Prizmatix

LED-Ctrl

Software

User Manual

Software Ver: 2.5
User Manual Ver 6

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Prizmatix LED CTRL Software Description

The Prizmatix LED CTRL (Control) software was developed to enable convenient control of USB enabled Prizmatix LED light sources on Windows based computers via a USB connection.
The USB enabled Prizmatix LED sources can be also operated by sending a simple text string via serial communication COM port from various software packages such as MicroManager, MetaMorph, LabView, Matlab, HyperTerminal and many other software packages.

Health and Safety

Prizmatix products are NOT authorized for use as components in life support devices or systems.

The Prizmatix LED CTRL is intended for use as laboratory equipment only.

It is not cleared or authorized for clinical use.

Any maintenance shall ONLY be performed by a technician authorized by Prizmatix.
Cellular phones or other radio transmitters should not be used within the vicinity of the unit.

Setup of the Device

Remove the device from the packaging and inspect the device for loose components or any signs of damage. Notify Prizmatix if the device appears damaged in any way: do not install a damaged device.

Package Contents List

The USB enabled Prizmatix LED system can come in various system configurations. Any software related issues will be described shortly.

Software Installation CD	USB-A to USB-B Cable
	

	Item	Description	Quantity
1	USB Cable	USB Type-A to USB Type-B cable for connection of the USB unit to PC	1
2	CD with Software	Software and Drivers CD - Please download additional software drivers as described in installation section	1

In case of a multi-channel system the USB device can be installed in an enclosure with multiple BNC connector outputs. In such a case the package will also contain following items:

	Item	Description	Quantity
1	USB device unit	USB device unit with multiple BNC connector outputs	1
2	BNC-BNC cable	Cable to connect the USB device unit to the Ain input of the LED controller	Depending on # of Channels

Software Setup

The Prizmatix LED CTRL system setup is performed in following steps:

- Setup of Prizmatix LED CTRL PC software
- Setup of USB device drivers

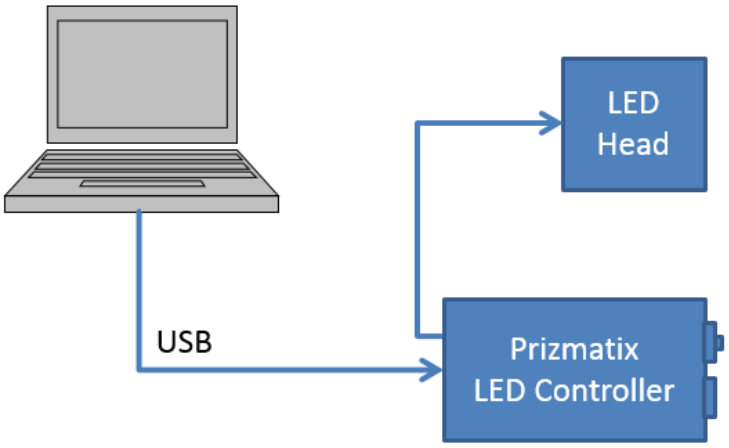
Do not connect the Prizmatix LED CTRL device to the computer until completing the software setup process

Setup of Prizmatix LED CTRL PC software

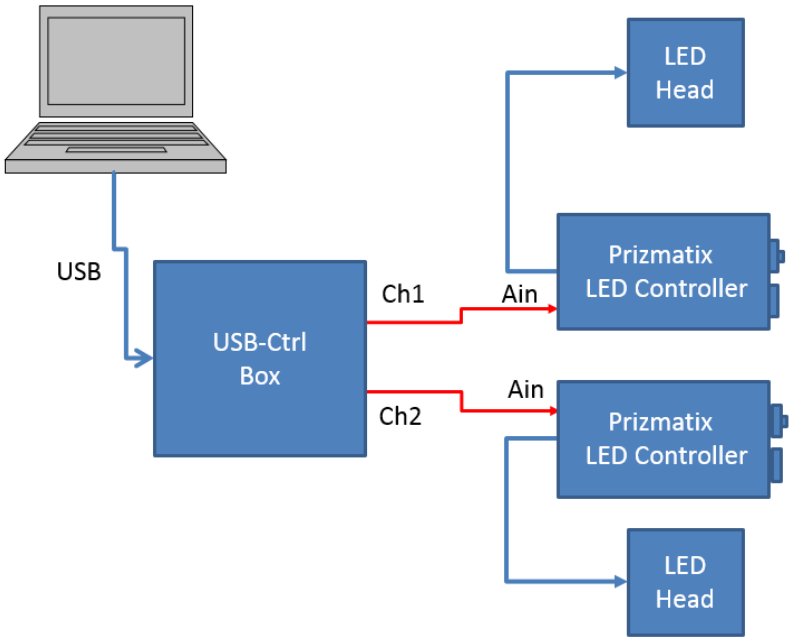
Insert the CD with the installation software into the CD-ROM drive. Browse the CD and find the file labeled "**setup.exe**". Run the "**setup.exe**" file and follow the instructions as they appear during the setup process and then re-boot the system to complete the software installation.
Note: during installation the setup software will install the National Instruments Virtual Instrument Software Architecture (VISA) driver.

Cable connections of the system

After the setup is successfully completes, connect the Prizmatix LED CTRL device to the computer with the supplied USB cable.
In case the USB device is installed into the LED controller, the system should look like this:



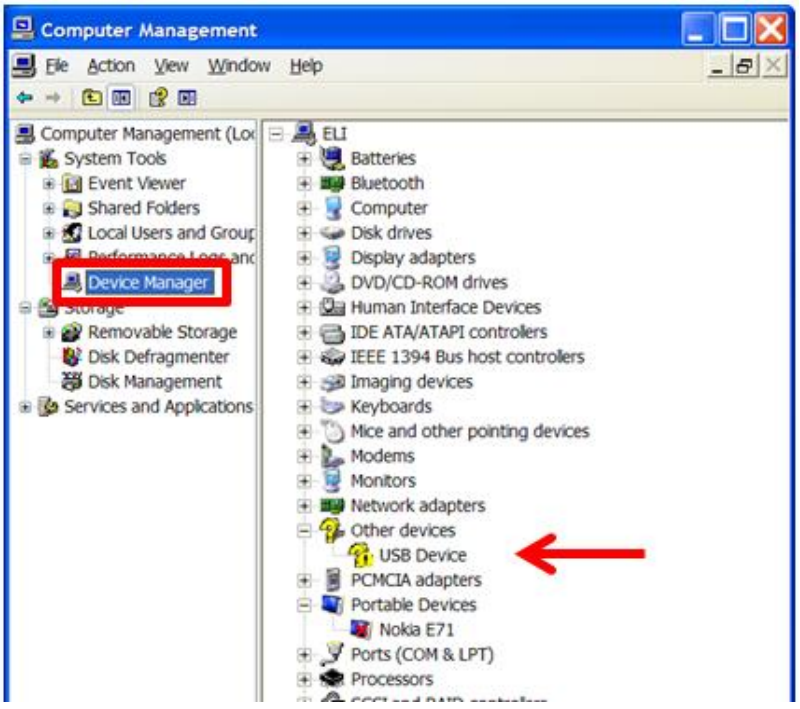
In case the USB device is installed in separate enclosure with multiple BNC connector outputs the system should look like this:



Setup of USB device drivers

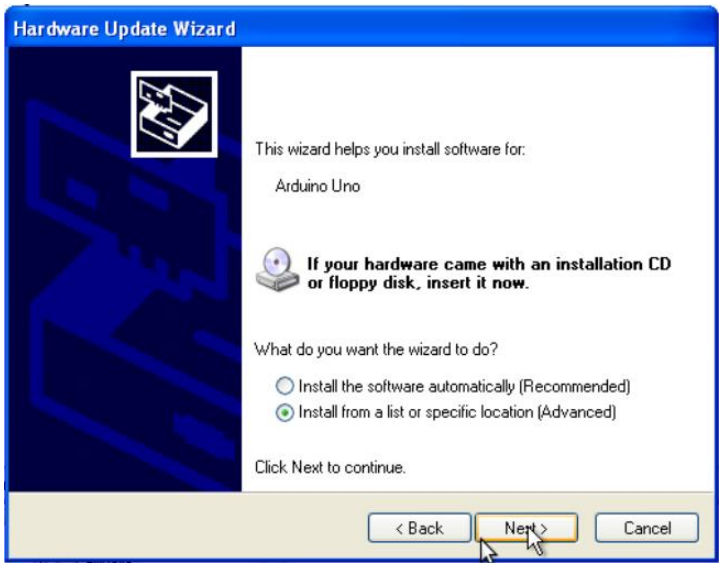
Immediately after connecting the USB cable Windows will start the standard driver installation procedure and after a few moments until the process will fail.
Click on the Start Menu, and open up the Control Panel
While in the Control Panel, navigate to System and Security. Next, click on System. Once the System window is up, open the Device Manager.
An alternative way to get to device manager is to right-click on the My Computer icon on the desktop and choose Manage from the list.

Choose Device Manager on the left panel and watch for "?" unknown device in the list in the right panel.



Right click on the unknown device and choose the "Update Driver" option. The Hardware Update Wizard window will appear

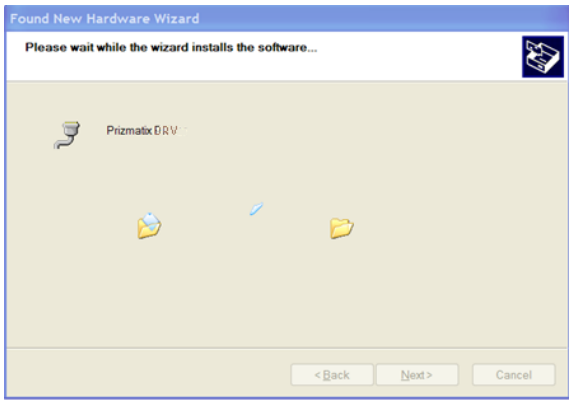
Choose “No, not this time” and click Next. At next screen choose “Install from a list or specific location” and click Next.



On next screen choose “Include this location in the search” and navigate by browsing to (you can copy and paste the address to the windows navigator)

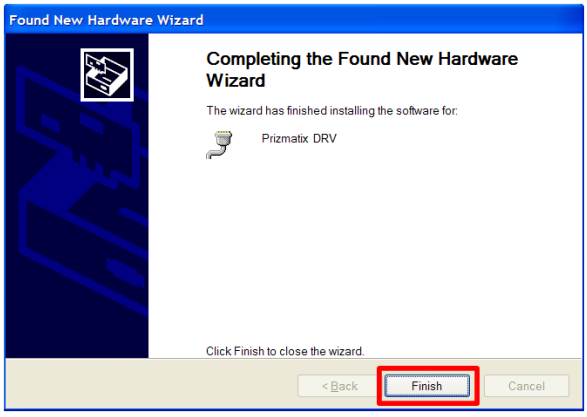
`C:\Program Files\Prizmatix LED CTRL\Drivers`
and click on Next.

A new window will appear:



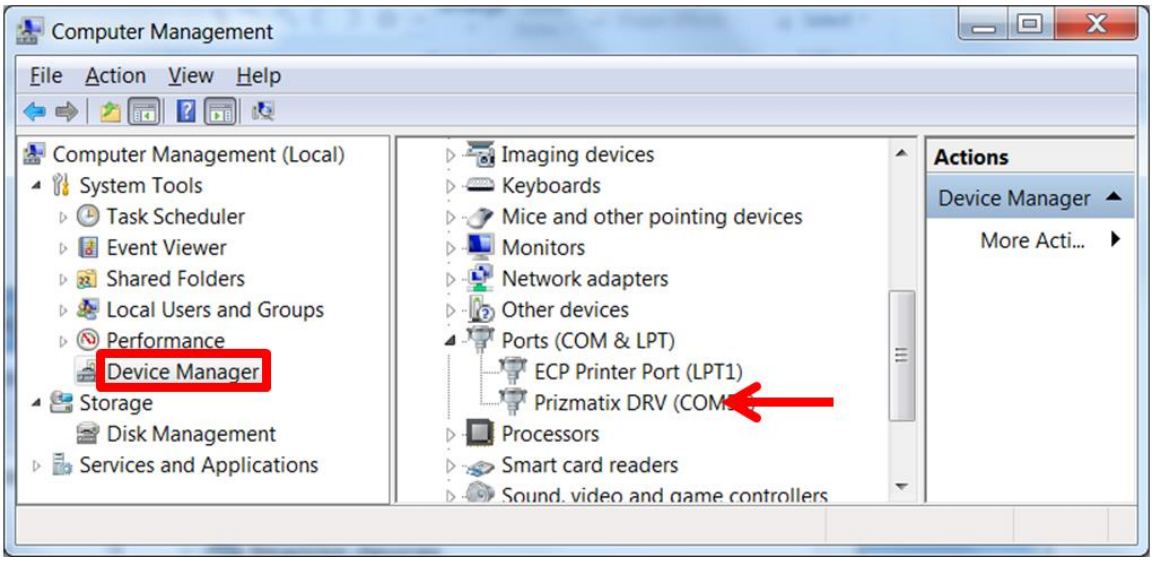
If you use Win XP you may see following window, click “Continue Anyway”:

After few seconds the procedure will be completed and final window appear:



Click on “Finish” to complete the setup.

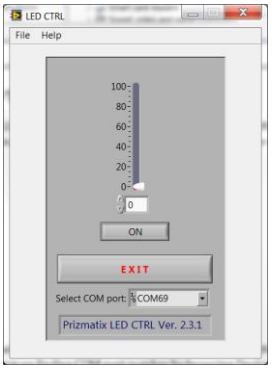
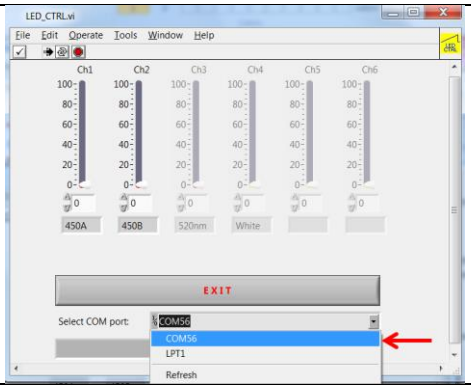
Now open the Device Manager. The Prizmatix DRV device will be found in the list in the right panel. Please notice the COM port number (25 in this example).



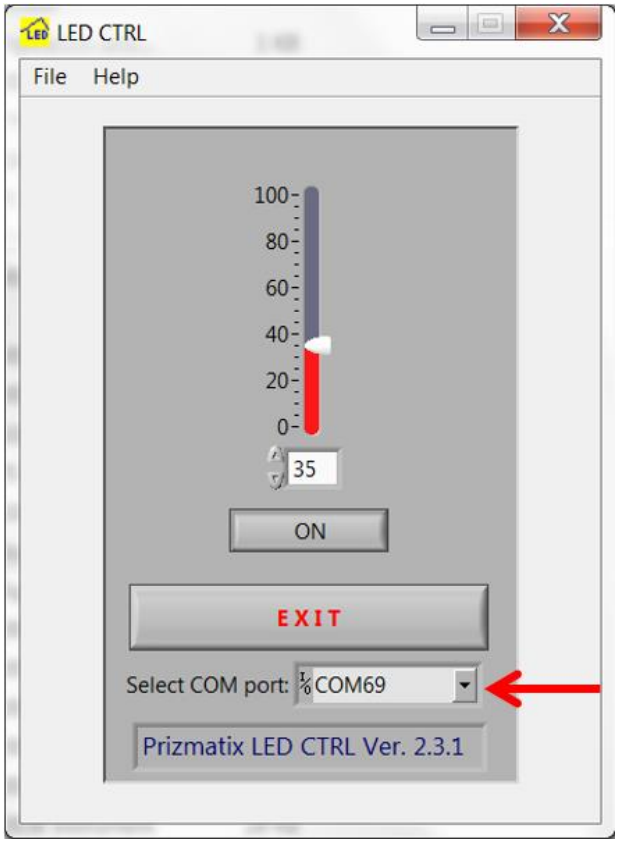
Once the driver installation is complete the Prizmatix LED CTRL software can be used.

System Usage

Choose Prizmatix LED CTRL from Start menu to launch the control software. The software has several Graphical User Interfaces depending on number of LEDs you control.

	
Single Channel LED CTRL	Multi Channel LED CTRL

The main screen will appear. Select the appropriate COM port from the list (COM69 in this example) - See above on finding the COM port by browsing the Device Manager - If the COM Port does not appear in the list select Refresh (at the end of the list).



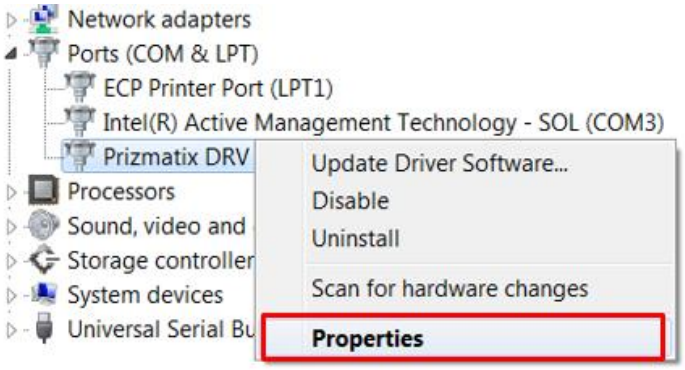
In case of a multi-channel system the software will only show the active channels. All inactive channels will be grayed.
The Slider enables the user to set the LED output power.
The ON/OFF button switches the LED ON/OFF
Exit button switches the LED OFF and closes the software.
Menu items:
`File>Update Firmware`: enables user to update firmware of the USB device. Do not attempt to update without explicit request from Prizmatix technical support.
`File>Exit:` switches the LED OFF and closes the software.
`Help>User Manual`: Display the user manual in Acrobat Reader.
`Help>Prizmatix Website:` Displays the Prizmatix website in default browser.
`Help>About LED CTRL:` Shows the about dialog box.

Using the HyperTerminal software

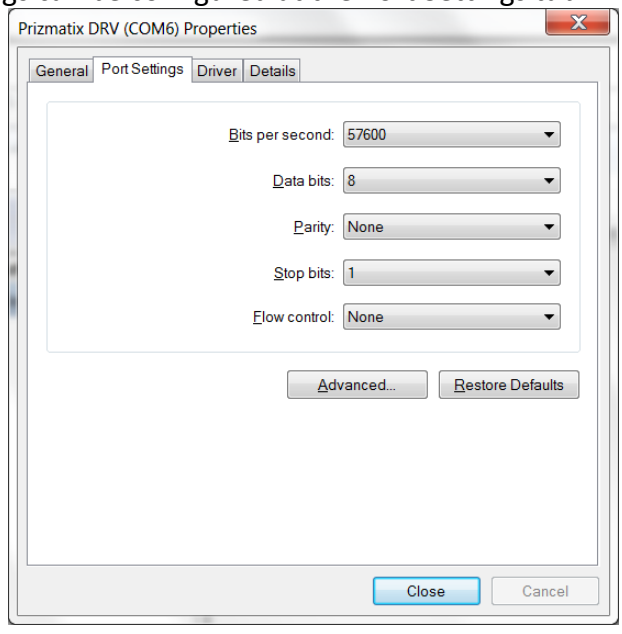
The Prizmatix LED CTRL can be used with any HyperTerminal-like software capable of sending and receiving simple ASCII commands over serial RS232 or USB interface.
In order to send commands to the Pulser the COM port should be configured to following settings:

Bits per second: 57600
Data bits: 8
Parity: None
Stop Bits: 1
Flow Control: None

These setting can be changed at the Device Manager.
Right Click the Prizmatix DRV device and select Properties from the list:



The COM Port settings can be configured at the Port Settings tab:



Note: The number of channels in the system can vary from 1 to 6. The control commands should include the correct number of channels. For example if your system has 3 channels (3 LEDs) you need include all `LED1,LED2,LED3` in the command string

The Prizmatix LED CTRL can accept commands sent to the serial COM port in following format for 1 or 2 channels (for 1 LED system change only Ch1):
`M LED1,LED2,0@`
Where
`M –` Prefix (no space or comma needed after the "M")
`LED1, LED2` – the digital potentiometer values for LED power control
`0@ –` mark the end of command

For 4 channels:
`M LED1,LED2,LED3,LED4,0@`

Notes:

- Systems with 1 or 2 channels use 1024 step digital potentiometers therefore the valid values for `LED` are numbers between 0 to 1023. System with 3,4,5 and 6 channels use 256 step digital potentiometers therefore the valid values for `LED` are numbers between 0 to 255
- M – Must appear at beginning of the command (no space or comma needed after the "M")
- 0@ – Must appear at end of the command
- No comma "," needed before @ character
- No spaces between the characters or numbers in the string

Examples (for 1 or 2 LED system):
For 1 LED system change only Ch1.:

`M0,0,0@ -` LED will be at min. power – OFF

`M251,0,0@` - Channel #1 is ON with digital potentiometer value of 251, Channel #2 is OFF

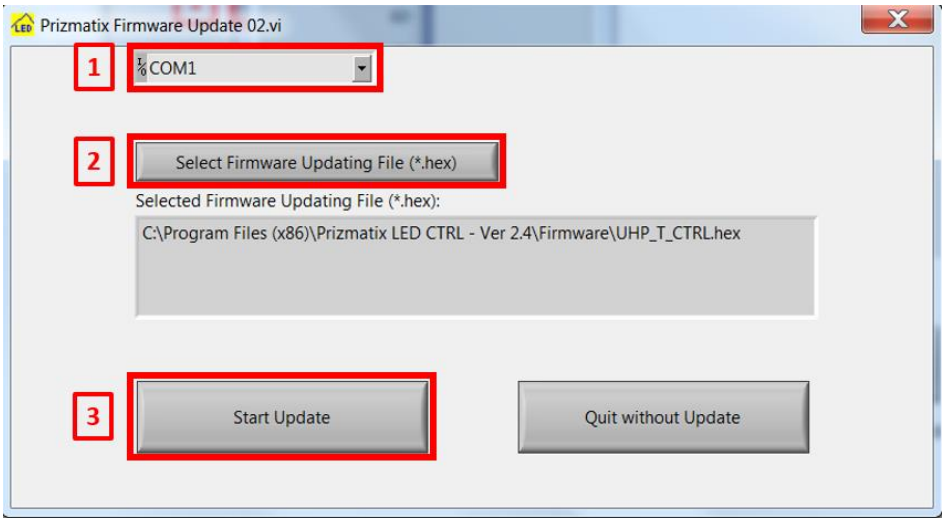
`M0,1023,0@ --` Channel #1 is OFF, Channel #2 is ON with digital potentiometer set to 1023 value (maximum value).

Version
Send command:
`V` – version
The response shall be version number e.g. 2.5

Appendix A: Updating LED-CTRL Firmware

Don't perform Firmware Update unless you received explicit Instructions from the Prizmatix technical team.

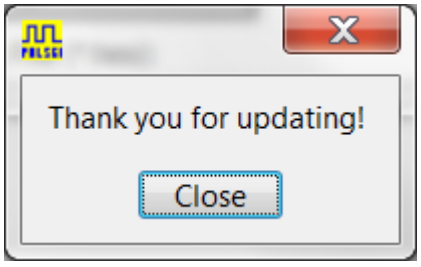
Open the Update Firmware dialog by selecting `File>Update Firmware` from LED-CTRL software menu.



1) Select the correct COM Port (COM1 in this example). See section "Setup of Pulser Device Drivers" in this manual for details how to find the Pulser COM port.

2) Click "Select Firmware Updating File (*.hex)" button and browse to `C:\Program Files (x86)\Prizmatix LED CTRL – Ver 2.5\Firmware\UHP_T_CTRL_Firmware.hex` or other appropriate *.hex file.
3) Click "Start Update" button to begin update.

When the update is completed successfully the following dialog box will appear:



Click "Close".
Your Pulser is now updated with the latest firmware and ready to go.