Veritas LED Control

Cross-platform User Manual

for Windows™ and MAC™ OS X™/iOS™

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1. Terms and Conditions

For more detailed information, see the “**Terms and Conditions**” as stated in the IDT web site.

2. System Overview

2.1. Supported platforms

Motion Inspector supports the following platforms:

- Microsoft Windows XP, Vista, 7, 8, 8.1 and 10 (32 and 64 bit).
- Apple MAC OS/X 10.9 (mavericks) and newer versions.
- Apple iOS 8 and newer versions.

The cross-platform manual provides instructions on using Motion Inspector on the above platforms. The icons below denote differences in setup, procedures and commands between Windows, OS/X and iOS users.

2.2. Supported devices and interfaces

The LED Control software supports the Constellation Access Point (**CAP**), the 3rd generation 4-Port LED controller (**4X 120W**), the Constellation **500/500e** and the 1st and 2nd generation 4-Port controllers. Some of the capabilities are not supported by 1st and 2nd generation 4-Port controllers (see below).

Device Model	Supported Links
Constellation Access Point (CAP)	USB 2.0, Ethernet (client), Wi-Fi (DHCP sever and client)
4X 120W LED Controller (4X)	USB 2.0, Ethernet (client), Wi-Fi (DHCP sever and client)
1st and 2nd gen 4-Port Controller	USB 2.0, Wi-Fi (DHCP server)
Constellation 500 and 500e	Ethernet and Wi-Fi

2.3. Operating modes

The devices support the operating modes listed in the table below.

Mode	CAP	4X	1st/2nd 4-Port
Continuous	Yes	Yes	Yes
Simple pulse via Sync In	Yes	Yes	Yes
PC operated: continuous with dimming	Yes	Yes	Yes
PC operated: GPS pulse via GPS antenna	Yes	Yes	No
PC Operated: 1PPS pulse via Sync In	Yes	Yes	No
PC Operated: internal generated free-run (adjustable frequency, pulse width and delay)	Yes	Yes	No

The Constellation 500 device has a single channel and operates in the following modes: internal continuous with dimming, IRIG, GPS, PTP (IEEE_1548), SYNC IN.

The Constellation 500e is a limited version of the 500. It has a single channel that operates in continuous mode (dimming) only.

2.4. USB setup

The USB 2.0 link is supported on both the controllers. It does not require any specific configuration.

- Install the LED control software. The USB 2.0 drivers are automatically installed.
- Connect the device to the computer via a USB 2.0 cable.
- Turn on the device and wait until the front red LED stops blinking.
- Start the LED Control software.

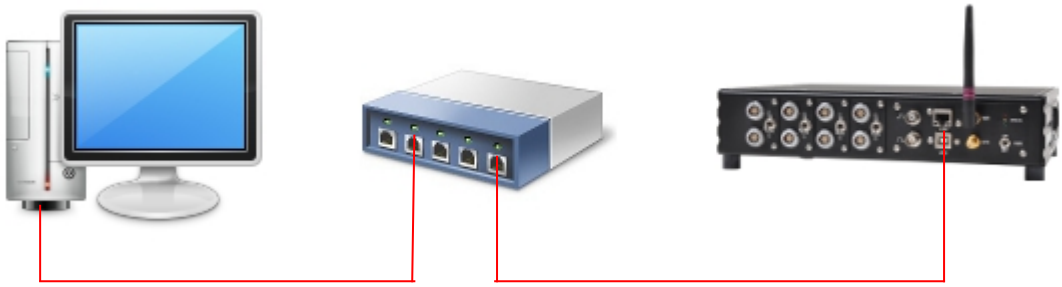
The USB connection is supported on Windows™ only.

2.5. Ethernet setup

The Ethernet connection behaves as a client and can be used with a switch or directly connected to a computer. The default configuration sets the Ethernet link as DHCP client, that is, it receives the IP address from the device to which it is connected.

The Ethernet connection is not available on the 1st and 2nd generation 4-Port controller.

2.5.1. Connection to a switch (default)



This configuration is the default and does not require any specific initial setup.

- Connect the computer to a switch (wired or Wi-Fi).
- Connect the device to the router using an RJ45/CAT5 cable (Ethernet cable).
- Turn on the device and wait until the front red LED stops blinking. It's important that you connect the Ethernet cable before turning the device on.
- Start the LED Control software.

The Ethernet connection is supported on Windows™ and MAC OS/X™.

2.5.2. Connection to a computer (direct)

The direct connection to a computer requires the manual configuration of the computer and the device IP addresses. Both the addresses and sub-net masks must be compatible to each other.

- Configure the computer network adapter's IP address and sub-net mask. Make sure that the network adapter has a static IP address (not assigned by any DHCP server).
- Turn off the device, connect it to the computer via a USB cable and power it.
- Start the LED Control software.
- Open the device and click the "Ethernet" button (see "Ethernet configuration" in chapter 3).
- Disable the DHCP option and edit the IP address/sub-net mask.
- Exit the software, disconnect the USB cable, connect the Ethernet cable and reboot the device.

NOTE: the computer and the device IP address must be compatible. That means that the numbers must differ only by the fourth digit of the IP address (for example, 192.168.1.10 and 192.168.1.100 are compatible, 192.168.1.10 and 10.10.10.100 are not compatible).

2.6. Wi-Fi setup

The 4X/CAP Wi-Fi component may be configured as a DHCP server or client. If it's configured as client, the CAP and the computer must connect to the same Wi-Fi access point before starting the communication.

The 1st and 2nd generation 4-Port LED controller Wi-Fi component is configured as a DHCP server (access point). To communicate with the controller the computer must connect to the Wi-Fi network generated by the Controller.

2.6.1. Connection to a Wi-Fi access point

This mode is supported by the CAP and the 4X. Before operating the CAP/4X must connect to the same Wi-Fi network of the computer.

- Turn off the device, connect it to the computer via a USB cable and power it.
- Start the LED Control software.
- Open the device and click the “Wi-Fi” button (see “Wi-Fi configuration” in chapter 3).
- Select the correct Wi-Fi network, enter the password and connect.
- Exit the software, disconnect the USB cable and restart the CAP/4X.

2.6.2. Connection to a computer (direct)

In this case the device behaves as an access point and the computer must connect to its Wi-Fi network.

2.6.2.1 CAP and 4X

It may be configured to behave as an access point:

- Turn off the device, connect it to the computer via a USB cable and power it.
- Start the LED Control software.
- Open the device and click the “Start up” button (see “Start up configuration” in chapter 3).
- Change the “Wi-Fi Mode” into DHCP server.
- Exit the software, disconnect the USB cable and restart the CAP.

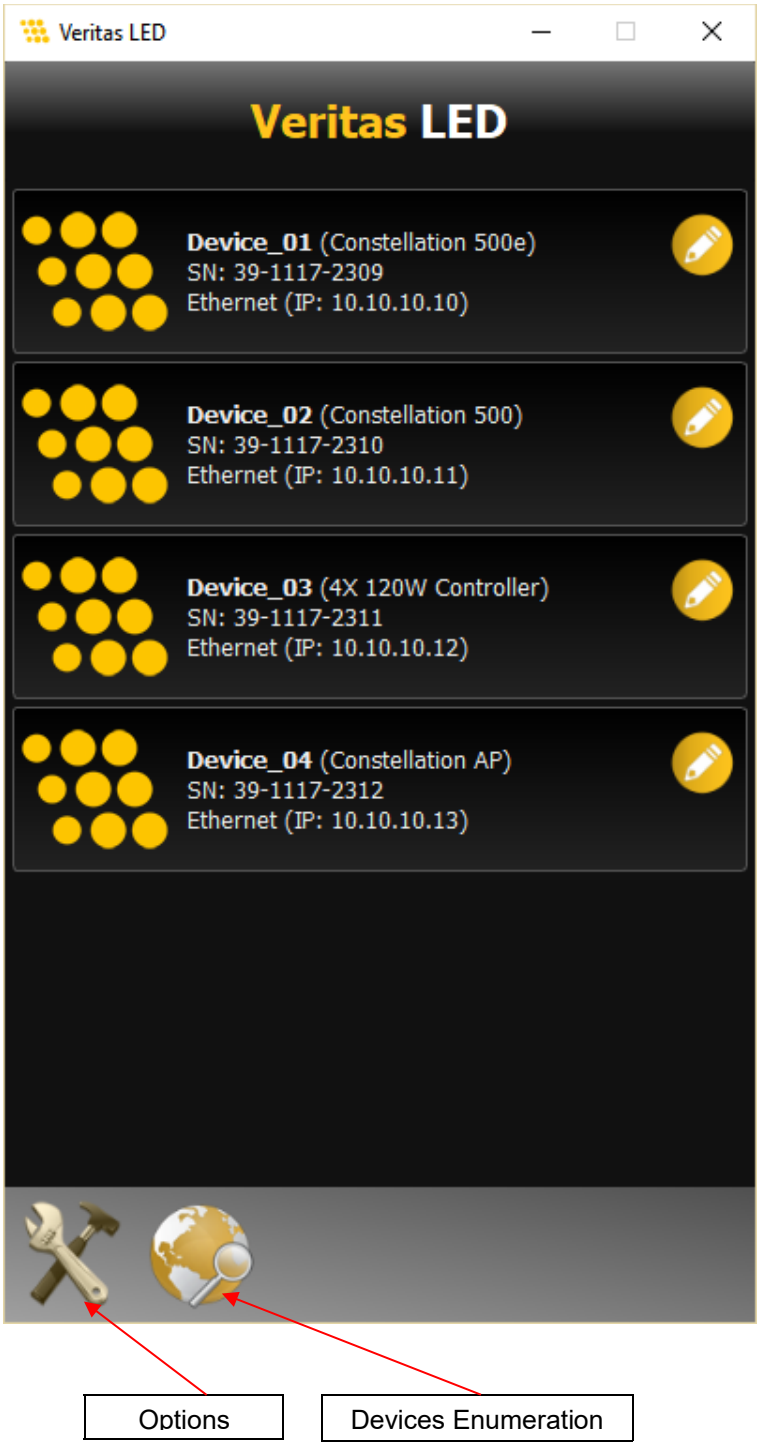
Then connect the computer to the CAP Wi-Fi network (SSID “**IDT_CAP_N**” or “**IDT_4xCONTRL**” and password “12345abcde”).

2.6.2.2 1st and 2nd generation 4-Port controller

It supports only this mode; it generates a Wi-Fi network with SSID “**IDT_Bridge_N**”, where N is a number that changes in each controller. The password may be “12345abcde” or “abcdef123456”.

3. Veritas™ LED

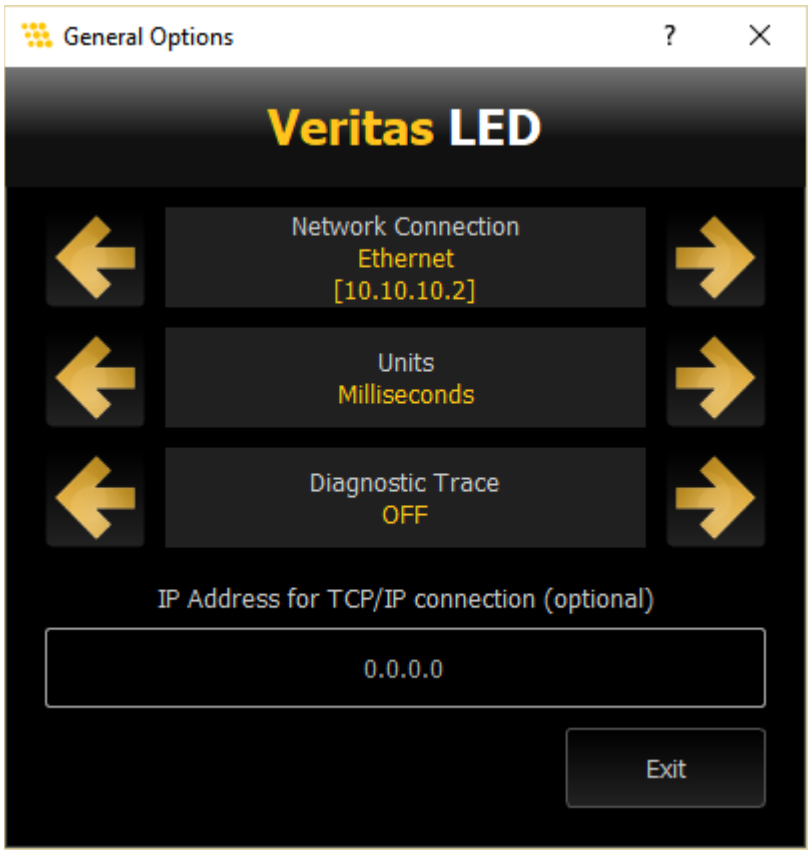
The Veritas LED Control program allows the user to control one or more LED controllers via USB 2.0, Ethernet or Wi-Fi. Once the program is started, the window below appears.



3.1. Devices enumeration button

Click the globe button to search for devices and update the list.

3.2. General Options



Network Adapter: select the network adapter connected to the device. If you select "Broadcast" the software will search for devices from each network adapter in your computer.

Units: select the units for the display of timing parameters (microseconds, milliseconds or duty cycle percent)**.**

Diagnostic trace: activate or deactivate the diagnostic trace.

IP Address for TCP connection: if the device requires TCP connection, enter the IP address of the device.

3.3. Devices

Every detected device is listed as a large icon button (see below).

The icon shows the name, the serial number and the connection type (USB 2.0, Ethernet or Wi-Fi).

Click the “pencil” icon to edit the device name.

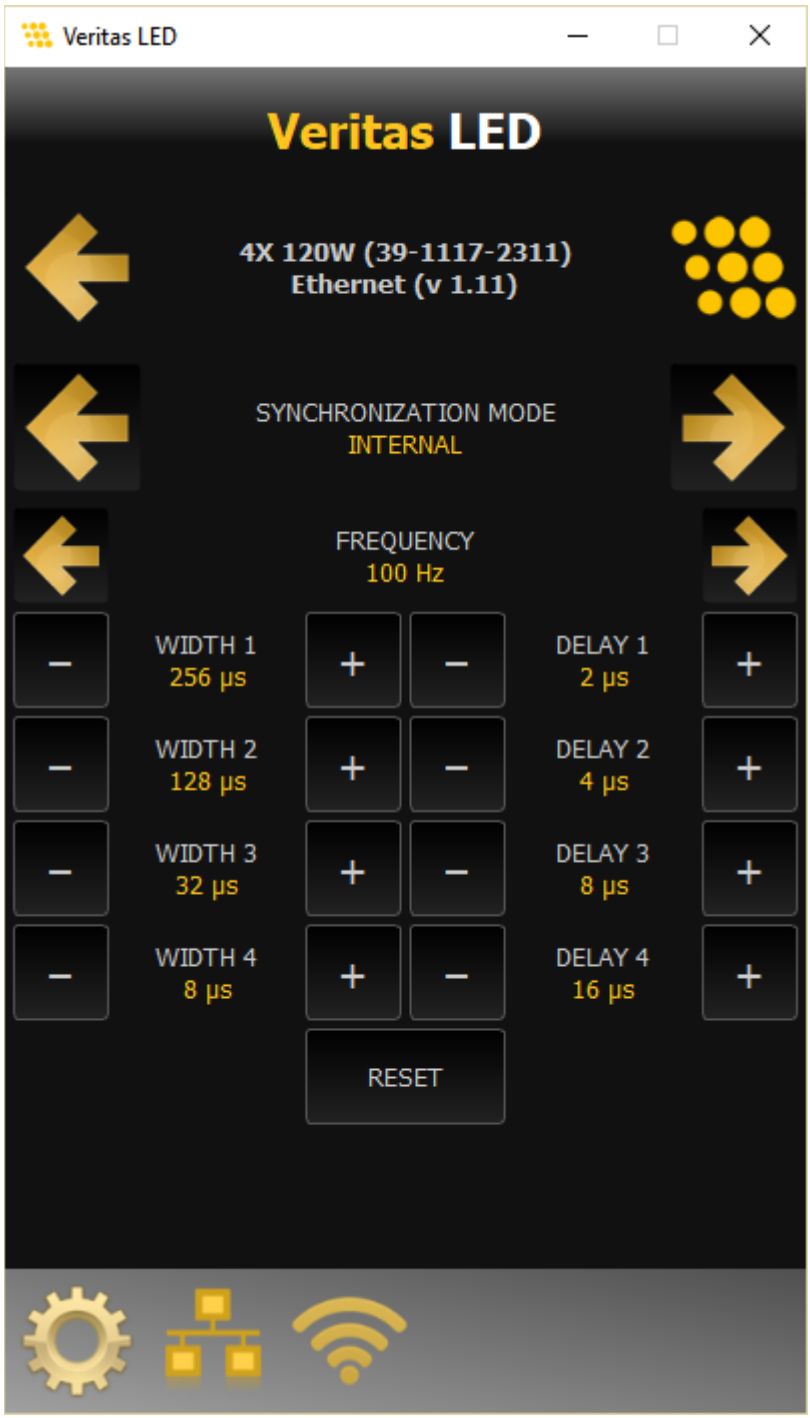
3.4. Device operation

The device operation modes are listed below.

- Internal (free-run).
- Sync In.
- Continuous with dimming.
- GPS, IRIG and 1PPS modes.

3.5. Internal Mode

In internal mode, the device generates internally a frequency and may modulate each channel with a different duty cycle and delay.



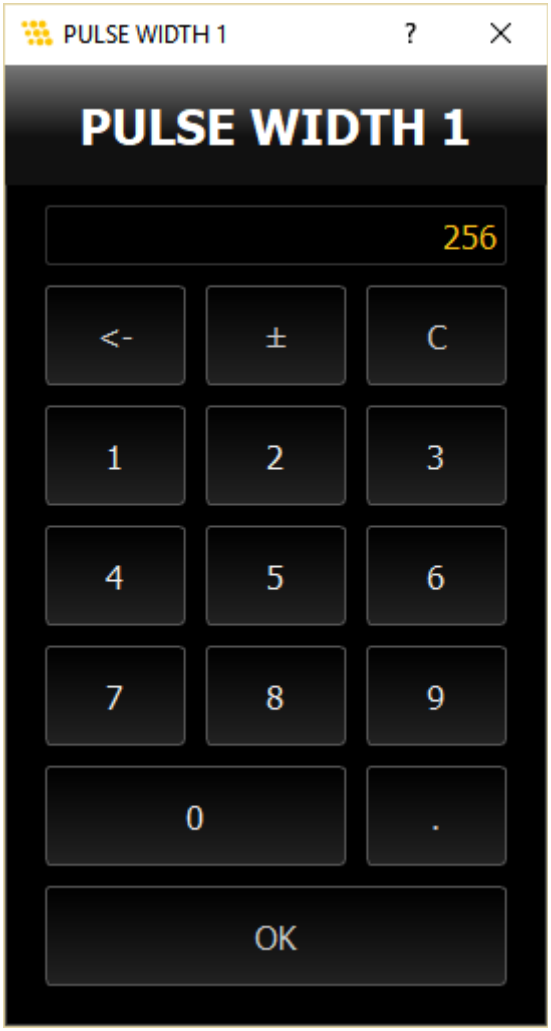
Width: click the minus and plus buttons to decrease and increase the width of each channel.

Delay: click the minus and plus buttons to decrease and increase the delay of each channel.

Reset Configuration: click the button to reset all the parameters and set the mode to Free-Run.

3.5.1. Touch pad

Click or tap to one of the white labels (frequency, width or delay) to activate the touch pad and enter the values (see below).



3.6. Sync In mode

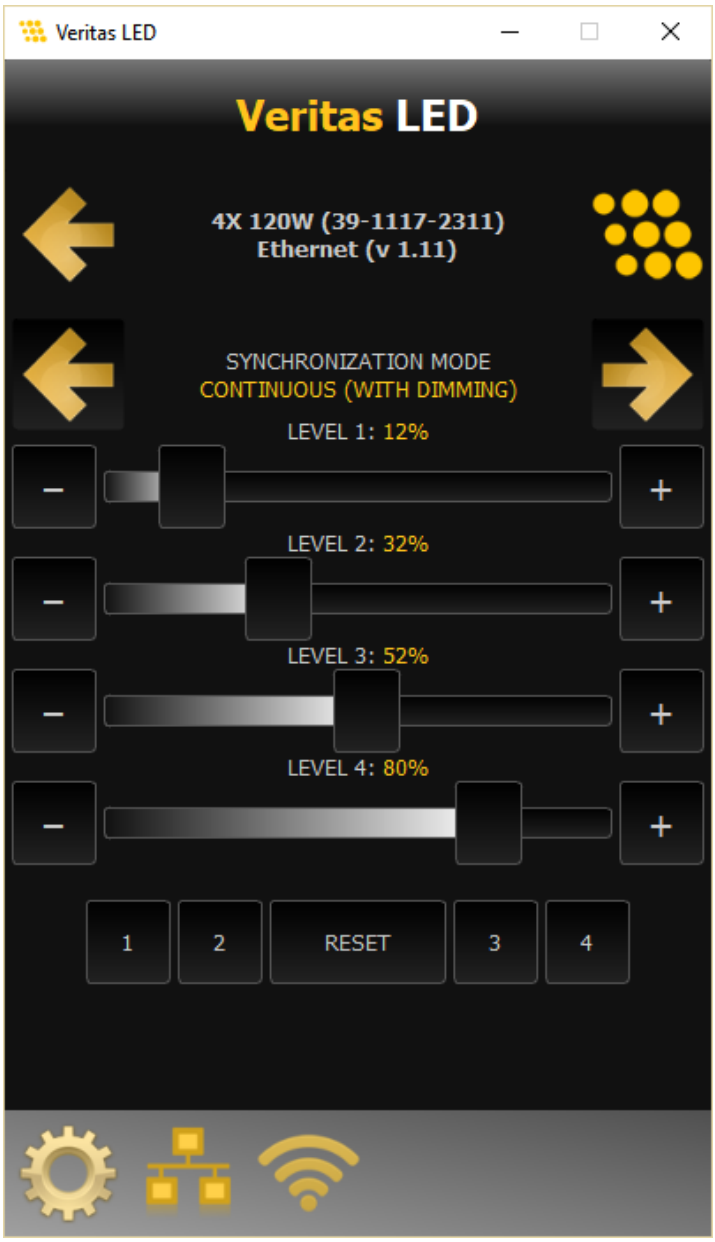
In sync-in mode, the output channels follow an external signal issue via the sync-in connector. The frequency, duty cycles and delay cannot be changed and are not visible.

3.7. GPS, IRIG and 1PPS modes

When one of these modes is activated, the device generates internally all the signals and align them to the external GPS (or 1PPS) signal.

3.8. Continuous mode (dimming)

In continuous mode, the output signals are continuous. The user may control the intensity of each channel separately (with the sliders, the plus and minus buttons).



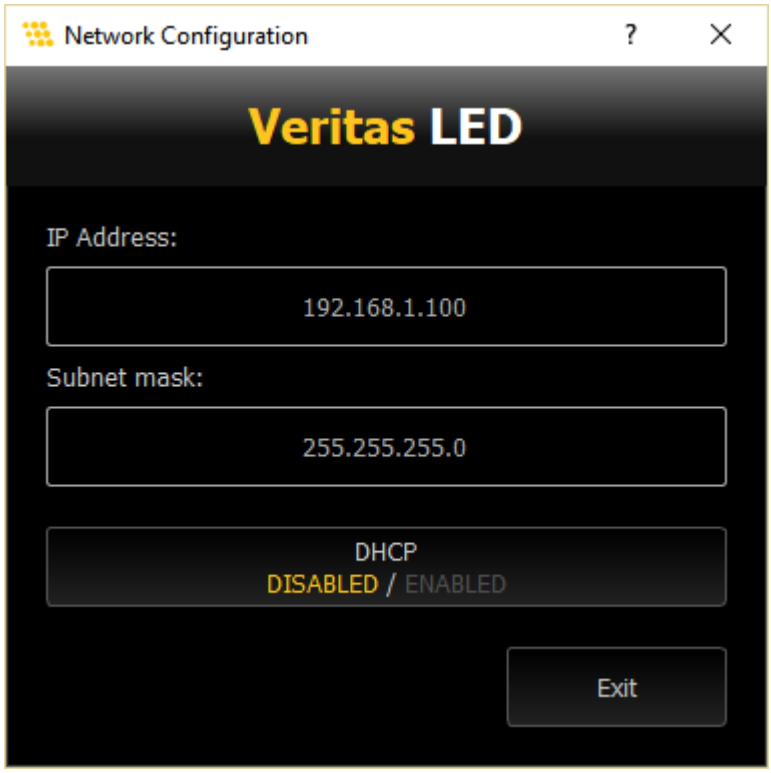
The settings may be stored into four different sets.

- Configure the levels, click one of the numbered buttons for more than one second and the levels will be stored in the corresponding set.

- Click one of the numbered buttons to load the corresponding set.

3.9. Ethernet Configuration

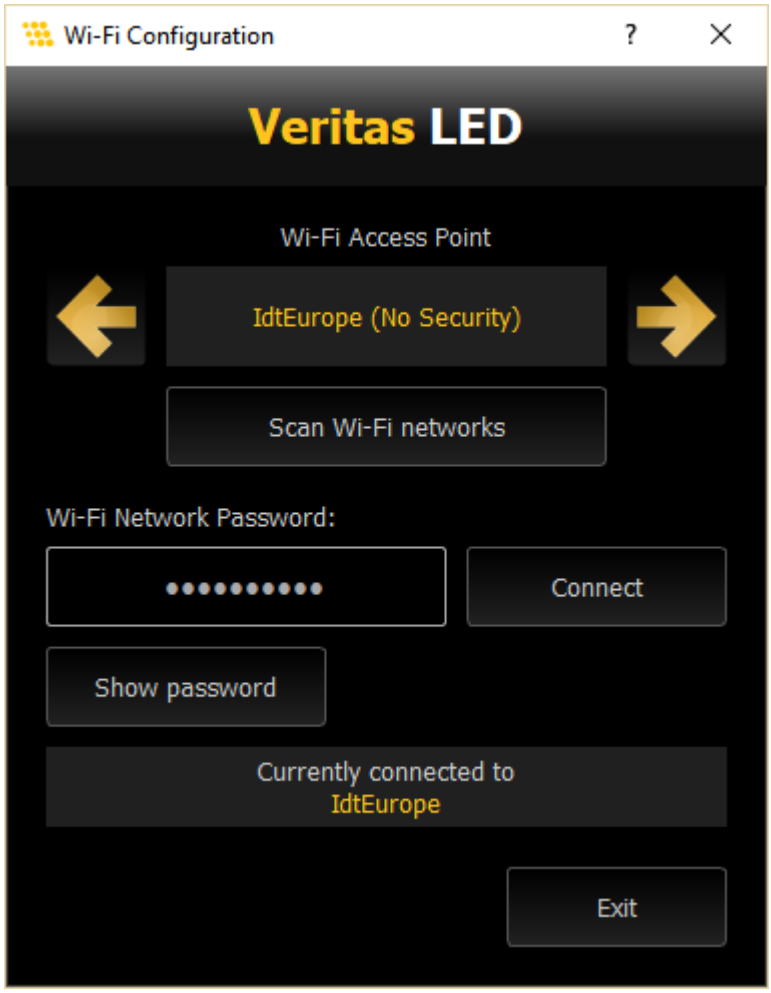
The Ethernet configuration dialog is activated if the second button on the bottom bar is pressed.



The user may edit the IP address and sub-net mask of the device or enable the DHCP client. In this case the IP address will be assigned to the device by the switch (or hub) that will be connected to the device itself.

3.10. Wi-Fi Configuration

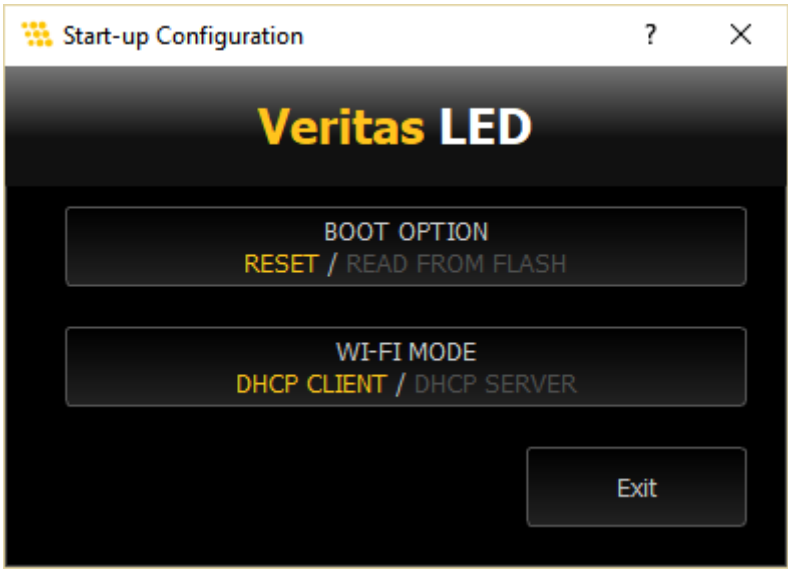
The Wi-Fi configuration dialog is activated if the third button on the bottom bar is pressed.



The device may connect to any access point in the network as a client. To do that, select the access point from the list, enter the password and click “Connect”. Click “Show password” to show the password.

3.11. Start up Configuration (controllers)

The startup configuration dialog is activated if the first button on the bottom bar is pressed.

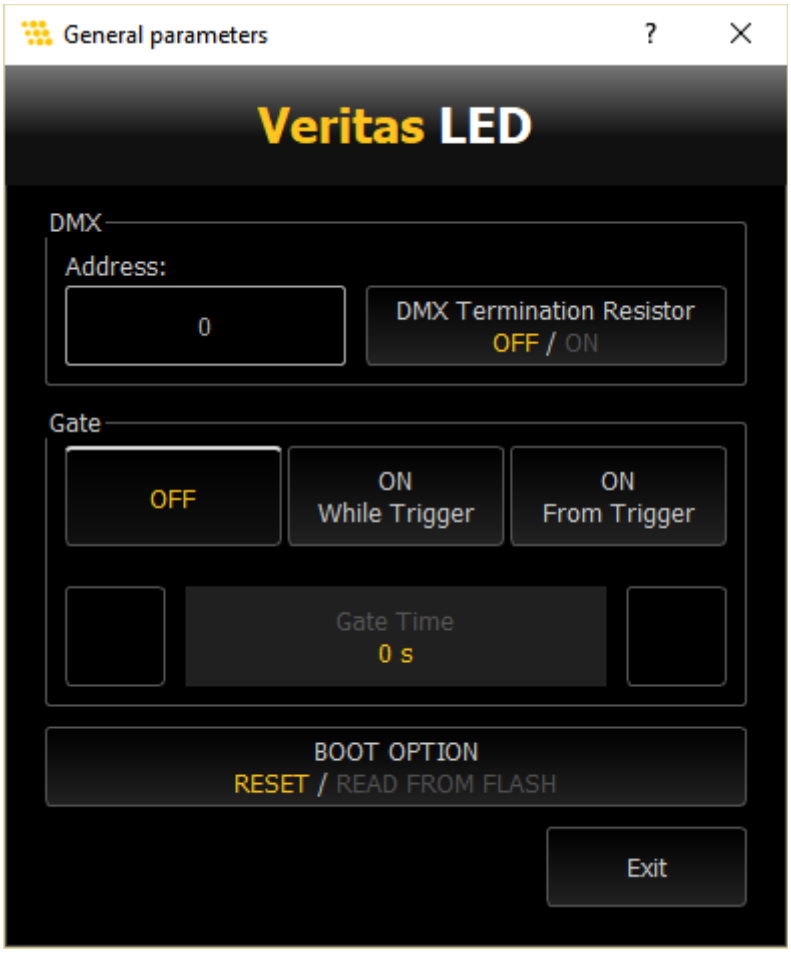


Timing Boot option: this parameter controls the behavior of the CAP at start up. If the option is “Reset”, the device starts with a configuration with all the parameters set to default (that is, the mode is set to sync-in and the dimming values are set to 100%). If the option is “Read from Flash” the device reads the latest configuration from the flash memory and starts with that.

Wi-Fi mode: the device may start as a DHCP server (the Wi-Fi has its own IP address and the computer that is directly connected to the CAP receives the IP address from it) or client (the device is connected to an access point and receives the IP address from the access point; the computer must be connected to the same access point).

3.12. Configuration (Constellation 500 and 500e)

The bottom bar contains a single button. If you click it, the following dialog box appears.



DMX: enter the DMX address and the termination.

Gate: the gate option can be activated only in the Constellation 500. If the option is set to “On while trigger” the light is emitted only if the gate level is set to low. If the option is set to “ON from trigger” the light is emitted for a number of seconds set in the Gate Time parameter value, and it starts when the gate level goes from high to low.

Boot option: see above.

The 500e model does not support the “Gate” configuration parameters.

4. Veritas LED for Apple iOS™

4.1. Overview

Veritas LED for iPad is a Wi-Fi/Ethernet app now available on the iTunes store for iOS 8 and newer versions. It provides a keypad to control the Veritas IDT LED controllers. The software interface resides on the Apple device and provides control of the devices independent of a computer, insuring maximum portability.

4.2. Installing the Motion Inspector App

The software interface is free for download at the iTunes store.

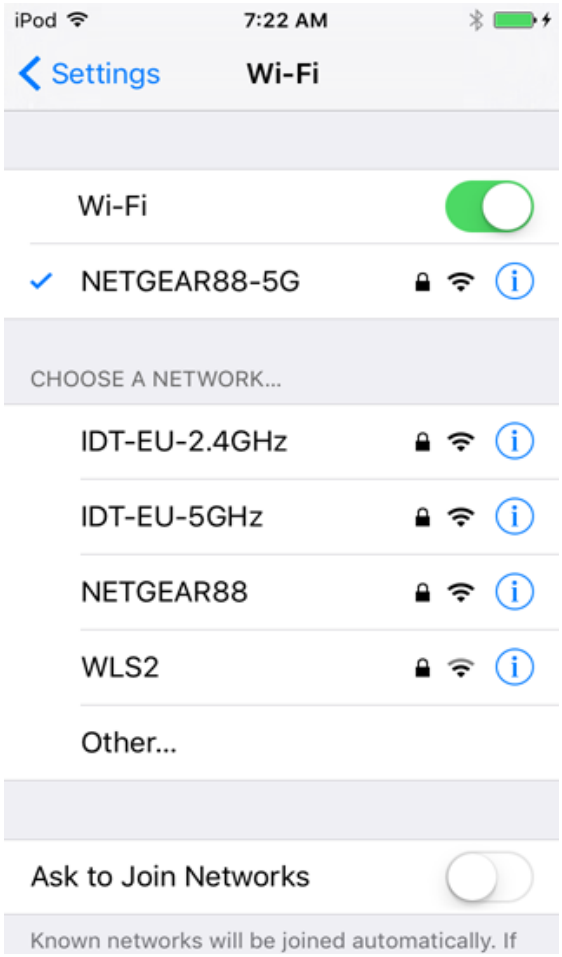
Follow the on-screen instructions and install the app. After the install, the icon “Veritas LED” will appear on your iOS device (see below).

4.3. Application setup

Upon the installation of the Veritas LED app, follow the instructions below to start the communication between the iOS device and the controller:

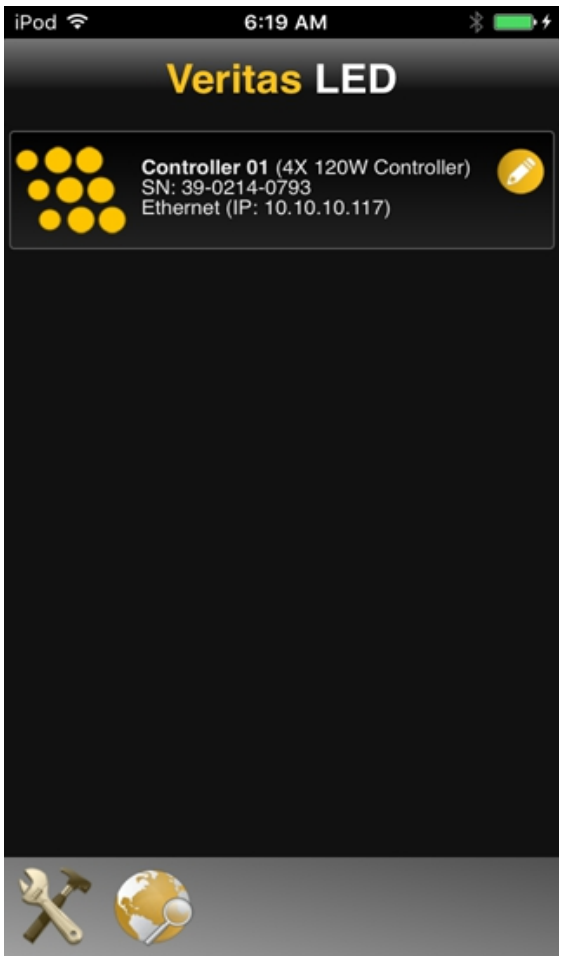
- Connect the controller to the local network.
- Power up the controller.
- Open the iOS settings page and select the Wi-Fi page (or Ethernet).

Make sure that the Wi-Fi Access Point is visible in the Network list and choose it (enter a password if required). Better if the Wi-Fi connection is 5 GHz.



4.4. Operating the devices

The user interface is similar to the Windows and MAC versions of Veritas LED (see below). For further inf, please refer to the “Veritas LED” section of this manual.



5. Specifications

5.1. Constellation Access Point (CAP)

Item	Value
Channels	8 (4 independent pairs)
Modularity	Yes
Interfaces	Ethernet, Wi-Fi, USB 2.0
Timing Hub	Internal
GPS receiver	Internal with active antenna (3.3VDC)
Power supply	Internal
Input Power	100 VAC to 240 VAC (1200 W max power)
Output Power	48 VDC 2.5 A
Sync In Level	3.3V to 5V
Sync Out Level	5V
Head control Voltage	48VDC

5.2. 4X 120W LED Controller (4X)

Item	Value
Channels	4
Modularity	Yes
Interfaces	Ethernet, Wi-Fi, USB 2.0
Timing Hub	Internal
GPS receiver	Internal
Power supply	Internal
Input Power	100 VAC to 240 VAC (1200 W max power)
Output Power	48 VDC 2.5 A
Sync In Level	CMOS (3.3 V) and TTL (5 V)
Sync Out Level	TTL (5 V)
Head control Voltage	5 V

5.3. 4-Port Controller (1st and 2nd generation)

Item	Value
Channels	4
Modularity	Yes
Interfaces	Wi-Fi, USB 2.0
Timing Hub	N/A
GPS receiver	N/A
Power supply	Internal
Input Power	100 VAC to 240 VAC (1200 W max power)
Output Power	48 VDC 2.5 A
Sync In Level	CMOS (3.3 V) and TTL (5 V)
Sync Out Level	TTL (5 V)
Head control Voltage	5 V