



TORNADO A1

MIDI Controller
Wireless 3D-Gloves

User Guide

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Welcome

Global DJ team congratulates you on your purchase of the new **MIDI Controller TORNADO A1 Wireless 3D-Gloves**. This user guide contains instructions for setting up and using your MIDI Controller TORNADO A1 and its software.

The Tornado A1 is a NEW MIDI controller intended for creation and visualization of musical effects using hand movements without touching DJ equipment. The Tornado A1 is a system that uses the MEMS-technologies to convert hand movements parameters into MIDI control signals according to flexible algorithms and methods of the Motion Capture theory.

The basic part of the controller is represented by the wireless 3D-Gloves. The MIDI controller connects to PC via a USB port, and thereby, to any DAW and DJ software (**Traktor Pro 2, Ableton Live, FL Studio, VST-plugins, Deckadance, Virtual DJ etc.**). Moreover, the Tornado features a multifunction multi-level MIDI-keyboard located on the gloves. One button can be used for sending several MIDI-commands.

Unique MIDI controller Tornado A1 will help DJs communicate their musical creations to the hearts of the dancing audience physically and visually. 3D-Gloves Tornado A1 is bound to increase the perception of musical effects for the people on the dance floor. Musical gloves will give DJs more freedom, courage, inspiration, bring convenience to work, will help DJs focus on the important elements of musical composition.

Use Global DJ new technologies, become emotionally closer to your fans and get positive response from them.
Tornado A1 is an additional motivation to create live shows!

Tornado A1. Especially for Live Show!

Recommended System Requirements for Tornado A1 Software

- Computer with built-in USB port.
- Operating Systems: Microsoft Windows 7 or later, Mac OS X.
- Processor: 2.4 GHz or above (to ensure minimal processing delay).
- RAM: 2 GB or above.

Equipment packaging



1- Leather Gloves



2- Light Visualization



4- USB Adapter 3- 3D-Sensors



6- Case

Equipment packaging (Figure 1)

MIDI controller Tornado A1 consists of the following elements (Figure 1):

1. Leather gloves;
2. Light visualization. It is active at the time of musical effects creation using 3D-Gloves. Visualization is designed for drawing attention of people dancing on the dance floor to the creative musical process at proper time;
3. 3D-sensors with keyboard.
4. USB Adapter. Connects the wireless 3D-Gloves with a laptop via USB port.
5. USB Cable. It is used together with USB Adapter. It is also used for charging 3D-Gloves batteries.
6. Case for MIDI controller.

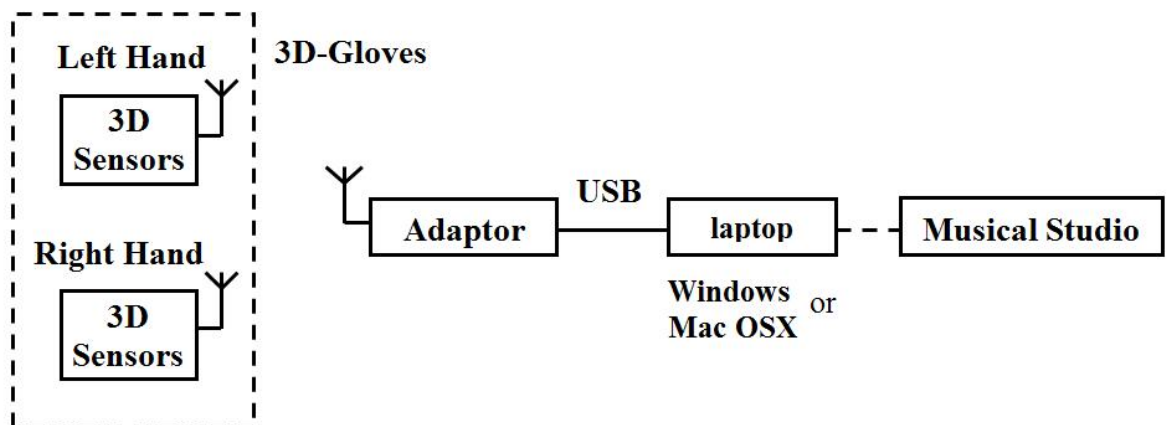
Preparation of equipment for work

Driver and software installation.

Please, visit the Downloads section at www.global-dj.com and download a driver for your operating system. Install software following instructions described in the Readme.txt file. We suggest you install driver first and only then connect MIDI controller to the computer.

Equipment assembly and connection.

MIDI Controller Tornado A1 is delivered completely assembled and ready for work. All you need is to connect it to USB port of the laptop, run Tornado A1 program, upload presets for a DAW and press Start button.



Equipment assembly and connection (Figure 2)

Control and indication elements on the gloves (Figure 3)

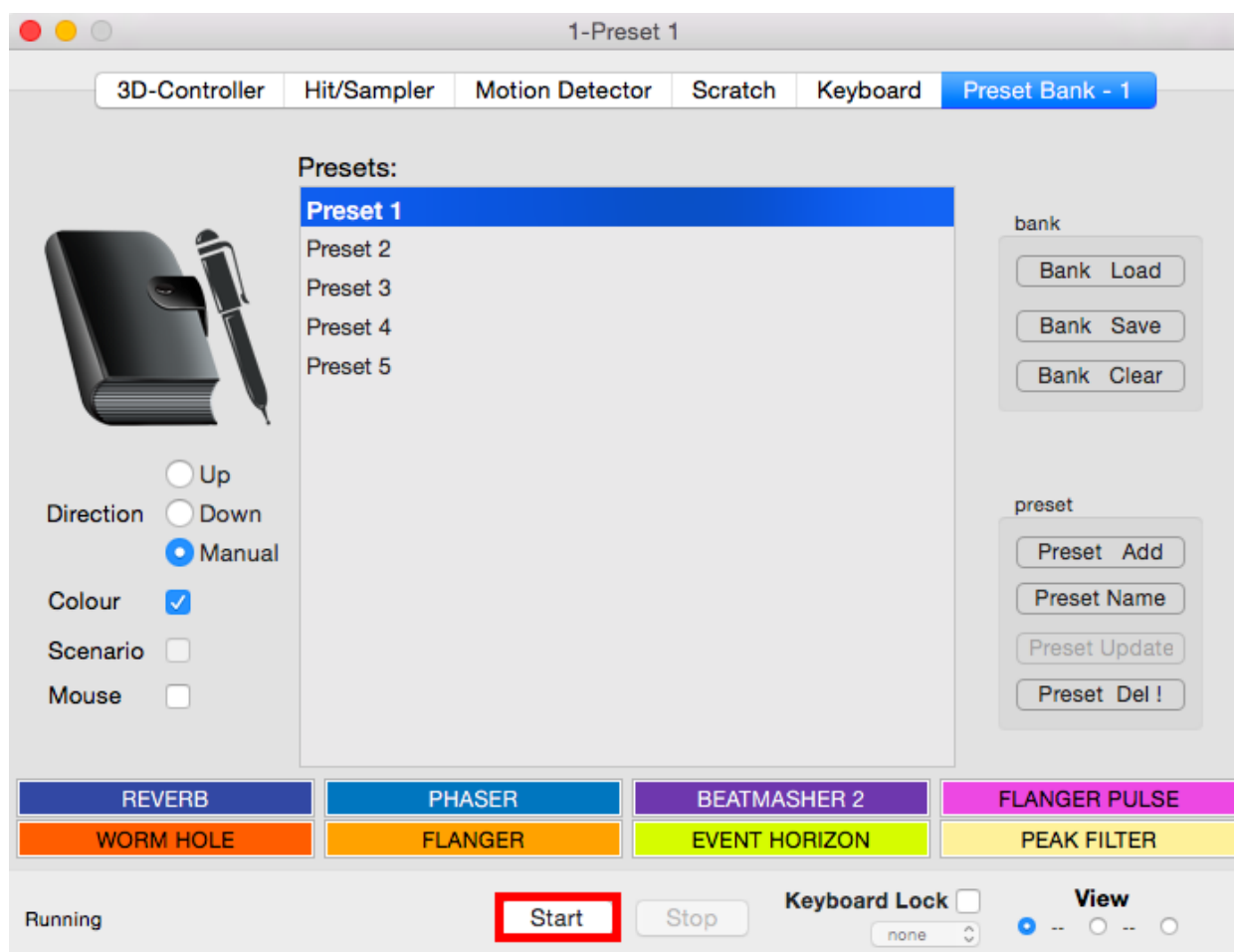


(Figure 3)

1. Power-switch (The same for both hands).
2. Tact switches for general purpose. Each keyboard has 4 of them. Their function is set in the driver of MIDI controller. With their help, you can control the driver settings, as well as send MIDI messages to musical programs.
3. Preset switch. (Only for the left hand). For presets located in the Preset Bank.
4. Slide switch for general purpose. Additional function - keyboard block on both hands (This function is only on the switch of the left hand).
5. Slide switch for general purpose.
6. Slide switch for general purpose. Additional function – Activation of "Mouse" mode (Only for the right hand).
7. Mini-USB 4-pin connector for charging the internal battery.
8. Connector for external light visualization connection.
9. Integrated light visualization.
10. LED indicator of 3D-Sensors work (3D-Sensors).

Description of the device function

After turning on the power sensors with the help of switch 1 (see Figure 3) signal diode 10 indicates red for Left sensor 1 time, for the Right sensor - 2 times. After that, the sensors switch to standby mode, while signal diode 10 flashes red every 5 seconds. When START (see Figure 4) is pressed in the control program and continuous work of MIDI controller starts according to the selected algorithm, the signal diode stops flashing 1 time every 5 seconds and starts displaying the information that comes from the control program. This information shows the status of the configured buttons (at the moment of switching) or the number of the selected preset (see the detailed description in the document TornadoA1Manual.pdf). Also, if you press the button START, the blue diode 11 lights on USB Adapter (Figure 2).



Work start, preset selection (Figure 4)

Preset bank. Preset loading

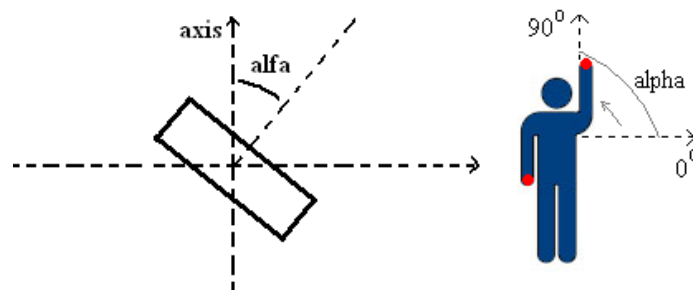
Present bank (see Figure 4) is a very useful tool containing a list of presets (earlier selected settings for all methods). In real time and by simply switching between presets, you can change any parameters in methods for MIDI signal generation, and thus alter the sequence of any desired musical effects. Double-clicking on any preset makes it a current one (by loading its settings). Similarly, you may switch between presets via a switch on the glove keyboard.

Converting movement parameters into MIDI control signals with the help of controller Tornado A1

There are many methods for converting movement parameters into MIDI control signals. Consider some of them:

1) 3D-Controller

Signals from 3D sensors (e.g. a gloves' angle of turn/tilt, acceleration, direction of movement, and speed) are converted into MIDI control messages for X, Y, and Z controllers. These controllers are used for parameter controlling of virtual regulators in musical studios. For example, the position of a virtual regulator knob is determined definitely by angle (alpha) of rotation/tilt of the glove relative to a sensitive axis (see Figure 5).



(Figure 5)

A separate controller is provided for each sensitive axis (X, Y, and Z) of the appropriate 3D glove. The X and Y controllers are easy to use as a control joystick for manipulating various devices, e.g. a modulator (see Figure 6):



(Figure 6)

2) Hit/Sampler

Sequencer samples or synthesizer notes are launched by impact movements of hands.

3) Motion Detector

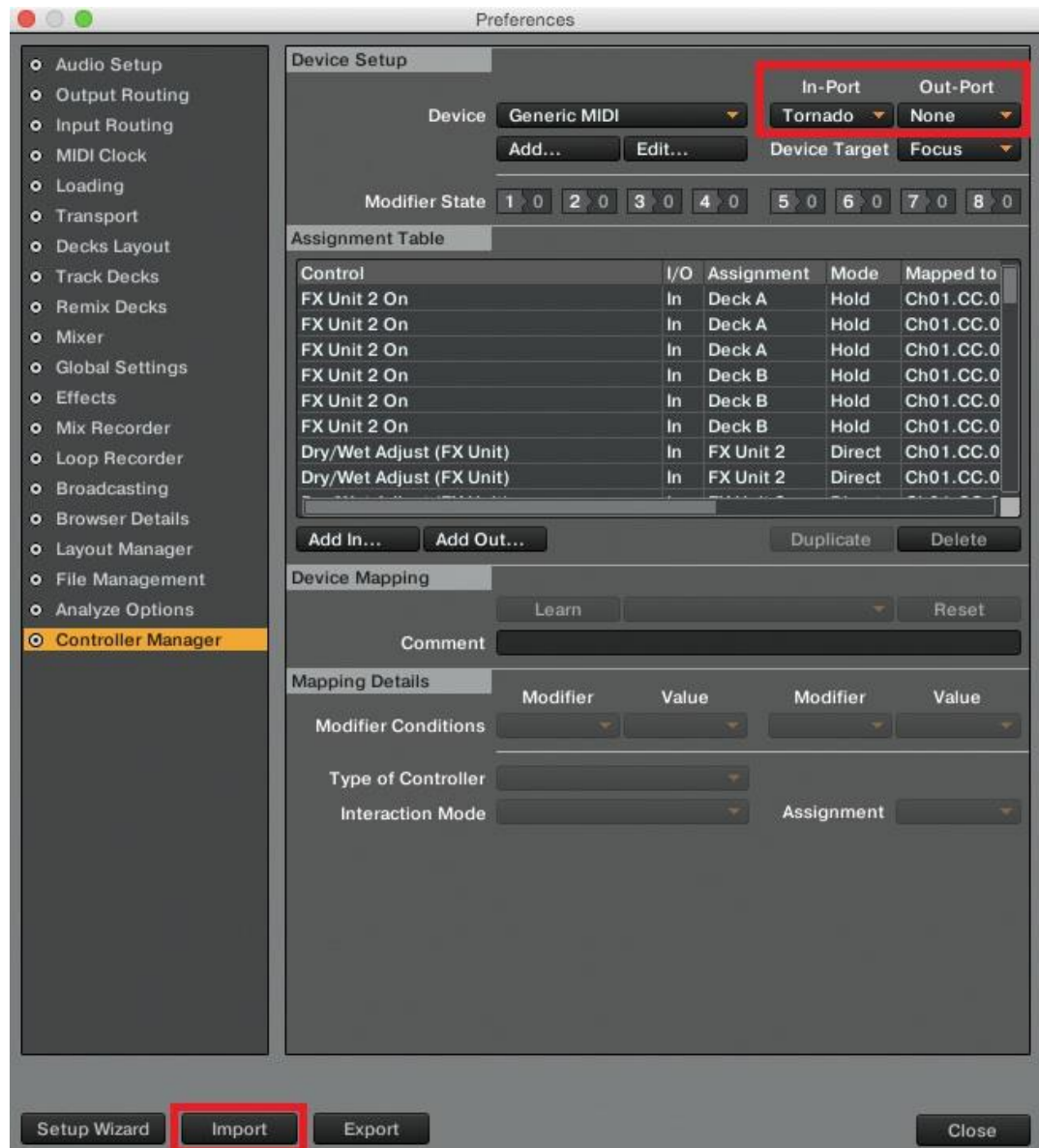
This method is used to convert movement parameters (e.g., the average acceleration of circular movements) into the level of virtual regulator. The higher is the average acceleration, the higher is the regulator level.

4) Scratch

The Scratch effect is realized by the gloves without contact with equipment.

Connecting Tornado A1 to DJ player Traktor Pro 2

To connect a MIDI controller Tornado A1 to DJ program Traktor Pro 2, a special configuration file TornadoA1.tsi was created. It comes together with standard presets, which can be downloaded from the site www.global-dj.com in the section DOWNLOADS. You need to add (or import) this file, as shown in Figure 7. Next, you need to configure MIDI ports properly. For Mac OS X operating system in the option In-Port select the port Tornado. In option Out-Port - None. For Windows operating system: In-Port -> 01. Internal MIDI, Out-Port -> None.



Import settings in the program Traktor Pro 2 (Figure 7)

The first introductory run.

To get started, you need to download a preset into the program Tornado A1 (Figure 4). Standard preset can be downloaded from the site www.global-dj.com in the section DOWNLOADS. Next, you need to select the downloaded preset as the current and launch the program (press the START button). It is easy to get started with Tornado A1 by using the standard presets for DJ program Traktor Pro 2. There is a description of the proposed effects and how to create them with the help of hand movements in the Readme.txt file for each preset. For a more detailed study of the Tornado A1 program, use the Extended User Guide, this file installs on the computer along with the driver and is in the menu Help.

Charging. Verifying functional capability of sensors

Gloves batteries are charged, while the sensor is connected to the Laptop by a USB cable. When the green indicator 1 (Figure 8) on the Sensor is On, this indicates 90% charge level. 100% charge level is reached within 20-30 minutes after the green indicator is On. The operation time of the gloves at 90% charge is around 5-6 hours.

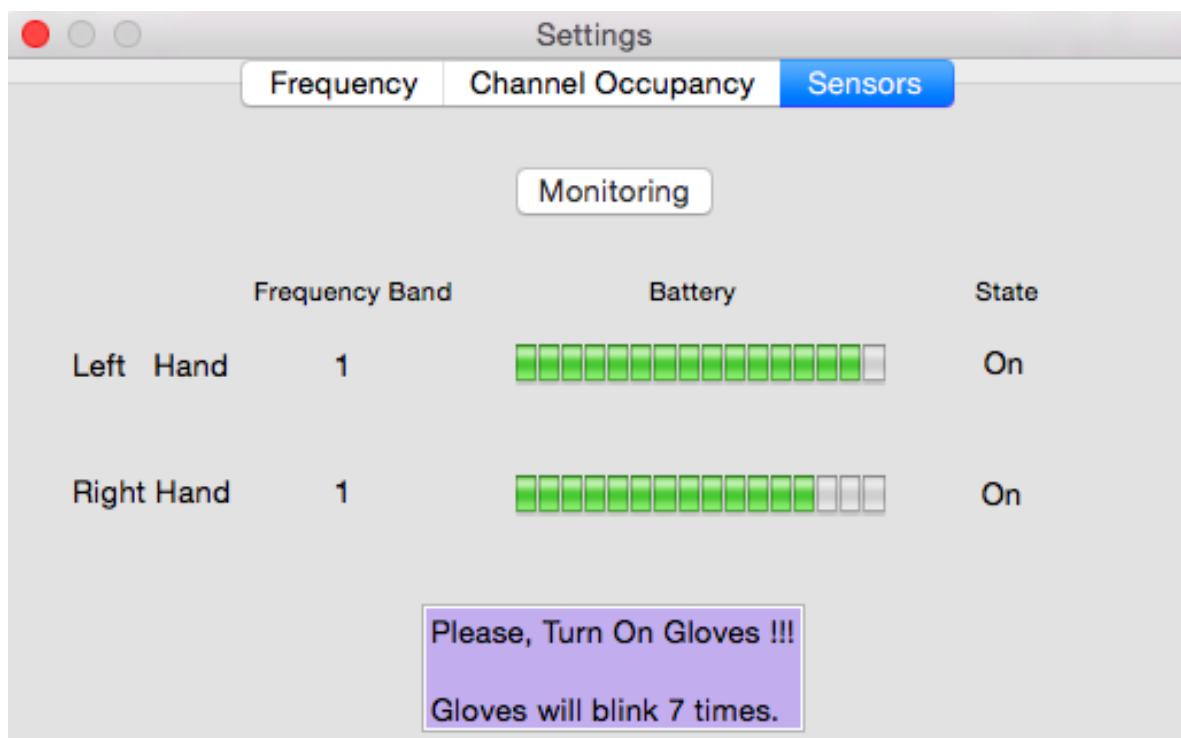
If you do not press the Start button on the Tornado A1 plug-in after 15 minute idle time, the sensors enter sleep mode; switch off and then switch on power supply for their activation. During the idle time, the indication LED blinks once in 5 seconds. If the battery is discharged, the indicator blinks slowly within one minute, and then the sensor enters sleep mode. When you prepare sensors for long-term storage, always switch off their power supply.



Charging of batteries of the gloves (Figure 8)

Sensor state monitoring

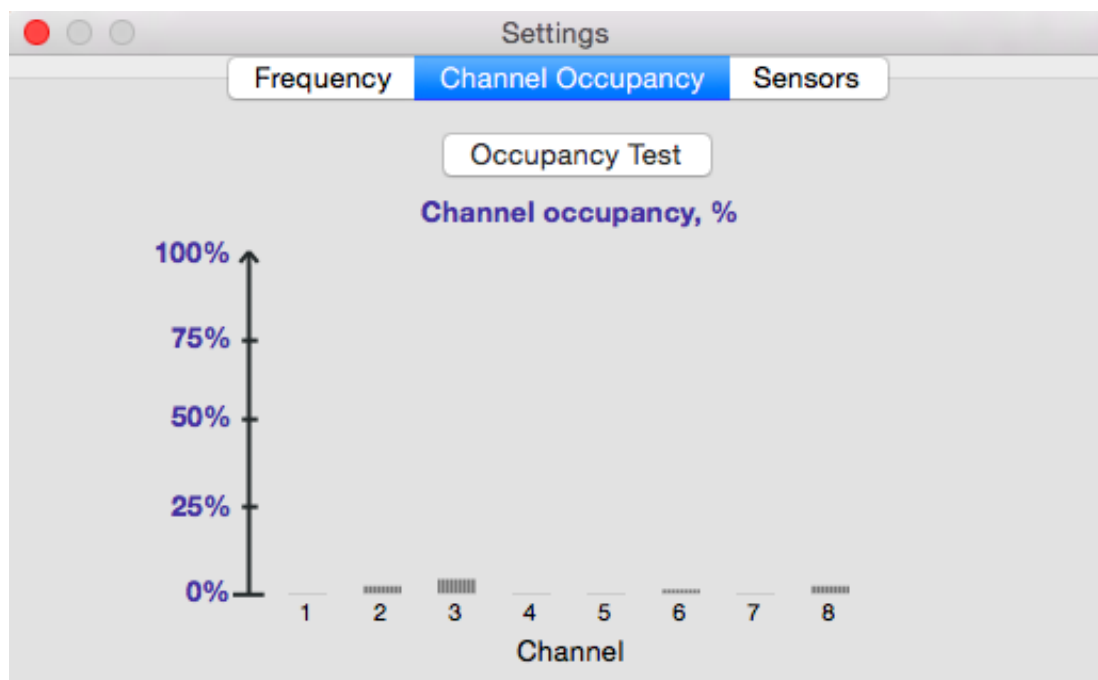
The option Settings->Sensors->Monitoring (Figure 9) gives the possibility to check the percentage of the residual charge of built-in batteries and the number of the used frequency band. To get this information, switch on either gloves (or the desirable one) and click the Monitoring button. The gloves must be in close proximity to the USB Adapter. In case of the successful response, sensor indicators will rapidly blink 7 times (confirmation of execution of the command). The Adapter will blink 7 times as well.



Sensor state monitoring (Figure 9)

Channel occupancy monitoring

can be tested using the relevant option (Figure 10) Settings->Sensors Occupancy->Occupancy Test. If all channels are occupied, the blue indicator (operation indicator) on the USB Adapter in the Running mode will blink or will be off many times. To improve the reliability of radio communications, the USB Adapter must be located at the level of DJ's mixer or higher, with no metal shields, screens and other obstacles.



Occupancy Test (Figure 10)

Certain technical parameters of Tornado A1

- Low requirement to PC performance.
- Short delay for MIDI messages, 20 ms max.
- USB interface.
- Radio frequency range: 2.4 GHz.
- Radiation power: 1-10 dBm.
- Integrated antennas.
- Operating range: 5-10 m.
- Low power consumption for sensors. The controller's uninterrupted operation time is approximately 5 hours when using small-size LiPol batteries.
- High interference immunity and operating reliability.
- Embedded protection against generation of false MIDI control signals.

Basic advantages of Tornado A1

- Visual and spectacular.
- Stylish and good-looking.
- Easy to use and practicable.
- Small-sized sensors.
- New flexible methods in parameter controlling of virtual musical studios.
- Perfect integration into such musical studios as Traktor 2 Pro and Ableton Live.
- High reliability.
- Multifunction keyboard on the gloves.
- Light follow-up of effects (dependence of color on angle or turn, etc.).
- User-friendly and intuitive software interface.

Safety precautions!

Device MIDI controller TornadoA1 is safe for humans and environment. However, do not neglect the general safety rules and precautions:

- Normal operating temperature of MIDI controller amounts to 5-40 degrees Celsius. Therefore, do not leave the controller in places with a temperature beyond the limits. Do not use Tornado A1 near radiators, stoves, campfires.
- Do not use Tornado A1 in water and in places with high humidity, it can lead to the electrical circuits closure and controller damage.
- Do not wear leather gloves TornadoA1, if you have any contraindications, such as an allergy to leather.
- When working with this device maintain cleanliness and hygiene.
- Do not overcharge 3D-Sensors internal batteries. The maximum recommended charging time, which does not result in battery damage, should be no more than 1 hour.
- Always turn off the equipment. It is required to turn off the switch 1 (see Figure 3) when preparing for a long-term storage.

Terms

GENERAL CONDITIONS

The limited warranty applies to physical goods (Product) and only to physical goods, purchased from the Company. The limited warranty covers defects in materials under normal use during the warranty period which is 180 days from the day of shipment. During the warranty period, the Company will repair, at no charge, the Product or part of the Product that proves defective because of improper material, under normal use and normal maintenance only ("Defective Products").

DEFECTIVE PRODUCTS

Product deemed to be defective by the customer must be inspected by either the Company supplied to the customer or on site by the Company employee, or by an agent under the contract by the Company. Upon inspection it will be determined to either substantiate the defective claim or deny the claim. Credit for the Product refunds will be done within 30 days of receipt by the Company and is subject to the condition of the Product when received by the Company.

SHIPPING DAMAGE

In the event of shipping damage the customer invoiced is responsible for documenting the damage on their receiving documents prior to placing a claim with the Company. This documentation must be supplied to the Company to complete any shipping claim placed with the Company. Once the claim is verified by the shipping carrier the Company will issue credit.

RETURNS

Company does not accept returns of any non stock or custom produced materials. Company will not accept any Product older than warranty period length from the actual ship date of the Product regardless of its condition.

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MUSIC - IS ENERGY
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