LIGHTWARE

INNOVATIVE. RELIABLE. MADE IN EUROPE.

User's Manual

Lightware Device Controller (LDC)
Software

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DOCUMENT INFORMATION

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INFO
A notice which may contain useful information. Procedure can be successful without reading it.

ATTENTION!
An attention which is recommended to read! Procedure can be unsuccessful without reading it.

WARNING!
Important warning which is highly recommended to read and keep in every case!

TIPS AND TRICKS
Tips and tricks which you may have not known yet but can be useful.

1. Introduction

Thank you for using Lightware Device Controller. The software is an easy and comfortable way to control and configure your Lightware device locally or remotely with using Ethernet, USB or RS-232 connection. LDC got a unified look, improved with many new effective and helpful features, but all of the functions remained from the previous versions. It is also available for Windows and Mac OS X platform. An online update function was integrated into the LDC, which helps the users to have always the latest version.

1.1. Supported Models

All Lightware devices are supported by LDC (except 25G and MODEX; 25G has own controller surface, MODEX products will be supported by LDC soon). Functions and features have been tested device by device deeply with the latest firmware package that was available in May 2014.

ATTENTION!
As LDC takes the advantage of all new features implemented in the latest firmware, it is highly recommended to upgrade your devices to prevent any possible incompatibility issues. Detailed instructions about the upgrading can be found in the user's manual of the device. In the case of having any question about firmware upgrades please contact your local representative or Lightware support team.

INFO
This is a general description about the Lightware Device Contoller software, where you can read about the basic functions and common features. There are many device specific properties and operation modes what you can find in the product's own user's manual, in the software control chapters.

1.2. Features

ATTENTION!
The following features depend on the Lightware product what you are using. Some of them may not be available on your device. Please read the user's manual of your product.

Unique Look and Feel

LDC has unique graphical user interface which is easy to use and overview.

Self-Evident Handling

The software designed for as the most easiest usage as possible. Functions can be accessed quickly and hints help the user in the fast recognizing.

Dynamic Crosspoint Layout

The new Lightware Device Controller can adapt to different screen sizes. It makes the application easy to use on touchscreen devices like tablet PCs, laptops and also on desktop PCs as the layout of the tiles are optimized for the actual device.

Event Manager

The Event Manager tool takes care of all the necessary control in a smaller configuration by performing predefined actions in response to device status changes. Hence, in a less complex environment, there is no need to invest in additional control solutions, which makes the Lightware devices the best choice for numerous applications.

Advanced EDID Management

EDID manager tool is for handling easily to create, emulate and manage EDIDs for the perfect audio-video presentation.

Frame Detector and Signal Analysis

Using Lightware Device Controller software the exact video and audio signal format can be determined such as timing, frequencies, scan mode, HDCP encryption, color range, color space and audio sample rate.

2. Installation

2.1. Different Ways of Installation

There are two different ways to install the application: the **normal** and the **snapshot** install methods.

Normal install	Snapshot install
Available for Windows and Mac OS X	Available for Windows
The installer can update only this instance	Cannot be updated
Only one updateable instance can exist for all users	More than one different version can be installed for all users

Comparison table of normal and snapshot install

The default method is the **Normal** installation.

INFO
After the installation, the Windows and the Mac application has the same look and functionality.

2.2. Steps of the Installation - Windows OS

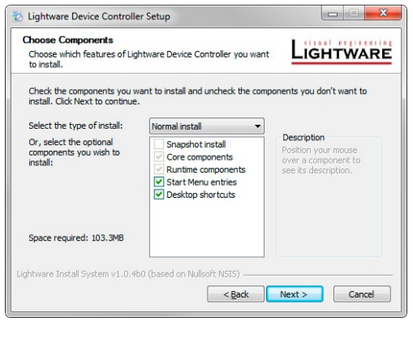
Installation of LDC for Windows can be done in a few easy steps.

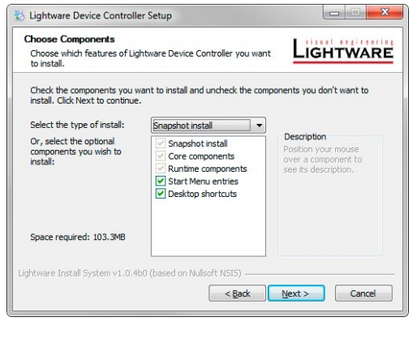
Step 1. Visit Lightware's website (www.lightware.eu) and download the LDC software installer for Windows.

Step 2. Run installer. If the User Account Control drops a pop-up message click **Yes**.

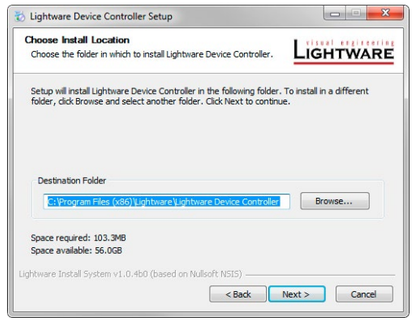
Step 3. A welcome window opens. Click **Next**.

Step 4. Select the type of the installation. Here can be chosen the normal and the snapshot install as mentioned in the previous section. Select the optional components then click **Next** Using the **Normal** install as the default method is highly recommended.

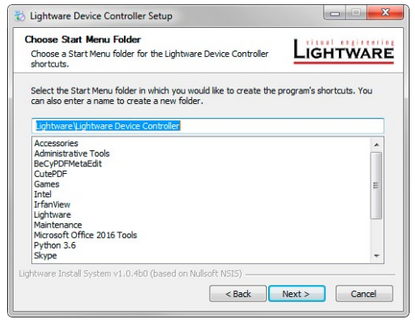




Step 5. Select the destination folder and click **Next**. Using the default path is highly recommended.

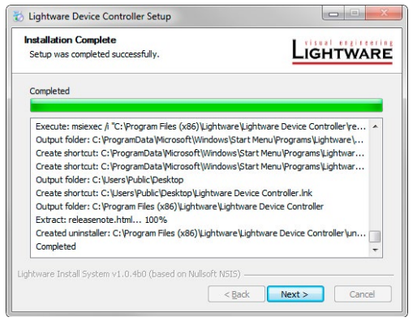


Step 6. Select the Start Menu Folder and click **Next**. Using the default folder is highly recommended. If the Start menu entries were not checked in the Step 3. this window will be skipped.



Step 7. Verify the settings and if they are correct click **Install**. (If not, click **Back** and change the setting.)

Step 8. After the installation of the last component, the **Next** button is activated. Click on it.



Step 9. If the installation is complete, click **Finish**. Uncheck the box if the running of the LDC will be postponed. Checking in release notes box will show the latest released updates in LDC.

2.3. Steps of the Installation - Mac OS X

Installation of LDC for Mac can be done in few easy steps.

Step 1. Visit Lightware's website (www.lightware.eu) and download the LDC software installer for Mac OS.

Step 2. Mount the DMG file with double clicking on it.

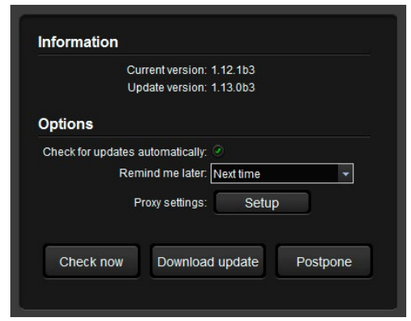
Step 3. Drag the LDC icon over the Applications icon to copy the program into the Applications folder. If you want to copy the LDC into another location just drag the icon over the desired folder.

3. Upgrading the LDC

This chapter shows the upgrading steps of LDC software.

Step 1. Start the application.

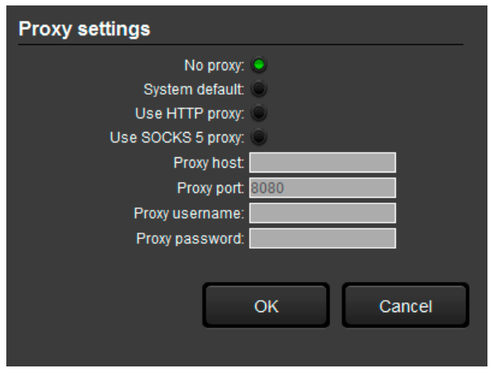
The Device Discovery window appears automatically and the program checks the available updates on the Lightware website and opens the update window if the LDC found updates.



The current and the available update version number can be seen at the top of the window and they are shown in this window even with the snapshot install.

Step 2. Set the desired update setting in the options section.

- If you do not want to check the update automatically, uncheck the circle, which contains the **green tick**.
- If postponing is the desired choice for the updating, the reminder can be set for the different durations with the drop-down list.
- If the proxy settings are needed for the update process, set the proper values then click the **OK** button.



Step 3. Click the **Download update** button to start upgrading.

The user can check updates manually by opening **About** menu on the Device Discovery screen (see button location in section 4.2 on page 10), clicking on the **Update** button then clicking the **Check now** button.

4. Connection and Device Discovery Screen

This chapter shows physical connection types between your device and the computer and explains Device Discovery window of LDC.

4.1. Connection Interfaces

The unit can be controlled from a Windows or Mac OS X based computer using the LDC through Ethernet, USB or RS-232 connection.

Connect the desired device and the computer either via on of an interface, which is supported by the device. It can be:

a) Serial port, with RS-232 cable.

b) Ethernet port, with LAN patch cable (via local network); make sure that the computer is in the same network.

c) Ethernet port, with LAN cross cable (direct connection).

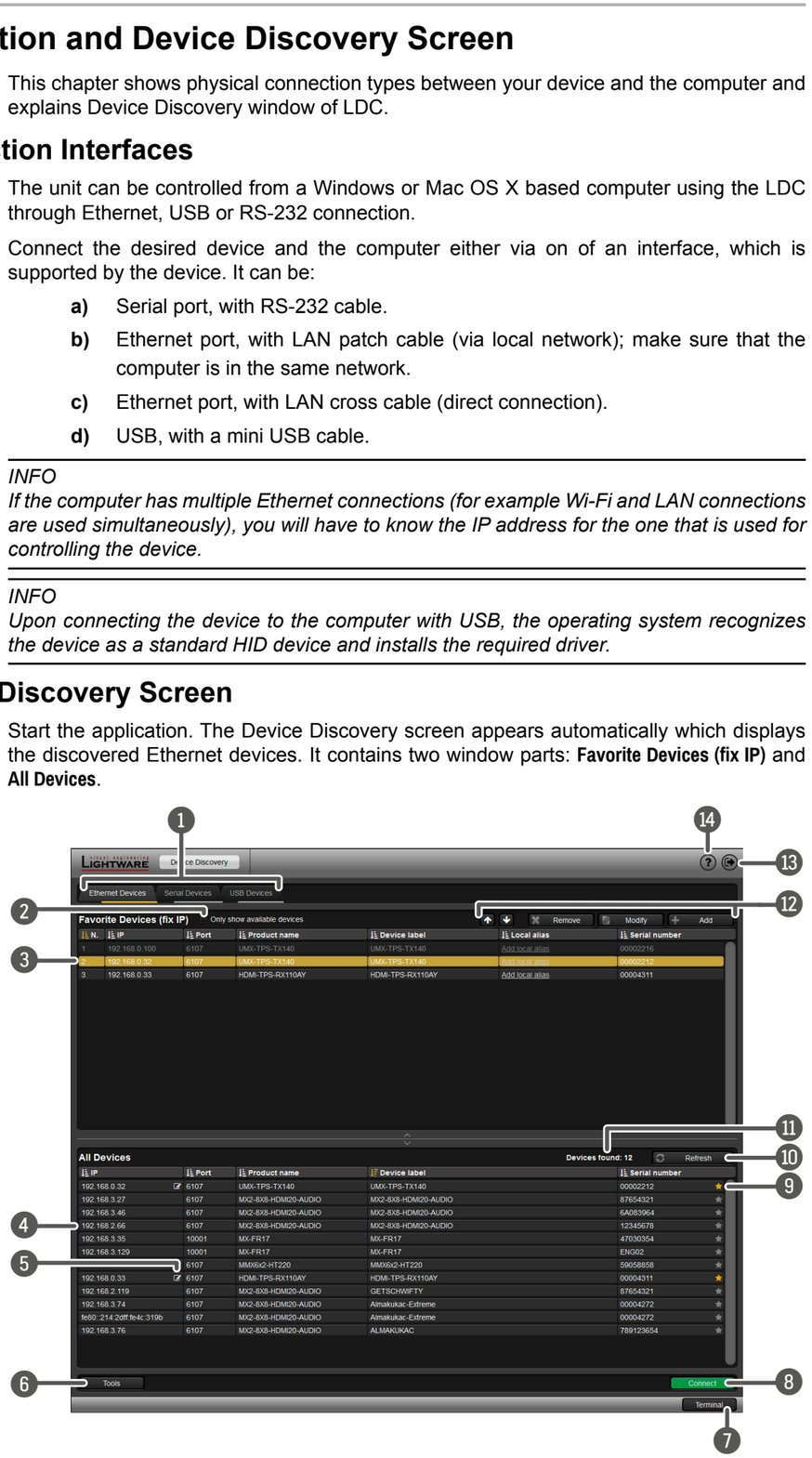
d) USB, with a mini USB cable.

INFO
If the computer has multiple Ethernet connections (for example Wi-Fi and LAN connections are used simultaneously), you will have to know the IP address for the one that is used for controlling the device.

INFO
Upon connecting the device to the computer with USB, the operating system recognizes the device as a standard HID device and installs the required driver.

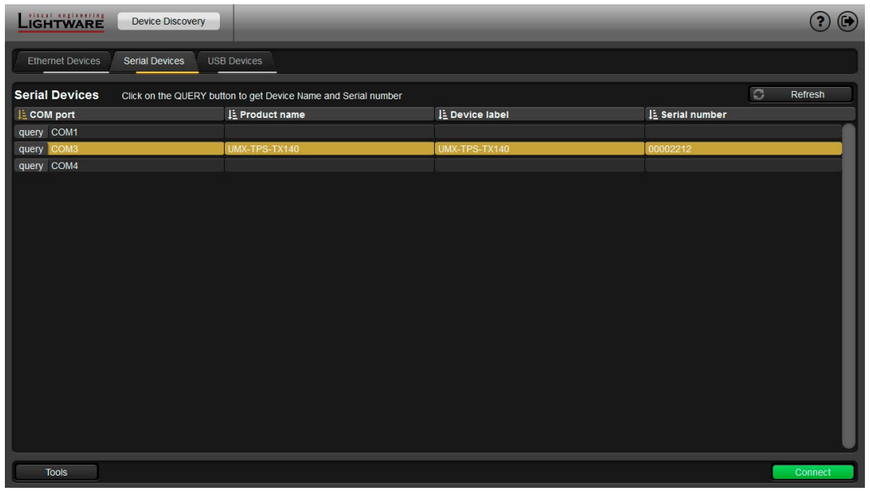
4.2. Device Discovery Screen

Start the application. The Device Discovery screen appears automatically which displays the discovered Ethernet devices. It contains two window parts: **Favorite Devices (fix IP)** and **All Devices**.



1	**Connection type tabs**	Discovered devices are listed here by connection types. **Ethernet Devices** tab: units connected via Ethernet connection to LAN. **Serial Devices** tab: units connected via RS-232 cable to the computer. **USB Devices**: units connected via USB cable to the computer.
2	**Only show connected devices option**	If it is selected by green tick, application shows only connected devices in the Favorite Devices window. If it is unselected, the favorite devices which are recently not connected to LAN still appears but decolorated by grey.
3	**Favorite devices**	List of devices which are selected as favorite.
4	**All devices**	List of devices which are available in the LAN.
5	**Change IP Address**	Quick way to change the IP address settings of the selected unit without entering its settings/network menu (if this function is supported by the device).
6	**Tools button**	After clicking a list of tools pops up. They are: **Log Viewer**: saved log files can be opened and analyzed in this window, for the details see section 4.4 on page 14. **Create EDID**: EDID creator wizard panel opens. You can create and save unique EDIDs here. For the details see section 4.5 on page 14. **Demo mode**: you can connect to a virtual matrix and try out functions and working methods, For the details see section 4.6 on page 15.
7	**Terminal button**	Terminal window for subscribing history of protocol commands independently from the connected device.
8	**Connect button**	You can connect to the selected device by clicking this button.
9	**Favorite device selector**	Click on the star if you want to save the device as favorite. This changes the color of the selected star to yellow and the device appears in the Favorite Devices window. Clicking again on a yellow star will remove the device from list of favorite devices.
10	**Refresh button**	Clicking on this button results a manual refreshing on connected devices.
11	**Connected device counter**	The number of the discovered Lightware devices in the LAN.
12	**Function buttons of Favorite Devices**	Move up selected device in the list. Move down selected device in the list. Remove — Remove selected device from favorite devices. Modify — Modify connection properties of selected device. For more details see section 4.3.1 on page 13. Add — Add a new device to the list of favorite devices. In this case you have to know the fixed IP address of the device. For more details see section 4.3.2 on page 13.
13	**Exit button**	Close the program.
14	**About menu**	Clicking on it the About window opens. Revision number, website and e-mail address can be found here. Update button is a manual checking of updates of LDC.

4.2.1. Serial Devices Tab

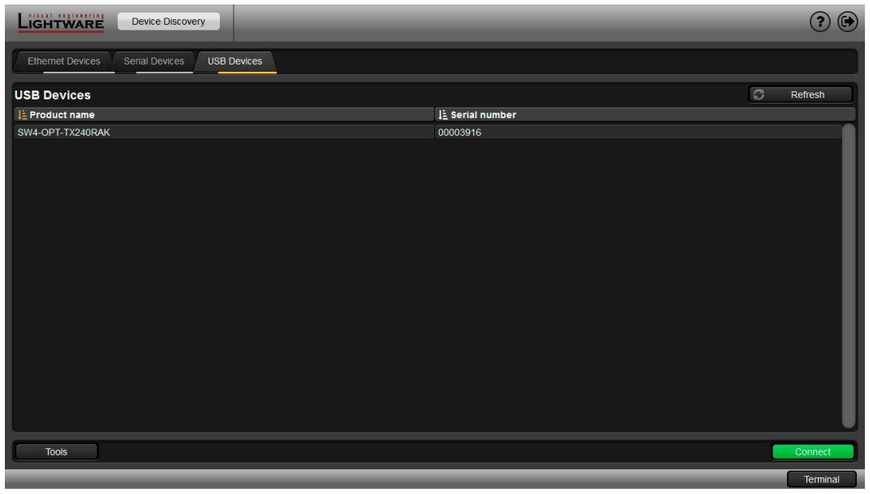


Serial Devices tab

Choose Serial devices tab for the connection via RS-232 port. Click on the **Query** button to display the desired device and double click on it for the connection establishing.

INFO
For RS-232 connection, the router has to use 9600 or 57600 baud rate. The controller software determines the baud rate automatically.

4.2.2. USB Devices Tab



USB Devices tab

Choose USB devices tab for the connection via USB port. Double click on the desired device for the connection establishing.

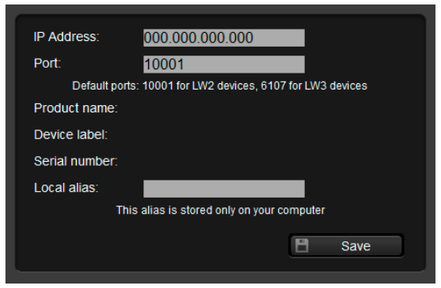
ATTENTION!
Be sure that the firewall is not blocking the application!

4.3. Other Function Buttons

4.3.1. Add Button

To add a new device with fixed IP address to the Favorite Devices list choose the **Add** button. You have to know the exact IP address and the port number of the desired unit. (Default port numbers: 10001 for LW2 devices, 6107 for LW3 devices.)

You can add a unique **alias** name to the device for the easier identification. (This alias is stored on your computer only.)



4.3.2. Modify Button

You can modify each device's properties by clicking on the **Modify** button, e.g. fixed IP address, port number and Local alias name. To store the given data click on the Save button.

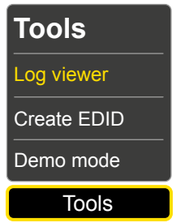
Be sure about the fixed IP address of the device! Incorrect IP address may result connection problems!

4.3.3. Change IP Address

To modify IP address settings quickly it is not necessary to enter the device's settings/ network menu, you can set them by clicking the pencil icon beside the IP address in the All Devices menu.

In this window you can see only the new settings.

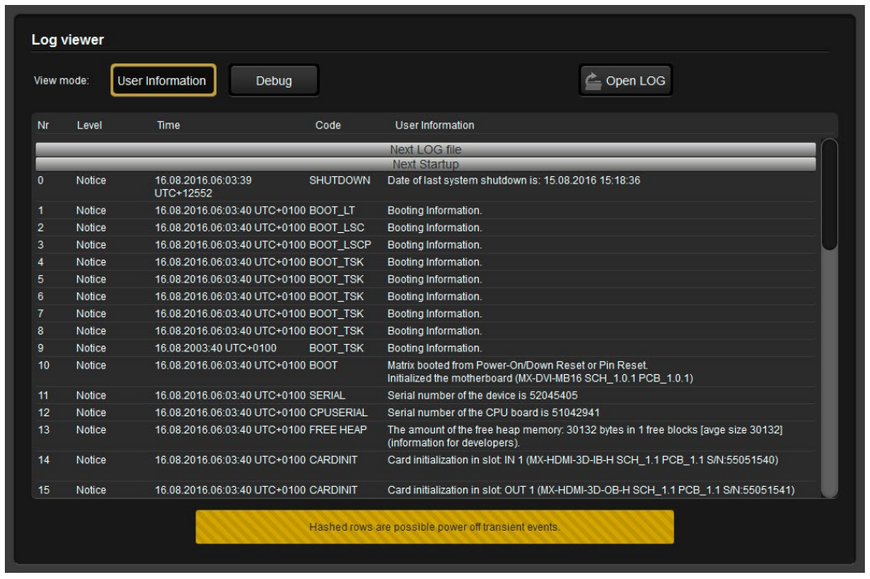
4.4. Log Viewer Tool



This tool can be used for reviewing log files which were saved previously.

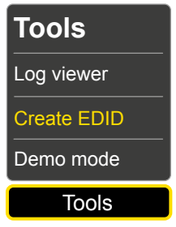
To start Log Viewer click on the **Tools** menu at the lower left corner of the window and select **Log Viewer**. Click on the **Open LOG** button to open the desired log file. Browse the file and select it, then click on the Open button. The content of the log file is listed in the window.

User has two options to review log files: **User information** and **Debug**. Debug shows the original content of the log file, User information shows the user readable data. Default value is the User information and that one is the recommended option.



Log Viewer window with an opened log file

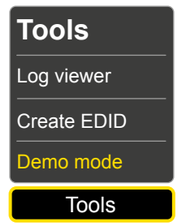
4.5. Create EDID Tool



This tool opens the Easy EDID Creator wizard which can be used for creating unique EDIDs in few simple steps. You can select resolution with refresh rating, signal type (even 3D support), audio format and it can be saved in a .bin or .dat file.

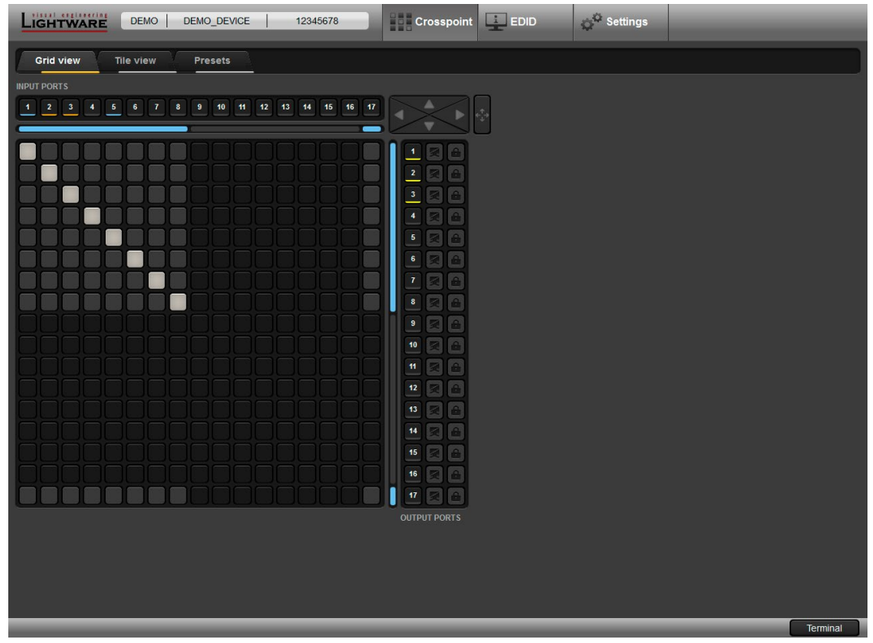
To start Create EDID tool click on the **Tools** menu at the lower left corner of the window and select **Create EDID**. Functionality is the same as the Easy EDID Creator, for the detailed information see section 8.4 on page 36.

4.6. Demo Mode Tool



Demo mode is a virtual MX-FR17 matrix switcher with full functionality built into the LDC. Functions and options are the same as a real MX-FR17 device.

To start Demo mode click on the **Tools** menu at the lower left corner of the window and select **Demo mode**. Application looking and functionality is the same as LDC for matrix switchers, for the detailed information see section 6 on page 20.

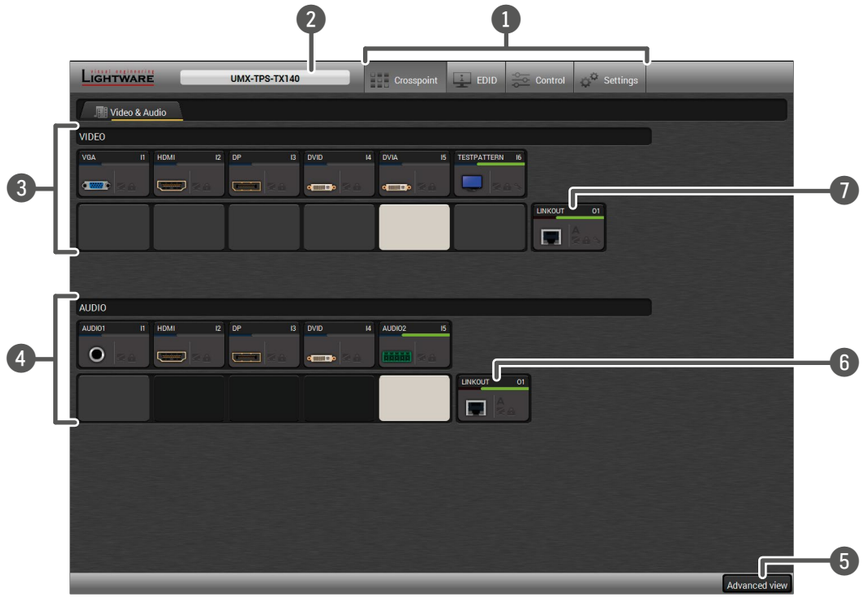


Demo mode window in LDC

5. Crosspoint Menu for Extenders

ATTENTION!
The following screenshots and descriptions are regarding to various type of transmitters. Your actual device may have different ports, settings and functions than represented in this chapter. Please check the user's manual of your actual device for the available settings.

5.1. Crosspoint Operations



1	**Main menu**	The available menu items are displayed. The active one is highlighted with dark grey background color.
2	**Information ribbon**	The label shows the type of the connected device. Device discovery window can be displayed by clicking on this ribbon.
3	**Video input ports**	Each tile represents a video input port. The tile below the port shows current crosspoint setting; if the port is switched to the output, the color of the tile is white, otherwise grey.
4	**Audio input ports**	Each tile represents an audio input port. The tile below the port shows current crosspoint setting; if the port is switched to the output, the color of the tile is white, otherwise grey. Dark grey means the audio port is not allowed to embed in the current video input port.
5	**Advanced view**	Displaying Advanced view page, showing the Terminal window and the protocol tree.
6	**Audio output port**	The audio output of the TPS and local outputs; the audio signal is the same on those ports.
7	**Video output port**	The video output of the TPS and local outputs; the video signal is the same on those ports.

Port Tiles

The colors of the port tiles and the displayed icons represent different states and information:

1. Port name
2. Port icon
3. Port number
4. Signal present indicator
   green: present
   grey: not present
5. State indicators

State Indicators

Following icons display different states of the port/signal:

Icon	Icon is grey	Icon is black	Icon is green
	Signal is not encrypted with HDCP	Signal is encrypted with HDCP	-
	Port is unmuted	Port is muted	-
	Port is unlocked	Port is locked	-
	Autoselect is disabled	-	Autoselect is enabled

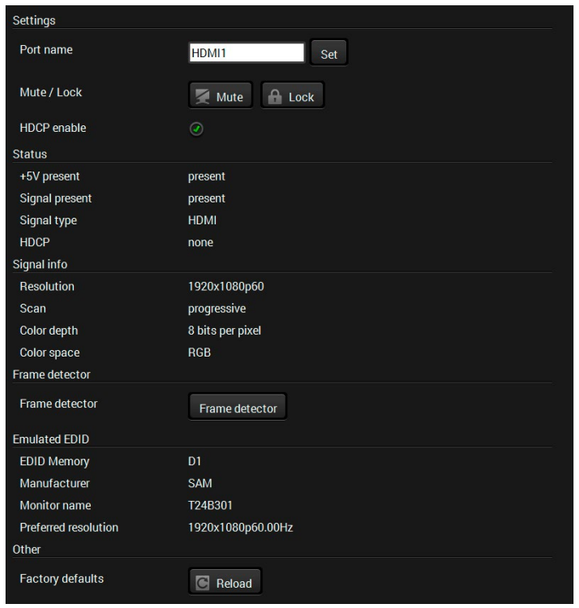
5.2. Port Properties and Settings

5.2.1. Video Input Port Properties and Settings

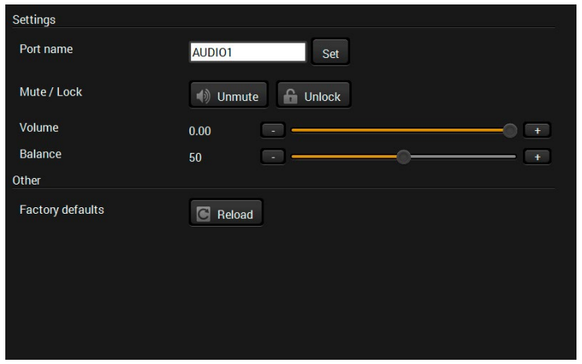
Click on a video input port to display its properties; Signal status information and the most important parameters are displayed. Special functions (e.g. frame detector (see more details in section 7.1 on page 31), HDCP switch, muting, and locking) are also available on the panel. Factory default settings can be recalled with a dedicated button.

The look and the content are port-dependent.

Video input port properties window can see on the right screenshot



5.2.2. Analog Audio Input Port Properties and Settings



Audio input port properties window

Click on an analog audio input port to display its properties; Signal status information and the most important parameters are displayed. User can set the volume, balance and gain levels, as well as muting and locking function are also set on these ports. Factory default settings can be recalled with a dedicated button.

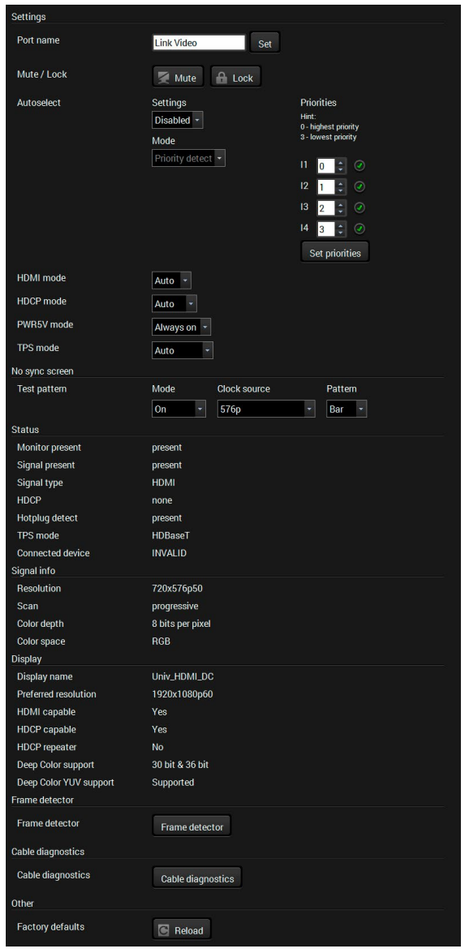
The look and the content are port-dependent.

5.2.3. Output Port Properties and Settings

Click on an output port to display its properties; Signal status information and the most important parameters are displayed. User can set the autoselect mode and priorities, as well as muting and locking function, HDMI, HDCP, power 5V, color space and TPS modes are also set on these ports. **Frame detector** (see more details in section 7.1 on page 31) and **Cable diagnostics** (see more details in section 7.2 on page 31) are also available from this menu. Factory default settings can be recalled with a dedicated button.

The look and the content are port-dependent.

Output port properties window can be seen on the right screenshot

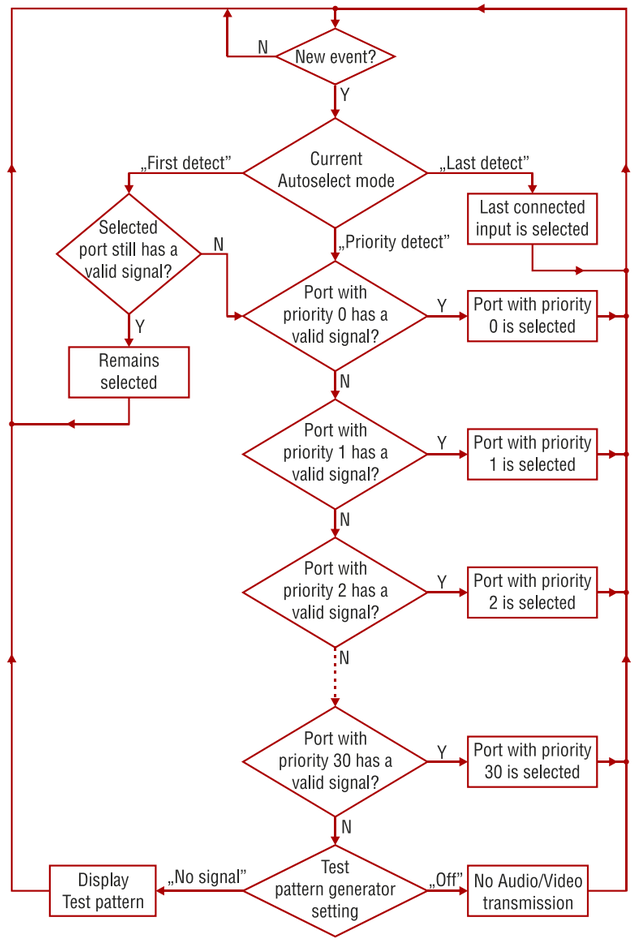


5.2.3.1. Autoselect Mode

There are three types of Autoselect as follows.

- **First detect mode**: selected input port is kept connected to the output while it has an active signal
- **Priority detect mode**: always the highest priority active input is selected to transmit.
- **Last detect mode**: always the last attached input is selected to transmit.

The following flowchart shows how the Autoselect feature works:



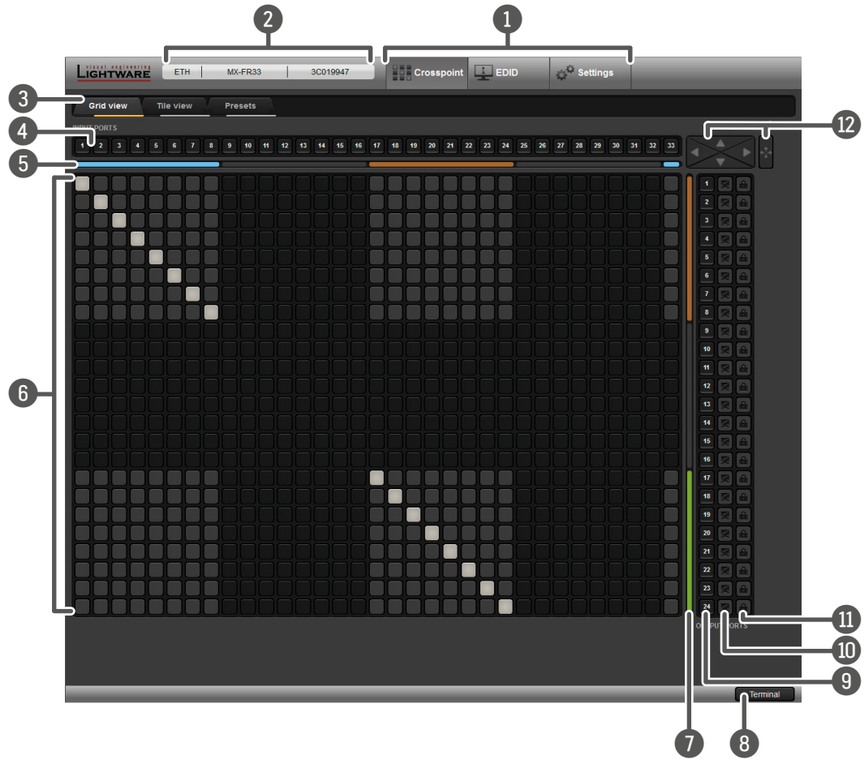
Flowchart of Autoselect modes

6. Crosspoint Menu for Matrix Switchers

ATTENTION!
The following screenshots and descriptions are regarding to various type of matrix switchers. Your actual device may have different cards and ports, settings and functions than represented in this chapter. Please check the user's manual of your actual device for the available settings.

6.1. Grid View

Grid view is a user-friendly graphical displaying of the matrix switchers' crosspoints. It's an easy way to change between the input sources and output sinks.



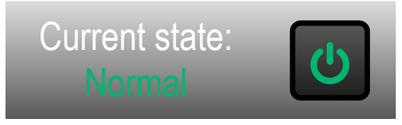
Grid view in crosspoint menu for matrix switchers

1	**Main menu**	The available menu items are displayed. The active one is highlighted with dark grey background color.
2	**Information ribbon**	This label shows the interface type, the name and the serial number of the connected device. If the device has more than one interface, the ribbon shows only that one, which has made the connection. The device discovery window can be started by clicking on this ribbon.
3	**Tab selector ribbon**	The crosspoint and the settings menu contain more than one tabs. Click on the desired one to select it. The yellow line shows which tab is the active one.
4	**Input ports**	Each number represents an input port. If the window size does not allow to display all the ports, pages can be turned by the left and right arrow buttons of the navigator.
5	**Type of input ports**	The color of the line shows what kind of input boards are installed (see section 6.1.1 on page 22).
6	**Connections**	Dark grey square means the port is not available. Light grey square means the port is available but there is no connection. White square means there is a connection between the input and the output port.
7	**Type of output boards**	The color of the line shows what kind of output boards are installed (see section 6.1.1 on page 22).
8	**Terminal**	This general-purpose terminal is created mainly for testing and debugging purposes. For more information, see section 13 on page 54.
9	**Output ports**	Each number represents an output port. If the window size does not allow to display all the ports, pages can be turned by the up and down arrow buttons of the navigator.
10	**Mute buttons**	Outputs can be easily muted by clicking on the mute button.
11	**Lock buttons**	For the prevention of the unwanted switching, outputs can be locked to any input.
12	**Navigation buttons**	If the window size does not allow to display all the ports, pages can be turned by the arrow buttons of the navigator.

TIPS AND TRICKS
Instead of navigation buttons you can use the scroll wheel of the mouse moving between the input and output boards.

Status Display

In certain devices, current state of the matrix is visible in the right upper corner. Here you can switch between Normal and Standby mode. Standby mode stops operating the device, shuts off the ventilator. It allows to review the crosspoints, settings etc. but not allows to modify them.



6.1.1. Input and Output Board Types

Lightware matrix frames can be equipped with different types of boards. The colored bars below/next to the input/output ports display the type of the board in each slot. Whether it is an optical, a twisted pair or other kind of board, a different color represents its type.

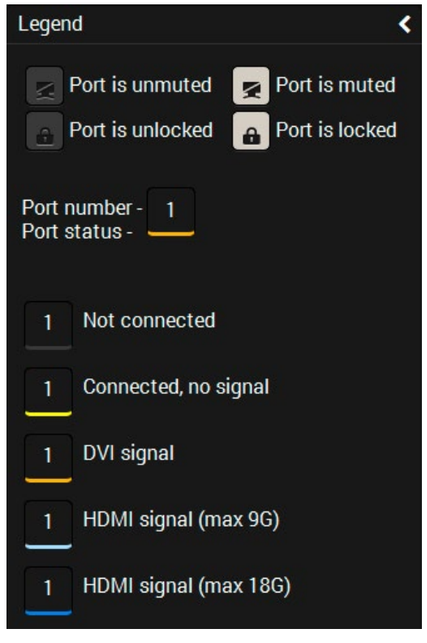
INFO
Many Lightware devices are compact built systems, which do not have any separate boards. However, board types are shown to help to identify the ports.

Color Legend for Board Types

- Unknown board or empty slot
- MX-DVID board
- MX-DVI-DL board
- MX-DVI-TP board
- MX-HDMI or MX-DVI-HDCP board
- MX-HDMI-TP or MXD-HDMI-TP board
- MX-DVI-OPT or MX-HDMI-OPT board
- MXD-UMX or MX-DVII-HDCP board
- MX-TPS or MX-4TPS2-4HDMI board
- MX-AUDIO board
- MX-3GSDI board

Legend

The legend in the grid view helps identifying the current status of the input and output boards.



6.1.2. Crosspoint Operations

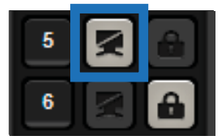
Switching

For making a connection click on the desired square. If there is no connection between the desired input and output (the square is dark grey), the mouse pointer becomes a hand (link pointer) before the clicking. If the output port is not locked, the connection is made, the square becomes white and the cursor changes back to a pointer.

For example, input 33 is not connected to output 2 according to the first picture above. After the connection is established the square becomes light grey.

Muting Outputs

Outputs can be easily muted by clicking on the button figured a crossed monitor beside the output. This means that no signal is present at this output. If mute is active, the color of the button's background changes to white.



INFO
Outputs can be disconnected from any inputs (by protocol command). In this case, the crosspoint view will not show any white square for the disconnected output and the output will have no signal just like when muted. Click on a crosspoint square to connect the output again to an input.

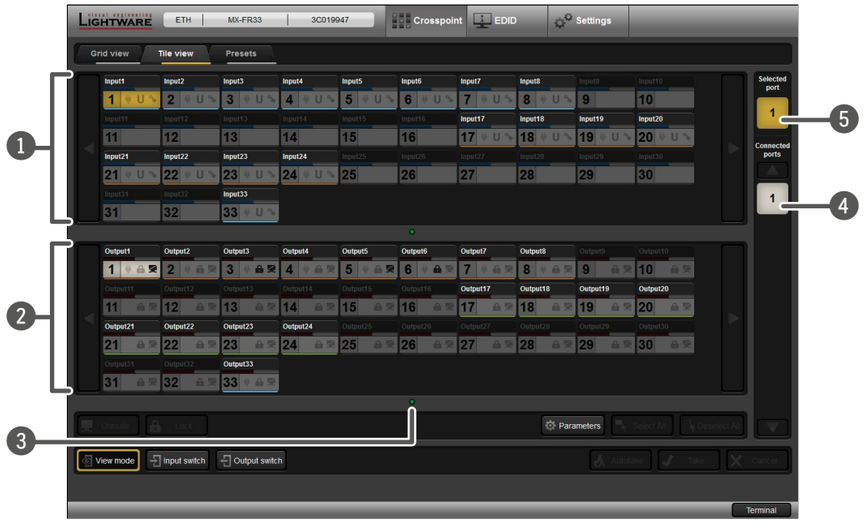
Locking Outputs

Outputs can be locked to any input. After locking an input to an output, no switching is permitted to this output unless it is unlocked again. If output lock is active, the color of the button's background changes to white.

INFO
Loading a preset does not change either the lock state or the switch state of a locked output. If an output is locked to an input before preset loading it will also be locked to that input after preset loading, so locked outputs ignore the preset.

6.2. Tile View

The tile view is to display the input and output ports by tiles. Each tile means an input or output port and additionally shows the most important port and signal information. Thus, the user can check the status of many ports at the same time without clicking on a port or opening port settings window.



1	**Input ports**	Each tile represents an input port. If window size does not allow to display all the ports, pages can be turned by the left and right arrow buttons.
2	**Output ports**	Each tile represents an output port. If window size does not allow to display all the ports, pages can be turned by the left and right arrow buttons.
3	**Page indicator**	Current page is displayed with green dot; if other pages exist, they are displayed with black dots.
4	**Connected port(s)**	Those ports are listed (with white background) on the port bar, which are connected to the Selected port.
5	**Selected port**	Last selected port is displayed with yellow background on the port bar. Press the button to open the port settings window.

Display Modes

Three display modes are defined in Tile view for matrix switchers:

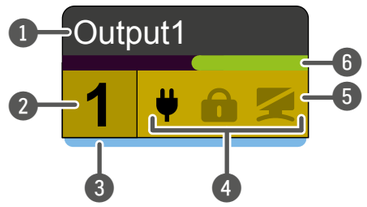
- View mode,
- Input switch mode and
- Output switch mode.

Control Buttons

Mute	Mute or unmute selected output port(s)	Parameters	Open port settings window
Lock	Lock or unlock selected output port(s)	Select All	Select all ports (only in output switch mode)
View mode	Activate View mode	Deselect All	Deselect all ports (only in output switch mode)
Input switch	Activate Input switch mode	Autotake	Toggle Autotake mode ON/OFF
Output switch	Activate Output switch mode	Take	Execute crosspoint changes in Take mode

6.2.1. Port Tiles

The colors of the port tiles and the displayed icons represent different states and information about selected port:

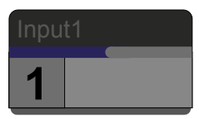


1. Port name
2. Port number
3. Board type
4. State indicators
5. Background color
6. Signal present indicator
   green: present
   grey: not present

Following sections describe these meanings.

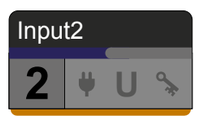
Background Colors (Port State)

The colors of the port tiles represent different states of the port as follows:



Dark grey
Port is not available (no board is installed)

White
Connected port



Light grey
Port is available

Yellow
Selected port

State Indicators for Output Ports

Following icons display different states of the output port:

Icon	Icon is not displayed	Icon is grey	Icon is black
	No information is available about connection status	Port is available but inactive	Port is available and sink is connected (hotplug detected)
	-	Port is unmuted	Port is muted
	-	Port is unlocked	Port is locked

State Indicators for Input Ports

Following icons display different states of the input port/signal:

Icon	Icon is gray	Icon is black	Icon is green
	No information is available about connection status	Port is available but inactive	Port is available and source is connected (power +5V detected)
[Signal type]	No information is available	Last detected signal type is displayed	U – unknown signal D – DVI signal H – HDMI signal A – Analog signal S – SDI signal
	HDCP is not supported	Signal is not encrypted with HDCP	Signal is encrypted with HDCP

Board Types

The types of the installed boards are displayed with a colored line on the bottom of the port. The following colors are defined:

- Unknown board or empty slot
- MX-DVID board
- MX-DVI-DL board
- MX-DVI-TP board
- MX-HDMI or MX-DVI-HDCP board
- MX-HDMI-TP or MXD-HDMI-TP board
- MX-DVI-OPT or MX-HDMI-OPT board
- MXD-UMX or MX-DVII-HDCP board
- MX-TPS or MX-4TPS2-4HDMI board
- MX-AUDIO board
- MX-3GSDI board

6.2.2. View Mode

This mode was designed to display crosspoint state of a selected and its connected port(s).

INFO
Crosspoint settings cannot be changed in View mode but port settings are available.

6.2.3. Changing Crosspoint Settings

Crosspoint changes can be made in Input switch mode and Output switch mode. The working method is the same in both cases but the priority is different.

Input Switch Mode

The mode can be also named as 'Input priority-mode'. In the mode an input port has to be selected at first then the connected output port(s) is/are shown. Thus, the output port(s) connected to the input port can be changed.

Output Switch Mode

This mode can be also named as 'Output priority-mode'. In the mode an output port has to be selected at first then connected input port is shown. Thus, the output port connected to the input port can be changed.

ATTENTION!
Output ports can be (un)locked, (un)muted only in Output switch mode.

Switching Operations

Take Mode

If the Autotake button is outlined with black color Take mode is active. In Take mode any crosspoint change – (dis)connect ports to/from the previously selected port – is executed only after pressing the Take button. Following steps describe the process of the switching:

Step 1. Press the desired Input switch or Output switch button to select switching mode.

Step 2. Select the desired port; it will be highlighted with yellow color and displayed on the port bar on the right, too.

Step 3. Connected port(s) is/are highlighted with white color and displayed on the port bar on the right, too.

Step 4. Create the desired crosspoint settings by (de)selecting the ports; they will start to blink.

Step 5. Press Take button to execute changes or Cancel to ignore the operations.

INFO
Take mode remains active until it is switched off. Selecting another view mode or menu does not change the Take/Autotake mode state.

Autotake Mode

If the Autotake button is outlined with yellow color Autotake mode is active. In this mode any crosspoint change – (dis)connect ports to/from the previously selected port – is executed immediately after pressing the port button. Following steps describe the process of the switching:

Step 1. Press the desired Input switch or Output switch button to select switching mode.

Step 2. Select the desired port; it will be highlighted with yellow color and displayed on the port bar on the right, too.

Step 3. Connected ports are highlighted with white color and displayed on the port bar on the right, too.

Step 4. Create the desired crosspoint settings by (de)selecting the ports; the changes are executed immediately.

INFO
Autotake mode remains active until it is switched off. Selecting another view mode or menu does not change the Take/Autotake mode state.

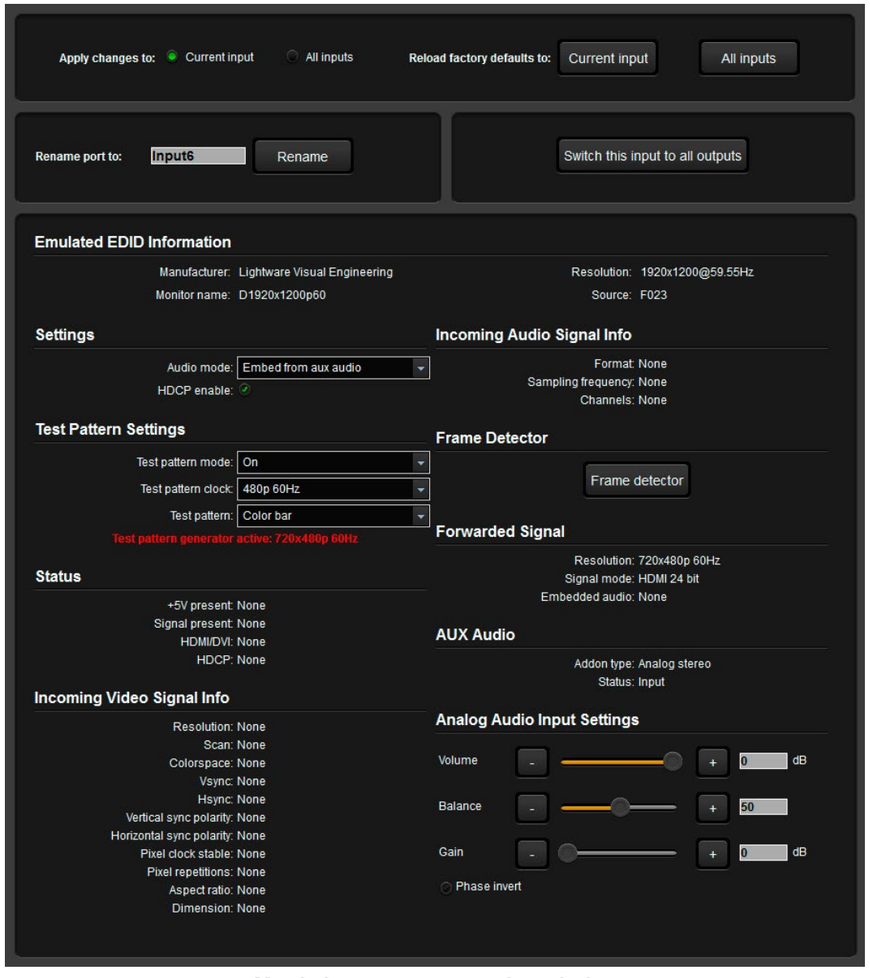
Port Settings

Press the desired port button on the port bar on the right. Parameters

INFO
Port settings of the selected port are also available by pressing the Parameters button.

6.3. Port Properties and Settings

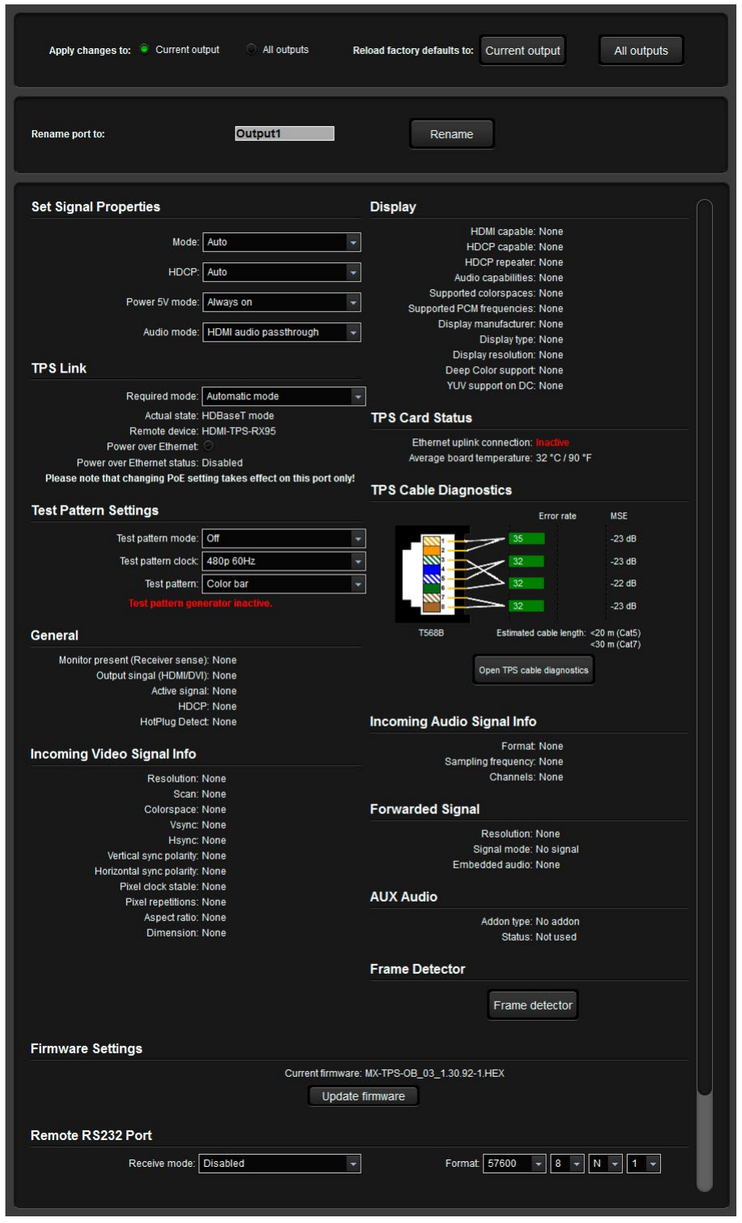
6.3.1. Input Port Properties and Settings



Matrix input port properties window

Click on the number of the desired port in case of grid view or on the headline of the port in case of tile view to open the port properties window. Signal status information and the most important parameters are displayed. Audio mode, HDCP settings, properties of test pattern are available from this menu. If analog audio is present, user can set the volume, balance and gain values here. Special functions (e.g. frame detector, switching this input to all outputs, etc) are also available on the panel.

6.3.2. Output Port Properties and Settings



Matrix output port properties window

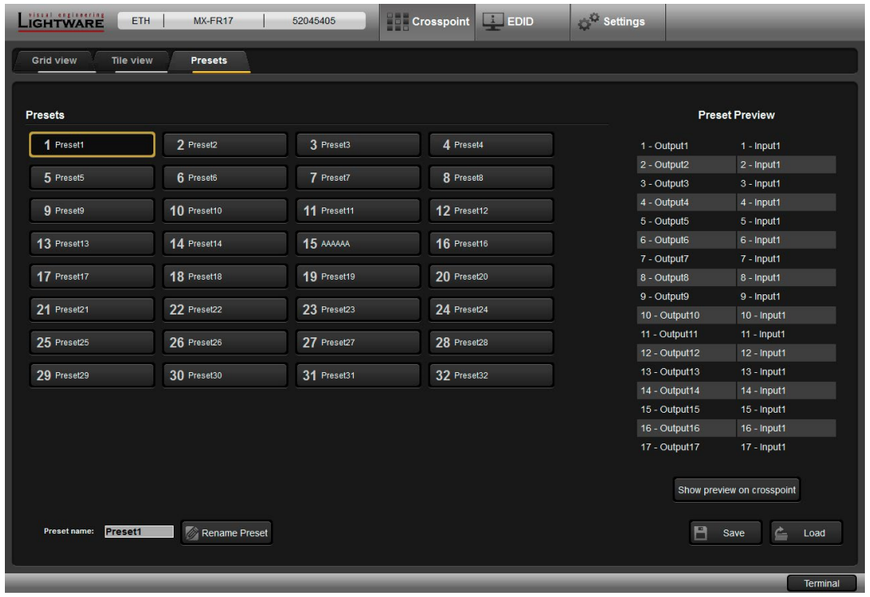
Click on the number of the desired port in case of grid view or on the headline of the port in case of tile view to open the port properties window. Signal status information and the most important parameters are displayed. Audio mode, HDCP settings, properties of test pattern are available from this menu. If analog audio is present, user can set the volume, balance and gain values here. Special functions (e.g. frame detector (see in section 7.1 on page 31), TPS Ethernet cable diagnostics (see in section 7.2 on page 31), remote RS-232 command sending, switching this input to all outputs, etc) are also available on the panel.

The look and the content are port-dependent.

6.4. Presets

Preset operations can be done in Crosspoint submenu on the Preset tab at the devices, which support Preset operations, e.g. matrix switchers. Each Lightware matrix switcher has 32 preset memories that can be loaded and saved at any time.

INFO
A preset setting stores a full configuration of all outputs, so preset loading has an effect on every output, except the locked ones.



Presets tab

A preset can be selected by pressing its button on the left. Preset preview (on the right) will show the crosspoint settings of input and output ports.

Loading a Preset

Step 1. Select Preset tab from Crosspoint menu.

Step 2. Select the preset memory (Preset1...Preset32) you want to load the next crosspoint configuration.

Step 3. Press Load button below Preset preview list. Now the preset is loaded.

Step 4. The new I/O configuration is displayed in Grid view.

Saving a Preset

Step 1. Make the desired crosspoint connections in Tile view or Grid view.

Step 2. Select the preset memory (Preset1...Preset32) where you want to save your current crosspoint connections.

Step 3. Press Save button below Preset preview list.

Step 4. A confirmation message is displayed on the information bar; the preset is stored.

Renaming a Preset

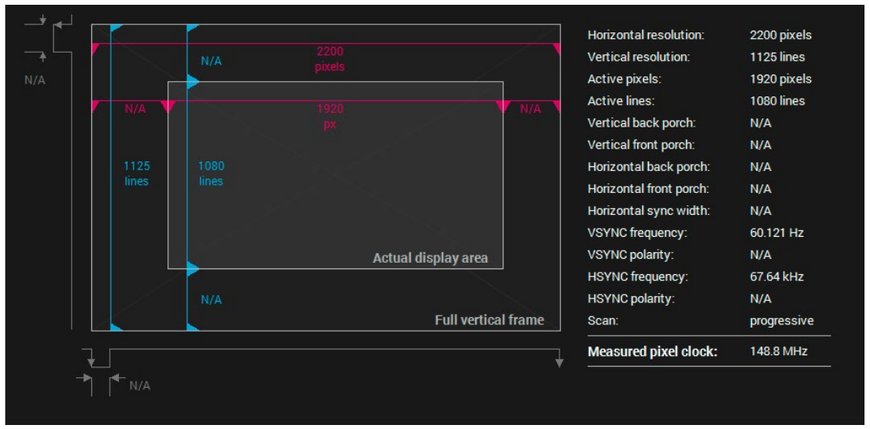
Step 1. Select the preset memory (Preset1...Preset32) you want to rename.

Step 2. Type the desired name and press Rename Preset button; the new name is stored.

7. Diagnostic Tools

7.1. Frame Detector

The ports can show detailed information about the signal like blanking intervals and active video resolution. This feature is a good troubleshooter if compatibility problems occur during system installation. To access this function, open the port properties window and click on **Frame detector** button.



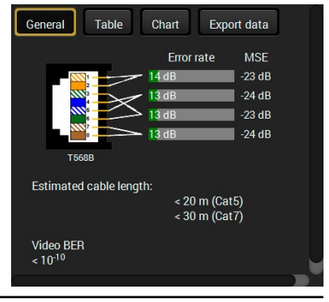
Frame detector window

Lightware's Frame Detector function works like a signal analyzer and makes possible to determine the exact video format that is present on the port, thus helps to identify many problems. E.g. actual timing parameters may differ from the expected and this may cause some displays to drop the picture.

Frame Detector measures detailed timings on the video signals just like a built-in oscilloscope, but it is much more easy to use. Actual display area shows the active video size (light gray). Dark gray area of the full frame is the blanking interval which can contain the info frames and embedded audio data for HDMI signals. Shown values are measured actually on the signal and not retrieved only from the HDMI info frames.

7.2. Cable Diagnostics

The cable diagnostics is a useful tool to determine any cable related issues in case of TPS connection. The estimated cable length and the quality of the link are measured periodically and the diagnostic window shows the values in real-time. If the green bars hit the first line in the middle they turn into red. It means the number of the errors – during the extension – is higher than recommended. The link might be alive but recovering of the received data is not guaranteed.



INFO
Each bar represents a differential line in the CATx cable. The inappropriate termination of the cable usually causes high error rates. Check the cable terminations or change the cable.

Video Bit Error Ratio

This feature works in conjunction with the TPS receiver's side and is about to show the average bit error numbers in the transmitted video signal. The value is displayed only if the installed firmware on the RX side supports this feature.

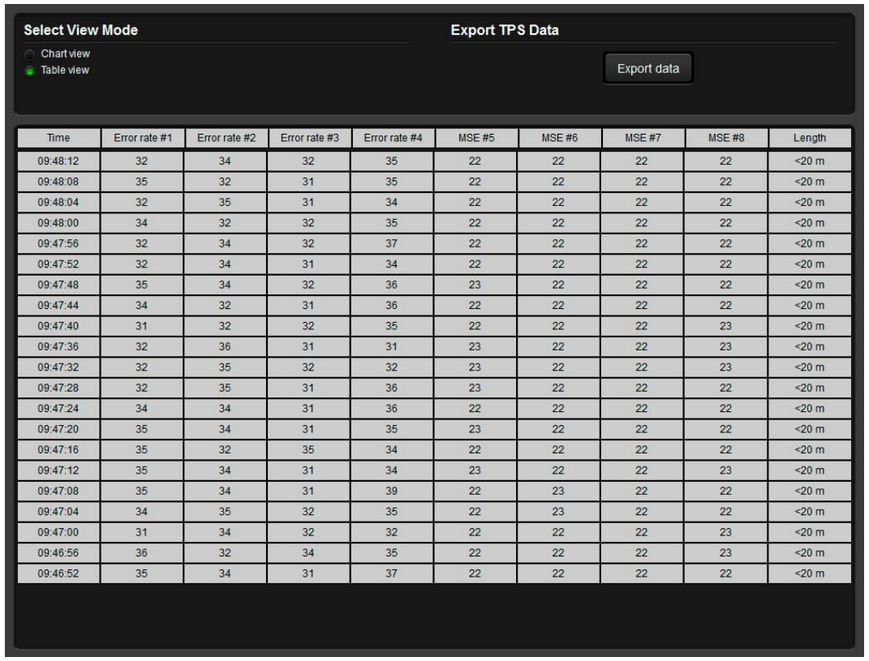
Reference Values

Value	Explanation
10^{-10}-10^{-9}	Excellent image quality
10^{-8}	Minor error, not recognizable by eyes
10^{-7}	Sometimes recognizable flash on a special test pattern
10^{-6}	Small noise can be seen
10^{-5}	Easy to recognize image error
10^{-4}	Bad image quality

Above displayed "Video BER < 10^{-10}" value means that on average there is 1 bad pixel after 10^{10} pixels, which means the number of the bit errors is about 1 pixel in every 15 minutes.

Cable Diagnostics for Matrix Switchers

Cable diagnostics can be displayed in advanced modes in case of matrix switchers. Two ways are available: **table view** and **chart view**. Data can be exported to a file on clicking on the **Export data** button.



Time	Error rate #1	Error rate #2	Error rate #3	Error rate #4	MSE #5	MSE #6	MSE #7	MSE #8	Length
09:48:12	32	34	32	35	22	22	22	22	<20 m
09:48:08	35	32	31	35	22	22	22	22	<20 m
09:48:04	32	35	31	34	22	22	22	22	<20 m
09:48:00	34	32	32	35	22	22	22	22	<20 m
09:47:56	32	34	32	37	22	22	22	22	<20 m
09:47:52	32	34	31	34	22	22	22	22	<20 m
09:47:48	35	34	32	36	23	22	22	22	<20 m
09:47:44	34	32	31	36	22	22	22	22	<20 m
09:47:40	31	32	32	35	22	22	22	23	<20 m
09:47:36	32	36	31	31	23	22	22	23	<20 m
09:47:32	32	35	32	32	23	22	22	23	<20 m
09:47:28	32	35	31	36	23	22	22	22	<20 m
09:47:24	34	34	31	36	22	22	22	22	<20 m
09:47:20	35	34	31	35	23	22	22	22	<20 m
09:47:16	35	32	35	34	22	22	22	22	<20 m
09:47:12	35	34	31	34	23	22	22	23	<20 m
09:47:08	35	34	31	39	22	23	22	22	<20 m
09:47:04	34	35	32	35	22	23	22	22	<20 m
09:47:00	31	34	32	32	22	22	22	23	<20 m
09:46:56	36	32	34	35	22	22	22	23	<20 m
09:46:52	35	34	31	37	22	22	22	22	<20 m

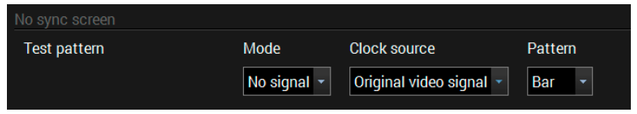
Table view of cable diagnostics

Chart view of cable diagnostics

7.3. Test Pattern

The output ports can send a special image towards the sink devices for testing purposes.

The setting is available on output ports with the following parameters:



Mode

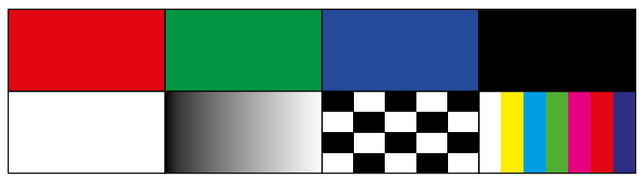
- **On**: the test pattern is always sent to the output port.
- **Off**: the test pattern generator is off.
- **No signal**: the test pattern generator is switched on if no video signal is switched to the given output port.

Clock Source

- 480p / 576p / Original video signal: the clock frequency of the test pattern.

Pattern

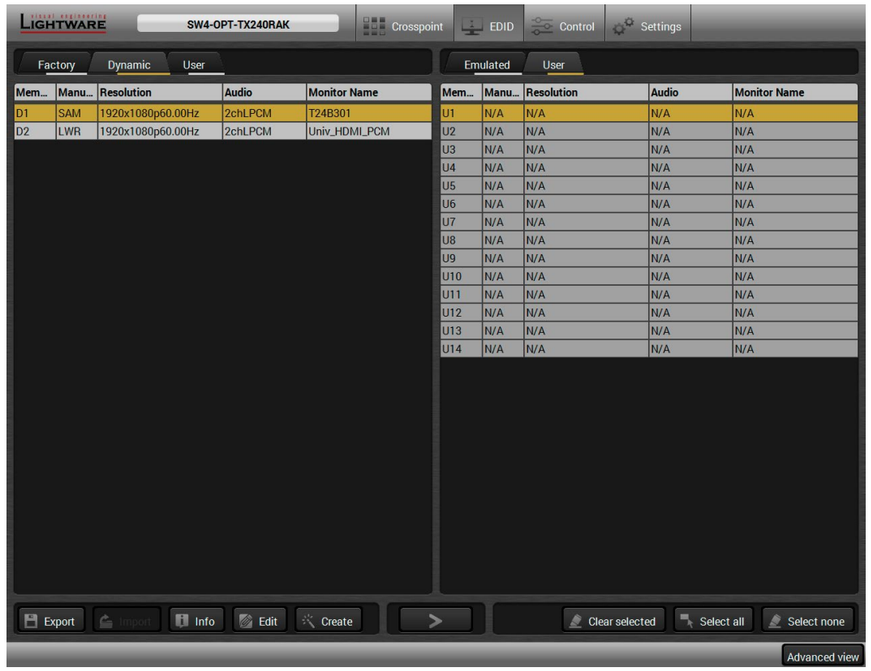
- Red / Green / Blue / Black / White / Ramp / Chess / Bar / Cycle. Cycle setting means all the patterns are changed sequentially approx. in every 2 seconds.



ATTENTION!
The Mode can be set individually on each port, but the Clock source and the Pattern are common for the output ports. E.g. the Clock source and Pattern settings are the same on LINKOUT and LOCALOUT output ports.

8. EDID Menu

Advanced EDID Management can be accessed by selecting the EDID menu. There are two panels: left one contains Source EDIDs, right one contains Destination places where the EDIDs can be emulated or copied.



EDID menu

Control Buttons

Export	Exporting an EDID (save to a file)	>	Executing EDID emulation or copying (Transfer button)
Import	Importing an EDID (load from a file)	Clear selected	Deleting EDID (from User memory)
Info	Display EDID Summary window	Select all	Selecting all memory places in the right panel
Edit	Opening Advanced EDID Editor with the selected EDID	Select none	Selecting none of the memory places in the right panel
Create	Opening Easy EDID Creator		

8.1. EDID Operations

8.1.1. Changing Emulated EDID

Step 1. Choose the desired **EDID list** on the source panel and select an **EDID**.

Step 2. Press the **Emulated** button on the top of the Destination panel.

Step 3. Select the desired **port** on the right panel (one or more ports can be selected); the EDID(s) will be highlighted with a yellow cursor.

Step 4. Press the **Transfer** button to change the emulated EDID.

8.1.2. Learning an EDID

The process is the same as changing the emulated EDID; the only difference is the Destination panel: press the **User** button. Thus, one or more EDIDs can be copied into the user memory either from the factory memory or from a connected sink (Dynamic).

8.1.3. Exporting an EDID

ATTENTION!
This function is working on Windows and Mac OS X operating systems and under Firefox or Chrome web browsers only.

Source EDID can be downloaded as a file (*.bin, *.dat or *.edid) to the computer.

Step 1. Select the desired **EDID** from the Source panel (line will be highlighted with yellow).

Step 2. Press the **Export** button to open the dialog box and save the file to the computer.

8.1.4. Importing an EDID

Previously saved EDID (*.bin, *.dat or *.edid file) can be uploaded to the user memory:

Step 1. Press the **User** button on the top of the Source panel and select a **memory** slot.

Step 2. Press the **Upload** button below the Source panel.

Step 3. Browse the file in the opening window then press the **Open** button. Browsed EDID is imported into the selected User memory.

ATTENTION!
The imported EDID overwrites the selected memory place even if it is not empty.

8.1.5. Deleting EDID(s)

The EDID(s) from User memory can be deleted as follows:

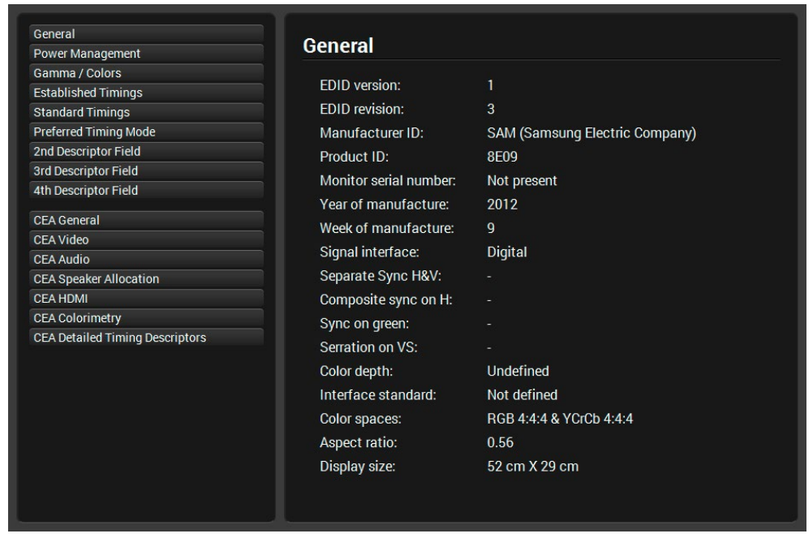
Step 1. Press **User** button on the top of the Destination panel.

Step 2. Select the desired **memory** slot(s); one or more can be selected ("Select All" and "Select None" buttons can be used). The EDID(s) will be highlighted with yellow.

Step 3. Press the **Clear selected** button to delete the EDID(s).

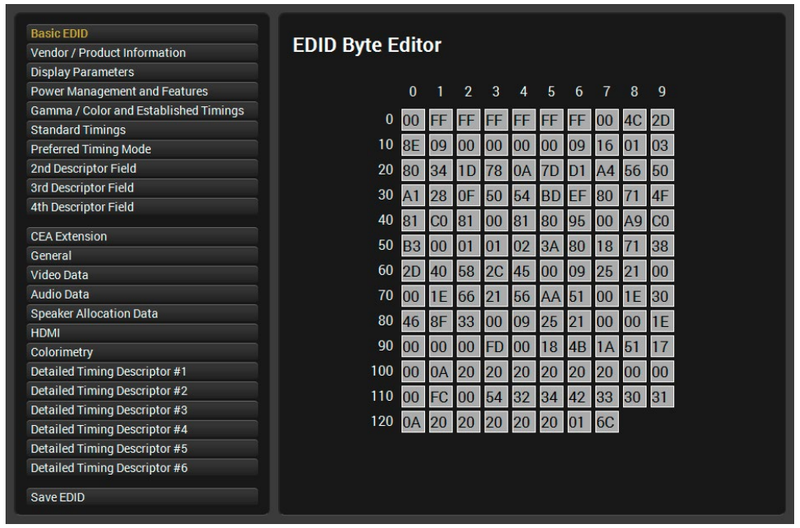
8.2. EDID summary window

Select an EDID from Source panel and press **Info** button to display EDID summary.



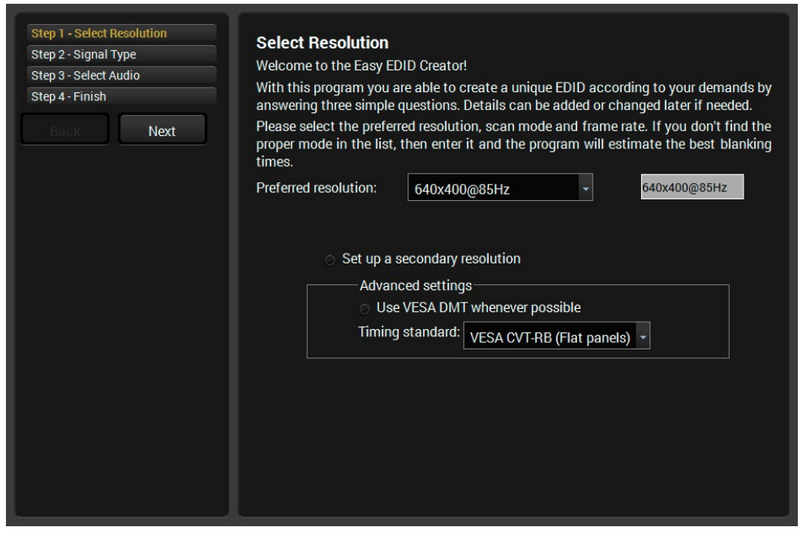
8.3. Editing an EDID

Select an EDID from Source panel and press Edit button to display Advanced EDID Editor window. The editor can read and write all descriptors, which are defined in the standards, including the additional CEA extensions. Any EDID from the device's memory or a saved EDID file can be loaded into the editor. The software resolves the raw EDID and displays it as readable information to the user. All descriptors can be edited, and saved in an EDID file, or uploaded to the User memory. For more details about EDID Editor please visit our website (www.lightware.eu) and download EDID Editor user's manual.



8.4. Creating an EDID - Easy EDID Creator

Since above mentioned Advanced EDID Editor needs more complex knowledge about EDID, Lightware introduced a wizard-like interface for fast and easy EDID creation. With Easy EDID Creator it is possible to create custom EDIDs in four simple steps. By clicking on the **Create** button below Source panel, **Easy EDID Creator** is opened in a new window. For more details about EDID Editor please visit our website (www.lightware.eu) and download EDID Editor user's manual.



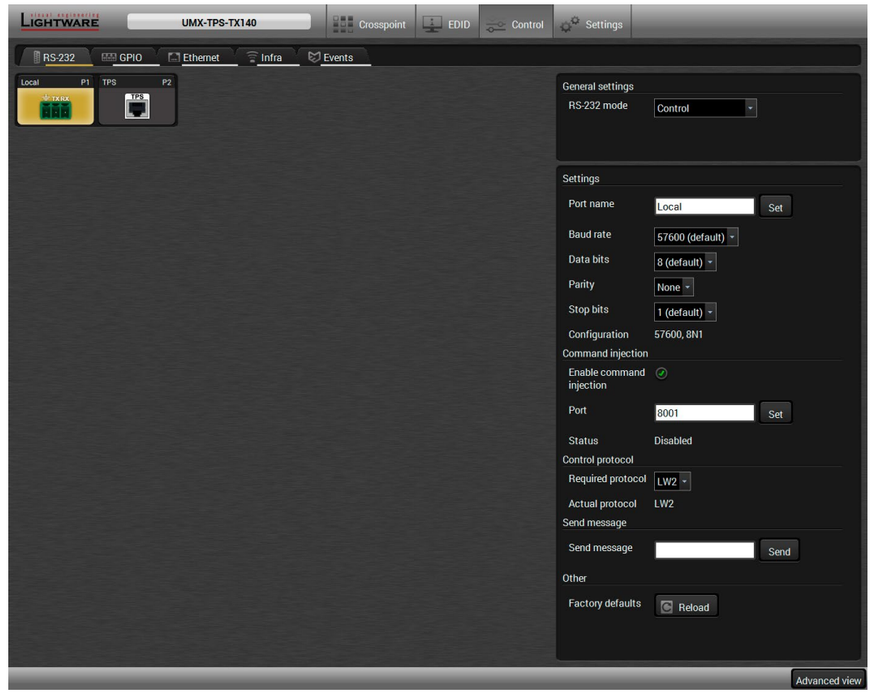
9. Control Menu

ATTENTION!
Control menu is not available for all Lightware devices, it depends on the model what you are using actually.

The menu gives the opportunity to set up those channels which can be used to connect or control third party devices.

9.1. RS-232

All serial port-related settings can be set under this tab. User can set parameters by connector types (Phoenix, D-sub, TPS or fiber optical). RS-232 mode, baud rate, data bits, parity, stop bits, and Lightware protocol (LW2 or LW3) can be set or modify here.



RS-232 tab

There are three RS-232 modes can be set:

a) Control
b) Pass-through
c) Command injection

Control Mode

The incoming data from the given port is processed and interpreted by the Microcontroller. The mode allows to control the transmitter directly. LW2 or LW3 protocol commands are accepted – depending on the current port setting.

Pass-Through Mode

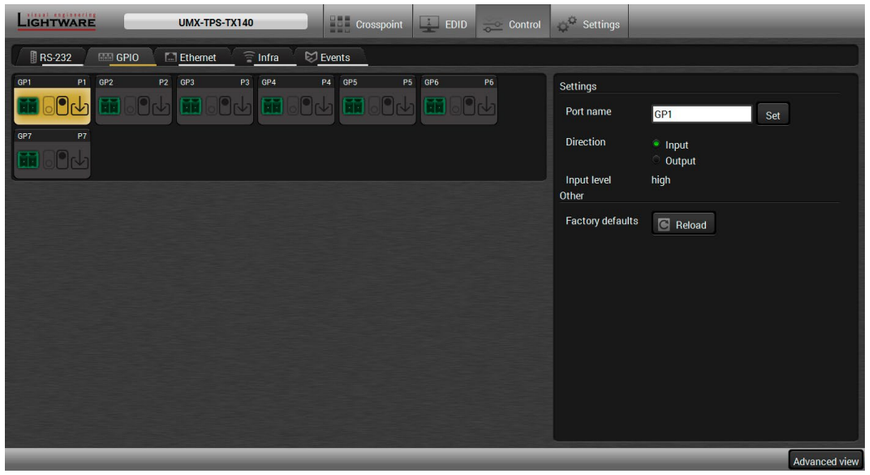
In pass-through mode, the given device forwards the data that is coming from one of its ports to another same type of port. The command is not processed by the CPU. Incoming serial data is forwarded from one port to another port inside the transmitter.

Command Injection Mode

In this mode, the transmitter works as an RS-232 bidirectional converter. The optical signal is converted to RS-232 data and vice versa. Optical port numbers are defined for the serial ports (optical and local) for this purpose. E.g. the default Command Injection port number of the local RS-232 port is 8001. If a command is coming from the optical interface which is address to the port no. 8001, it will be transmitted to the Tx pin of the local RS-232 port. That works in the opposite direction of course and the method is the same on the serial interface of the optical port.

9.2. GPIO

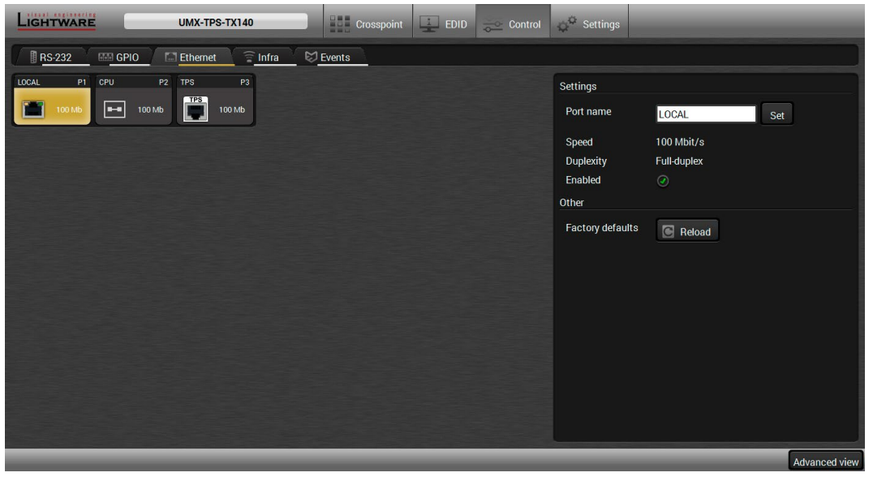
GPIO (general purpose input/output ports) is a multifunctional connector type which is used for controlling third-party devices. User can set the name, the level (low or high), and the direction of each pins on this tab.



GPIO tab

9.3. Ethernet

User can set enable or disable Ethernet ports on this tab.



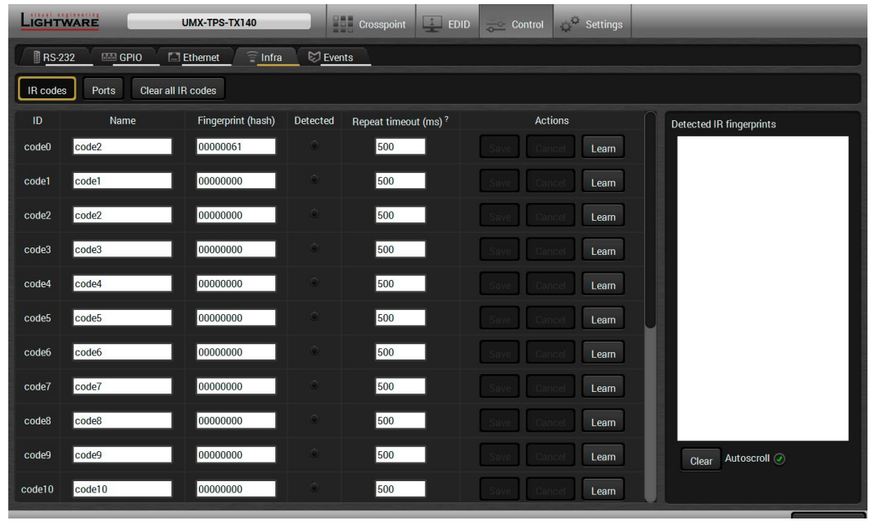
Ethernet tab

9.4. Infra

Infra-Red (IR) receiver and transmitter options can be found on this tab. There are three buttons are available here: **IR codes**, **Ports**, and **Clear all IR codes**.

IR codes

User can set the name of the IR code, the fingerprint (hash), and the repeat timeout in ms, as well as actions can be ordered to each IR codes.

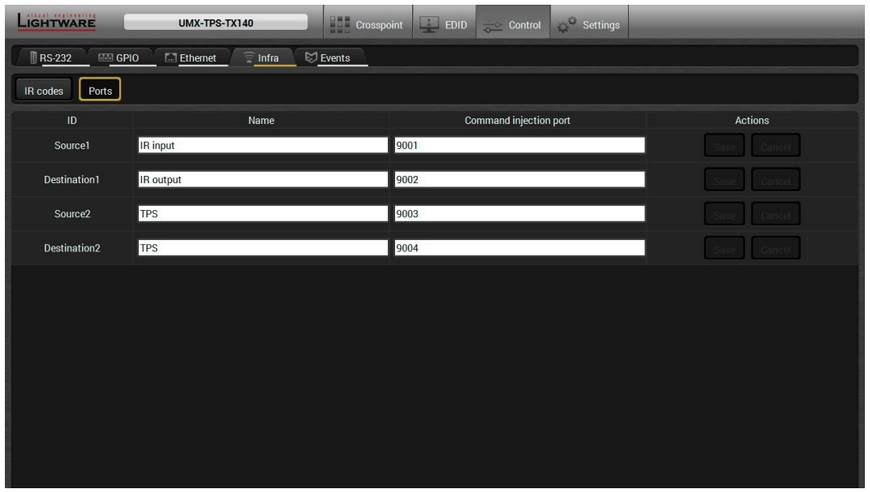


Infra tab - IR codes window

Description	Function
ID	Code number.
Name	You can give an unique name for the desired code.
Fingerprint (hash)	Fingerprint code in pronto hexa format.
Detected	Indicator gives feedback about the given IR code is detected currently.
Repeat timeout (ms)	You can set a timeout to avoid the involuntary code recurrence.
Actions	Action buttons for the desired IR code: **Save**: saving the fingerprint. **Cancel**: canceling the fingerprint. **Learn**: learning the detected IR code.
Detected IR fingerprints	You can check the detected IR codes in this panel. Pushing **Clear** button deleting all current fingerprints and switch on or off the automatic scrolling with the **Autoscroll** pipe.

Ports

User can set the name and command injection port to each sources and destinations as well as command injection function can be enable/disable for the input/output ports.

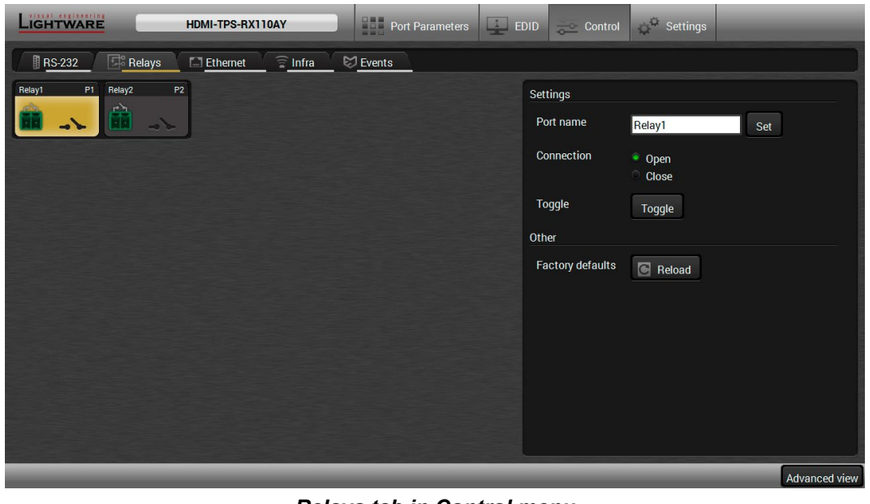


Infra tab - Ports window

Clear all IR codes

Pushing the button results deleting all stored IR fingerprints.

9.5. Relays



Relays tab in Control menu

The following settings are available for the relay ports:

- Connection state: Open or Close;
- Toggle;
- Reloading factory defaults

9.6. Events

The Event Manager can be started under this tab. For more details see the next chapter.

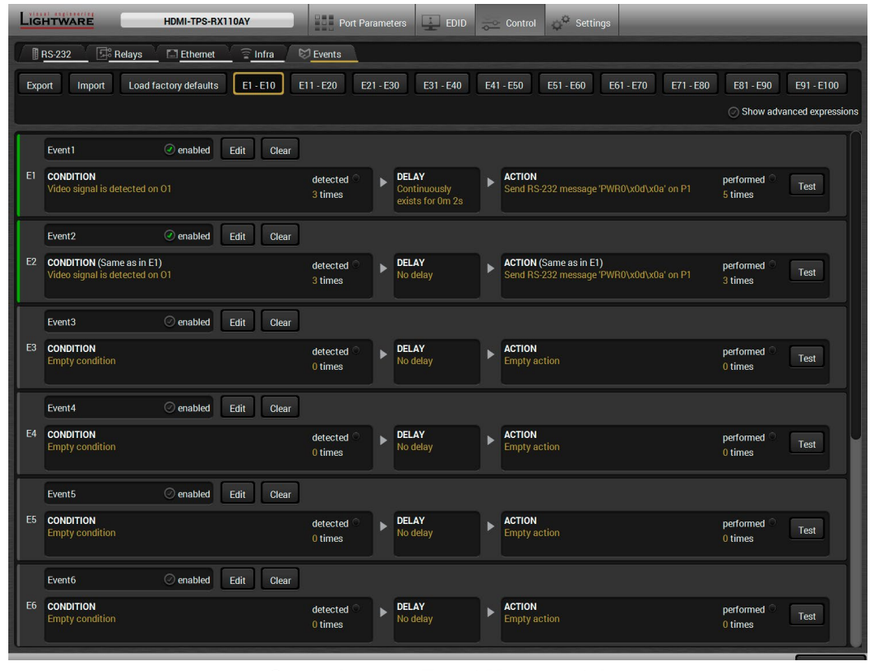
10. Event Manager

The feature means that the device can sense changes on its ports and able to react according to the pre-defined settings. The development idea of the Event manager is based on users' feedbacks. In many cases internal events (such as signal present or HDCP active) are necessary to display but it is not easy when the device is hard to access (e.g. built under the desk).

The Event manager can be configured to perform an action if a condition has been detected. E.g. the desired setup is that after a certain type of signal has been detected on I1 port, the port has to be switched to O1. The settings can be done via the LDC in the Control/Events tab, or by LW3 protocol commands. Configurable events number depends on the device what you are using actually.

Numerous new ideas and requests have been received in connection with the features and settings of the Event manager since the first release. Therefore, the user interface has been re-designed and many new functions implemented. The Event editor can be opened by pressing the Edit button at each Event.

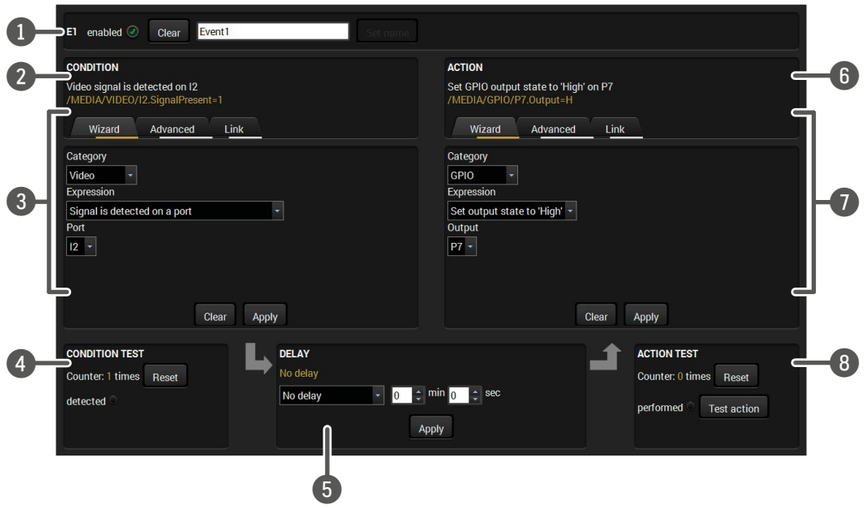
There is a **gray bar** on the left of the Event panel in each line. If a condition and an action are set and the Event is enabled, the bar is displayed **in green**.



Control menu, Event Manager tab

10.1. The Event Editor

Press the **Edit** button in the desired Event line to open the Event editor window.

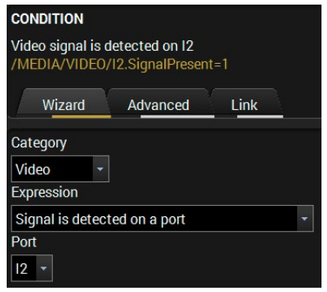


1	**Event header**	The name of the Event is displayed. Type the desired name and press the Set name button. The Event can be cleared by the Clear button. Use the tick mark to enable/ disable the Event.
2	**Condition header**	If the condition is set, the description (white colored text) and the exact LW3 protocol expression (yellow colored text) can be seen. If the advanced mode was used the description is "Custom condition".
3	**Condition panel**	The Wizard, the Advanced or the Link tool is available to set the condition. The parameters and settings are displayed below the buttons.
4	**Condition test**	The set condition can be tested to see the working method in the practice.
5	**Delay settings**	The action can be scheduled to follow the condition after the set time value.
6	**Action header**	If the action is set, the description (white colored text) and the exact LW3 protocol expression (yellow colored text) can be seen. If the advanced mode was used the description is "Custom action".
7	**Action panel**	The Wizard, the Advanced or the Link tool is available to set the action. The parameters and settings are displayed below the buttons.
8	**Action test**	The set action can be tested to see the working method in the practice.

10.2. Create or Modify an Event

10.2.1. Wizard Mode

The wizard mode lists the most common conditions and actions, so the user does not have to look for LW3 nodes and properties.



Step 1. Click on the **Edit** button of the desired Event; the **Event editor** is displayed.

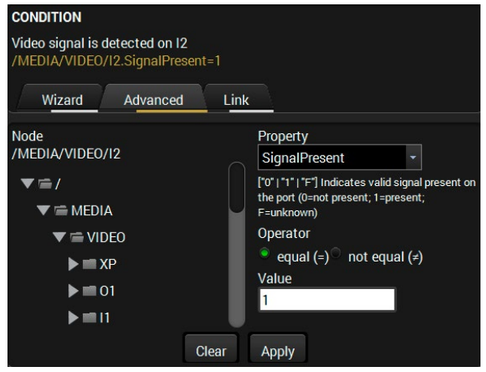
Step 2. The wizard mode is displayed as default. Select the desired **Category** first (e.g. Audio or Video).

Step 3. Select the desired **Expression** from the drop-down menu. If any other parameter is necessary to set, it is going to be displayed.

Step 4. Press the **Apply** button to store the settings of the Condition.

10.2.2. Advanced mode

The goal of this mode is the same as of the wizard: set the properties and methods for conditions and actions. The difference is the number of the available and usable properties and methods of the LW3 protocol. Advanced mode allows almost all of it.



Step 1. Click on the **Edit** button of the desired Event; the **Event editor** is displayed.

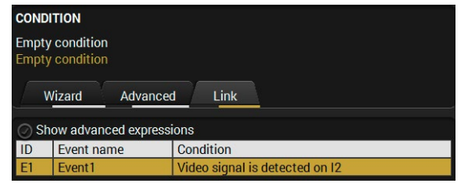
Step 2. The wizard mode is the default, press the **Advanced** button. The LW3 protocol tree is displayed showing the list of the properties in the drop-down menu. Navigate to the desired node.

Step 3. Select the desired **Property** from the menu. The **manual** of the property is displayed below to help to select the necessary property and to set the value.

Step 4. Set the desired **value** and **operator**, then press the **Apply** button to store settings.

10.2.3. The Link Tool

The new interface allows creating more actions to the same condition. In that case, a condition can trigger more actions. To set such an Event, the Link tool has been introduced.



Step 1. Click on the **Edit** button of the desired Event; the **Event editor** is displayed.

Step 2. The wizard mode is displayed as default, press the **Link** button.

Step 3. All the saved Events are analyzed and the **conditions** are listed (it takes some seconds to finish). The **Show advanced expressions** option allows showing the exact path and set the value of the given property.

Step 4. Select the desired **Condition** and press the **Apply** button to store the settings.

10.3. Special Tools and Accessories

The Name of the Event

The name of a port can be changed by typing the new name and clicking the **Set** button. The following characters are allowed when naming:

Letters (A-Z) and (a-z), numbers (0-9), special characters: hyphen (-), underscore (_), and space ( ).

Enable or Disable an Event

The set Event can be enabled or disabled in the Event list, or directly in the Event editor window by setting the **tick mark** beside the name.

Testing the Condition

When the desired Condition is arranged, the setting can be tested. The Event list and the Event editor contains a small panel that shows if the set condition is detected and how many times. The **Counter** can be reset by the button in Event editor. If the Condition is true, the **detected** mark turns green for two seconds and the **Counter** is increased.

Testing the Action

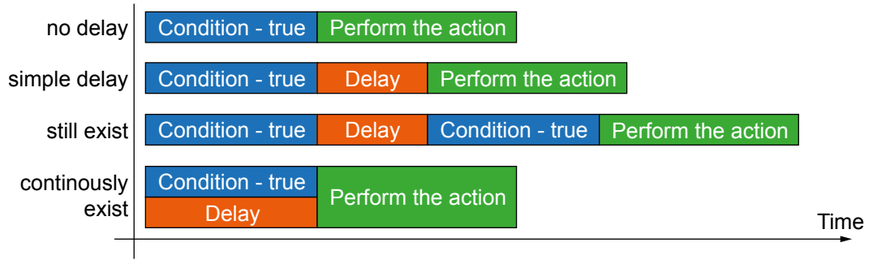
The method is the same as testing the Condition, but in this case, the Action can be triggered manually by pressing the **Test** button.

TIPS AND TRICKS
The Test button is also placed on the Action panel in the Event list. Thus, you can check the Actions without opening the Event editor.

Delay the Action

In most cases the Action is performed immediately after the Condition is detected. But sometimes a delay is necessary between the Condition and the Action. Therefore, the new Event manager contains the Delay panel which allows that feature with below settings:

- **No delay**: when the Condition is detected, the Action is launched.
- **Simple delay**: when the Condition is detected, the Action is launched after the set time interval.
- **Still exists**: when the Condition is detected, the Action is launched after the set time interval only if the Condition still exists.
- **Continuously exists**: when the Condition is detected, the Action is launched after the set time interval only if the Condition has been existing continuously.



The available delay settings of an Event

TIPS AND TRICKS
Show advanced expressions *option is a useful tool when you look for the path or value of a property but just the expression is displayed. The option is available in the Event list window or when Link tool is used.*

10.4. Clear one or more Event(s)

Clear an Event

Press the **Clear** button in the Event list or in the header section in the Event editor.

Clear all Events

When all the Events must be cleared press the **Load factory defaults** button above the Event list. You will be prompted to confirm the process.

10.5. Export and Import Events

The feature allows saving all the Events. The backup file can be uploaded to another similar series device.

Export all the Events

Step 1. Press the **Export** button above the Event list.

Step 2. The Save as dialog box will appear. Set the desired folder and file name, then press the **Save** button.

The generated file is a simple text file which contains LW3 protocol commands. The file can be viewed by a simple text editor, e.g. Notepad.

ATTENTION!
Editing the file is recommended only for expert users.

Import all the Events

Step 1. Press the **Import** button above the Event list.

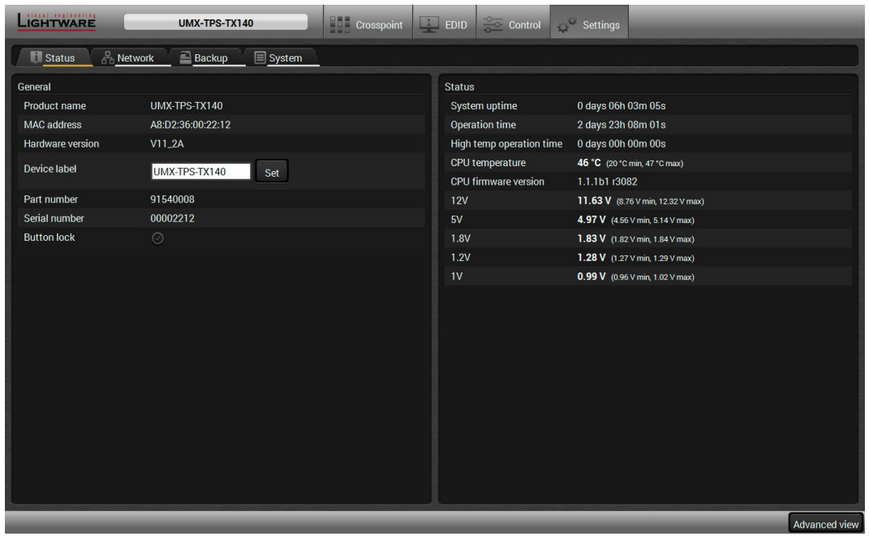
Step 2. The Open dialog box will appear. Select the desired folder and file, then press the **Open** button.

11. Settings Menu for Extenders

The menu contains hardware- and software-related settings and information about the connected device. The content of the tabs is also device-dependent.

11.1. Status

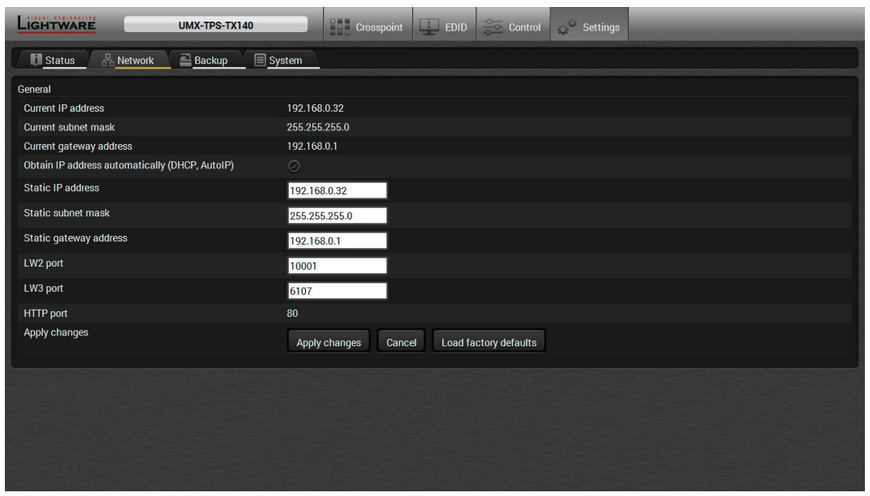
The most important hardware and software related information can be found on this tab: hardware and firmware version, serial numbers, temperatures, voltage information. Device label can be changed here and reseting measurements with a dedicated **Reset** button.



Status tab

11.2. Network

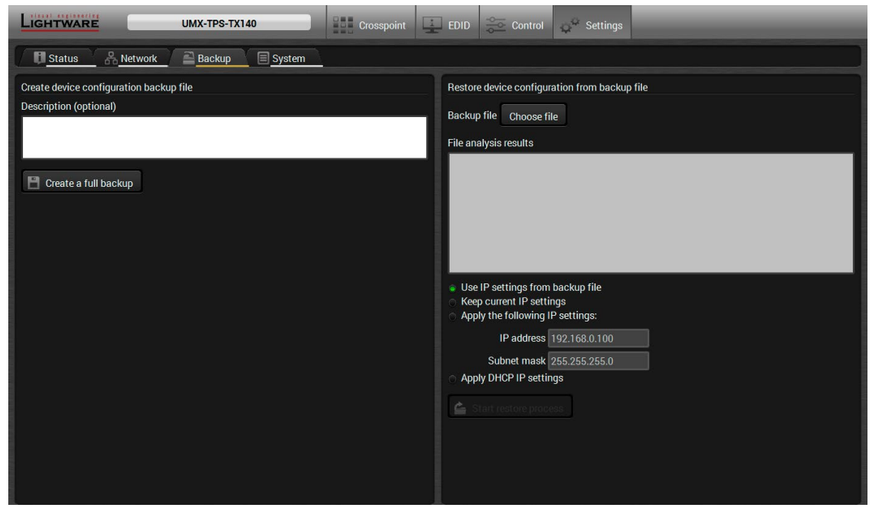
IP address and DHCP settings can be set on this tab. Always press the **Apply changes** button to save changes. Factory defaults settings can be recalled with a dedicated button.



Network tab

11.3. Backup

The configuration cloning of Lightware LW3 devices is a simple method that eliminates the need to repeatedly configure certain devices to have identical (non-factory) settings. If the devices are installed in the same type of system multiple times then it is enough to set up only one device to fit the user's needs and then copy those settings to the others, thus saving time and resources.



Backup tab

11.3.1. Cloning Steps in a Nutshell

Installing multiple devices with the same customized configuration settings can be done in a few easy steps:

Step 1. Configure one device with all your desired settings with the LDC software.

Step 2. Backup the full configuration file to your computer.

Step 3. If needed, make some modifications to the configuration file using a text editor (e.g. Notepad). E.g. modifying the static IP address is needed when DHCP is not used.

Step 4. Connect to the other device which has to be configured and upload (restore) your configuration file.

Step 5. Ready! You can have as many totally identical, customized devices as you like.

11.3.2. Save the Settings of the Device (Backup)

Step 1. Apply the desired settings in the transmitter (port parameters, crosspoint, etc.)

Step 2. Select the **Settings** / **Backup** tab from the menu.

Step 3. Write a short **description** in the text box on the left (optional).

Step 4. Press the **Create a full backup** button. You will be prompted to save the file to the computer. The default file name is the following:

```
BACKUP_<DEVICE TYPE>_SN<SERIAL NUMBER>.LW3
```

Step 5. Set the desired **file name**, select the folder and **save** the file.

TIPS AND TRICKS
Using the exact product type in the filename is recommended since it makes the file usage more comfortable.

About the Backup File

The backup file is a simple text file which contains LW3 protocol commands. The first line is the description, and the further lines are the commands which will be executed during the restore process. The file can be viewed (and/or edited) by a simple text editor, e.g. Notepad.

ATTENTION!
Editing the command lines is only recommended for expert users.

11.3.3. Upload the Settings to a Device (Restore)

WARNING!
Please note that the settings will be permanently overwritten with the restored parameters in the device. Withdrawal is not possible.

ATTENTION!
The cloning is successful when the backup file is downloaded from the same type of source device as the destination device.

The restoring process

Step 1. Select the **Settings** / **Backup** tab from the menu.

Step 2. Click on the **Choose file** button on the right panel and **browse** the desired file.

Step 3. The file is checked and the result will be displayed in the textbox below. If the file is correct, the settings can be restored.

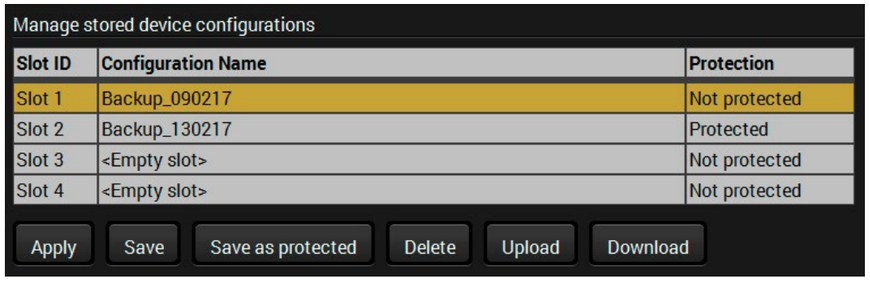
Step 4. Choose **IP settings** what you want to use after backup. You can apply settings from the backup file, keep actual settings, set it manually in a dialog box or apply DHCP.

Step 5. Press the **Start restore process** button and click on the **Yes** button when asked.

Step 6. Reboot the device to apply the network settings after finishing.

11.3.4. Create and Restore Backups from the Device Memory

Certain devices (e.g. MMX6x2-HT series) are able to store backups in its own memory and can be recalled from there so user does not need to save backup files to the local computer. Eight slots are available for this purpose.



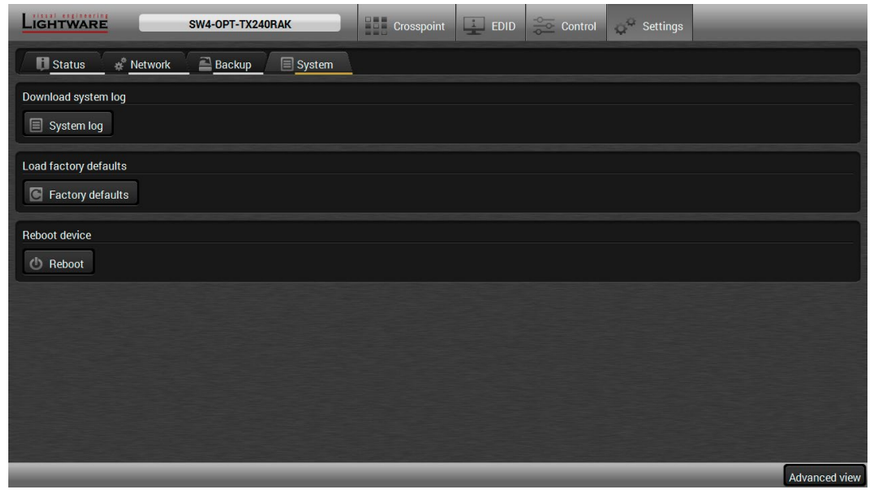
You can save presets as not protected with using **Save** button and as protected with using the **Save as protected** button. Restoring a preset select on the slot of the desired backup and click on the **Apply** button. You can save presets from a file from your local computer clicking on the **Upload** button and you can also save a preset from the device's memory to a backup file with using the **Download** button. If you do not need a saved preset any more, select it and click on the **Delete** button.

WARNING!
Loading factory default settings will erase all presets which has been saved in the device memory!

11.4. System

Three functions can be found here:

- Download system log - saving the file of the device.
- Load factory defaults - recalling factory defaults settings and values.
- Reboot - rebooting the system.



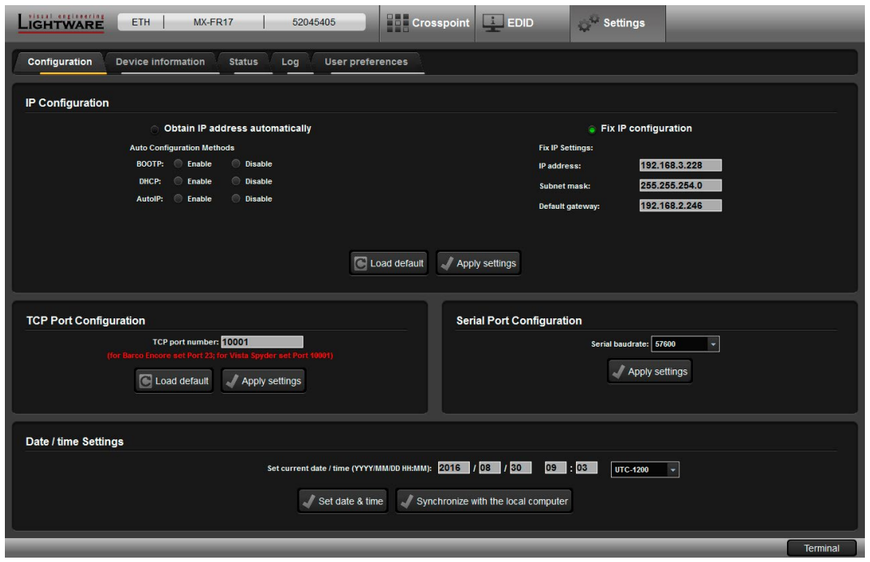
System tab

12. Settings Menu for Matrix Switchers

The menu contains hardware- and software-related settings and information about the connected device. The content of the tabs is also device-dependent.

12.1. Configuration

Settings about establishing the connection to the desired device are available on this tab.



Configuration tab

IP Configuration

The IP address and TCP/IP port can be set up here.

INFO
Load default button restores the default network settings (fix IP) to the device. Default network settings can be found in the user manual of the actual device.

INFO
When serial port is used for the connection, these settings cannot be changed.

Obtain IP Address Automatically

By selecting the Obtain IP address automatically option, the device gets the IP address from the DHCP server on the LAN, or if DHCP server is not present, it gets an AutoIP address from 169.254.xxx.xxx domain. Set BOOTP, DHCP and AutoIP settings according to your network requirements. Always press the **Apply settings** button to save changes.

Fix IP Configuration

In this case, the connected device has an IP address configuration set up by the user/ administrator. Depending on modified settings, you might need to restart the device and the Control Software. Always press the Apply settings button to save changes.

TCP Port Configuration

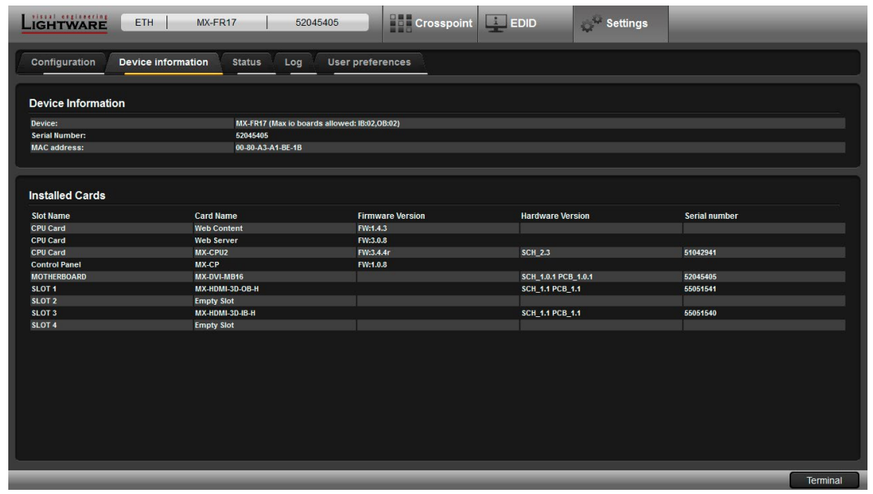
Devices can be accessed via this TCP/IP port number with TCP connection. Port number can be modified to any number between 1025 and 65535 except the followings: 9999, 14000 - 14009, 30704, and 30718. To use a matrix with Barco Encore set port to 23. To use a matrix with Vista Spyder set port to 10001. Always press the **Apply settings** button to save changes.

Serial Port Configuration

The Baud rate for serial connection can be set by the drop-down list: 9600, 19200, 38400, 57600, or 115200. Always press the **Apply settings** button to save changes.

12.2. Device Information

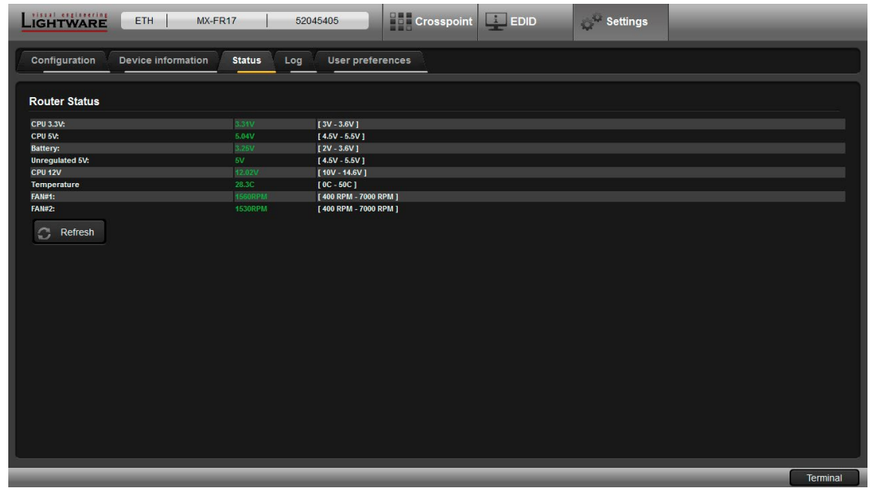
Basic information about the connected device and installed cards are listed on this tab.



Device information tab

12.3. Status

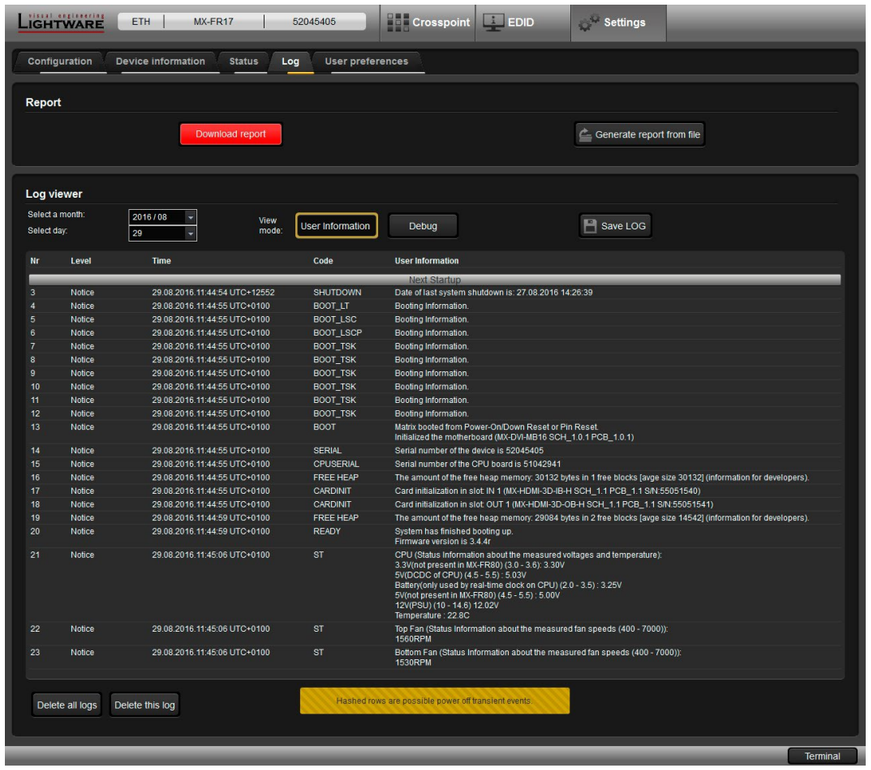
The voltage levels, fan speeds and temperature measured by the CPU of the device are shown. Press the **Refresh** button to show/update values.



Status tab

12.4. Log

Events logged by the device and report generators can be found on **Log** tab. There are two sections: **Report** and **Log viewer**.



Log tab

Report Section

LDC is able to collect information from the device and save it to a report file. This information package can be sent to Lightware support team when a problem may arise with the device.

Press the **red button**: Generate report file.

LDC collects the needed information; this may take up to 5 minutes.

After generating the report, a ‘Save as’ dialog box appears. Select the folder where you want to save the report file. The default file name can be changed.

The report contains the following device-dependent information (if available):

- Current command protocol,
- Device type and serial number,
- Current crosspoint state,
- Firmware versions of all the internal controllers,
- Installed I/O board types and versions,
- Hardware health status,
- All EDID headers and status (emulated, dynamic, factory, user),
- Basic error list, log file list and last detailed error log.

Open Custom Report from File

The Controller Software is able to send a custom command file to certain devices (matrix switchers). The command file can be generated by Lightware support. This is needed when some special commands have to be used for configuring the device or troubleshooting.

INFO
This function is only for special troubleshooting cases.

Error Log Viewer (MX Matrix Switchers, UMX Extenders)

Log files saved by the devices can be downloaded and viewed with this function. The columns in the list are the followings: error level, time, error code, error parameter, processor task identifier, occurrences and extra information.

The device creates a new error log file every time it is started except if a log file exists for that day. The software allows selecting only those months and days, which have a log.

Step 1. Select the month of the error log.

Step 2. Select the day.

Step 3. The error log is downloaded and shown as a table.

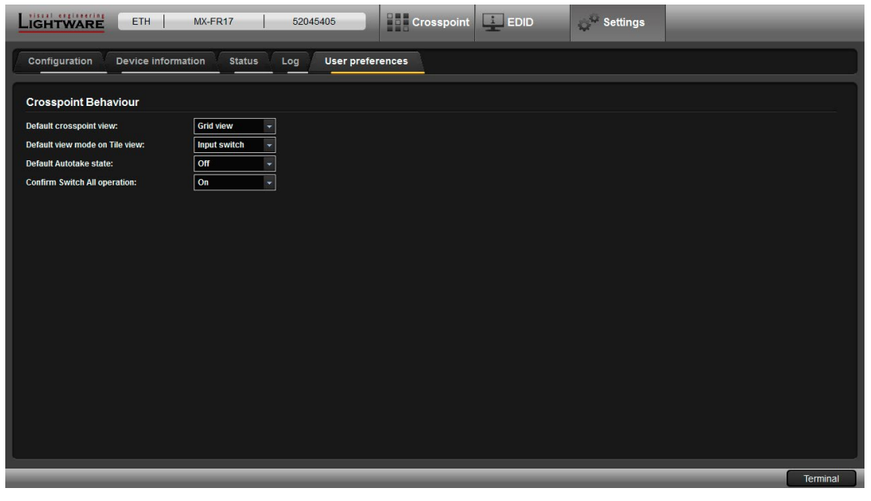
Step 4. The error log can be saved in a CSV file on the computer by the Export to CSV file button.

There are two viewing modes are available: **User information** and **Debug**. User information contains user-friendly data, using this view mode is highly recommended.

Logs can be deleted one-by-one or all the logs at the same time with the **Delete all logs** and **Delete this log** buttons.

12.5. User Preferences

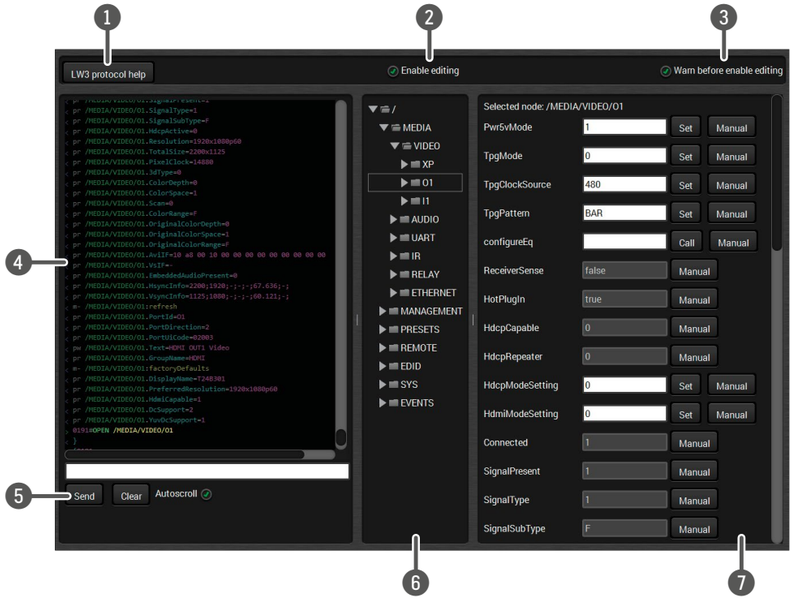
The tab shows some settings in connection with the LDC displaying/working mode.



User preferences tab

13. Advanced View / Terminal

This view is only available for LW3 protocol supported devices.



1 **LW3 protocol help** — Pushing the button results a help window opening which describes the most important information about LW3 protocol commands in HTML format.

2 **Edit mode** — The default appearance is the read-only mode. If you want to modify the values or parameters, tick the option. You will be prompted to confirm your selection.

3 **Warning mode** — If this pipe checked in, a warning window pops up when you enable Edit mode.

4 **Terminal window** — Commands and responses with time and date are listed in this window. Sent command is displayed in red and starts with '>' character, received response is displayed in blue and starts with '<' character. The content of the window can be emptied by the Clear button. If the Autoscroll option is ticked, the list is scrolled automatically when a new line is added.

5 **Command line** — Type the desired command and execute it by the **Send** button. Clear all current commands and responses in the Terminal window by the **Clear** button.

6 **Protocol tree** — LW3 protocol tree; select an item to see its content.

7 **Node list** — Correspondent parameters and nodes are shown which are connected to the selected item in the protocol tree.

Manual button: Manual (short description) of the node can be called and displayed in the terminal window.

Set button: Saves the value/parameter typed in the textbox.

Call button: Calls the method, e.g. reloads factory default settings.

14. Document Revision History

Document	Release date	Changes	Editor
Rev. 1.0	21-05-2014	Initial version	Zsolt Marko Laszlo Zsedenyi
Rev. 1.1	29-05-2015	Minor updates to LDC v1.3.0	Laszlo Zsedenyi
Rev. 1.2	22-04-2016	Updated Event Manager to LDC v1.7.1	Tamas Forgacs
Rev. 2.0	08-09-2016	New graphical user interface, hints for functions, improved log viewer	Tamas Forgacs
Rev. 2.1	24-02-2017	Status display for matrix switchers, quick IP address settings, infra, relay description	Judit Barsony