target this decoder board is addressed to, a rough adjustment only is done on this trimmer by the producer before shipping them to Euvision.



Solutions:

Use a screw driver tool to slowly and smoothly adjust the P1 variable resistor shown above, turning its screw to compensate the colour temperature of the other units. Further fine adjustments can be done using the gain trimmer present on the front panel of the splitter unit.

Symptom: *the image is cut on the left and right side.*

Problem: this happens when the trimmer P7 of the video decoder is not correctly adjusted. Before adjusting this trimmer try adjusting the screen geometry and verify that the display really lacks of a part of the image.

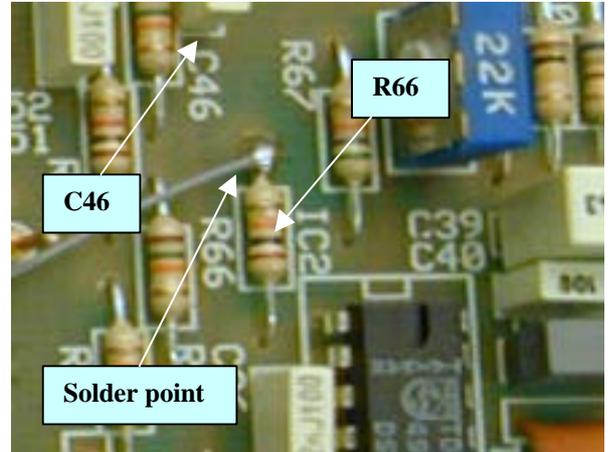
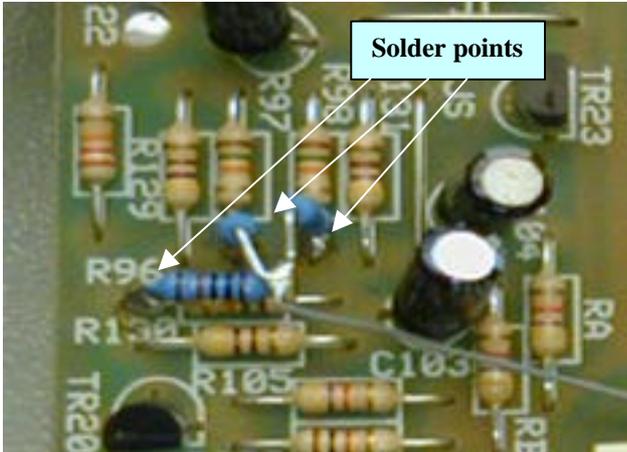
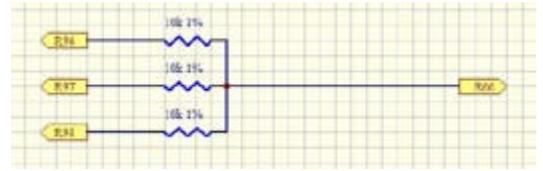


Solutions:

Use a screw driver tool to slowly and smoothly adjust the P7 variable resistor shown above, turning its screw to widen the visible portion of the image.

Symptom: *the black level of the image is not satisfying.*

Problem: the clamping level of the video decoder is not set at the correct voltage level. Since this problem is now fixed during the decoder's production process, this modification may be needed only on older models of the Split 16 unit. Contact Euvision for spare parts.



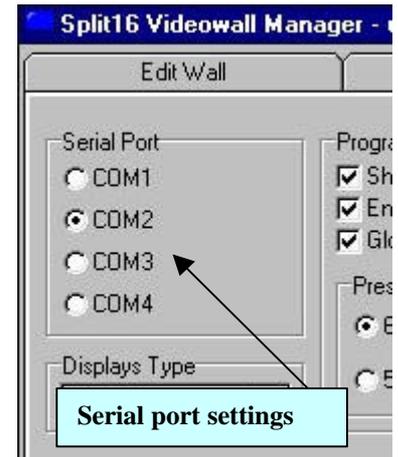
Solutions:

Follow these steps:

- ✓ Get three 10k +/-1% resistors and solder one lead of each to the same wire. Refer to the schematic diagram shown above.
- ✓ Connect the other end of the wire to the R66 lead facing C46. Refer to the above photo.
- ✓ Connect the free ends of the resistors to the following points (refer to the above photo):
 - a) the R96 lead facing the edge of the board
 - b) the R97 lead facing R130
 - c) the R98 lead facing R130

Symptom: *the device works correctly, but cannot be controlled using a PC compatible computer.*

Problem: *this may be caused by several problems. Please check the following list.*



Solutions:

- The serial connection cable may be defective. Try replacing it. If this solves the problem then the cable can probably be repaired by verifying the connections at both ends.
- The serial cable loses data.
 - ✓ The cable has a maximum data-safe length. Use the shortest possible one.
 - ✓ Please note that the serial cable is subject to interference caused by other devices. Although this is not likely to happen, try changing the path of the cable going from the PC to the splitter unit. Avoid possible electromagnetic sources like radio transmitters, huge power supplies, high voltage lines, cellular phones and so on. Also avoid rolling up unused portions of the cable, since the spiral form it assumes may form a coil which rejects those frequencies at which data flows inside the cable.
- The PC is not correctly configured to send data through the serial cable to the splitters. Verify that your serial port works correctly by, for instance, connecting another device to it.
- The software is not correctly configured to drive the splitter units. Ensure that the setup page of the Videowall manager software shows the correct serial port setting. If you don't know to which port the splitter unit is connected to, then try selecting COM1 and run a splitter effect from the Effects page. If nothing happens try the very same thing with the COM2 port and so on.
- The software can be defective, although improbable. Euvision always strives to offer the best to its customers, improving its products and the relative driving software. It may happen that a newer version of the driving software, published on the world wide web, accommodates modifications to the splitter firmware, which have been made in order to improve the product. Try using the software which originally came with your splitter unit instead of using the one downloaded from the web. If this solves the problem then please contact Euvision for a firmware upgrade of the unit. This will let you use newer software versions which may be incompatible with your current firmware versions.