

ENGLISH

LS-190 LED Screen Processor V1

Ordercode: 101600

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Warning



**For your own safety, please read this user manual carefully
before your initial start-up!**

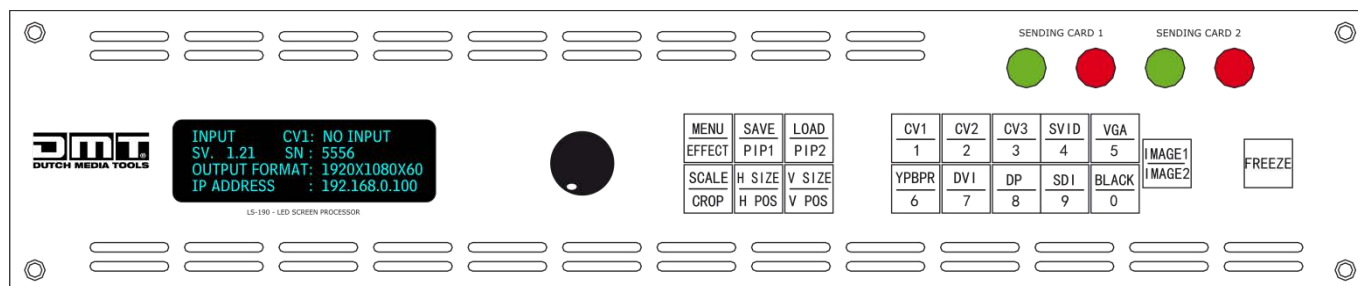


Unpacking Instructions

Immediately upon receiving this product, carefully unpack the carton and check the contents to ensure that all parts are present, and have been received in good condition. Notify the dealer immediately and retain packing material for inspection if any parts appear damaged from shipping or the carton itself shows signs of mishandling. Save the carton and all packing materials. In the event that a fixture must be returned to the factory, it is important that the fixture be returned in the original factory box and packing.

Your shipment includes:

- LS-190 LED Screen Processor with IEC power cable (1,5 m)
- 3 x dvi - dvi 1,5 m / 1 x USB A/B 1,5 m / 1 x DVI - DVI+VGA 10 cm / 1 x BNC - BNC 1,5 m / 1 x BNC - RCA 1,5 m / 1 x CAT5 1,5 m / 1 x RS232-RJ11
- 1 x USB memory stick
- User manual



CAUTION!
Keep this device away from rain and moisture!
Unplug mains lead before opening the housing!



Safety Instructions

Every person involved with the installation, operation and maintenance of this system has to:

- be qualified
- follow the instructions of this manual



CAUTION! Be careful with your operations.
**With a dangerous voltage you can suffer
a dangerous electric shock when touching the wires!**



Before you initial start-up, please make sure that there is no damage caused by transportation. Should there be any, consult your dealer and do not use the system.

To maintain perfect condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes written in this manual.

Please consider that damages caused by manual modifications to the system are not subject to warranty. This system contains no user-serviceable parts. Refer servicing to qualified technicians only.

IMPORTANT:

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorized modification to the system.

- Never let the power cord come into contact with other cables! Handle the power cord and all connections with the mains with particular caution!
- Never remove warning or informative labels from the unit.
- Never use anything to cover the ground contact.
- Never leave any cables lying around.
- Do not insert objects into air vents.
- Do not connect this device to a dimmerpack.
- Do not switch the device on and off in short intervals, as this would reduce the device's life.
- Do not shake the device. Avoid brute force when installing or operating the device.
- Only use device indoors, avoid contact with water or other liquids.
- Only operate the fixture after having checked that the housing is firmly closed and all screws are tightly fastened.
- Only operate the device after having familiarized with its functions.
- Avoid flames and do not put close to flammable liquids or gases.
- Always keep case closed while operating.
- Always allow free air space of at least 50 cm around the unit for ventilation.
- Always disconnect power from the mains, when device is not used or before cleaning! Only handle the power cord by the plug. Never pull out the plug by tugging the power cord.
- Make sure that the device is not exposed to extreme heat, moisture or dust.
- Make sure that the available voltage is not higher than stated on the rear panel.
- Make sure that the power cord is never crimped or damaged. Check the device and the power cord from time to time.
- If device is dropped or struck, disconnect mains power supply immediately. Have a qualified engineer inspect for safety before operating.
- If the device has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on immediately. The arising condensation water might damage your device. Leave the device switched off until it has reached room temperature.
- If your DMT device fails to work properly, discontinue use immediately. Pack the unit securely (preferably in the original packing material), and return it to your DMT dealer for service.
- For adult use only. Device must be installed out of the reach of children. Never leave the unit running unattended.
- Never attempt to bypass the thermostatic switch or fuses.
- For replacement use fuses of same type and rating only.
- The user is responsible for correct positioning and operating of the LS-190 LED Screen Processor. The manufacturer will not accept liability for damages caused by the misuse or incorrect installation of this device.
- This device falls under protection class I. Therefore it is essential to connect the yellow/green conductor to earth.
- Repairs, servicing and electric connection must be carried out by a qualified technician.
- WARRANTY: Till one year after date of purchase.

Operating Determinations

- This device is not designed for permanent operation. Consistent operation breaks will ensure that the device will serve you for a long time without defects.
- The minimum distance between light-output and the illuminated surface must be bigger than 1 meter.
- The maximum ambient temperature $t_a = 40^{\circ}\text{C}$ must never be exceeded.
- The relative humidity must not exceed 50 % with an ambient temperature of 40°C .
- If this device is operated in any other way, than the one described in this manual, the product may suffer damages and the warranty becomes void.
- Any other operation may lead to dangers like short-circuit, burns, electric shock, crash etc.


You endanger your own safety and the safety of others!

Improper installation can cause serious damage to people and property!

Connection with the mains

Connect the device to the mains with the power-plug.

Always pay attention, that the right color cable is connected to the right place.

International	EU Cable	UK Cable	US Cable	Pin
L	BROWN	RED	YELLOW/COPPER	FASE
N	BLUE	BLACK	SILVER	NULL
	YELLOW/GREEN	GREEN	GREEN	EARTH

Make sure that the device is always connected properly to the earth!



Return Procedure



Returned merchandise must be sent prepaid and in the original packing, call tags will not be issued. Package must be clearly labeled with a Return Authorization Number (RMA number). Products returned without an RMA number will be refused. Highlite will not accept the returned goods or any responsibility. Call Highlite 0031-455667723 or mail aftersales@highlite.nl and request an RMA prior to shipping the fixture. Be prepared to provide the model number, serial number and a brief description of the cause for the return. Be sure to properly pack fixture, any shipping damage resulting from inadequate packaging is the customer's responsibility. Highlite reserves the right to use its own discretion to repair or replace product(s). As a suggestion, proper UPS packing or double-boxing is always a safe method to use.

Note: If you are given an RMA number, please include the following information on a piece of paper inside the box:

- 01) Your name
- 02) Your address
- 03) Your phone number
- 04) A brief description of the symptoms

Claims

The client has the obligation to check the delivered goods immediately upon delivery for any shortcomings and/or visible defects, or perform this check after our announcement that the goods are at their disposal. Damage incurred in shipping is the responsibility of the shipper; therefore the damage must be reported to the carrier upon receipt of merchandise.

It is the customer's responsibility to notify and submit claims with the shipper in the event that a fixture is damaged due to shipping. Transportation damage has to be reported to us within one day after receipt of the delivery.

Any return shipment has to be made post-paid at all times. Return shipments must be accompanied with a letter defining the reason for return shipment. Non-prepaid return shipments will be refused, unless otherwise agreed in writing.

Complaints against us must be made known in writing or by fax within 10 working days after receipt of the invoice. After this period complaints will not be handled anymore.

Complaints will only then be considered if the client has so far complied with all parts of the agreement, regardless of the agreement of which the obligation is resulting.

Description of the device

LS-190 is the first LED video processor developed by DMT which supports the LED screen connection function. It supports inputs including 3 × CVBS, 1 × S-Video, 3 × YPbPr, 1 × VGA, 1 × DVI-I (compatible with HDMI), 1 × display port, 1 × 3G SDI, up to 9 channel inputs, and 2 × DVI-I, 1 × VGA, up to 3 simultaneous outputs.

Features

- Input voltage: 85-264V AC, 50/60 Hz
- Power consumption: 2.1 A
- Sending card type: 802
- Inputs:
 - 3 x Composite BNC PAL/NTSC 480i,576i
 - 1 x S-Video DIN 4 PAL/NTSC 480i,576i
 - 3 x YPbPR BNC Analogue HD Input
 - 1 x VGA DB15 VGA-UXGA
 - 1 x DVI-I SMPTE
 - 1 x DP Display port input
 - 1 x 3G SDI Input BNC
- Outputs:
 - 10 x Audio Input RCA Socket 48Kbps 24bit
 - 2 x DVI-I Output
 - 1 x VGA Output
 - 1 x Audio Output 48Kbps 24bit
- Communication: RS232 USB TCP/IP
- Humidity: 10% to 90%
- Dimensions: 482 x 316 x 88 mm (LxWxH)
19 inch x 2 HE
- Weight: 4,7 kg

Frontside

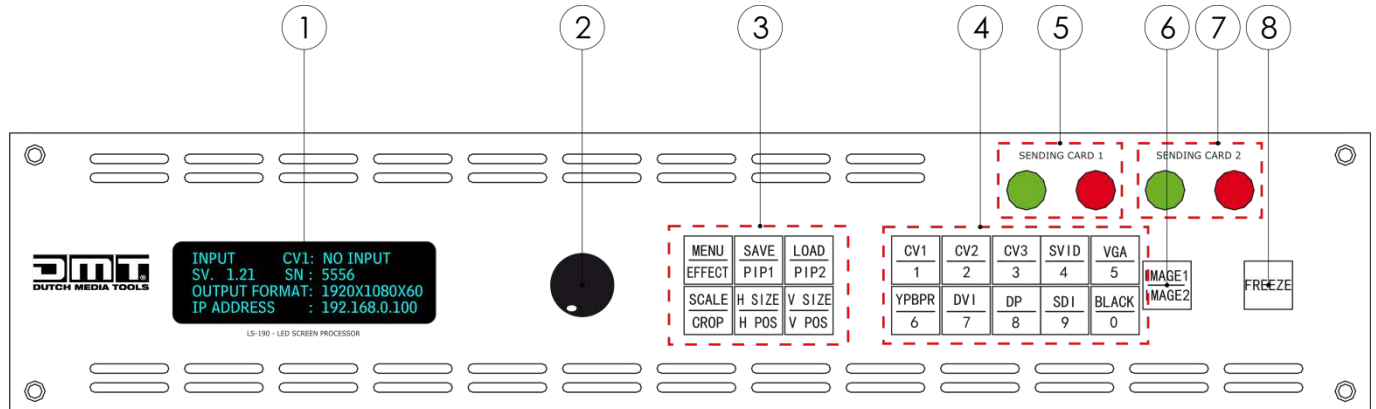


Fig. 01

- 01) OLED display
- 02) Menu control
- 03) Function buttons

- MENU/EFFECT: Menu and Effect function button
Press the button to enter **MENU** mode. When the display shows the menu items, turn the **menu control (02)** to select the desired menu option. Press the **menu control (02)** to confirm, press the button to return to the previous menu.

Press the button twice to enter **EFFECT** mode. Turn the **menu control (02)** and press it to select the **EFFECT** mode. Press the **menu control (02)** to confirm.

- **SAVE/PIP1:** SAVE and PIP1 function button
Press the button to enter **SAVE** mode, turn the **menu control (02)** or press the number button to select the save position. Currently, 10 saving positions are supported. Press the button twice to enter **PIP1** mode, turn the **menu control (02)** to select PIP setup. Press the button again to exit PIP mode.
- **LOAD/PIP2** button
Press the button to enter **LOAD** mode. Turn the **menu control (02)** or press the number button to select LOAD position. Currently, 10 loading positions are supported. Press the button twice to enter **PIP2** mode, turn the **menu control (02)** for PIP setup. Press the button again to close PIP mode.
- **SCALE/CROP** button
Press the button to enter **SCALE** mode. Turn the **menu control (02)** for H SIZE, V SIZE, H POS and V POS setting. Press the **H SIZE\H POS** button to set the width by turning the **menu control (02)** or pressing the desired **number buttons (04)**.
Press the **H SIZE\H POS** button twice and set the horizontal position by turning the **menu control (02)** or pressing the desired **number buttons (04)**. Press the **V SIZE\V POS** button to set the height by turning the **menu control (02)** or pressing the desired **number buttons (04)**. Press the **V SIZE\V POS** button twice and set the vertical position by turning the **menu control (02)** or pressing the desired **number buttons (04)**. Press the button twice to enter **CROP** mode. Turn the **menu control (02)** to choose the crop menu items and adjust the image by turning the **menu control (02)** or pressing the desired **number buttons (04)**.
- **H SIZE/H POS** button (Width/Horizontal position)
Press the button to enter the width settings. Press the button twice to enter the horizontal position settings.
- **V SIZE/V POS** button (Height/Vertical position)
Press the button to enter the height settings. Press the button again to enter the vertical position settings.

04) Function buttons

- CV1 input selection button
- CV2 input selection button
- CV3 input selection button
- S-Video input selection button
- VGA input selection button
- YPBPR input selection button
- DVI input selection button
- Display port input selection button
- SDI input selection button
Press the button. When its LED is on, output will be sent to this channel.
- Black button
Press the button. When its LED is on, the user can select the display mode from the LCD panel, system default black. Push the button again to disable the black function

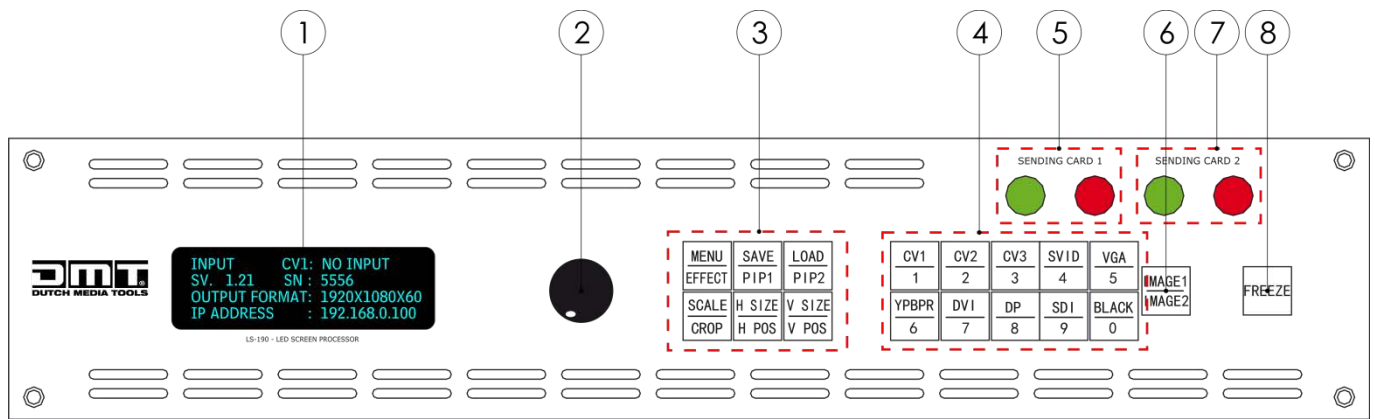


Fig. 02

05) **Sending card # 1 LED indicator**

Red (power indicator): The LED is on when the device is connected to the power supply.
Green (signal indicator): The LED is flashing when the sending card receives signal input.

06) **IMAGE1/IMAGE2: IMAGEA and IMAGE B select button**

07) **Sending card # 2 LED indicator**

Red (power indicator): The LED is on when the device is connected to the power supply.
Green (signal indicator): The LED is flashing when the sending card receives signal input.

08) **Freeze button**

Press the button. When the LED is on, the output image becomes frozen. Press the button to return to live image.

Note: In PIP mode, both IMAGE1 and IMAGE2 are frozen.

Backside

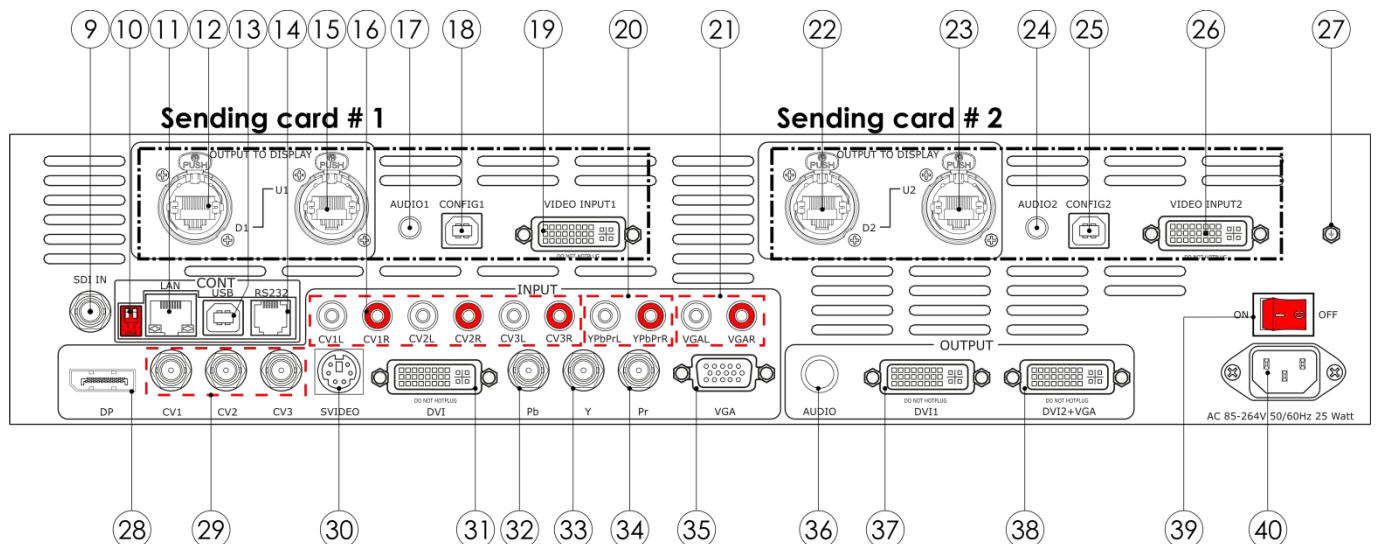


Fig. 03

09) 3G-SDI Input

10) DIP switches

If the two DIP switches are in the up position, the device is operating in normal mode. If they are in the down position, the device is in upgrade mode. While in upgrade mode, the display is off. Some of the button lights turn on, and the device will not function. This mode should only be used by the manufacturer, for upgrading.



Normal mode

Operation for the second controller

Operation for the third controller

Upgrade mode

11) 10/100M UDP Interface

This interface can be used for software control.

12, 15, 22, 23) U and D ports (Default port, always use U-port, but for large setups use D-port)

Output ports to a LED screen. Connect the LED screen to one of these ports using a standard CAT5 or CAT6 cable with or without the Ethercon connector.

13) USB Interface

Control the LS-190 with its software.

14) RS232 Interface

Use this interface for maintenance and upgrading.

16) Audio Inputs

17, 24) Audio Input of the Sending Card.

18, 25) USB Control Port of Sending Card

Connect the device to a PC. The sending card is controlled by LED Studio Software or the LS-190 software controls.

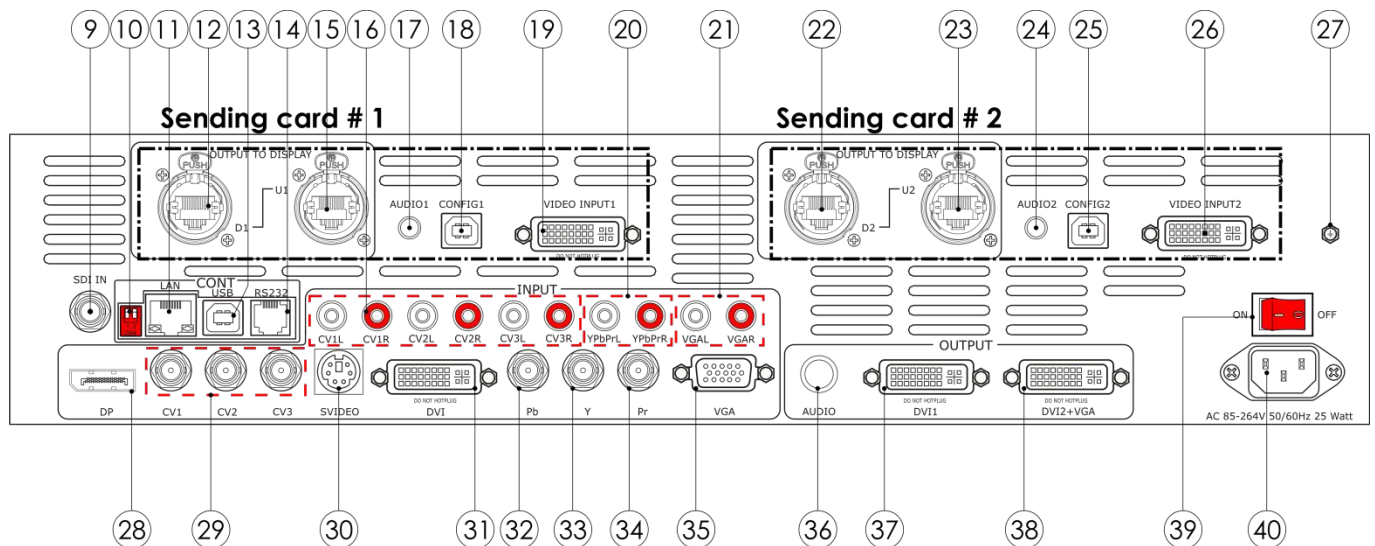


Fig. 04

19, 26) DVI Input Port of Sending Card

Connect to the DVI output from the video processor. (This DVI connector does not support hot-plugging).

20) Audio Inputs

21) Audio Inputs

27) Ground/Earth connection

28) Display Port Input

29) CVBS Input

Connect standard video signal from players, cameras etc. The supported resolutions are 480i and 576i via BNC. Supported standards include PAL, NTSC and SECAM.

30) S-Video DIN 4

Connect an S-Video signal (PAL, NTSC, SECAM compatible).

31) DVI Input

32, 33, 34) YPbPr Input

R/Pr G/Y B/Pb BNC, support SD/HD analog video input, up to 1080p60.

35) VGA Input

36) AUDIO Output

37) DVI Output

Connect to a preview monitor or a sending card. (This DVI connector does not support hot-plugging).

38) DVI +VGA DVI Output

Connect to a preview monitor or a sending card. (This DVI connector does not support hot-plugging.) Use a DVI to VGA adapter connector to connect a VGA source.



Via adapter, you can connect DVI-based or VGA-based equipment.



The DVI to VGA adapter can output VGA only.

39) Power switch ON/OFF

40) IEC Power Connector 85-264V AC, 50/60 Hz



Do not HOT plug HDMI or DVI



Turn OFF your device before connecting any cables!

Otherwise your device can become damaged and your warranty will become void.



Installation

Remove all packing materials from the LS-190 LED Screen Processor. Check that all foam and plastic padding is removed. Connect all cables.

Do not supply power before the whole system is set up and connected properly.
Always disconnect from electric mains power supply before cleaning or servicing.
Damages caused by non-observance are not subject to warranty.

Set Up and Operation

Follow the directions below, as they pertain to your preferred operation mode.

Before plugging the unit in, always make sure that the power supply matches the product specification voltage. Do not attempt to operate a 120V specification product on 230V power, or vice versa.

Setup Example

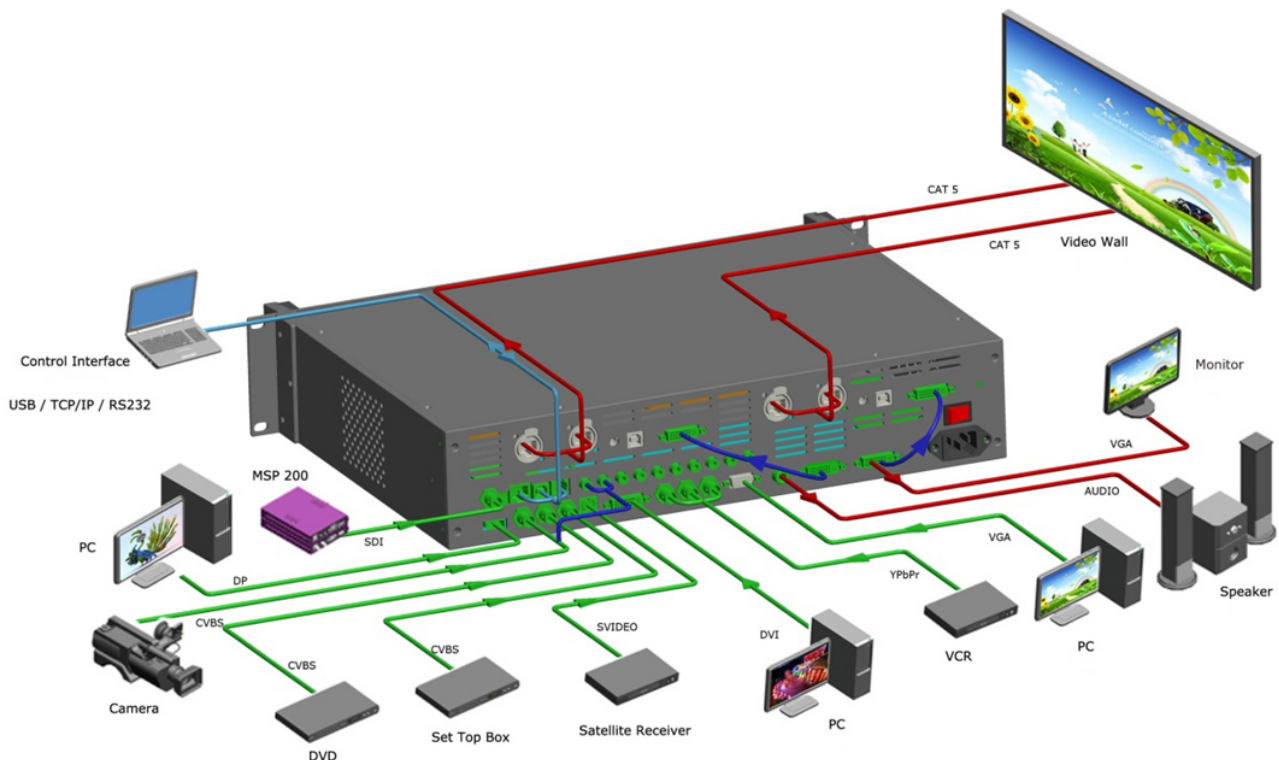
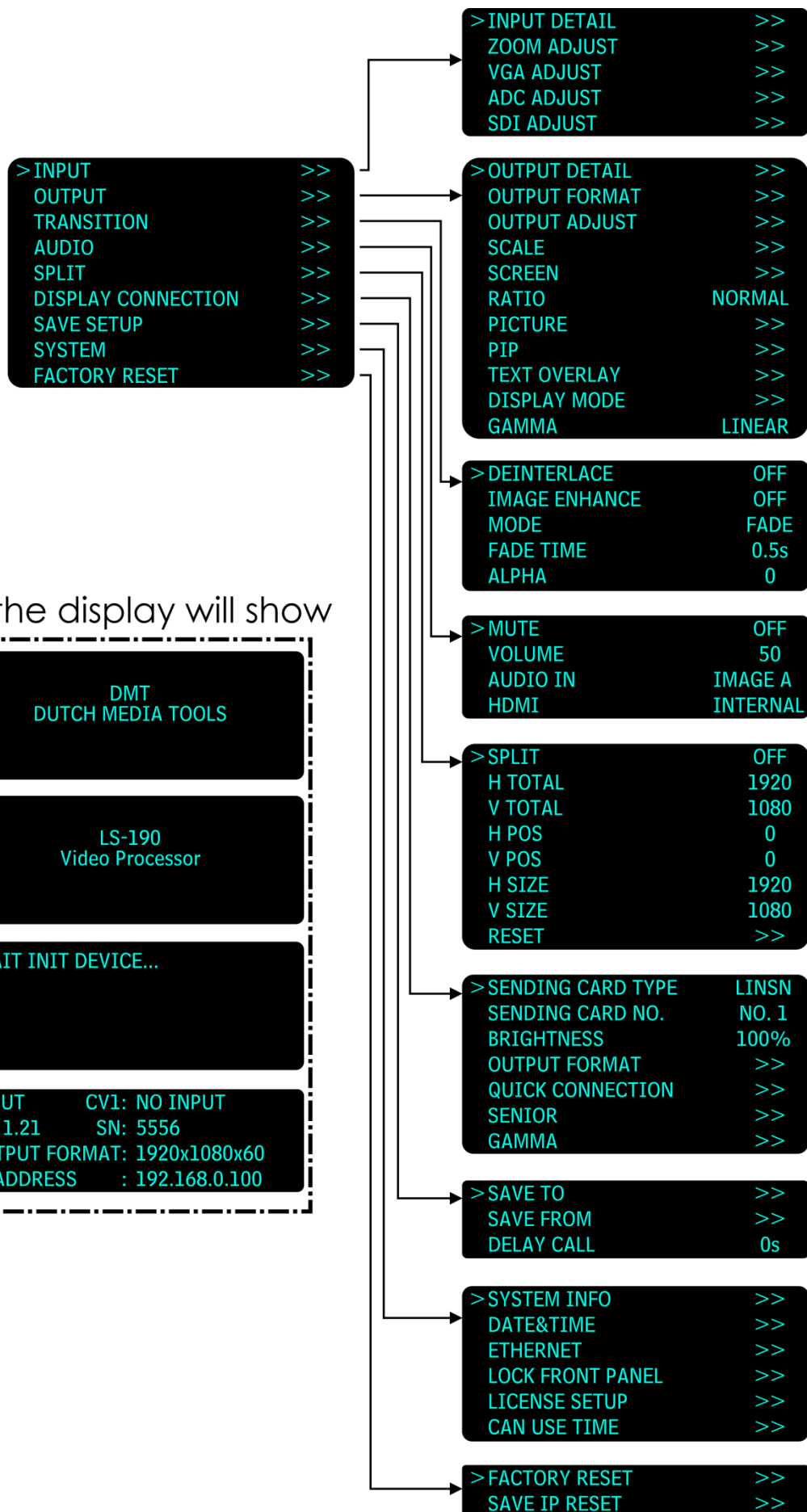
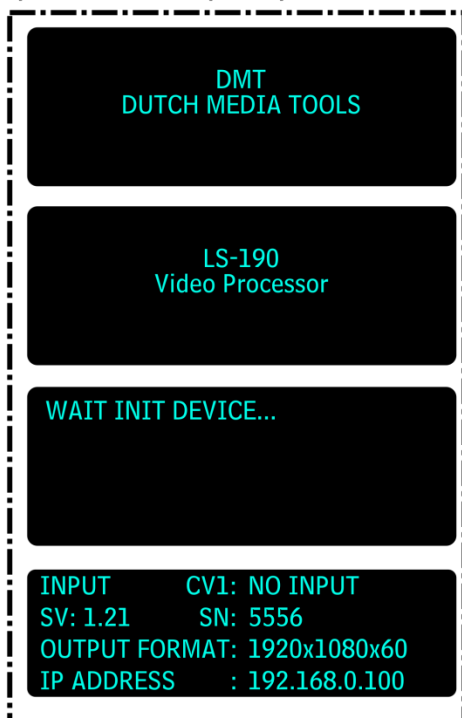


Fig. 05

Menu Overview



At start-up, the display will show




Main Menu Options

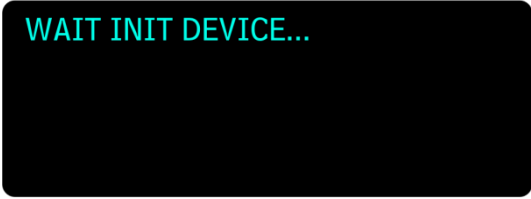
01) At start-up, the display will show 4 screens:



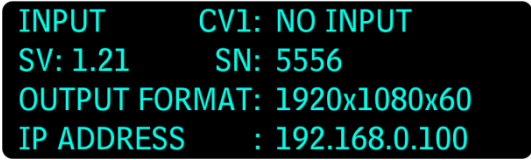
DMT
DUTCH MEDIA TOOLS



LS-190
Video Processor

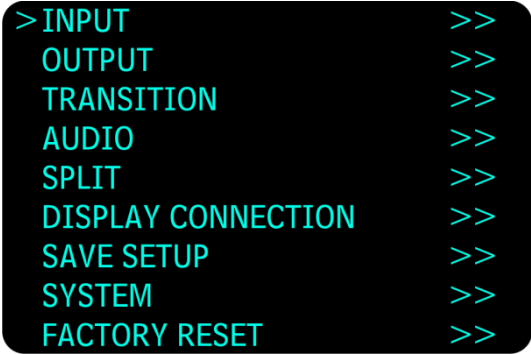


WAIT INIT DEVICE...



INPUT CV1: NO INPUT
SV: 1.21 SN: 5556
OUTPUT FORMAT: 1920x1080x60
IP ADDRESS : 192.168.0.100

02) Press the **MENU/EFFECT** button (03) to enter the main menu. The display will show:



```
> INPUT >>
  OUTPUT >>
  TRANSITION >>
  AUDIO >>
  SPLIT >>
  DISPLAY CONNECTION >>
  SAVE SETUP >>
  SYSTEM >>
  FACTORY RESET >>
```

03) Turn the **menu control** (02) to toggle through the menu and press to access the submenus.

1. Input

- 01) While in main menu, turn the **menu control (02)** and select <INPUT>.
- 02) Press the **menu control (02)** to enter.
- 03) Turn the **menu control (02)** to select, and then press it to enter one of the following 5 options:

1.1. Input Detail

Input signal information. The available options are CV1, CV2, CV3, S-Video, DVI, YPbPr, VGA, SDI and DP.

1.2. Zoom Adjust

Turn the **menu control (02)** to adjust the image zoom size and positions. The available settings are:

- H SIZE: Width (5-100)
- V SIZE: Height (5-100)
- H POS: Horizontal position (0-100)
- V POS: Vertical position (0-100)
- RESET: Reset if the image quality is not satisfactory.

1.3. VGA Adjust

Turn the **menu control (02)** to adjust a VGA input signal. The available settings are:

- H POS: Image horizontal position (-100-100)
- V POS: Image vertical position (-100-100)
- CLOCK: Input signal clock (-100-100)
- PHASE: Input image phase (-100-100)
- AUTO ADJUST: Auto adjust a VGA input signal (H POS, V POS, CLOCK, PHASE) to be displayed in full screen image.

1.4. ADC Adjust

Auto adjustment of brightness.

- 01) Press the **menu control (02)** to enter.
- 02) Turn the **menu control (02)** to choose ADC AUTO ADJUST and press the **menu control (02)** to enter.
- 03) Press the **menu control (02)** to confirm or press the **MENU/EFFECT** button to cancel.
- 04) Press the **MENU/EFFECT** button to return to the previous menu.
- 05) Turn the **menu control (02)** to choose ADC RESET ALL.
- 06) Press the **menu control (02)** to confirm or press the **MENU/EFFECT** button to cancel.

1.5. SDI Adjust

When SDI input signal image shifts, please adjust the image's H POS and V POS, to display in full screen image. The available settings are:

- H POS: Image horizontal position
- V POS: Image vertical position
- ANTI-ALIAS: By default, the system is set to STEP_1.
- RESET: Reset to default settings.

2. Output

- 01) While in main menu, turn the **menu control (02)** and choose OUTPUT.
- 02) Press the **menu control (02)** to enter.
- 03) Turn the **menu control (02)** to choose, and then press it to enter one of the following 11 options:

2.1. Output Detail

Output signal information for DVI1 and DVI2, including the resolution, DVI mode, Data Range, DE, DE H POS, DE V POS, DE H SIZE, DE V SIZE, H POLARITY and V POLARITY.

2.2. Output Format

Output format settings. Press the **menu control (02)** to enter. There are 2 available options:

- **STANDARD:** Press the **menu control (02)** to select one of the 20 available standard resolutions: 800x600x60, 1024x768x60, 1024x768x75, 1280x720x60, 1280x720x50, 1280x768x60, 1280x800x60, 1280x1024x60, 1360x768x60, 1366x768x60, 1400x1050x60, 1440x900x60, 1600x1200x60, 1680x1050x60, 1920x1080x50, 1920x1080x60, 1920x1200x60, 2048x1152x60, 2560x812x60, 2560x816x60.
- **CUSTOM:** If you have a non-standard project or a LED display application, they might require special resolution settings.

2.3. Output Adjust

Output adjustment. The submenus are DVI1 and DVI2. Turn the **menu control (02)** and press it to choose the desired DVI mode. The available options are:

- **DVI Mode:** Set the protocol to HDMI or DVI.
- **Date Range:** DVI1 output range. Set as RGB graphic mode or YCbCr (video mode). The RGB output scale range is between 0-255. The YCbCr adjustment range is between 16-235.
- **DE Adjust:** When black spots appear on the sides of the screen, use this function to shift the black out of the screen. Set the following settings:
 - **DE:** Choose between ON and OFF.
 - **H SIZE:** Width settings.
 - **V SIZE:** Height settings.
 - **H POS:** Horizontal phase settings.
 - **V POS:** Vertical phase settings.
 - **H POLARITY:** H polarity settings.
 - **V POLARITY:** V polarity settings.
 - **RESET:** Reset to default settings.

2.4. Scale

Adjust the image scale size and image position settings:

- **H SIZE:** Width setting.
- **V SIZE:** Height setting.
- **H POS:** Horizontal phase setting.
- **V POS:** Vertical phase setting.
- **RESET:** Reset to default settings.

Note: Alternatively, press the **SCALE/CROP** button to enter the above settings. For more details, please read How to Set up the Size and Position of the Single Image, page 55.

2.5. Screen

Screen settings. Set the parameters to change the screen size and position. The settings are:

- **H SIZE:** Width settings.
- **V SIZE:** Height setting.
- **H POS:** Horizontal phase setting.
- **V POS:** Vertical phase setting.
- **MODE:** SCREEN SIZE or FULL SIZE.
- **RESET:** Reset to default settings.

2.6. Ratio

Aspect ratio settings. Choose 4:3, 16:9 or DEFAULT.

2.7. Picture

Picture settings. The submenus are:

- BRIGHTNESS: 0-100
- CONTRAST: 0-100
- SATURATION: 0-100
- SHARPNESS: 0-100
- COLOR RED: 0-100
- COLOR GREEN: 0-100
- COLOR BLUE: 0-100
- RESET: Reset to default settings.

2.8. PIP

PIP settings. The submenus are:

- PIP: Choose ON/OFF to set PIP mode.
- LAYOUT: There are 3 kinds of PIP layouts to choose from:

PIP L+T



PBP L+R



PBP T+B



- SWAP IMAGE: Set PIP to swap exchange. If set to ON, you can switch between IMAGE A and IMAGE B.
- ALPHA: Set the image transparency. The adjustment range is between 0-16.
- SELECT: Set the size or position of IMAGE A or IMAGE B.

Note: You can access this menu by pressing the **IMAGE 1/IMAGE 2** button.
Please read How to Set up the PIP, page 55.

2.9. Text Overlay

Text overlay function. The submenus are:

- TEXT OVERLAY: Choose ON/OFF.
- PRESET: Set one of the following 13 presets:
 - User: User mode.
 - WhOnBk1: White On Black 1
 - WhOnBk2: White On Black 2
 - BkOnWh1: Black On White 1
 - BkOnWh2: Black On White 2
 - GrnOnBk1: Green On Black 1
 - GrnOnBk2: Green On Black 2
 - GrnOnWh1: Green On White 1
 - GrnOnWh2: Green On White 2
 - RedOnBk1: Red On Black 1
 - RedOnBk2: Red On Black 2
 - RedOnWh1: Red On White 1
 - RedOnWh2: Red On White 2
- BLEND MODE: Blend mode. Choose Mode 1 or Mode 2.
- Mode 1: Graphic content is located at the top and is non-transparent. Background transparency is controlled by double-image transparency.

- Mode 2: Graphic content is controlled by double-image transparency, the background is completely transparent.
- BLEND LEVEL: Set the image display transparency. The adjustment range is between 0-16.
- ABOVE/BELOW:
- ABOVE: In image 2, if the pixel value is higher than the setting value, then the image is the graphic content pixel. Otherwise, it is the graphic background pixel. It should be combined with "AND/OR" options.
- BELOW: In image 2, if the pixel value is lower than the setting value, then the image is the graphic content pixel. Otherwise, it is the graphic background pixel. It should be combined with "AND/OR" options.
- AND/OR
- RED: Red limit. Define the minimum and maximum value of the red channel. The adjustment range is between 0-248.
- GREEN: Green limit. Define the minimum and maximum value of the green channel. The adjustment range is between 0-248.
- BLUE: Blue limit. Define the minimum and maximum value of the blue channel. The adjustment range is between 0-248.

For more details, please see How to Perform the Text Overlay Setting, page 50.

2.10. Display Mode

- MODE: Image mode selection. Select the desired mode. The available options are: black, video image, freeze image, flat color and test pattern. In order to access this menu, you can press the **FREEZE** button.
- TEST PATTERN: Select one of the 66 test patterns. The function is only available if there is an input source.
- FLAT COLOR: Set an output color which will fill the whole screen.

2.11. Gamma

Adjust the image gamma value. The available values are: -1.2, -1.4, -1.6, 1, 1.2, 1.4, 1.6, sRGB.

3. Transition

- 01) While in main menu, turn the **menu control (02)** and choose TRANSITION.
- 02) Press the **menu control (02)** to enter.
- 03) Turn the **menu control (02)** to choose, and then press it to enter one of the following 5 options:

3.1. Deinterlace

Forced Deinterlace function. Choose ON/OFF.

- ON: Forced interlace for interlaced signal without effect switching, but with effects switching for progressive signal.
- OFF: No deinterlace, with effect switching.

3.2. Image Enhance

Image enhancement. Choose ON/OFF.

3.3. Mode

Choose the desired mode. The available modes are:

CUT: Seamless switching

FADE: Fade in fade out

POP L+T:



PUSH L+T:



POP R+T:



PUSH R+T:



POP L+B:



PUSH L+B:



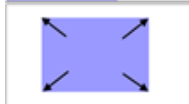
POP R+B:



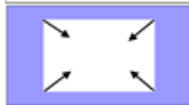
PUSH R+B:



POP CENTRE:



PUSH CENTRE:



POP LEFT:



PUSH LEFT:



POP RIGHT:



PUSH RIGHT:



POP TOP:



PUSH TOP:



POP BOTTOM:



PUSH BOTTOM:



Note:



Emerging image



Disappearing image

Arrows represent the direction of the image movement. The image is compressed or stretched to the direction indicated by the arrow, until it disappears or is displayed in full screen mode.

3.4. Fade Time

Set the fade time settings. The adjustment range is between 0-1.0s. The LS-190 uses a seamless fade, while switching between sources.

3.5. Alpha

Image transparency. The adjustment range is between 0-16.

4. Audio

- 01) While in main menu, turn the **menu control (02)** and choose AUDIO.
- 02) Press the **menu control (02)** to enter.
- 03) Turn the **menu control (02)** to choose, and then press it to enter one of the following 4 options:
 - **Mute:** Mute function. Choose ON/OFF.
 - **Volume:** Volume adjustment.
 - **Audio In:** Choose audio input source (IMAGE A/IMAGE B)
 - **HDMI:** Choose internal or external audio for HMDI.

5. Split

- 01) While in main menu, turn the **menu control (02)** and choose SPLIT.
- 02) Press the **menu control (02)** to enter.
- 03) Turn the **menu control (02)** to choose, and then press it to enter one of the following 8 options:
 - **Split:** Split function. Choose ON/OFF.
 - **H TOTAL:** The total width points of LED display, that will split.
 - **V TOTAL:** The total height points of LED display, that will split.
 - **H POS:** The horizontal position of the device.
 - **V POS:** The vertical position of the device.
 - **H SIZE:** The width of the device.
 - **V SIZE:** The height of the device.
 - **RESET:** Reset to default settings.

6. Display Connection

- 01) While in main menu, turn the **menu control (02)** and choose DISPLAY CONNECTION.
- 02) Press the **menu control (02)** to enter.
- 03) Turn the **menu control (02)** to choose, and then press it to enter one of the following 7 options:

6.1. Sending Card Type

- 01) You cannot change or enter this menu.

6.2. Sending Card Number

- 01) Select NO.1 or NO.2 card.

6.3. Brightness

With this menu you can set the brightness of your LED screen.

- 01) Press the **menu control (02)** to proceed to edit mode.
- 02) Turn the **menu control (02)** clockwise or counterclockwise to change the brightness between 0-100%.
- 03) Press the **menu control (02)** to confirm changes.

6.4. Output Format

- 01) Press the **menu control (02)** to enter.
- 02) The display will show STANDARD.
- 03) Press the **menu control (02)** to enter.
- 04) Turn the **menu control (02)** to select the desired output resolution. The available resolutions are:
640x480, 800x600, 1024x768, 1280x768, 1280x800, 1280x1024, 1366x768, 1440x900, 1440x1080, 1600x576,
1600x900, 1600x1000, 1600x1200, 1680x1050, 1728x1296, 1920x1080, 1920x1200, 2048x1152, 2048x1280,
2560x1440, 2560x1600,
- 05) Press the **menu control (02)** to confirm your choice.

6.5. Quick Connection

- 01) Press the **menu control (02)** to enter the menu. The available options are:
 - SENDING CARD SET
 - RECEIVING CARD SET
- 02) Turn the **menu control (02)** to select one of the 2 options and press the **menu control (02)** to enter.

Sending Card Set

- 01) Turn the **menu control (02)** to access the options. Press the **menu control (02)** and then turn it to change settings.
- 02) In this menu, you can set the X and Y positions for the sending card.
- 03) Once you have adjusted the settings, turn the **menu control (02)** to select **SAVE TO SENDER CARD** and press the **menu control (02)** to confirm.
- 04) Alternatively, if you want to reset the settings, select **RESET** and press the **menu control (02)** to confirm.

Receiving Card Set

- 01) Turn the **menu control (02)** to access the options. Press the **menu control (02)** and then turn it to change settings.
- 02) The available 9 options are:
 - CHOOSE CABLE (PORT D or PORT U)
 - HORIZONTAL CARD (the number of horizontal LED screens)
 - VERTICAL CARD (the number of vertical LED screens)
 - WIDTH and HEIGHT (pixel dimensions of a LED screen). See the technical information of your LED screen.
 - D PORT Offset (A/B) X and D PORT Offset (A/B) Y (set the offset positions for X and Y)
 - DISPLAY CONNECTION (choose one of the 8 kinds of connection)
 - SEND TO RECEIVER (you can send data to your receiver)

6.6. Senior

- 01) Turn the **menu control (02)** to access the options. Once you have chosen the desired option, press the **menu control (02)** and then turn it to set the parameters/values.
- 02) The available 8 options are:
 - CHOOSE CABLE (Port D/Port U)
 - RECEIVING CARD (1-256)
 - X and Y positions for the receiving card
 - SEND TO RECEIVER (once you have set the X and Y positions, you can send them to the receiver)
 - SENDING CARD VERSION (view the sending card version)
 - RECEIVING CARD VERSION (view the receiving card version)
 - COLOR TEMPERATURE (set the color intensity for Red, Green and Blue and save them to the sending card)

6.7. Gamma

- 01) No gamma settings are available.

7. Save Setup

- 01) While in main menu, turn the **menu control (02)** and choose SAVE SETUP.
- 02) Press the **menu control (02)** to enter.
- 03) Turn the **menu control (02)** to choose, and then press it to enter one of the following 3 options:

7.1. Save To

The LS-190 provides 10 save positions.

- 01) Turn the **menu control (02)** to select the desired slot: SAVE1-10 (or press one of the source buttons 1-10. A flashing source button indicates that this button already contains saved information.)
- 02) Press the **menu control (02)** to save.

Note: The SAVE/PIP1] button can also fulfill this setting.

7.2. Load From

- 01) Turn the **menu control (02)** to select the previously saved slot: SAVE1-10.
- 02) Press the **menu control (02)** to load the desired slot.

7.3. Delay Call

- 01) Delay of the input time. When multiple devices are powered on and the LS-190 is the last connected device, it is possible to set a delay to run synchronously with the other devices. The adjustment range is between 0-255 seconds.

8. System

- 01) While in main menu, turn the **menu control (02)** and choose SYSTEM.
- 02) Press the **menu control (02)** to enter.
- 03) Turn the **menu control (02)** to choose, and then press it to enter one of the following 6 options:

8.1. System Info

System information. The pieces of information are:

- MCU VER: Current MCU version.
- VIDEO VER: Current video version.
- SN: Serial number of the LS-190.
- IP: The device's IP address.

8.2. Date & Time

Show and change the date or time. The available menus are:

- DATE: View the current date.
- TIME: View the current time.
- WORK TIME: Show the working time from last boot to present.
- TOTAL TIME: Total working time.
- BOOT TIMES: The overall number of boots performed since the device was built.
- TIMING CONTROL: Timing control switch. Choose ON/OFF.
- CHANGE DATE: Turn the **menu control (02)** to adjust and press the **menu control (02)** to set the desired year, month and day.
- CHANGE TIME: Turn the **menu control (02)** to adjust and press the **menu control (02)** to set the desired hour, minutes and seconds.

8.3. Ethernet

Set the network settings. The available menus are:

- NETWORK: Choose ON/OFF.
- IP ADDRESS: Turn the **menu control (02)** to adjust and press the **menu control (02)** to set the desired digits which create the IP address.
- SUBNET MASK: Turn the **menu control (02)** to adjust and press the **menu control (02)** to set the subnet mask.
- GATEWAY: Turn the **menu control (02)** to adjust and press the **menu control (02)** to set the gateway.

8.4. Lock Front Panel

Set whether you want to lock the buttons.

- 01) Press the **menu control (02)** to lock the buttons or press the **MENU/EFFECT** button to return to the previous menu.
- 02) When the keys are locked, the display will show: "BUTTONS ARE LOCKED! PRESS MENU KEY AND HOLD 3s TO RELEASE!"
- 03) Press and hold down the **MENU/EFFECT** button for 3 seconds to unlock the buttons.

8.5. License Setup

- 01) The device will not work if you exceed the total operation time.

8.6. Can Use Time


- 01) The menu displays the remaining operation time after which the device will cease to function.

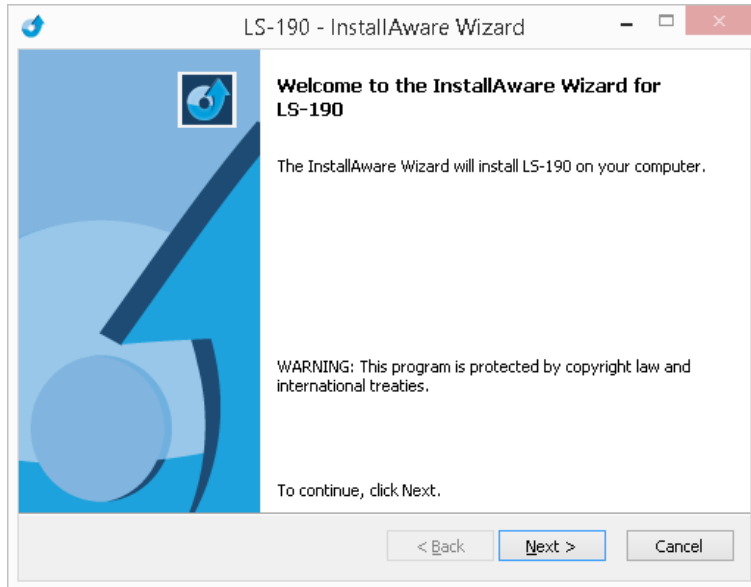
9. Factory Reset

- 01) While in main menu, turn the **menu control (02)** and choose FACTORY RESET.
- 02) Press the **menu control (02)** to enter.
- 03) Turn the **menu control (02)** to choose, and then press it to enter either FACTORY RESET (complete reset) or SAVE IP RESET (the IP address will not be reset).
- 04) Press the **menu control (02)** to confirm the desired reset option or press the **MENU/EFFECT** button to return to the previous menu.

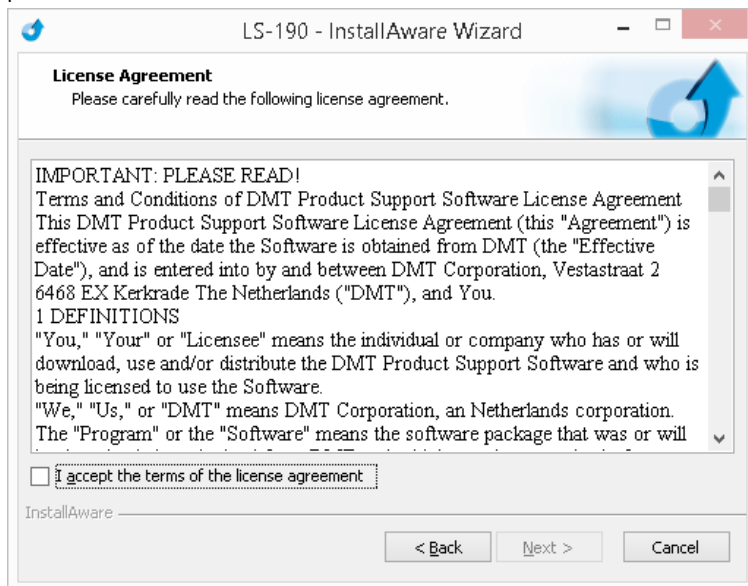
Software Installation

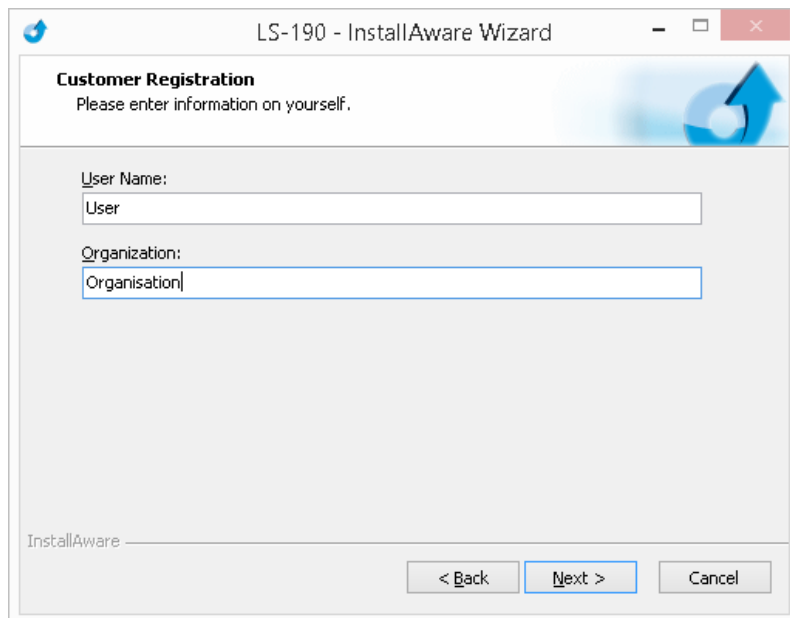
The LS-190 video processor is very easy to configure with user friendly communication software, which supports "drag and drop" operations. The software **IS NOT COMPATIBLE** with Mac operating systems.

- 01) Double click  LS-190 3.1.7.2(DMT).exe to install. Click on "Next" to proceed.



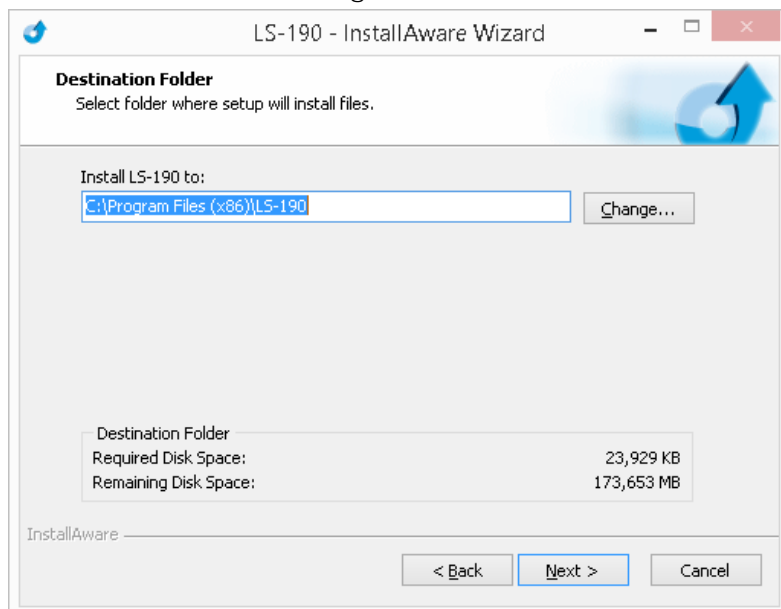
- 02) Accept the terms of the license agreement by checking the white square and click on "Agree" to proceed.





The screenshot shows the 'Customer Registration' step of the LS-190 - InstallAware Wizard. The window title is 'LS-190 - InstallAware Wizard'. The main heading is 'Customer Registration' with the instruction 'Please enter information on yourself.' Below this, there are two text input fields: 'User Name:' with the text 'User' and 'Organization:' with the text 'Organisation'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a blue border.

03) If need be, click on "Change" to select a different destination folder for the LS-190 software.

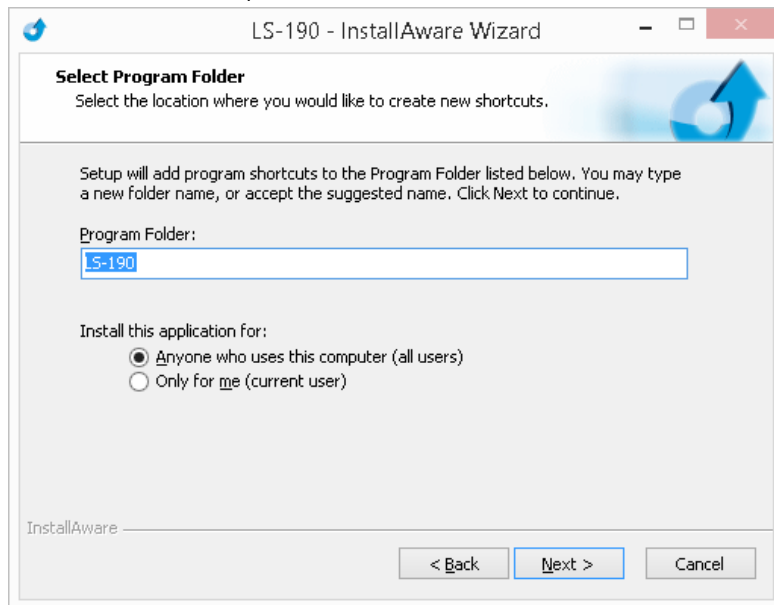


The screenshot shows the 'Destination Folder' step of the LS-190 - InstallAware Wizard. The window title is 'LS-190 - InstallAware Wizard'. The main heading is 'Destination Folder' with the instruction 'Select folder where setup will install files.' Below this, there is a text input field labeled 'Install LS-190 to:' containing the path 'C:\Program Files (x86)\LS-190'. To the right of this field is a 'Change...' button. Below the input field, there is a table showing disk space requirements:

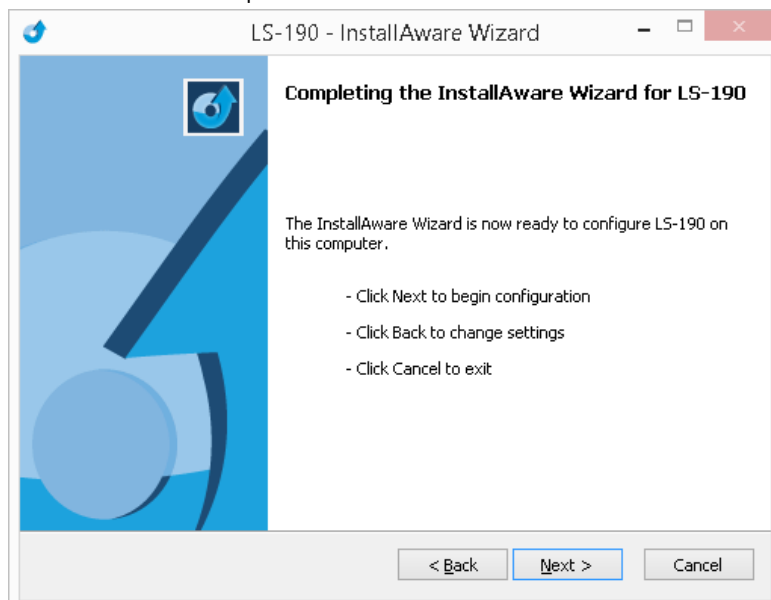
Destination Folder	
Required Disk Space:	23,929 KB
Remaining Disk Space:	173,653 MB

At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a blue border.

04) Click on "Next" to proceed.



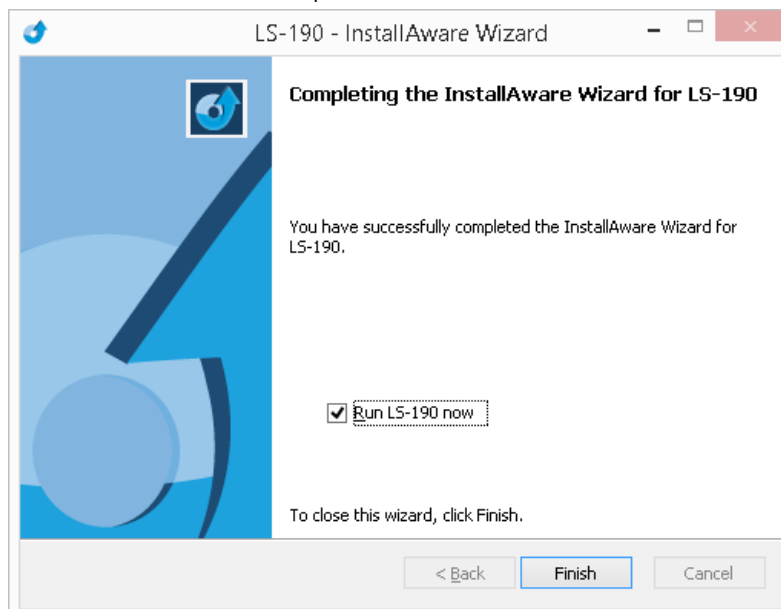
05) Click on "Next" to proceed.



06) Click on "Next" to proceed.



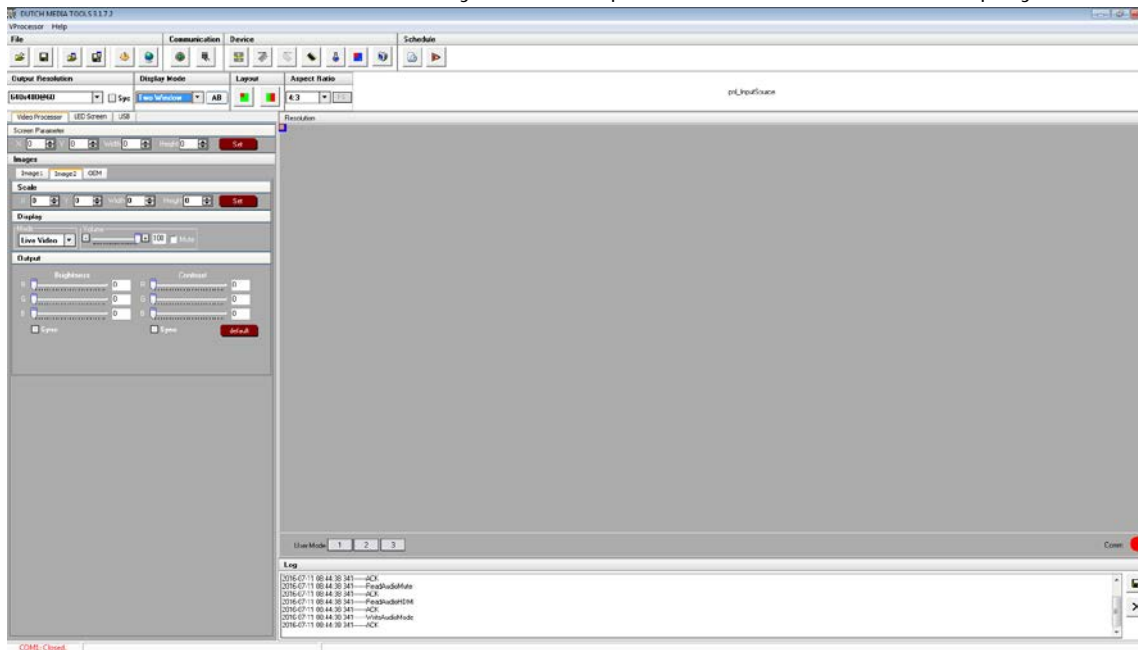
07) Click on "Finish" to complete installation.



Software Operation



01) Double click on the icon  on your desktop to run the software. The display will show:

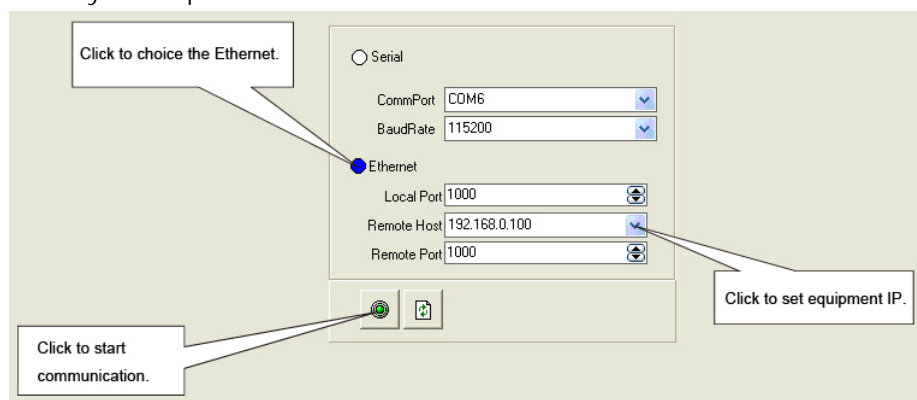


Connection

The LS-190 is equipped with the RS-232 line, DB9F line, and RJ11 (6 B4C) line, to connect the LS-190 to the control software and USB.

For detailed information, please read "How to Connect Windows Control Program by RS232 Interface," page 49. It is also possible to connect the device with USB line. Please read "How to Connect Windows Control Program by USB Interface," page 51.

Note: While using the RS 232 COM line, it is possible to upgrade the 100M program. It is not possible while using USB. (Upgrading is normally performed by the manufacturer. Inappropriate operations may damage the LS-190 beyond repair.


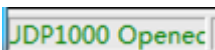


- 01) Set the local port between 0-1023.
- 02) Set the remote host to 192.168.0.100.
- 03) Set the remote port to 1000.



04) Click on the icon  to connect to the network. If the connection was successful, the icon will turn




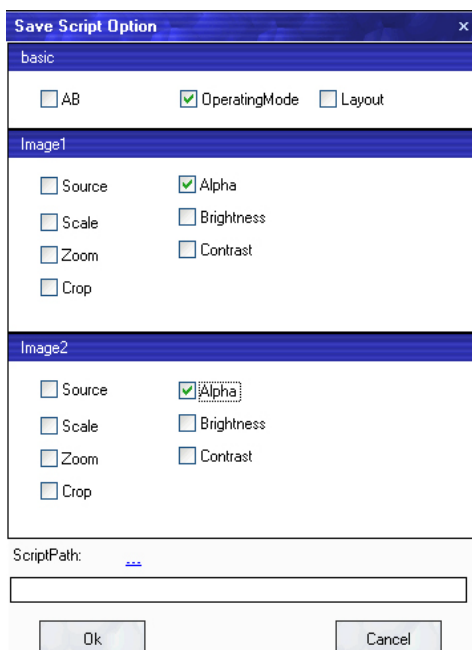
red: . Press the  button on the left, to see the status.


File Toolbar

- 01) Click on the  icon, in order to open a saved script and change its parameters.



- 02) Click on the  icon, to save the current user parameters as a script.





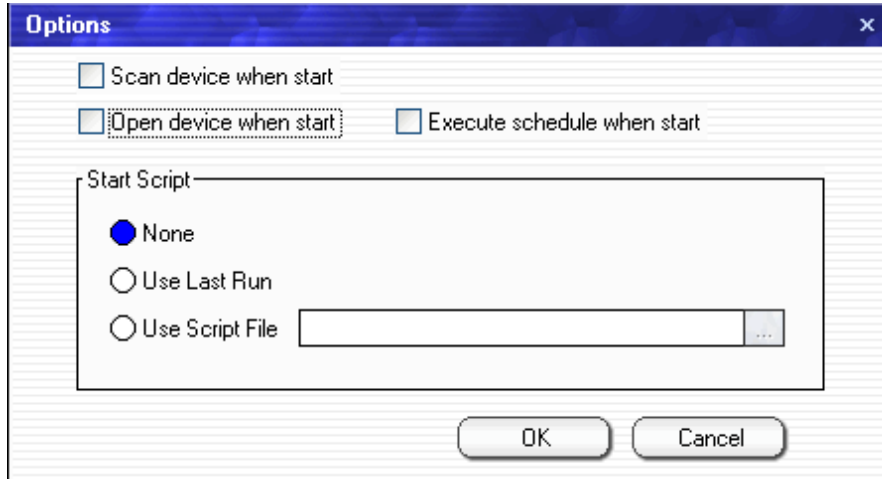
- 03) Click on the  icon to import templates. There are 6 available templates. You can call up the desired template by using the following key combinations:

Template1 (Ctrl+1)
Template2 (Ctrl+2)
Template3 (Ctrl+3)
Template4 (Ctrl+4)
Template5 (Ctrl+5)
Template6 (Ctrl+6)

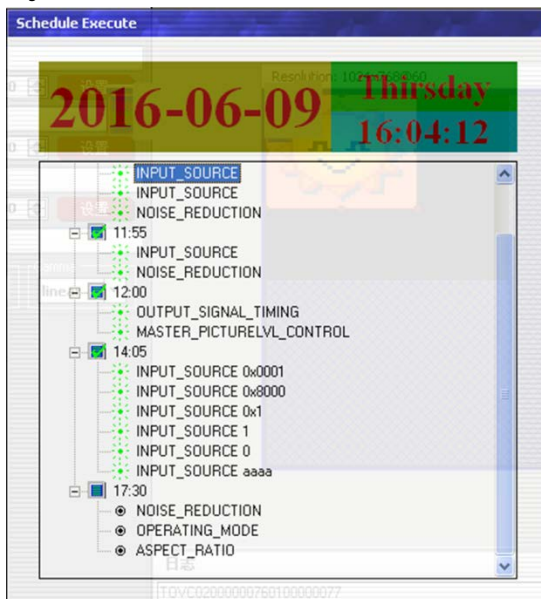
- 04) Click on the  icon to export templates. Export the current settings as a template.




- 05) Click on the  icon to proceed to the options. It is possible to choose an open device upon start-up, as well as using the previously saved scripts or execute the schedule edited before starting the software.
- 06) If you have chosen the open device, it is possible to resume the last activity or use the desired script file.
- 07) Click on  to choose the desired script.

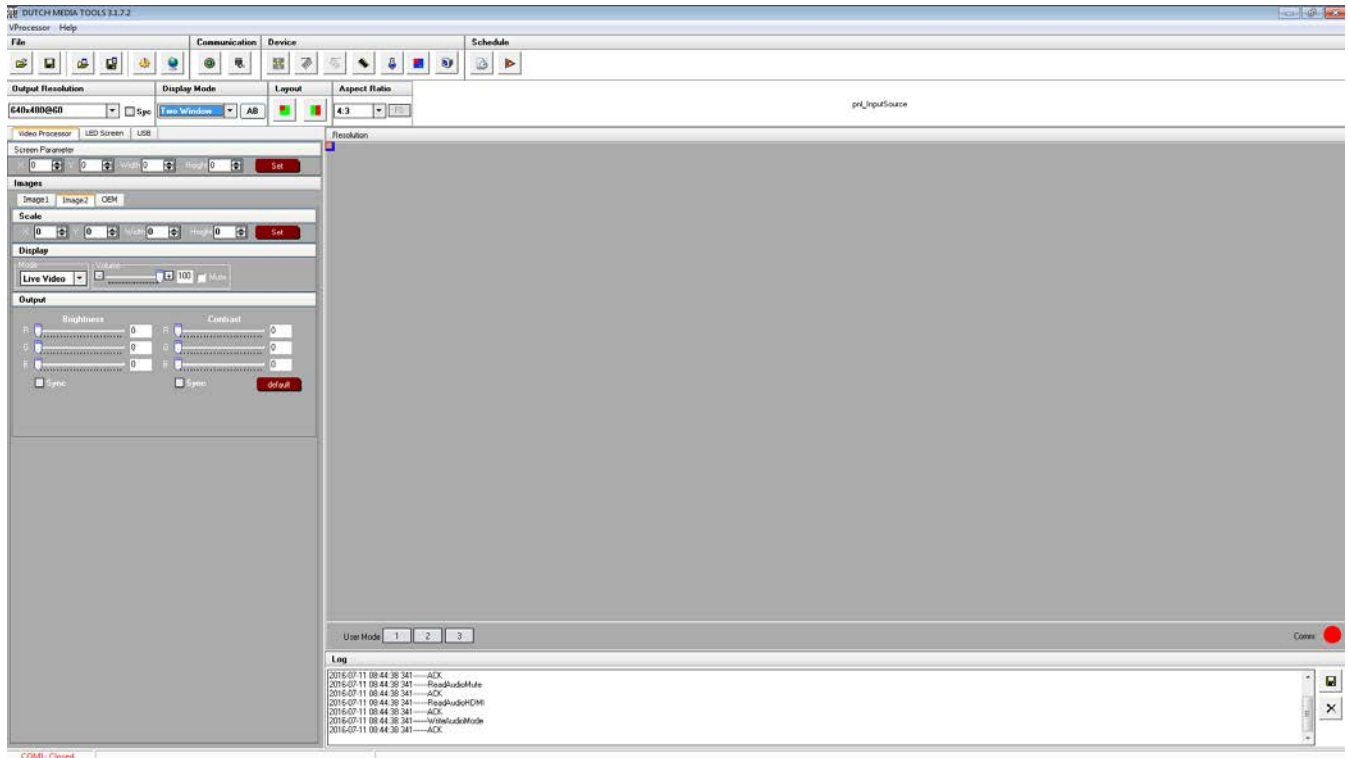


- 08) If you choose "Execute schedule when start," the display will show:



- 09) Click on the  icon to set the language. The available languages are Chinese, English and German.





10) Close the software.

Communication Toolbar

01) Click on one of the following icons:



Open the COM



Close the COM



Set the COM

Device Toolbar

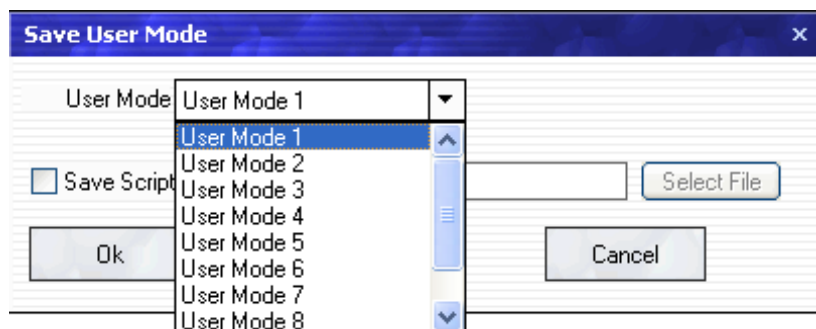
01) Click on one of the following icons:



Synchronization

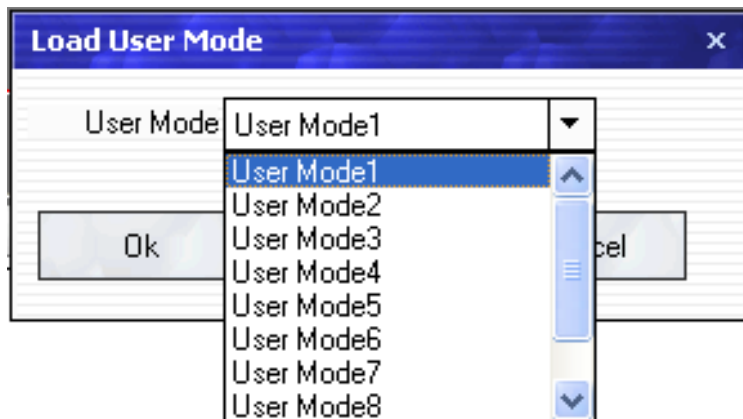


Save to flash



Note: The same as MENU -> SAVE SETUP -> SAVE TO or the same as the SAVE key.

02) Click on the  icon to load from flash.



Note: The same as MENU -> SAVE SETUP -> LOAD FROM.

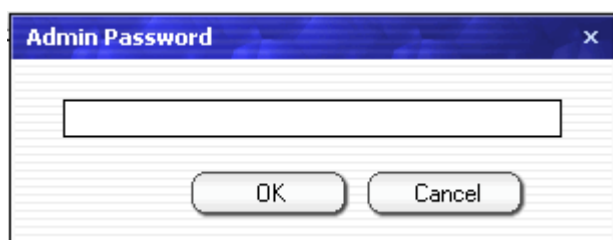
03) Click on one of the following icons:



Factory Setup



Advance



Note: Adjustments should be made only by a qualified engineer. Please contact us to receive the password.

04) Click on the  icon for audio patterns. Choose the audio input source for IMAGE A or IMAGE B.

Note: The same as MENU -> AUDIO -> AUDIO IN.

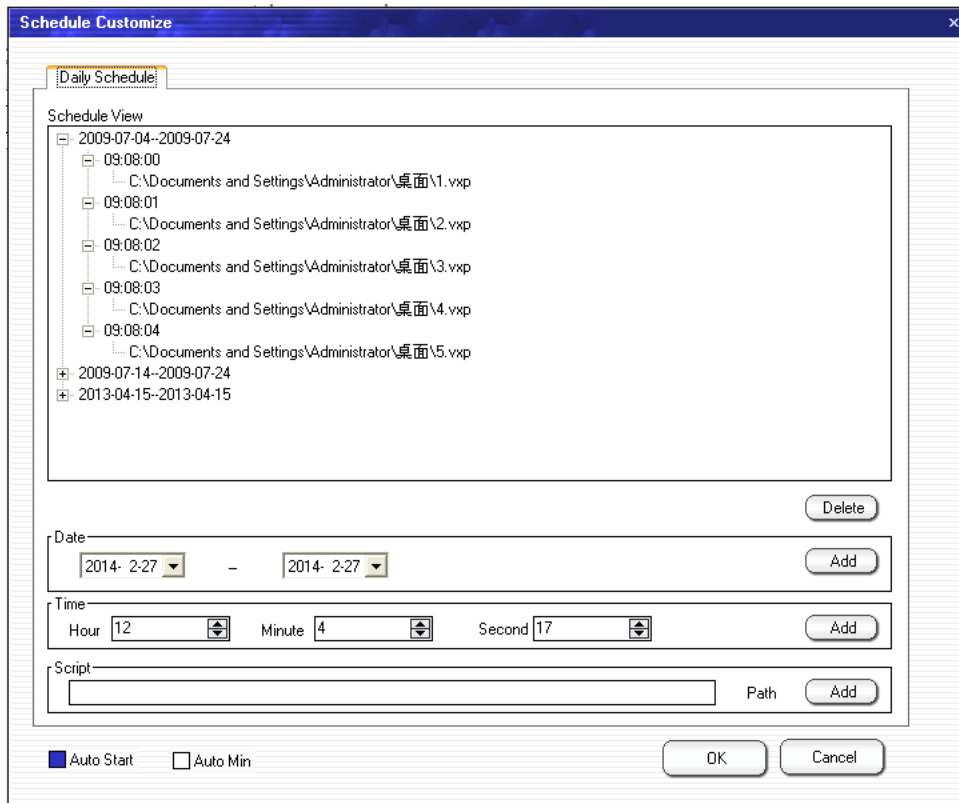



05) Click on the  icon for VGA adjustment.

Note: The same as MENU -> INPUT -> VGA ADJUST.

Schedule Toolbar

- 01) Click on the  icon to customize a schedule.

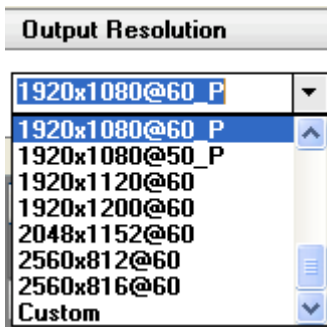


- 02) Click on the  icon to execute the schedule. Execute the tasks in the order of appearance.



Output Resolution Toolbar

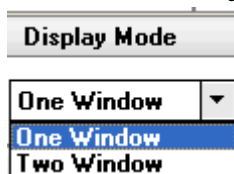
It is possible to choose different output resolutions by selecting them from the pull-down menu. There are 20 output resolutions.



Note: The same as MENU -> OUTPUT -> FORMAT OUT.

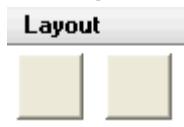
Images Display Mode Toolbar

01) Choose whether you want to work in a single channel or dual channel.

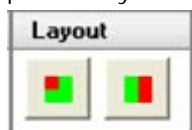


Layout Toolbar

01) If in single channel mode, this option is unavailable.



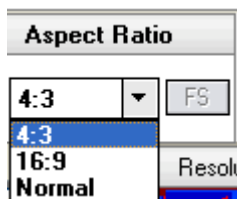
02) If in dual channel mode, it is possible to set the device to PIP or PBP mode directly with the quick preset layout button:



Note: The same as MENU -> OUTPUT -> PIP -> LAYOUT.

Aspect Ratio Toolbar

01) Select the desired aspect ratio from the pull-down menu. The available options are: 4:3, 16:9, Normal.



Note: The same as MENU -> OUTPUT -> RATIO.

Signal Input Toolbar

01) When the signal interface (green color) is connected, the white area displays the input signal.

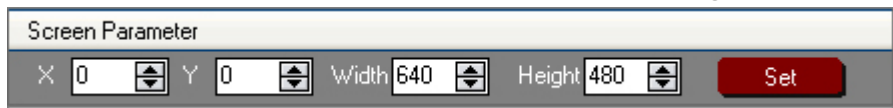


02) If you have selected two window mode, select any channel signal by connecting the signal interface (green color). The red box indicates the selected signal for channel 1, system default the last selected signal as channel 2 signal. And the white area will show the input signal.



Screen Parameter Toolbar

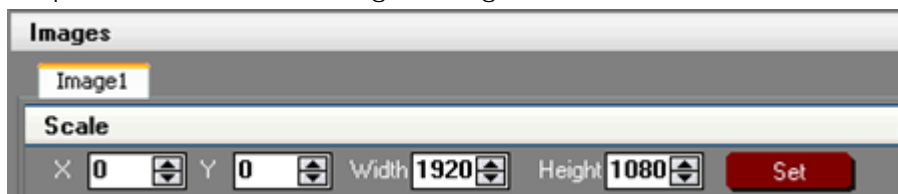
Set the size and position of the screen. Once the settings have been adjusted, the display will show:



Note: The same as MENU -> OUTPUT -> SCREEN .

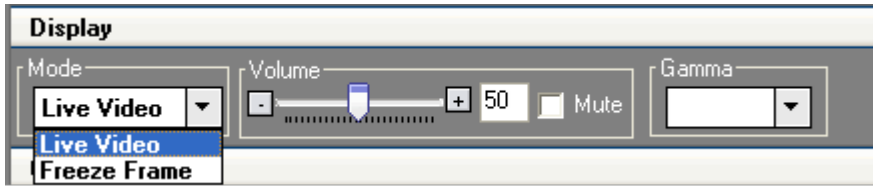
Image Toolbar

It is possible to scale the images. Image 2 is not available in one-window mode.



Note: The same as MENU -> OUTPUT -> SCALE, or SCALE/CROP key.

Display Toolbar



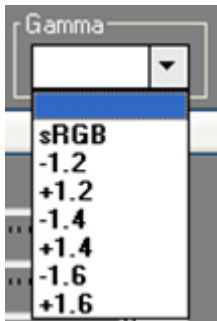
By means of the Display toolbar, it is possible to set Alpha value of "Live Video" and "Freeze Frame." When in "Live Video," the video will play properly. When in "Freeze Frame," playback will stop.

Note: The same as MENU -> OUTPUT -> DISPLAY MODE -> MODE or the **FREEZE** button.

By means of the volume toolbar users can adjust the volume of audio, or mute.

Note: The same as MENU -> AUDIO -> MUTE.

Setting Gamma is generally not recommended, due to the fact that a LED display itself already has the Gamma function.



Note: The same as MENU -> OUTPUT -> GAMMA.

Output Image Setup Toolbar

It is possible to customize brightness, contrast, saturation, color temperature and sharpness.



Note: The same as MENU -> OUTPUT -> PICTURE.

LED Screen Toolbar

Sending Card

It is possible to choose the sending card type, sending card number. You can also set brightness, gamma, X, Y, width and height.

- Sending Card

Card Type: Card NO:

Brightness:

Gamma:

X: Y:

Width: Height:

Display Connection

Set column, row, width, height, connect type, network port and the relative offset.

- Display Connection

Col: Row:

Width: Height:

Connect Type:

Network Port:

Relatively Offset X: Y:

Receiving Card

Set the receiving card number, and set the X, Y value.

- Receiving Card

Card NO: X: Y:

Box Link

View the current settings.

Box Link			
	1	2	3
1	NO 7 Width 132 Height 132	NO 8 Width 132 Height 132	NO 9 Width 132 Height 132
2	NO 6 Width 132 Height 132	NO 5 Width 132 Height 132	NO 4 Width 132 Height 132
3	NO 1 Width 132 Height 132	NO 2 Width 132 Height 132	NO 3 Width 132 Height 132

Note: The same as MENU -> DISPLAY CORRECTION.

Images Display Toolbar

Customize image position and size by dragging the image into this area. This process has the same effect as setting the parameters in the image toolbars.



User Mode Toolbar

Call up the saved user mode1, mode2 or mode3.

Log Toolbar

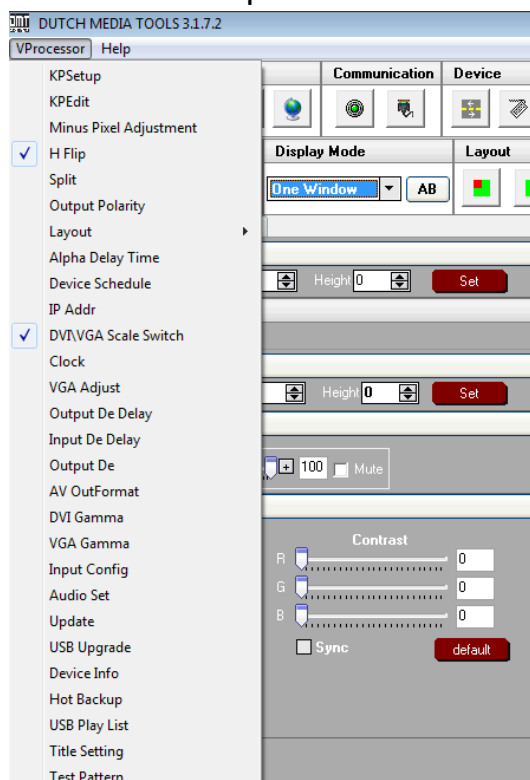
It is possible to save or delete the log file.

Information Toolbar

View the current software version, core board version, firmware version and the serial number at the bottom of the software interface.

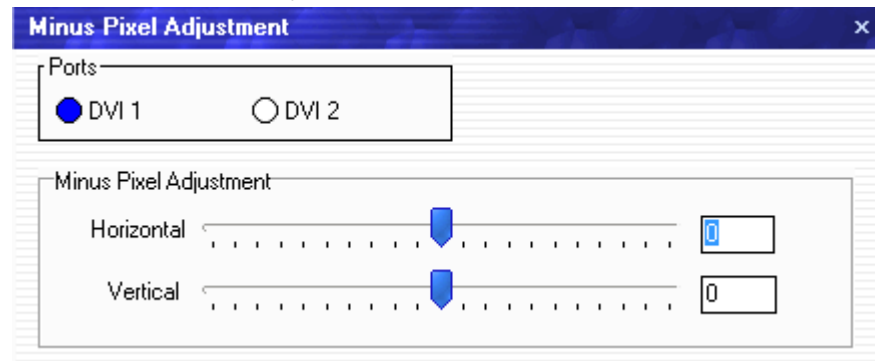
[SV-C3.30] [CV-01.25] [FV-B2.00] [SN-08.88]

Video Processor Options



Minus Pixel Adjustment

Set the minus pixel adjustment for DVI1 and DVI 2.



Minus Pixel Adjustment [X]

Ports: ☒ DVI 1 ☐ DVI 2

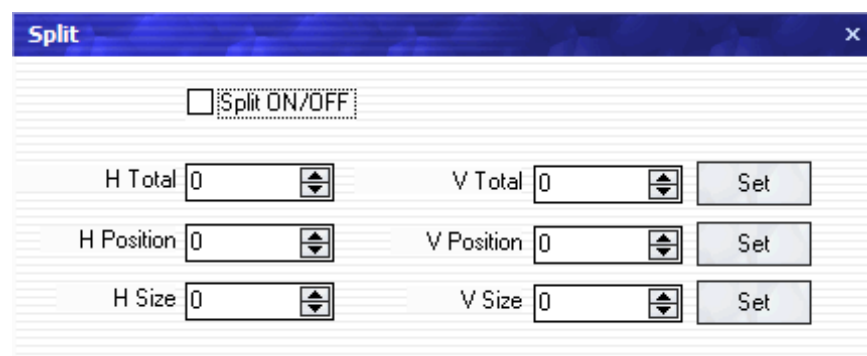
Minus Pixel Adjustment

Horizontal: [Slider] [0]

Vertical: [Slider] [0]

Split

Choose ON and set H total, V total, H position, V position, H size and V size.



Split [X]

☐ Split ON/OFF

H Total: [0] [Set] V Total: [0] [Set]

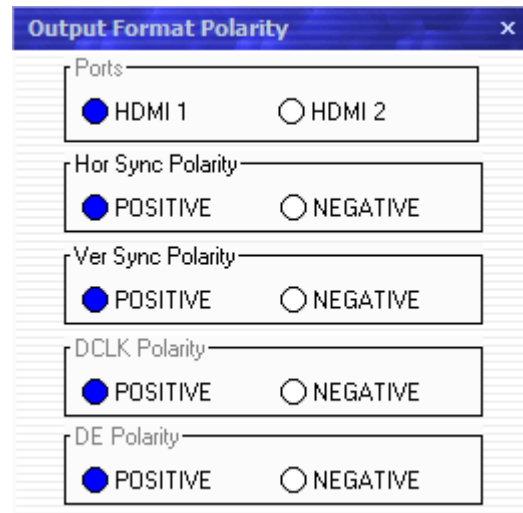
H Position: [0] [Set] V Position: [0] [Set]

H Size: [0] [Set] V Size: [0] [Set]

Note: The same as MENU -> SPLIT.

Output Polarity

Set the polarity for all your ports.



Output Format Polarity [X]

Ports: ☒ HDMI 1 ☐ HDMI 2

Hor Sync Polarity: ☒ POSITIVE ☐ NEGATIVE

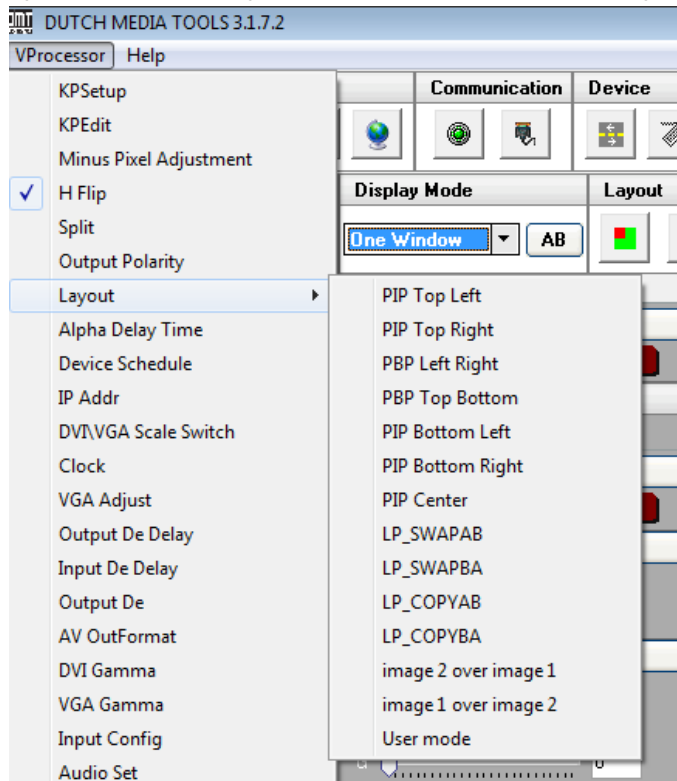
Ver Sync Polarity: ☒ POSITIVE ☐ NEGATIVE

DCLK Polarity: ☒ POSITIVE ☐ NEGATIVE

DE Polarity: ☒ POSITIVE ☐ NEGATIVE

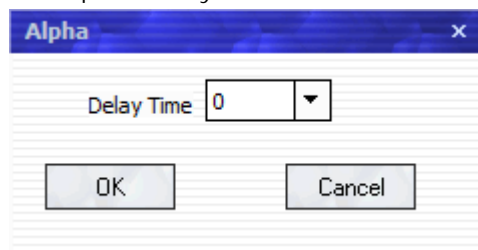
Layout

By means of the layout it is possible to set a variety of double-picture modes.



Alpha Delay Time

Set Alpha delay time. Set the value to 0 or 50.



Device Schedule

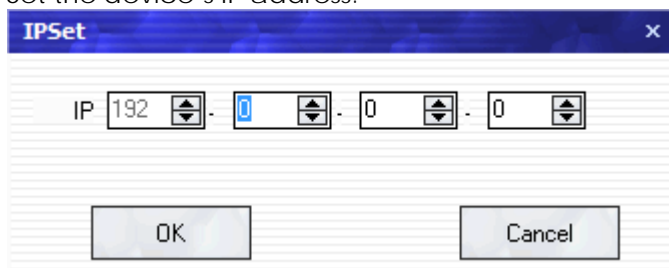
It is possible to set up the LS-190 to automatically play the assigned input video in time. It is also possible to choose either one-window or two-window mode and set ratio place. A maximum of 10 timing operations can be saved in the schedule.



The **Timing Parameters** dialog box is used to configure the device's timing settings. It includes a **Timer Index** dropdown set to 1, with **Get**, **Set**, and **ON** buttons. The **Date Settings** section shows a date of 11-7-2016. The **Time** section has fields for Hour (9), Minute (3), and Second (2). The **Operating Mode** is set to Single channel. Below these are sections for **Image1** (Scale: X=0, Y=0, Width=0, Height=0) and **Input Source** (a grid of icons with 1:CV1 selected).

IP Address

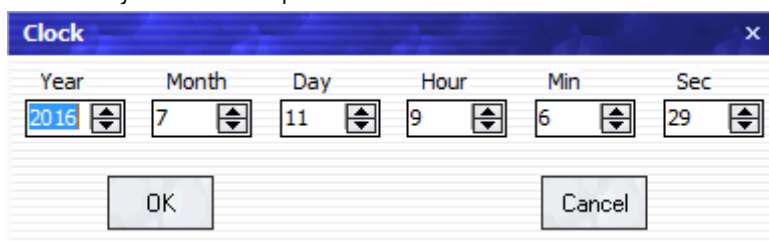
Set the device's IP address.



The **IPSet** dialog box is used to set the device's IP address. It features a text field showing the IP address 192.168.0.0 and buttons for **OK** and **Cancel**.

Clock

Set or adjust the computer time.



The **Clock** dialog box is used to set or adjust the computer time. It includes fields for Year (2016), Month (7), Day (11), Hour (9), Min (6), and Sec (29), along with **OK** and **Cancel** buttons.

VGA Adjust

Adjust your VGA's contrast and brightness. You can also set the horizontal and vertical polarity.

VGA Adjust [X]

Brightness

R

G

B

☐ Sync

Contrast

R

G

B

☐ Sync

HSYNC Polarity

☒ Pos ☐ Neg

VSYNC Polarity

☒ Pos ☐ Neg

Output DE Delay

Out De Delay [X]

DVI1 De Delay

☐ De ON/OFF

Out Range

☒ RGB ☐ YPbPr

Color

☒ RGB ☐ YPbPr

Out Type

☒ DVI ☐ HDMI

X Y Width Height

DVI2 De Delay

☐ De ON/OFF

Out Range

☒ RGB ☐ YPbPr

Color

☒ RGB ☐ YPbPr

Out Type

☒ DVI ☐ HDMI

X Y Width Height

Input DE Delay

De Delay

VGA

Sample Format

☒ RGB ☐ 422YcbCr ☐ 444YcbCr

De

X: 0 Y: 0

Width: 0 Height: 0

Set

DVI

De

X: 0 Y: 0

Width: 0 Height: 0

Set

Output Adjust

OUTPUT ADJUST

Output Port

☒ DVI 1 ☐ DVI 2

Output Mode

☒ DVI ☐ HDMI

Data Range

IMAGE

Bit Depth

8Bit

De

☐ De ON/OFF

HStart: 0 VStart: 0 Width: 0 Height: 0

Set

Output Polarity

HPolarity: Pos VPolarity: Pos

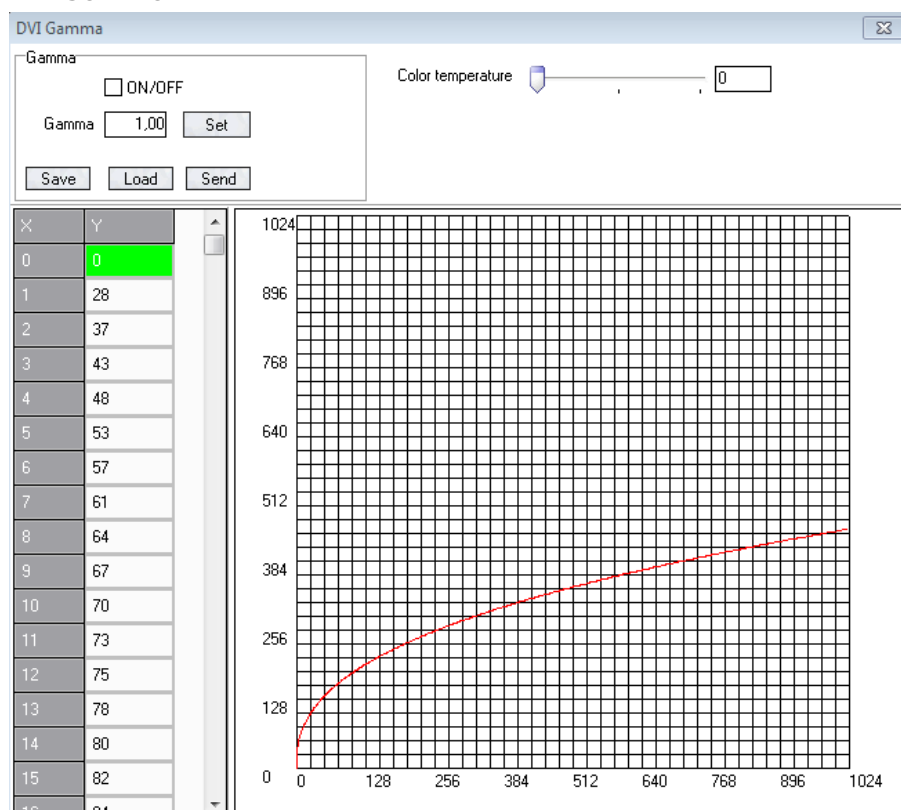
AV Output Format

Set the desired AV output format. Set to NTSC or PAL.

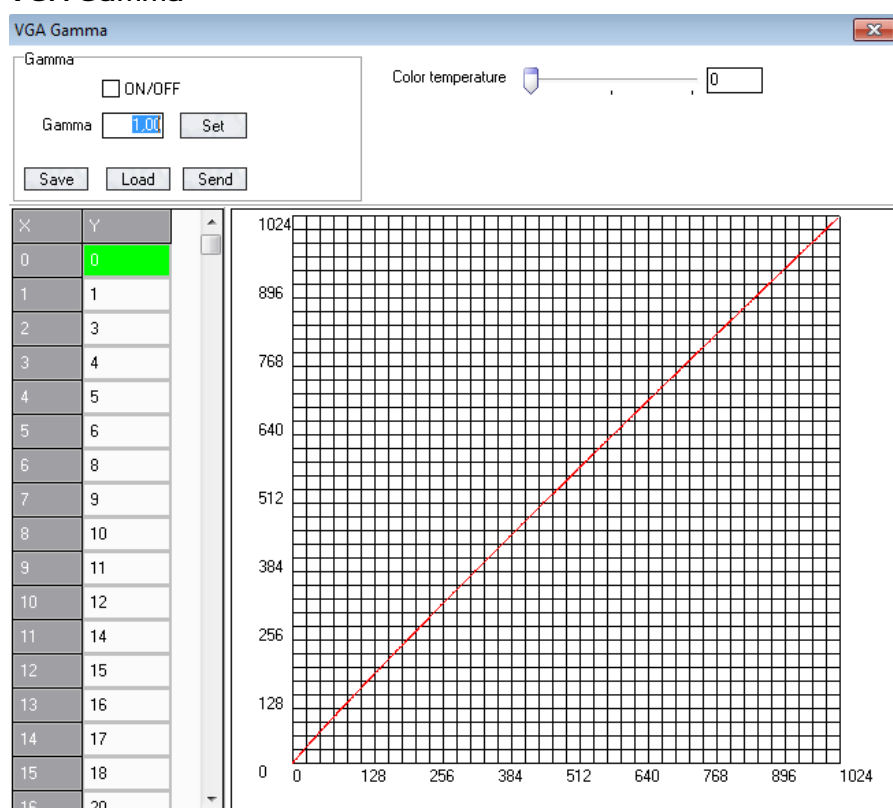
AV OutFormat

☒ NTSC ☐ PAL

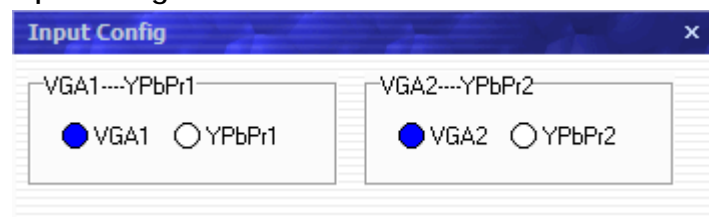
DVI Gamma



VGA Gamma

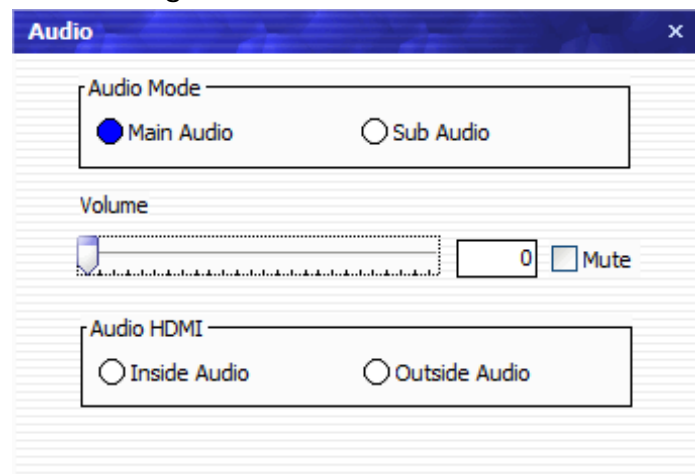


Input Config



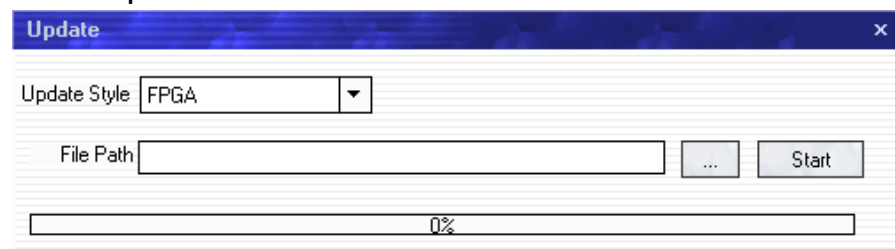
The 'Input Config' window has a title bar with 'Input Config' and a close button. It contains two main sections. The first section is labeled 'VGA1---YPbPr1' and contains two radio buttons: 'VGA1' (which is selected) and 'YPbPr1'. The second section is labeled 'VGA2---YPbPr2' and contains two radio buttons: 'VGA2' (which is selected) and 'YPbPr2'.

Audio Setting



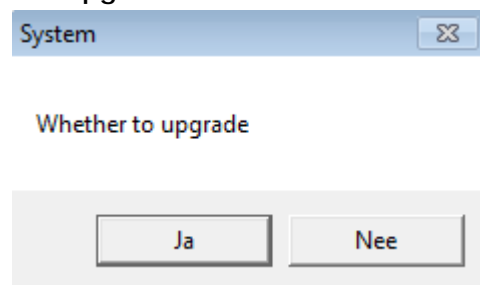
The 'Audio' window has a title bar with 'Audio' and a close button. It contains three sections. The first section is labeled 'Audio Mode' and contains two radio buttons: 'Main Audio' (selected) and 'Sub Audio'. The second section is labeled 'Volume' and contains a volume slider, a numeric input field showing '0', and a 'Mute' checkbox. The third section is labeled 'Audio HDMI' and contains two radio buttons: 'Inside Audio' and 'Outside Audio'.

Device Update



The 'Update' window has a title bar with 'Update' and a close button. It contains three main sections. The first section is labeled 'Update Style' and has a dropdown menu currently set to 'FPGA'. The second section is labeled 'File Path' and has a text input field, a browse button ('...'), and a 'Start' button. The third section is a progress bar showing '0%'.

USB Upgrade



The 'System' dialog box has a title bar with 'System' and a close button. It contains a label 'Whether to upgrade' and two buttons: 'Ja' and 'Nee'.

Device Info

You can monitor the device's total working time and, if need be, to reset or export it.

Device Info

Read

Clear Device Record

Export

Total Work

0Day 0Hour 0Minute

Current Work

0Day 0Hour 0Minute

Open Device

0

Time

Index	Open Time	Close Time

Hot Backup

Set to ON, in order to set the backup signal to BACKUP_1-5. When the received signal becomes interrupted, the device will switch to the preset backup signal.

Hot Backup

☐ Hot Backup ON/OFF

Group

Group 1

Signal

USB Playlist

Geen flauw idee

USB Player

Year

2016

Month

7

Today

2016-7-11

SUN日	MON一	TUE二	WED三	THU四	FRI五	SAT六
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

2016-7-11 Play List

PlayTime	Play Files	Total Play Time

USB List

Index	File Name	Length

Save

Open

Play Time

0:00:00

Add

Modify

Delete

Total Play Time

0:00:00

File Type

☐ Picture
 ☒ Video

USB

Scan USB

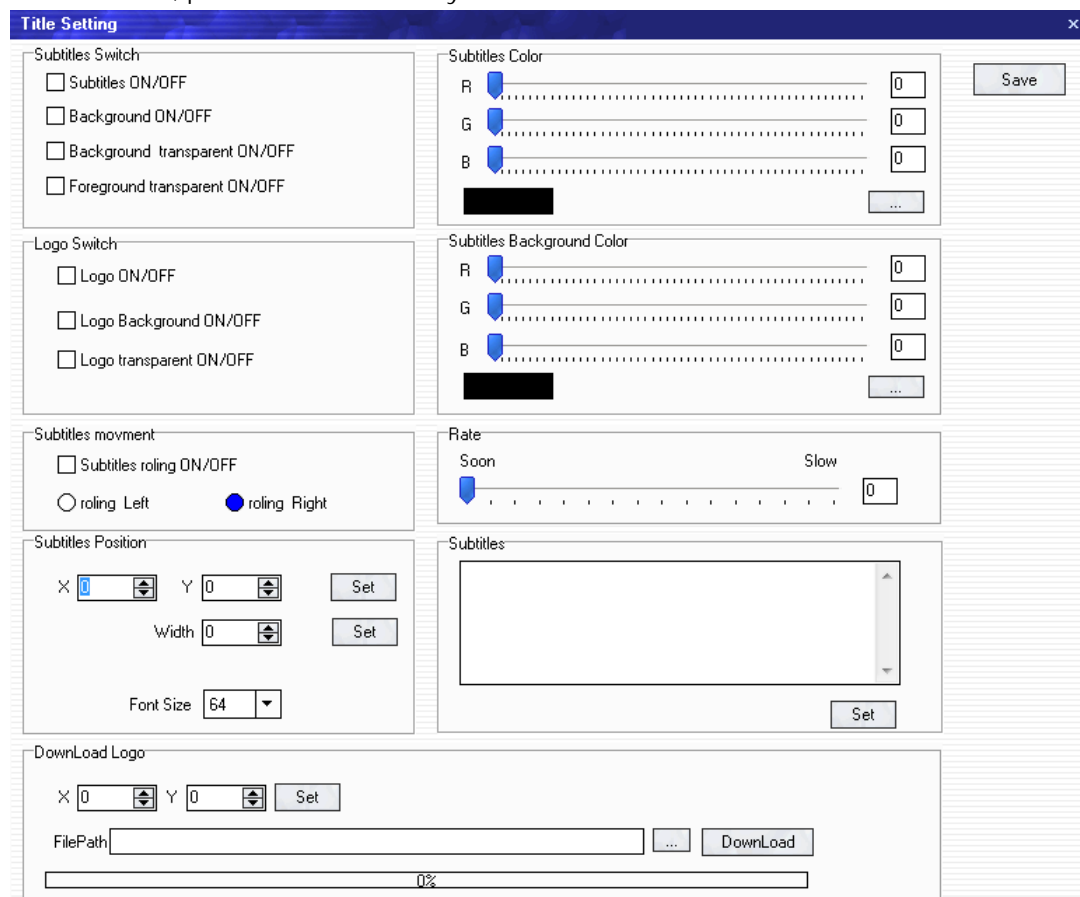
Ordercode: 101600

46

DMT
DUTCH MEDIA TOOLS

Title Setting

Set the color, position and rate of your subtitles.



Title Setting

Subtitles Switch

- ☐ Subtitles ON/OFF
- ☐ Background ON/OFF
- ☐ Background transparent ON/OFF
- ☐ Foreground transparent ON/OFF

Logo Switch

- ☐ Logo ON/OFF
- ☐ Logo Background ON/OFF
- ☐ Logo transparent ON/OFF

Subtitles movement

- ☐ Subtitles roling ON/OFF
- ☐ roling Left ☒ roling Right

Subtitles Position

X: 0 Y: 0

Width: 0

Font Size: 64

Subtitles Color

R: 0 G: 0 B: 0

Subtitles Background Color

R: 0 G: 0 B: 0

Rate

Soon Slow

Subtitles

DownLoad Logo

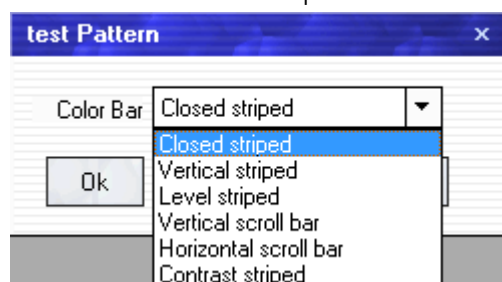
X: 0 Y: 0

FilePath:

0%

Test Pattern

Select the desired test pattern.



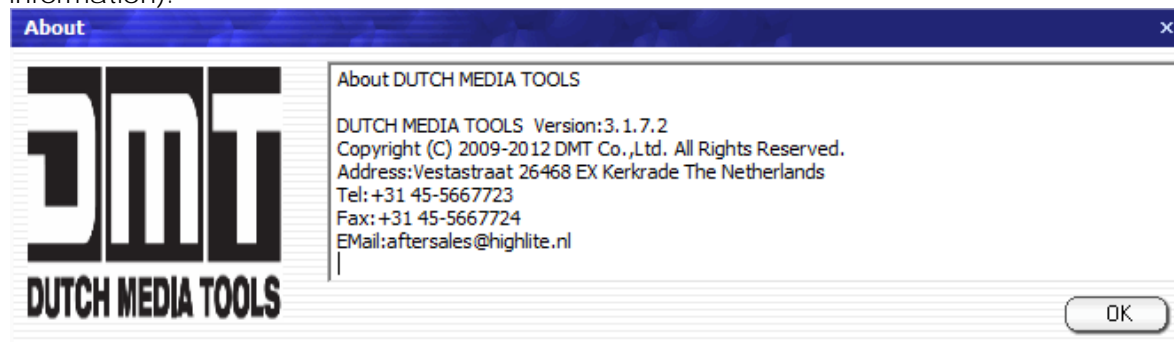
test Pattern

Color Bar: Closed striped

- Closed striped
- Vertical striped
- Level striped
- Vertical scroll bar
- Horizontal scroll bar
- Contrast striped

Help

Click on "Version History" (software update history) or on "About" (software version and company information).



About

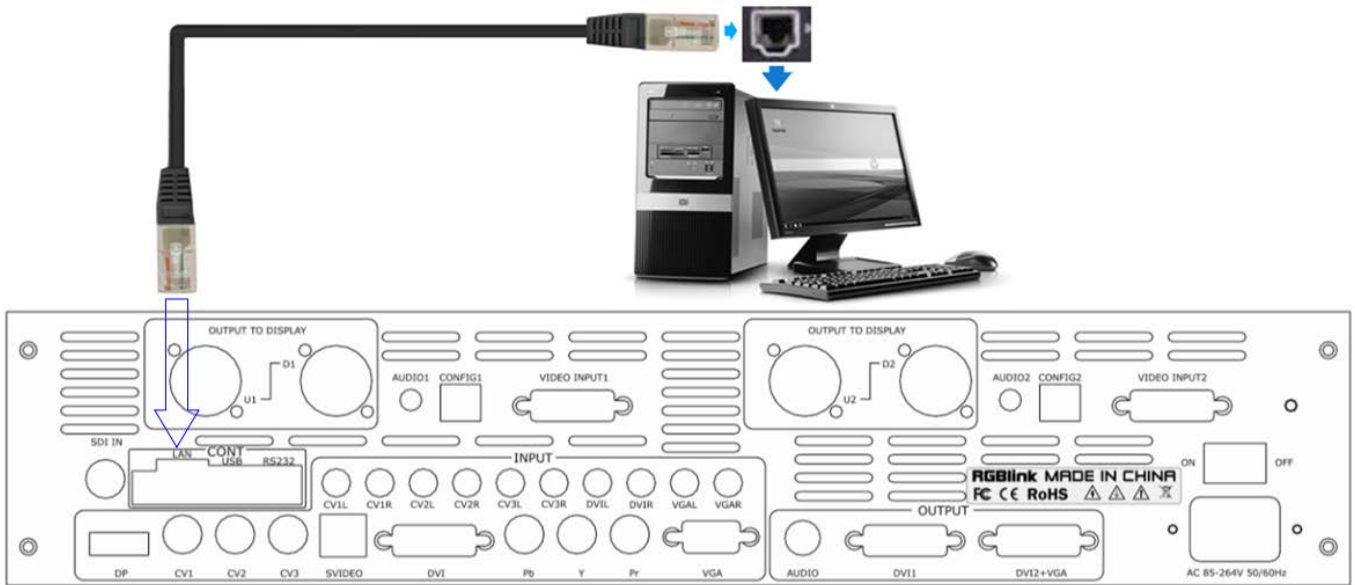
About DUTCH MEDIA TOOLS

DUTCH MEDIA TOOLS Version: 3.1.7.2
 Copyright (C) 2009-2012 DMT Co., Ltd. All Rights Reserved.
 Address: Vestastraat 26468 EX Kerkrade The Netherlands
 Tel: +31 45-5667723
 Fax: +31 45-5667724
 Email: aftersales@highlite.nl


DMT DUTCH MEDIA TOOLS

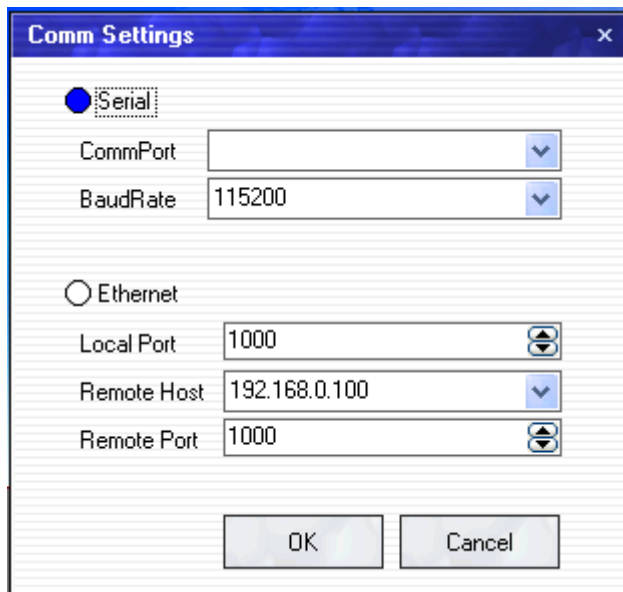
How to Connect Windows Control Program by LAN Interface

- 01) Install the LS-190 software on the computer. The software **IS NOT COMPATIBLE** with Mac operating systems.
- 02) Connect the LS-190 to the computer with a network cable. See the diagram below:

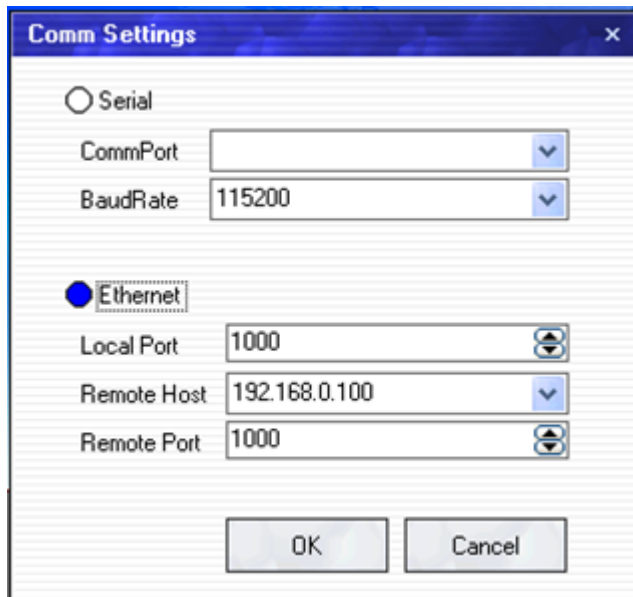


- 03) Power on the LS-190, start the network function (MENU -> SYSTEM -> ETHERNET -> NETWORK) and adjust the settings to match the network settings of the PC.

- 04) Click on the  icon to start the software. The screen will show:



- 05) Select <Ethernet>.



06) Insert the IP address and click on <OK>.



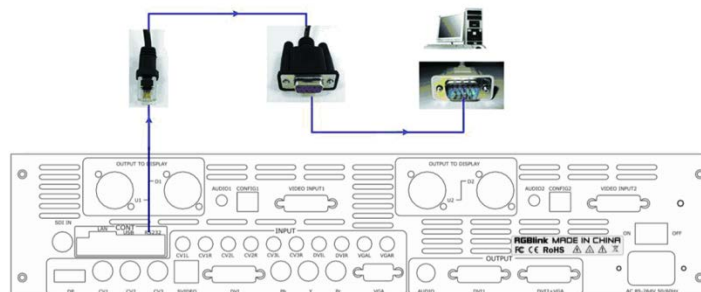
07) Click on the icon to open the Ethernet connection.

08) Check if the <Comm> icon in the lower right corner of the software interface is green, and insert the output information. Now it is possible to control the device with the installed software.

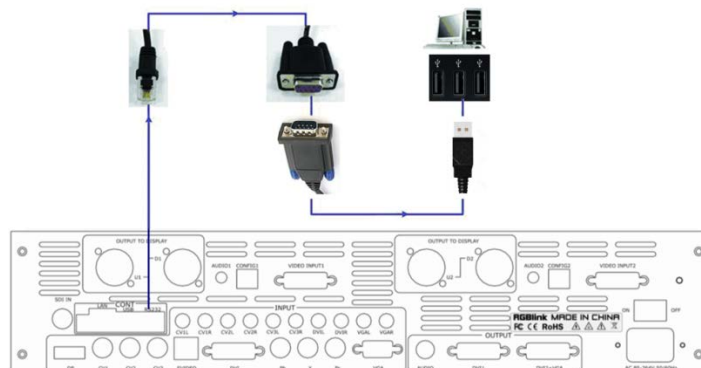
How to Connect Windows Control Program by RS232 Interface

01) Install the software on your PC.

02) Take the included RS 232 cable and connect one side of the RJ11 download line to the RS232 on the LS-190. Connect the other end to the serial port on the PC.



or



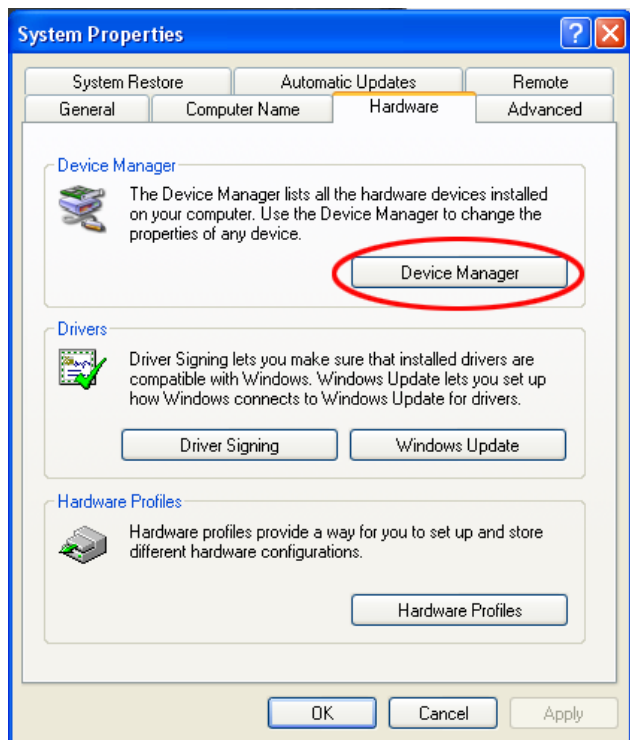
03) If there is not any serial port on your PC you will need a serial to USB adapter.

04) Connect one end of the RJ11 download line to the RS232 on the LS-190.

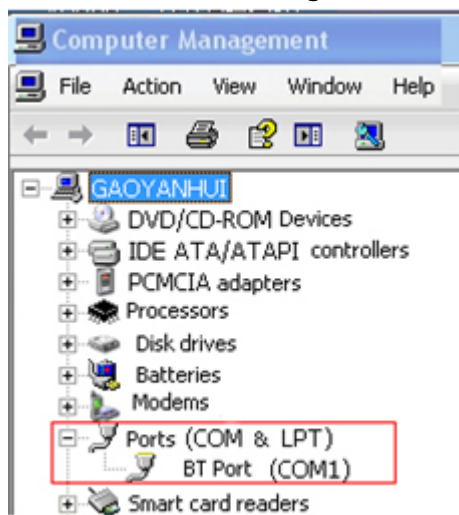
05) Connect the end of USB side to the PC.

06) Switch the LS-190 on.

07) Right click on [My Computer], go to [Attributes], find [Hardware]. The following screen will appear:



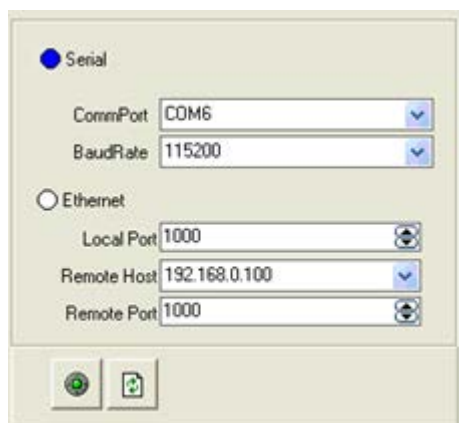
08) Click on [Device Manager] and check the COM number. In the example below, COM1 is available.


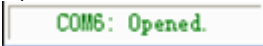




09) Remember the COM number which you are using and then run the control software.

10) Find [Communication] option.

11) When used for the first time, it is necessary to click on the  button:



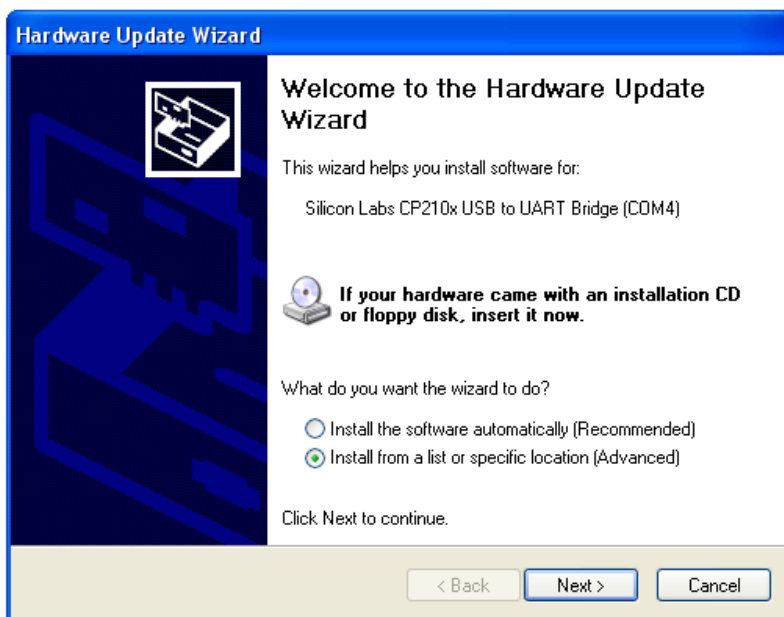
- 12) Open [Serial] port. Set the BaudRate to 115200. Click on [Confirm].
- 13) Click on the  button [open serial] and check if the [COM] icon is in the bottom right corner.
- 14) When the text turns green , it means that the connection was successful and the software is ready for use.

Note: If you switch the device off while connecting, close the port  and then remove and insert the USB  and reconnect.

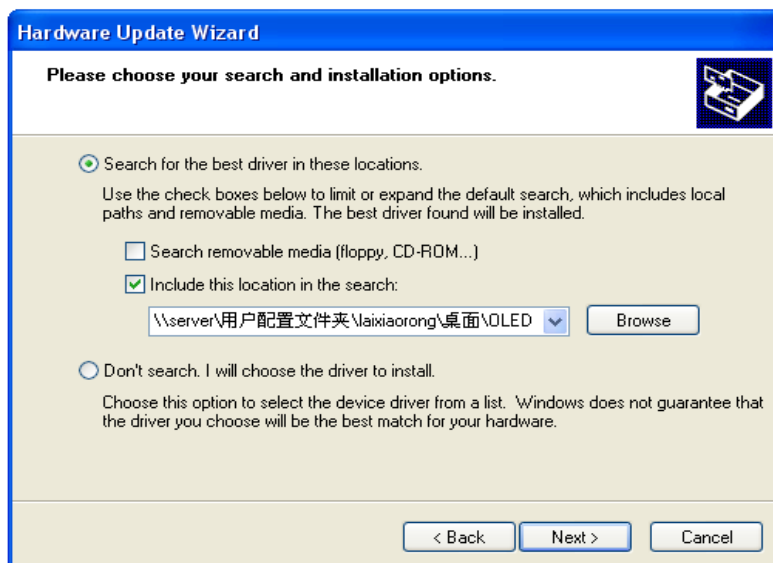
How to Connect Windows Control Program by USB Interface

Install the Driver

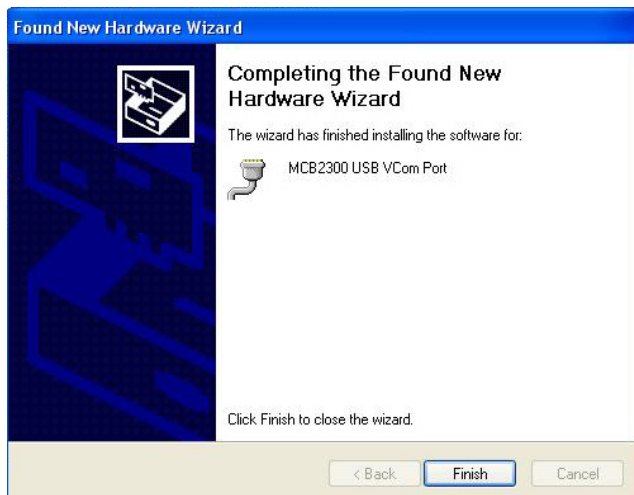
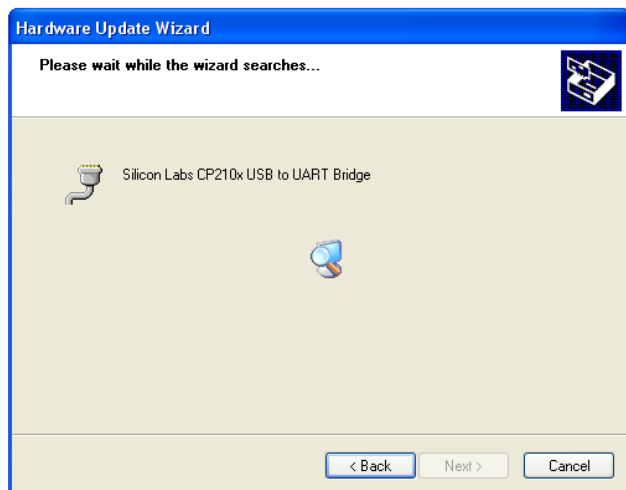
- 01) Connect the USB cable to the PC and the LS-190.
- 02) Switch the LS-190 on. The PC will look for appropriate software.



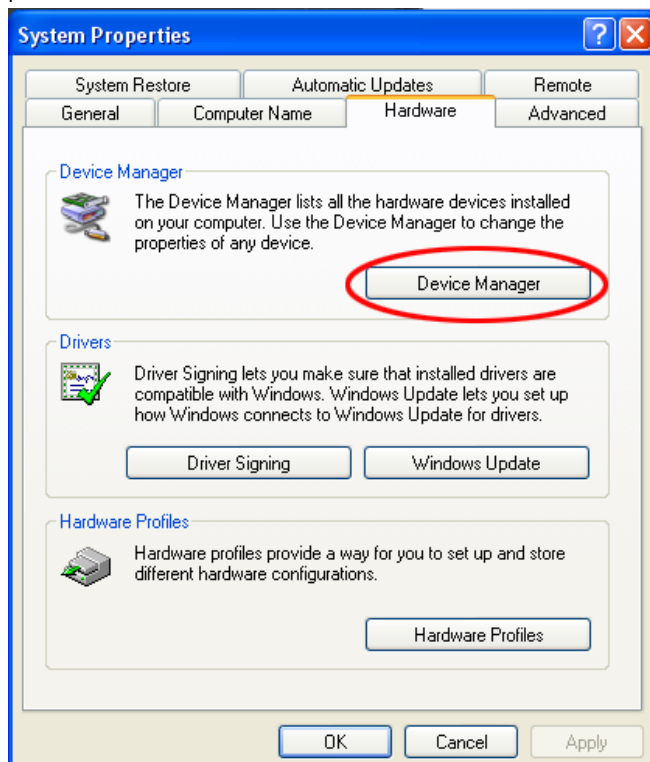
- 03) Install the recommended software and click on "NEXT".

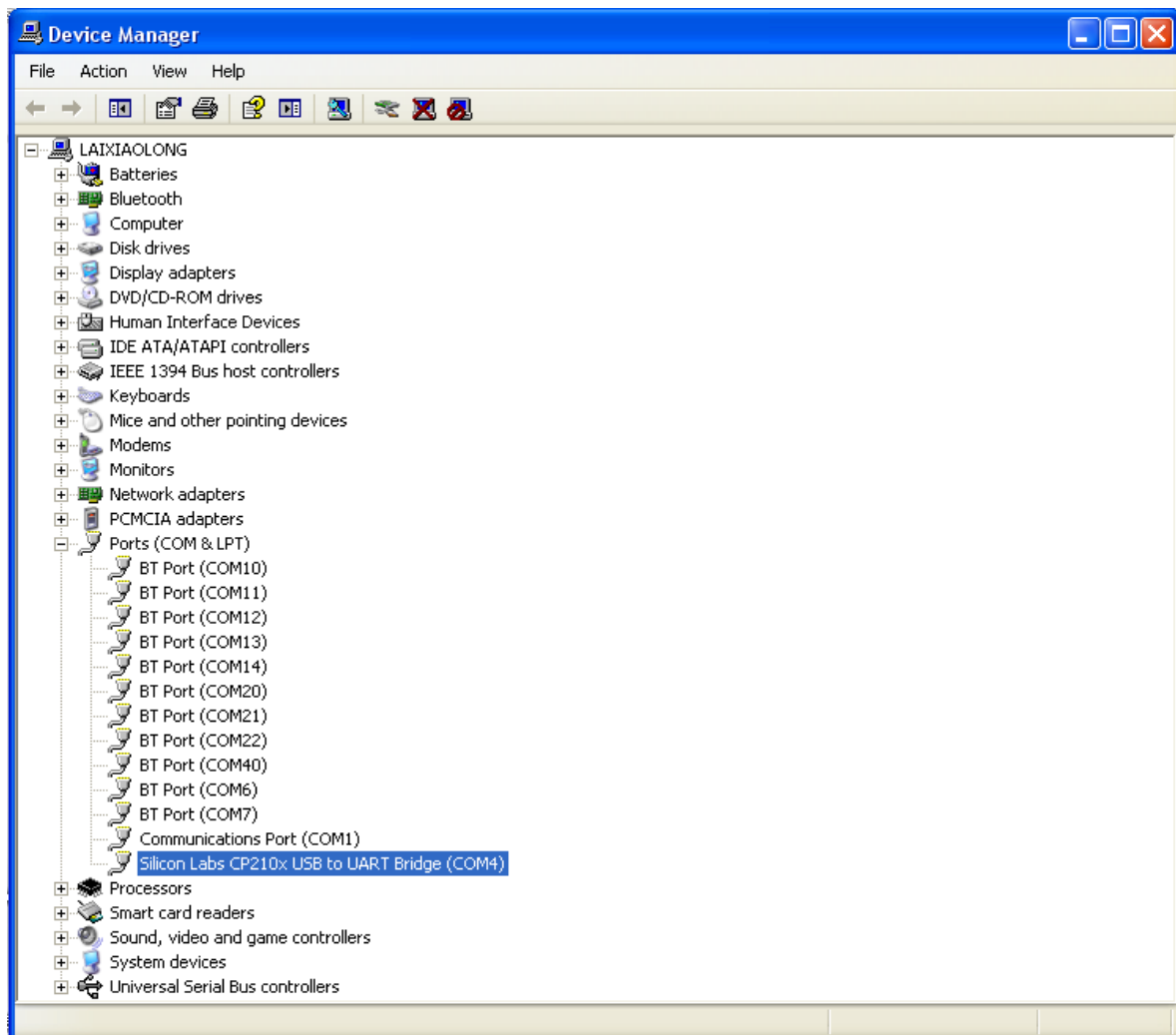


- 04) Click on "NEXT".

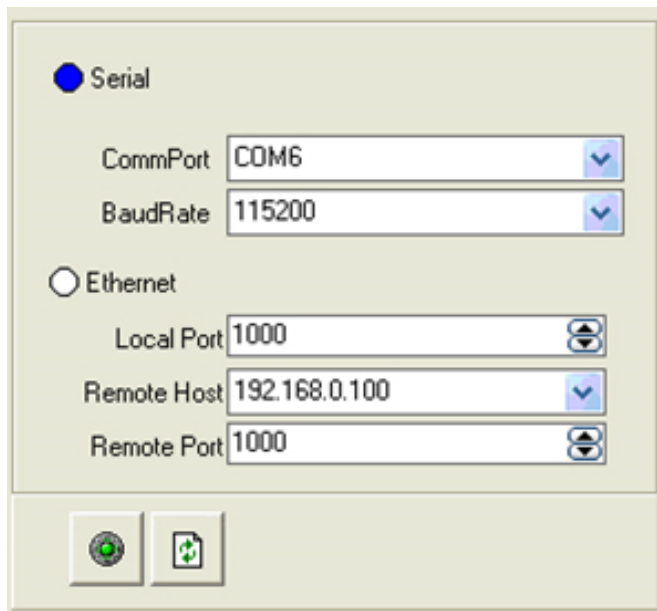


05) When the installation is finished, check the installed COM port in the Device Manager. See the picture below:






06) Install the console software, and run it. The interface will show:

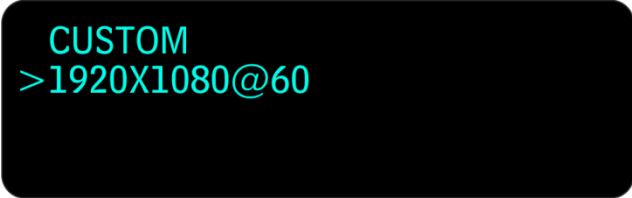


07) Select the COM, as before, and set the BaudRate to 115200.

08) Click on the  button to connect. If the icon in the lower right corner turns green, it means that the connection is ok. Now you can use the software to control the device.

How to Perform Customized Output Resolution

- 01) Press the **MENU/EFFECT** button to enter the menu.
- 02) Turn the **menu control (02)** and select [OUTPUT].
- 03) Press the **menu control (02)** to enter.
- 04) Turn the **menu control (02)**, select <OUTPUT FORMAT> and press the **menu control (02)** to enter.
- 05) Turn the **menu control (02)** to select <CUSTOM> and press the **menu control (02)** to enter. The display will show:



CUSTOM
>1920X1080@60

- 06) Press the **menu control (02)** to enter edit mode.
- 07) Turn the **menu control (02)** to adjust and press the **menu control (02)** to set: width, height and the frequency (50 or 60Hz).
- 08) If you multiply all the resolution values (width, height, frequency), the result should not exceed 141557760.

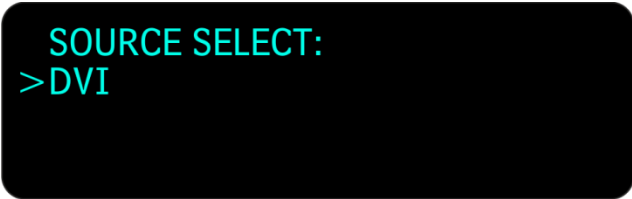
Example

Resolution # 1: 1536x1536x60=141557760 (**OK**)

Resolution # 2: 2560x1536x60=235929600 (**INCORRECT/NOT SUPPORTED**)

How to Perform Single Image Switching

- 01) Boot the default CV1 to the current input source. If you need to seamlessly switch to other sources, such as DVI, press the **DVI** button. The display will show:



SOURCE SELECT:
>DVI

- 02) The **CV1** button's light turns off after pushing the **DVI** button. (The **DVI** button ON = input is ok. The **DVI** button is flashing = input is not present or not supported.)
- 03) Use the same method to switch the signals between CV2, CV3, S-Video, YPbPr, VGA, SDI and DP.

Note: When it comes to CV1, CV2 and CV3, only cut switching is supported.

How to Set up the PIP

01) Press the **SAVE/PIP1** button or the **LOAD/PIP2** button twice. The display will show:

PIP	ON
LAYOUT	PIP L+T
SWAP IMAGE	OFF
ALPHA	0

02) Turn the **menu control (02)** to select LAYOUT and press the **menu control (02)** to enter. Turn the **menu control (02)** to choose one of the following 3 PIP layouts:

PIP L+T



PBP L+R



PBP T+B



- 03) Press the **menu control (02)** to confirm your choice.
- 04) Turn the **menu control (02)** to select SWAP IMAGE and press the **menu control (02)** to enter.
- 05) Turn the **menu control (02)** to select ON/OFF. If set to ON, the device will switch between IMAGE A and IMAGE B. Press the **menu control (02)** to confirm your choice.
- 06) Turn the **menu control (02)** to select ALPHA. Press the **menu control (02)** to enter.
- 07) Turn the **menu control (02)** to set the image transparency. The adjustment range is between 0-16. Press the **menu control (02)** to confirm.
- 08) Turn the **menu control (02)** to select SELECT and press the **menu control (02)** to enter.
- 09) Turn the **menu control (02)** to select IMAGE A or B (alternatively, press the **IMAGE1/IMAGE2** button.)

How to Set up the Size and Position of the Single Image

01) Press the **SCALE/CROP** button to enter the menu. The display will show:

H SIZE	1920
V SIZE	1080
H POS	0
ALPHA	0
> RESET	

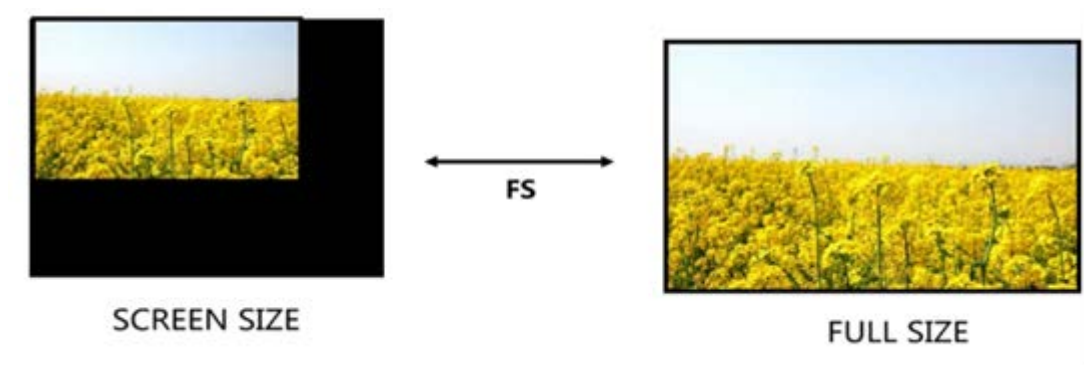
- 02) Press the **menu control (02)** to enter edit mode.
- 03) Press the **0-9** buttons (**04**) to set the values. Alternatively, turn the **menu control (02)**.
- 04) You can adjust the following settings:
- H SIZE: Width setting
 - V SIZE: Height setting
 - H POS: Horizontal phase setting
 - V POS: Vertical phase setting
 - RESET: If the image quality deteriorates because of improper operation, you can reset it with this function.

How to Perform the Screen Size Setting

When using the LS-190, it is possible to switch between scale screen size and full display size. This is only possible while working with a single display window. The example below uses the screen size 1408 x 832.

It is possible to choose one of the standard output resolution presets or create one by yourself.

- 01) Press the **MENU/EFFECT** button to enter the menu.
- 02) Turn the **menu control (02)** and choose <OUTPUT>.
- 03) Press the **menu control (02)** to enter. Turn the **menu control (02)** and choose <SCREEN>.
- 04) Press the **menu control (02)** to enter. The available parameters are:
 - H SIZE: Horizontal pixels. Turn the **menu control (02)** or press the **0-9** buttons **(04)** to set the value to 1408.
 - V SIZE: Vertical pixels. Turn the **menu control (02)** or press the **0-9** buttons **(04)** to set the value to 832.
 - H POS: Horizontal position. The default value is 0. Set the value in the same way as H SIZE and V SIZE.
 - V POS: Vertical position. The default value is 0. Set the value in the same way as H SIZE and V SIZE.
 - MODE: Mode option. Press the **menu control (02)** and turn it to select SCREEN SIZE. Press the **menu control (02)** again, to confirm your choice.



How to Perform the Text Overlay Setting

Before setting the text overlay, please make sure that you have set the input channel for the text. For example, set the VGA input as the text channel. Subsequently, set the top layer channel to CV1.

- 01) Press the **VGA** button to make sure that there is a VGA input.
- 02) Press the **CV1** button to make sure there is a CV1 input.
- 03) Press the **MENU/EFFECT** button, turn the **menu control (02)** to select <OUTPUT>. Press the **menu control (02)** to confirm. Turn the **menu control (02)** to select <TEXT OVERLAY>. Press the **menu control (02)** to confirm. The display will show:

```
* TEXT OVERLAY      ON
PRESET              USER MODE
BLEND MODE          MODE1
BLEND LEVEL         0
```

- 04) Turn the **menu control (02)** to select <TEXT OVERLAY>, press the **menu control (02)** to enter. Turn the **menu control (02)** and select ON, to activate text overlay.

- 05) Make sure that the VGA input is set to IMAGE B, and the CV1 input is set to IMAGE A. If not, select <PIP> and go to <SWAP WINDOW>. Press the **menu control (02)**, to enter edit mode, and turn the **menu control (02)** to choose ON. Press the **menu control (02)** to confirm.

```

PIP                                ON
LAYOUT                            PIP L+T
SELECT                            IMAGE A
>SWAP WINDOW                       ON
  
```

- 06) Turn the **menu control (02)** to select <SELECT> and press the **menu control (02)** to enter edit mode. Turn the **menu control (02)** to select IMAGE B and press the **menu control (02)** to confirm your choice.
- 07) Press the **SCALE/CROP** button to adjust the size and position of VGA image, then set the VGA image to the required position.

```

H SIZE        1920
V SIZE        1080
H POS         0
ALPHA         0
> RESET
  
```

- 08) Ensure that the VGA image overlay on the CV1 image is displayed normally and without black edges. If there are black edges around the VGA image, choose the <ZOOM> option in <PICTURE> menu, to adjust.
- 09) Set the text overlay mode: Go to <TEXT OVERLAY> and turn the **menu control (02)** to select <PRESET>. Press the **menu control (02)** to enter. Turn the **menu control (02)** to choose the preset mode (for example, set the VGA text to WhOnBk). Choose WhOnBk1 or WhOnBk2 (Note: Text Overlay support only monochrome subtitles). It is also possible to adjust <BLEND MODE> or <BLEND LEVEL> to get a better effect.

```

TEXT OVERLAY        ON
>PRESET             WhOnBk2
BLEND MODE           MODE1
BLEND LEVEL          0
  
```


- 10) Press the **SAVE/PIP1** button to save the parameters.

How to Perform the Freeze and Live Image Switching

01) Press the **FREEZE** button, and freeze the current image:



02) Press the **FREEZE** button again, the currently frozen image will switch to live image:



Note: It is also possible to activate FREEZE IMAGE or LIVE VIDEO via MENU -> OUTPUT -> DISPLAY MODE -> MODE.

How to Set up the Volume

In single image mode, do as follows:

- 01) Press the **MENU/EFFECT** button to enter the menu. Turn the **menu control (02)** to select <AUDIO>, press the **menu control (02)** to confirm and turn the **menu control (02)** to select <MUTE>.
- 02) Press the **menu control (02)** to enter <MUTE> and turn the **menu control (02)** and select OFF to disable the function.
- 03) Set the <VOLUME> according to your preferences.



- 04) In <PIP> mode, choose IMAGE A or IMAGE B as audio input source (MENU -> AUDIO -> AUDIO IN -> IMAGE A/IMAGE B, or press the **IMAGE1/IMAGE2** button. Choose IMAGE A or IMAGE B, then repeat steps 1-3.

Note: It is possible to adjust the volume only if <HDMI> is set to INTERNAL.

How to Perform LED Display Connection

While using the LS-190, it is possible to make 3 kinds of connections:

- Connect the Port D or Port U of one sending card to a LED display.
- Connect both ports (D and U) of one sending card to a LED display.
- Connect ports D and U of two sending cards to a LED display.

Connect the D Port or the U Port of One Sending Card to a LED Display

Example: No.1 sending card, port U1. (Note: No.1 sending card corresponds with port D1 and the U1 port. No.2 sending card corresponds with the D2 port and the U2 port.)

- 01) Make sure that the device is operating in normal mode: both red power indicators and both green signal indicators are ON, when the device receives signal input.
- 02) Choose the input signal, for example, DVI.
- 03) Connect the cable to the U1 port.
- 04) Press the **MENU/EFFECT** button and turn the **menu control (02)** to choose <DISPLAY CONNECTION>. Press the **menu control (02)** to enter.
- 05) Turn the **menu control (02)** to select <SENDING CARD NO.> and press the **menu control (02)** to enter. Turn the **menu control (02)** to select NO.1 and press the **menu control (02)** to confirm.

```
SENDING CARD TYPE    LINSN
SENDING CARD NO.    NO.1
BRIGHTNESS          50%
QUICK CONNECTION    >>
```

- 06) Turn the **menu control (02)** to select <QUICK CONNECTION> and press the **menu control (02)** to enter.

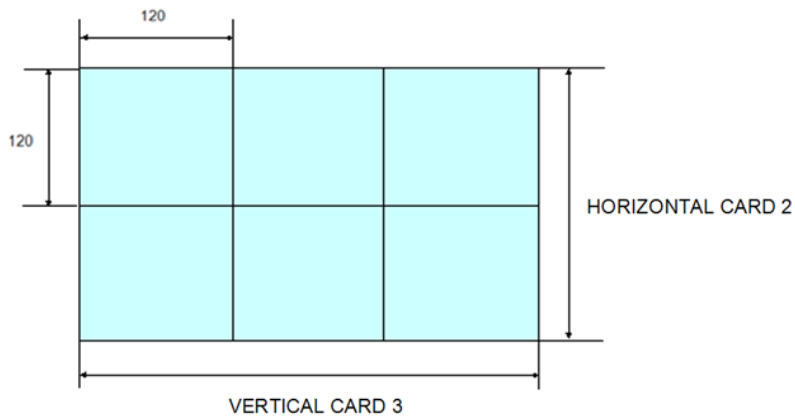
```
SENDING CARD SET    >>
> RECEIVING CARD SET >>
```

- 07) Turn the **menu control (02)** to select <RECEIVING CARD SET> and press the **menu control (02)** to enter.
- 08) In <CHOOSE CABLE>, select <PORT U>, and set the horizontal card, vertical card, width and height. For example, set the horizontal card to 2, vertical card to 3, width and height to 120:

```
> CHOOSE CABLE    PORT U
HORIZONTAL CARD    2
VERTICAL CARD      3
WIDTH              120
```

```
> HEIGHT          120
D PORT Offset (A/B) X 0
D PORT Offset (A/B) Y 0
DISPLAY CONNECTION  >>
```

09) The settings are as follows:



10) Turn the **menu control (02)** to select <DISPLAY CONNECTION> and press the **menu control (02)** to enter. Press the **menu control (02)** again to confirm and then turn the **menu control (02)** to choose the desired connection mode. There 8 available kinds of connection:



- 11) Press the **menu control (02)** to confirm your choice and press the **MENU/EFFECT** button to return to the previous menu.
- 12) Turn the **menu control (02)** to select <SEND TO RECEIVER> and press the **menu control (02)** to save.
- 13) Repeat the above steps for port D1. Look at the picture below for preview.



Connect Both Ports (D and U) of One Sending Card to a LED Display

- 01) Make sure that the device is operating in normal mode: both red power indicators and both green signal indicators are ON, when the device receives signal input.
- 02) Choose the input signal, for example, DVI.
- 03) Connect one end of the cable to the D1 port, and the other end one to the U1 port.
- 04) Connect the U1 port of No.1 sending card to the LED display. It can be done by following the same procedure as on page 59.
- 05) Connect the D1 port of No.1 sending card to the LED display.
- 06) Turn the **menu control (02)** to select NO.1 and press the **menu control (02)** to confirm.
- 07) Turn the **menu control (02)** to select <SENDING CARD NO.> and press the **menu control (02)** to confirm. Turn the **menu control (02)** to select NO.1 and press the **menu control (02)** to confirm.

```

SENDING CARD TYPE      LINSN
SENDING CARD NO.       NO.1
BRIGHTNESS             50%
QUICK CONNECTION       >>
  
```

- 08) Turn the **menu control (02)** to select <QUICK CONNECTION> and press the **menu control (02)** to enter.

```

SENDING CARD SET       >>
> RECEIVING CARD SET   >>
  
```

- 09) Turn the **menu control (02)** to select <RECEIVING CARD SET> and press the **menu control (02)** to enter.

```

> CHOOSE CABLE        PORT D
HORIZONTAL CARD         2
VERTICAL CARD           3
WIDTH                   120
  
```

- 10) Turn the **menu control (02)** to select <CHOOSE CABLE> and press the **menu control (02)** to enter. Turn the **menu control (02)** to select <PORT D> and press the **menu control (02)** to confirm.
- 11) Turn the **menu control (02)** to select <D PORT Offset (A/B) Y>. Press the **menu control (02)** to enter. Turn the **menu control (02)** to set its value to 240.

```

HEIGHT                  120
D PORT Offset (A/B) X   0
> D PORT Offset (A/B) Y 240
DISPLAY CONNECTION     >>
  
```

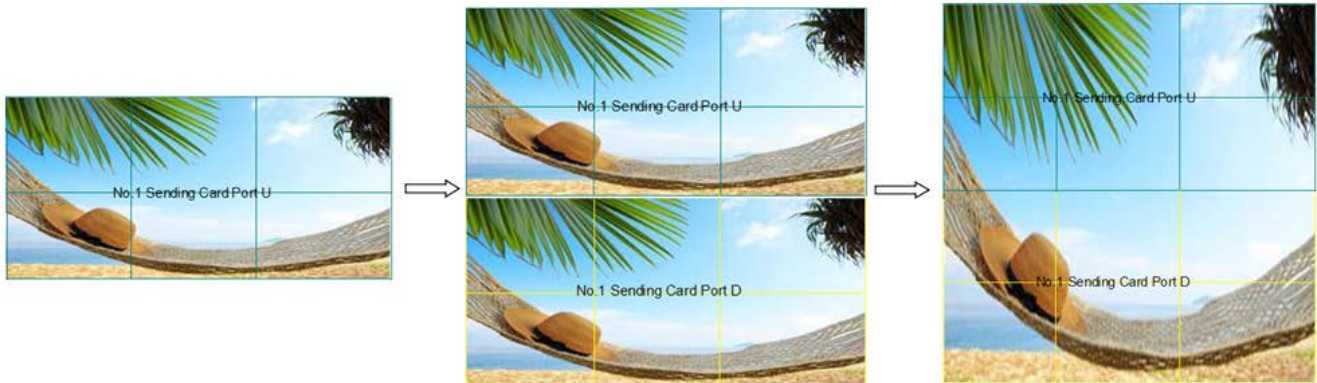
- 12) Turn the **menu control (02)** to select <DISPLAY CONNECTION> and press the **menu control (02)** to enter. Press the **menu control (02)** again to confirm and then turn the **menu control (02)** to choose the desired connection mode. 8 different kinds of connection are available:

```

>CONNECTION MODE  ⇄
  
```



- 13) Press the **menu control (02)** to confirm your choice and press the **MENU/EFFECT** button to return to the previous menu.
- 14) Turn the **menu control (02)** to select <SEND TO RECEIVER> and press the **menu control (02)** to save.
- 15) Repeat the above steps for the U1 port. Look at the preview below.



Connect the ports D and U of Two Sending Cards to a LED Display

- 01) Make sure that the device is operating in normal mode: both red power indicators and both green signal indicators are on, when the device receives signal input.
- 02) Choose the input signal, for example, DVI.
- 03) Connect four cables to the ports: U1, D1, U2 and D2.
- 04) Connect the D1 and U1 ports of No.1 sending card to the LED display. Follow the instructions from page 61.
- 05) Connect both ports (D2 and U2) of No.2 sending card to the LED display.
- 06) Turn the **menu control (02)** to select <DISPLAY CONNECTION> and press the **menu control (02)** to enter. Press the **menu control (02)** to select <SENDING CARD NO.> and press the **menu control (02)** to enter. Turn the **menu control (02)** to select NO.2 and press the **menu control (02)** to confirm.

```

SENDING CARD TYPE      LINSN
> SENDING CARD NO.     NO.2
BRIGHTNESS             50%
QUICK CONNECTION       >>
    
```

- 07) Turn the **menu control (02)** to select <QUICK CONNECTION> and press the **menu control (02)** to enter.

```

SENDING CARD SET       >>
> RECEIVING CARD SET   >>
    
```

- 08) Turn the **menu control (02)** to select <RECEIVING CARD SET> and press the **menu control (02)** to enter.
- 09) Turn the **menu control (02)** to select <CHOOSE CABLE> and press the **menu control (02)** to enter. Turn the **menu control (02)** to select <PORT U> and press the **menu control (02)** to confirm.

```

> CHOOSE CABLE          PORT U
HORIZONTAL CARD          2
VERTICAL CARD            3
WIDTH                    120
    
```

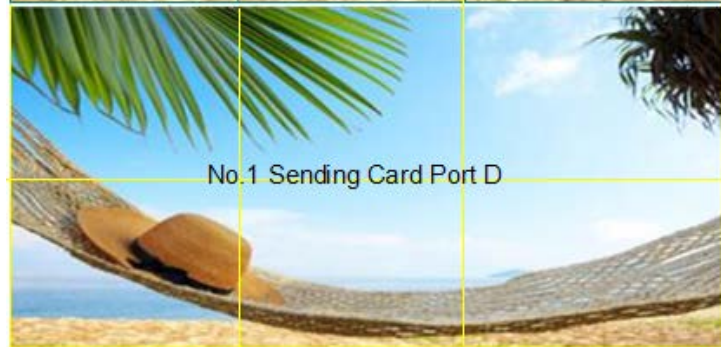

- 10) Press the **MENU/EFFECT** button to return to the previous menu. Turn the menu control (02) to select <SENDING CARD SET>.

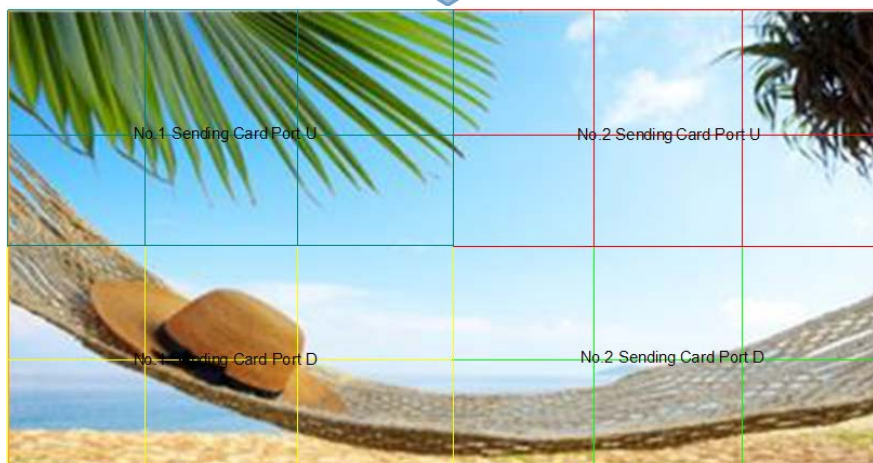
> SENDING CARD SET >>
RECEIVING CARD SET >>

- 11) Press the **menu control (02)** to enter.
12) Turn the menu control (02) to select <X>, and set it to 360 (Note: X=VERTICAL CARD×WIDTH. VERTICAL CARD = 3, WIDTH = 120. 3 x 120 = 360).

>X 360
Y 0
SAVE TO SENDER CARD
RESET

- 13) Set X of the D port of No.2 sending card to 360.
14) Look at the previews below.





How to Use Blackout

Press the **BLACK/0** button to perform a blackout.



How to Save Parameters

01) Press the **SAVE/PIP1** button to enable the SAVE function.

SAVE TO
>SAVE 1
Button is on can be saved
Button flashes will be overwrite

02) Turn the **menu control (02)** to select one of the 10 save positions (SAVE1-10).

03) Press the **menu control (02)** to save.

SAVE TO
>SAVE 1 FINISHED!
Button is on can be saved
Button flashes will be overwrite

04) It is also possible to press the **MENU/EFFECT** button to enter the menu. Turn the **menu control (02)** to select <SAVE SETUP> and press the **menu control (02)** to select "SAVE TO," in order to save the parameter.

How to Load the Saved Parameters

01) Press the **LOAD/PIP2** button to enable LOAD function.

LOAD FROM
>SAVE 1
Button on is ready for recall
Button flashes means just recall

02) Turn the **menu control (02)** to select the save slot which you would like to load.

03) Press the **menu control (02)** to confirm.

04) It is also possible to press the **MENU/EFFECT** button to enter the menu. Turn the **menu control (02)** to select <SAVE SETUP> and press the **menu control (02)** to select "LOAD FROM," in order to load the saved parameter.

Maintenance

The DMT LS-190 requires almost no maintenance. However, you should keep the unit clean. Disconnect the mains power supply and then wipe the cover with a damp cloth. Wipe the front panel clean with glass cleaner and a soft cloth. Do not use alcohol or solvents. Do not immerse in liquid. Keep connections clean. Disconnect electric power, and then wipe the Video and audio connections with a damp cloth. Make sure connections are thoroughly dry before linking equipment or supplying electric power.

The operator has to make sure that safety-related and machine-technical installations are to be inspected by an expert after every year in the course of an acceptance test.
The operator has to make sure that safety-related and machine-technical installations are to be inspected by a skilled person once a year.

The following points have to be considered during the inspection:

- 01) All screws used for installing the device or parts of the device have to be tightly connected and must not be corroded.
- 02) There may not be any deformations on housings, fixations and installation spots.
- 03) Mechanically moving parts like axles, eyes and others may not show any traces of wearing.
- 04) The electric power supply cables must not show any damages or material fatigue.

Software Upgrade

WARNING!

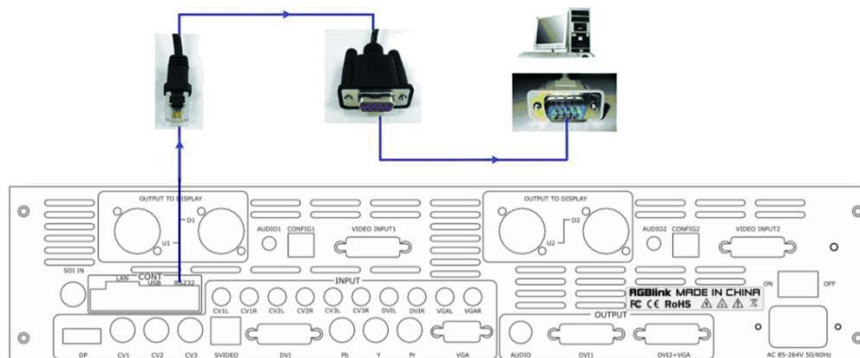


If the upgrading process is not carried out in the proper way or gets interrupted, it may lead to damaging the LS-190 beyond repair and the warranty will become void.

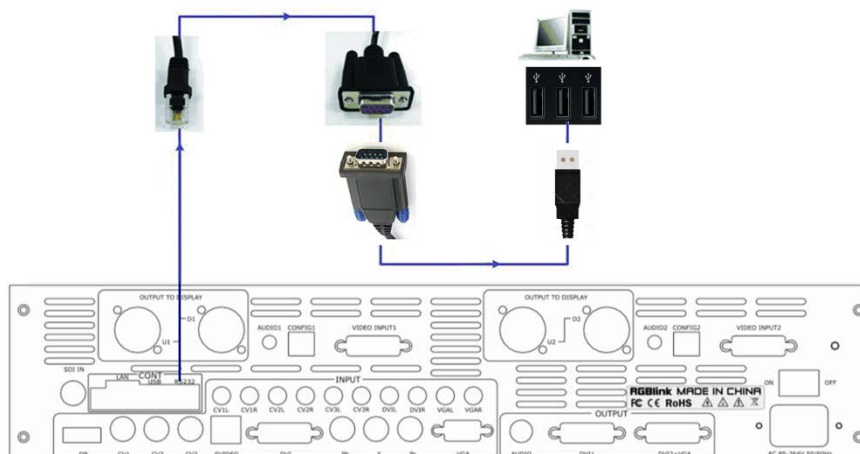


Downloading the IP Software

- 01) Switch the LS-190 off. Set the two DIP switches to down position.
- 02) Connect one end of the RJ11 download line to the RS232 on the LS-190, and connect the other end to the serial port on your PC.



or

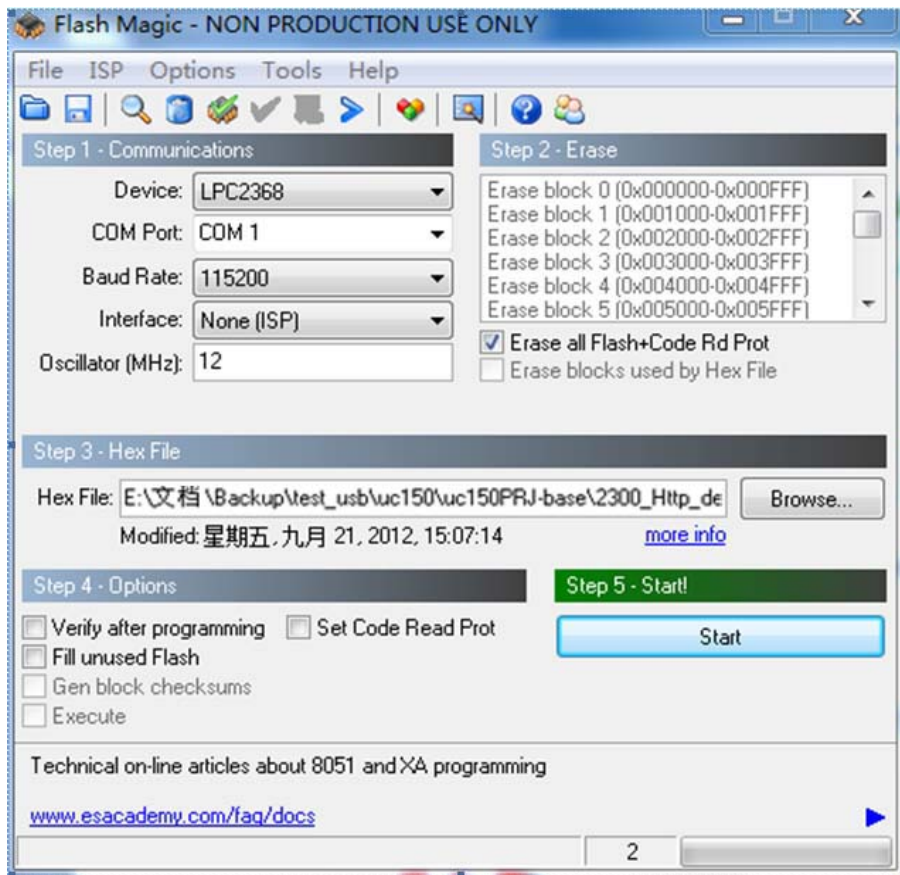




- 03) Double click on the Flash Magic icon to run Flash Magic.
- 04) Select the right serial port and set the Baud rate to 9600.
- 05) Select LPC2368 to load the hex file for IP board upgrading.
- 06) Check the item below to confirm.

☒ Erase all Flash+Code Rd Prot

- 07) Click on the START button.



- 08) After downloading, exit the program, turn off the power and set the 2 DIP switches back to the up position.
- 09) Reboot the LS-190.

Fireware Upgrade

WARNING!



If the upgrading process is not carried out in the proper way or gets interrupted, it may lead to damaging the LS-190 beyond repair and the warranty will become void.



You can upgrade the fireware via the Internet, specific steps are as follows:

- 01) Connect the LS-190 to the PC.
- 02) Start the network function (MENU -> SYSTEM -> ETHERNET -> NETWORK, select "ON", and check the IP address of the LS-190. Make sure that the LS-190 and the PC both use the same IP address.
- 03) Open the website. Enter the current IP address, the username (admin) and the password (DMT123) and click on "OK."
- 04) Enter the website, click on "Fireware Upgrade" and load the page:

Device Server Page

Upgrade Fireware

You can select files from your local PC and upload them to device. Files will upgrade device

Select a File to upgrade device

Upgrade file name error! Please see attention.

Attention:

upgrade SDI Fireware: filename extension is ".fsb"

upgrade Video Fireware: filename extension is ".fvb"

- 05) Click on "Browse...", choose the fireware directory path (the format should be ".FVB").
- 06) Click on "Update" to update the program.

Device Server Page

Upgrade Fireware

You can select files from your local PC and upload them to device. Files will upgrade device

Select a File to upgrade device

Attention:

upgrade SDI Fireware: filename extension is ".fsb"

upgrade Video Fireware: filename extension is ".fvb"

- 07) When the display shows "UPDATE FIREWARE...", it means that the software is being loaded.
- 08) When the display shows "UPDATE SUCCESS! PLEASE RESTART!" or if you can see "Video Fireware Update Success!" on the website, it means that the software is loaded successfully.

Device Server Page

Upgrade Fireware

You can select files from your local PC and upload them to device. Files will upgrade device

Select a File to upgrade device

浏览...

Update

Video Fireware Update Success!

Attention:

upgrade SDI Fireware: filename extension is "fsb"

upgrade Video Fireware: filename extension is "fvb"

- 09) Reboot the LS-190 and check the status.
- 10) Exit the fireware update.

Troubleshooting

This troubleshooting guide is meant to help solve simple problems.

If a problem occurs, carry out the steps below in sequence until a solution is found. Once the unit operates properly, do not carry out following steps.

Not working

If the LS-190 does not operate properly, refer servicing to a technician.

Suspect two potential problem areas as: the power supply, the cables.

- 01) Power supply. Check if the unit is plugged into an appropriate power supply.
- 02) All cables. Please check all connections and all cables.
- 03) If all of the above appears to be O.K., plug the unit in again.
- 04) If you are unable to determine the cause of the problem, do not open the LS-190, as this may damage the unit and the warranty will become void.
- 05) Return the device to your DMT dealer.

No Output in LED Display

- 01) Confirm if there is any input signal.
- 02) Press the **MENU/EFFECT** button, and go to INPUT -> INPUT DETAIL to see whether the input signal is detected. If the display shows "NO INPUT," check the input source.
- 03) Connect a preview monitor to one of the DVI outputs to check if there is output.
- 04) Reset the sending card, using LED Studio software.

LED Display Only Displays a Part of the Image

- 01) Signal needs to scale. Press the **SCALE/CROP** button to adjust the actual screen size, including the <H SIZE>, <V SIZE>, <H POS> and <V POS.> Press the **menu control (02)** to confirm.

No Display in the Second Half Part of LED Display

- 01) Resolution is incorrect. Select the resolution which is bigger than the screen width.

Left Screen Appears Two Black Sides

- 01) Adjust DE deviation. Adjust the DVI output and the DE migration of the processor. Press the **MENU/EFFECT** button, turn the **menu control (02)** to select <OUTPUT> and find the corresponding output, such as <DVI1 OUT ADJUST>, and go to <DVI1 DE.>
- 02) Adjust the corresponding horizontal and vertical DE.
- 03) Remember to save the corresponding channel after setting up.

All Key Lights Light Up Simultaneously

- 01) Check if the DIP switches are set correctly.
- 02) Switch the LS-190 off. Check if the two red DIP switches are in the up position. If they are not, set them to the up position and reboot the LS-190.

Aliasstep or Shaking When the Input SDI Signal is Selected

- 01) Press the **MENU/EFFECT** button and enter the menu.
- 02) Turn the **menu control (02)** to select <INPUT>, and press the **menu control (02)** to confirm and select <SDI ADJUST>.
- 03) Turn the menu control (02) to select <ANTI-ALIASSTEP> and select one of the available effects (ANTI-ALIASSTEP STEP_1-7). STEP_1 corresponds to 1080i, and STEP_4 can be used for solving the shaking issue. If the device shakes again, press the **MENU/EFFECT** button twice, and proceed to <DEINTERLACE> to solve the problem.

Spotted Image or Freeze When Switch CV Signal is Present

- 01) Set the consistent CV input resolutions to avoid spotted image.

DP Port Can Receive a DVI or HDMI Signal

- 01) The DP port can only receive a DP signal. Please choose a graphics card with a DP output port.

Product Specifications

BNC Input			
Number of Inputs:	3		
Supported Standards:	PAL/NTSC		
Signal Level:	1Vpp±3db (0.7V Video+0.3v Sync) 75 ohm		
Multiplex:	480i, 576i		
S-Video Input			
Number of Inputs:	1		
Supported Standard:	PAL/NTSC		
Signal Level:	Y:1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm U/V:0.7Vpp±3dB 75 ohm		
Multiplex:	480i, 576i		
YPbPr BNC Input			
Number of Inputs:	3 x BNC		
Supported Standard:	analog signals		
Signal Level:	Y:1Vpp±3dB(0.7V Video+0.3v Sync)75 ohm Pb/Pr:0.7Vpp±3dB 75 ohm		
Supported Resolution:	480i, 576i, 480p, 576p, 720p50, 1080i50, 1080p50 1080i50, 1080i60		
VGA DB15 Input			
Number of Inputs:	1		
Connector:	Standard DB15 Socket		
Supported Standard:	VGA-UXGA		
Signal Level:	R, G, B, Hsync, Vsync: 0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm Black level: 300mV Sync-tip: 0V		
Supported Resolution:	1024×768@60Hz, 800×600@60Hz, 640×480@60Hz, 1280×720@60Hz, 1280×800@60Hz, 1280×960@60Hz, 1280×1024@60Hz, 1440×900@60Hz, 1400×1050@60Hz, 1600×1200@60Hz, 1680×1050@60Hz, 1920×1080@60Hz, 1366×768@60Hz		
DVI Input			
Number of Outputs:	1		
Connector:	Standard DVI-I socket		
Supported Resolution:	SMPTE: 625/25 PAL, 525/29.97 NTSC, 625/50p PAL, 525/59.94p NTSC 1080i50,1080i59.94/60,720p50,720p59.94/60 VESA: 800×600@60Hz, 1024×768@60Hz, 1280×768@60Hz, 1280×1024@60Hz, 1600×1200@60Hz, 1920×1080@60Hz, 1920×1080@50Hz		
Signal Level:	TMDS pwl, single pixel input,165MHz bandwidth		
Format Standard:	HDMI 1.3		
DP (Display port) Input			
Number of Inputs:	1		
Connector:	Standard		
Supported Resolution:	Supported resolution: WQXGA + (1920 x 1200), and color depth: 30/36 bit (each primary 10/12 bit)		
Supported Bandwidth:	10.8Gb/s		
Format Standard:	DP1.1		

3G-SDI Input	
Number of Inputs:	1
Connector:	BNC
Supported Standard:	SMPTE 259M SD-SDI 270 Mbit/s 480i, 576i SMPTE 292M HD-SDI 1.485 Gbit/s 720p, 1080i SMPTE 424M 3G-SDI 2.970 Gbit/s, 1080p
Balance:	Belden 1694A 100m self-adaptive 3G, 200m self-adaptive 1.485G, 350m self-adaptive 270Mbps
Audio Input	
Number of Inputs:	10
Connector:	Standard RCA socket
Audio Standard:	48Kbps 24bit
DVI Output	
Number of Outputs:	2
Connector:	Standard DVI-I Socket
Signal Level:	TMDS pw, 165MHz bandwidth
Supported Resolution:	VESA: 800×600@60Hz, 1024×768@60Hz, 1024×768@75Hz, 1280×720@60Hz, 1280×720@50Hz, 1280×768@60Hz, 1280×800@60Hz, 1280×1024@60Hz, 1360×768@60Hz, 1366×768@60Hz, 1400×1050@60Hz, 1440×900@60Hz, 1600×1200@60Hz, 1680×1050@60Hz, 1920×1080@60Hz, 1920×1080@50Hz, 1920×1200@60Hz, 2048×1152@60Hz, 2560×812@60Hz, 2560×816@60Hz
VGA Output	
Number of Outputs:	1
Connector:	Standard DB15 Socket
Supported Resolution:	VESA: 800×600@60Hz, 1024×768@60Hz, 1024×768@75Hz, 1280×720@60Hz, 1280×720@50Hz, 1280×768@60Hz, 1280×800@60Hz, 1280×1024@60Hz, 1360×768@60Hz, 1366×768@60Hz, 1400×1050@60Hz, 1440×900@60Hz, 1600×1200@60Hz, 1680×1050@60Hz, 1920×1080@60Hz, 1920×1080@50Hz, 1920×1200@60Hz, 2048×1152@60Hz, 2560×812@60Hz, 2560×816@60Hz
Signal Level:	R, G, B, Hsync, Vsync:0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm Black level: 300mV Sync-tip: 0V
Audio Output	
Number of Outputs:	1
Audio standard:	48Kbps 24bit
Function	
Input channel configuration:	Support each input channel signal programming configuration
PIP:	Support PIP, PBP between inputs
Audio sync switch:	support
Extras	
Communication:	RS232 USB TCP/IP
Power Supply:	85-264V 2.1A IEC-3
Working Temperature:	0°C~45°C
Relative Humidity:	10% to 90%
Product Warranty:	1 year

Design and product specifications are subject to change without prior notice.



Website: www.DutchMediaTools.info

Email: service@highlite.nl

Dimensions

