

# USER'S MANUAL

Version 2023-07



## RTI NEO SERIES Full Color Laser Projector



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**L'utilisation est réservée à un usage professionnel selon décret n°2007-665 du 2 mai 2007 relatif à la sécurité des appareils à laser sortant!**

Article 4 bis :

« Les usages spécifiques autorisés pour les appareils à laser sortant d'une classe supérieure à 2 sont les usages professionnels suivants : (...)

9° Spectacle et affichage :

Toutes les applications de trajectoire, de visualisation, de projection ou de reproduction d'images en deux ou trois dimensions. »



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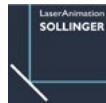
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I Contents of Package

Please make sure that all components were delivered correctly. Please also compare the separately supplied packing list. If something is missing, please contact your sales contact.

Name	No.	Picture
Laser projector	1	
powerCON TRUE1 / power cable	1	
Interlock bridge	1	
Set of keys	1	
Manual	1	

The unit is carefully packed before shipping.  
If you discover damages to the device or the packing material due to improper transportation, please inform the shipping company and return the device to the supplier preferably in its original packing.



2 Safety Hints

2.1 General Hints

1. The laser projector is intended only for proper use for projecting laser beams onto a projection surface (walls, screens) or into space indoors or outdoors.
2. The device may not be used when there is **visible damage** to the housing, the connectors in the rear, especially the electric power supply, or the connecting cables.
3. The installation should be performed by **specially trained personnel**. The projector **should not be connected to the mains** during installation. **Please note the local safety regulations!**
4. For operation of the laser unit at truss or on ceiling, the projector must be additionally secured by a **safety cable**. This cable must be appropriately designed according to the weight of the laser projector. The relevant accident prevention regulations of the professional associations must be observed.
5. If the provided mains cable does not correspond with your existing mains supply please use an appropriate adapter for mains connection. Do not use any electronically controlled sockets, e.g. no dimmer or radio sockets, for mains connection of the laser projector.
6. The laser unit has to be used according to this manual. LaserAnimation Sollinger GmbH does not assume liability for damages caused by non-observation of this manual.
7. Before starting any maintenance or cleaning **remove the unit from the power supply!**
8. In case of malfunctions please contact **your dealer and after consultation** send the device back **for inspection and repair** in its original packing. **Do not open the device!**  
  
**Attention: Warranty is rendered void if the device is misused, damaged, modified in any way, or for unauthorized repairs or parts.**
9. The laser device is intended for use in a dry and sufficiently ventilated location. When used outdoors the device **has to be protected against humidity, overheating and excessively low temperatures**. Note the respective maximum and minimum ambient temperatures for operation specified in the technical details.
10. When operating the device in humid or special outdoor conditions that can lead to condensation:



- a. **Allow the device to acclimatize sufficiently at the place of use.**
  - b. **Do not operate the device if the dew point is  $> 18^{\circ}\text{C}$ , as condensation can occur on the cooler components.**
  - c. **Do not switch the device off between operating times, simply activate interlock / E-stop to disable laser emission. This prevents the unit from cooling down, as all temperature control loops remain active.**
11. The laser unit may not be operated in environments polluted with sand, dust or acrid fumes or gases.  
Fog machines must not be operated in the immediate vicinity of the laser projector. Do not point the fog nozzle directly at the laser projector.
12. Do not expose the laser unit to direct sunlight or other intensive light sources e.g. spot-light.

## 2.2 Hints for Laser Safety

**Caution – use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.**

**This laser product is designated as Class 4 during all procedures of operation, maintenance and service.**

**The local safety regulations for the application of Class 4 laser products must be observed!**

### 1. Eye Protection

- **Never look directly into the laser beam!**  
A laser beam is coherent, monochromatic light with very high energy. A laser beam retains its intensity even over very long distances. If a laser beam hits the human eye it can lead to irreparable damages to the cornea, the conjunctiva, the eye lens and the retina. **Avoid any reflections back into the laser to prevent damages to the laser system. Do not place any objects into the laser beam** because even diffusely reflected radiation can cause eye damages.  
Therefore remove any rings, watches or the like before you carry out work on the device and use only non-reflective tools.
- We strictly recommend wearing **laser protective glasses** for laser devices according to laser class 4.

### 2. Fire Protection

- The high energy density of the laser beam causes painful burns when it hits human skin. The beam may also burn holes into textiles.  
Therefore **never reach into the laser beam** and do not let other parts of the body get in the way of the laser beam.
- If the laser beam hits easily flammable materials such as paper, these will ignite and a fire can develop very quickly.  
Therefore make sure that **no flammable material is in the way of the beam** before activating the laser.

### 3. Audience Protection

- The operation of laser systems with class 4 lasers requires an emergency stop (E-Stop). Regardless of the way the laser is operated, **an E-Stop must always be connected!** Place the E-Stop so that you can reach it immediately in emergency situations. Run a test each time the laser is activated to ensure that it is turned off immediately by activating the E-Stop.
- Mark an area of about 3 to 4 m around the laser system as off limits to the audience.
- Only test the laser system as long as no audience is present.

- Never let the laser run unattended.
- Make sure that no unauthorized persons have access to your laser system.

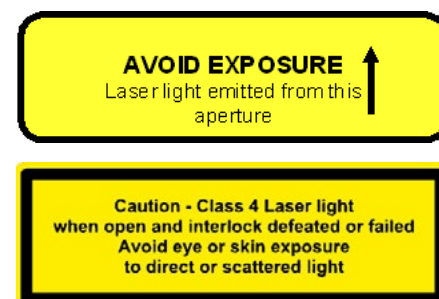
**The operation of laser equipment in the event sector with an audience requires an approval by a technical inspection authority in many countries!**

The following warning labels are placed on the laser device:

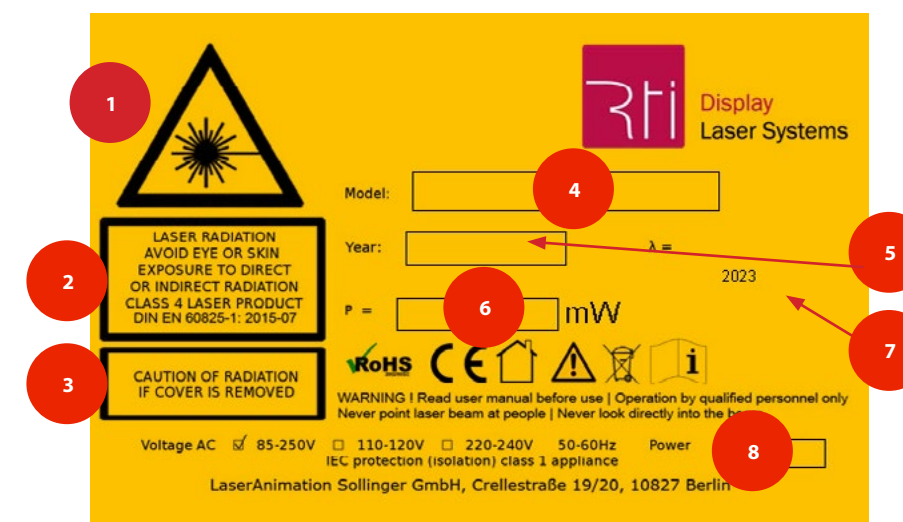
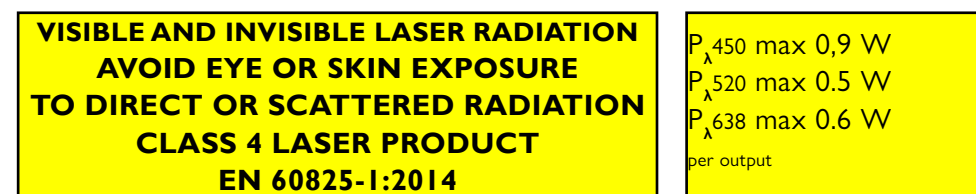
Next to emission laser window:



On the top cover:



On the bottom:



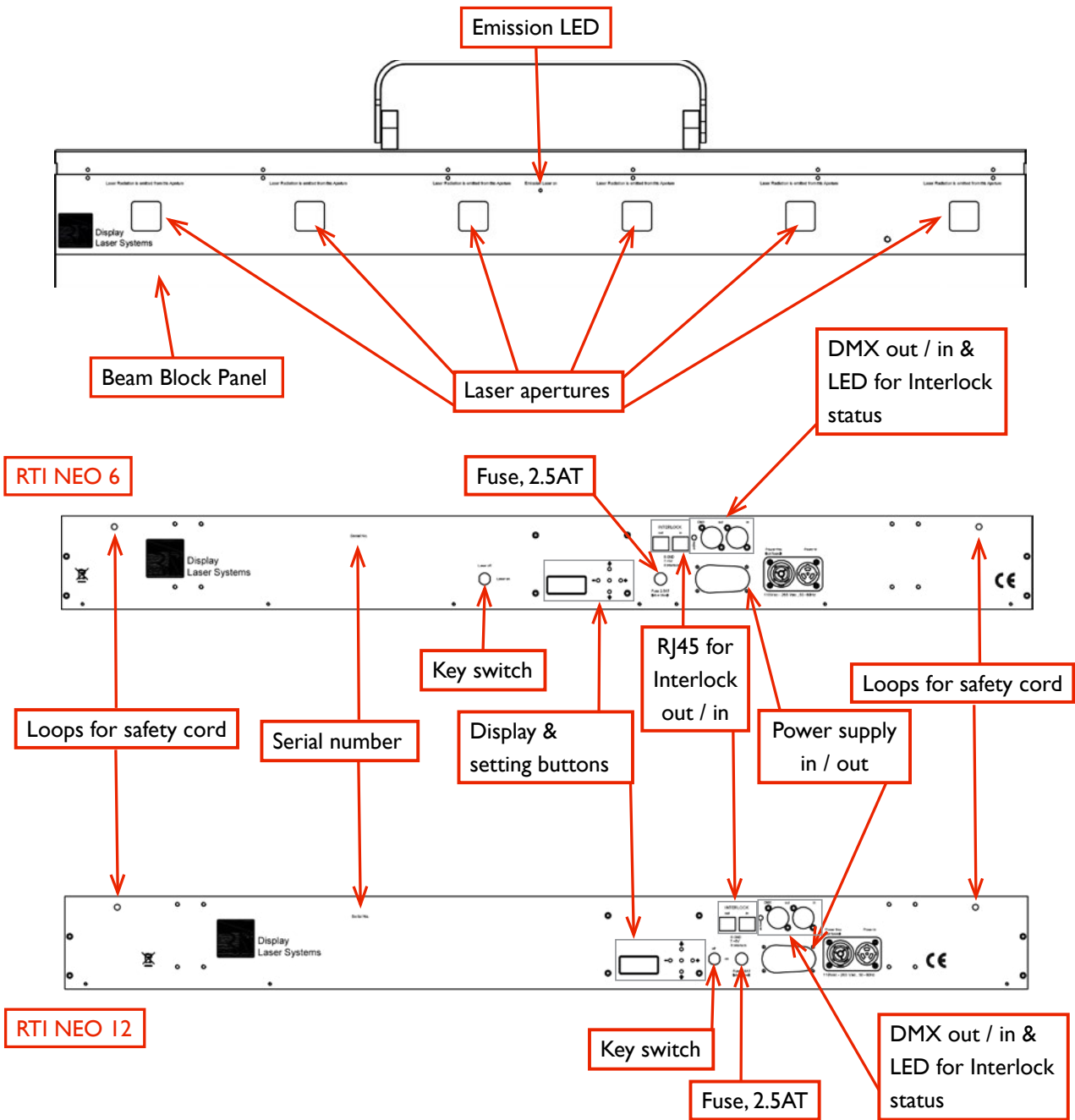
1. Laser radiation! Avoid exposure to beam
2. Laser class 4
3. Caution of radiation if cover is removed
4. Model type
5. Production year
6. Output power
7. Wavelength
8. Power supply & consumption



3 Device Connectors

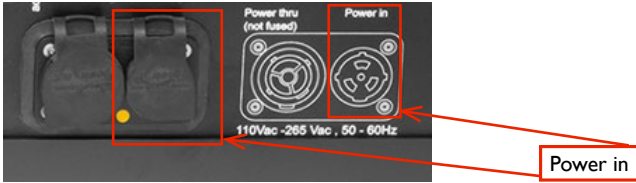
3.1 Overview

All included signal cables are shielded. In case you use other cables (e.g. for remote control, Interlock, external key switch) it is essential to use shielded cables only.



4 Operation

4.1 Power



Make sure that your device is provided with the correct voltage. Wrong voltage could lead to irreparable damages. Please find the correct voltage data in the synoptical table at the end of this manual as well as at the rear side of the device. It must be ensured that the device is not directed to people or inflammable objects during installation. Connect the powerCON TRUE1 / power cable to the mains input ,Power in' at the device: Pull the slider, insert the connector and turn it clockwise until the connector is locked. After that, connect the power cable to a power outlet.

4.2 DMX in / DMX out



The device can be controlled via DMX. There are a ,DMX in' (DMX input) and a ,DMX out' (DMX through) interface on the rear side of the device. Connect ,DMX in' via a DMX cable to a DMX controller. ,DMX out' is intended to Daisy Chain the control signal to the ,DMX in' interface of a further RTI NEO device. The device offers 60 channels, starting from the selected start address. Each universe can control a maximum of 8 devices and each of the 6 outputs can be controlled individually. Each output of the device uses 10 channels as shown here:

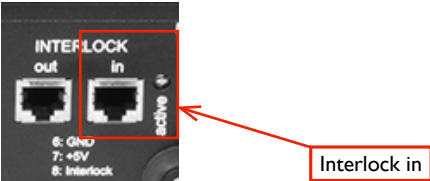
Channel	Value	Effect	Comment
1 Red	0 - 255	Red: 0 - 100%	
2 Green	0 - 255	Green: 0 - 100%	
3 Blue	0 - 255	Blue: 0 - 100 %	
4 Pan Coarse	0 - 255	Pan MSB	
5 Pan Fine	0 - 255	Pan LSB	
6 Tilt Coarse	0 - 255	Tilt MSB	
7 Tilt Fine	0 - 255	Tilt LSB	
8 Off / Dot / Gobo	0	Blackout	Safety channel
	1 - 10	Dot	



	11 - 20	Rectangle	
	21 - 30	Triangle	
	31 - 40	Line horizontal	
	41 - 50	Line vertical	
	51 - 60	2 dots horizontal	
	61 - 70	2 dots vertical	
	71 - 80	3 dots horizontal	
	81 - 90	3 dots vertical	
	91 - 100	Circle	
	101 - 110	4 quarter circle	
	111 - 120	Test picture	
	121 - 130	Rectangle with grating	
	131 - 140	Triangle with grating	
	141 - 150	Line horizontal with grating	
	151 - 160	Line vertical with grating	
	161 - 170	2 dots horizontal with grating	
	171 - 180	2 dots vertical with grating	
	181 - 190	3 dots horizontal with grating	
	191 - 200	3 dots vertical with grating	
	201 - 210	Circle with grating	
	211 - 220	4 quarter circle with grating	
	221 - 230	Test picture with grating	
	231 - 240	1 dot with grating	
	241 - 255	Blackout	
9 Zoom	0 - 255	Gobo size	active, if value of channel 8 between 11 and 110
10 Strobe	0	Strobe off	Strobe effect
	1 - 127	Strobe speed	2Hz - 12Hz
	128 - 255	Grow effect	256 points - 0 points



4.3 Interlock (RJ45 Interlock)



There are a ,Interlock in' and a ,Interlock out' (Interlock loop) interface on the rear side of the device. The RJ45 interlock bridge is provided for testing purposes. During normal operation, a dedicated E-Stop with key switch has to be used. If the ,Interlock in' is plugged in the laser sources of the devices get enabled (if key switch is in ,ON' position). Always use the Interlock connector located on the left of the ,active' LED as an input. ,Interlock out' can be used as Interlock loop to switch all connected devices simultaneously with only one E-Stop.

4.4 Key Switch



There is a key switch on the rear side of the device. Please insert the key into the key switch and turn it to ,Laser on' position to enable laser output. Turn the key to ,Laser off' to switch off laser emission. Please remove the key to avoid unauthorized access.

4.5 Fuse



There is a fuse at the rear side of the device. If the fuse should blow, please change it by a new 2.5AT fuse. If the problems recurs, please contact your dealer.

4.6 Display / Settings at the Device

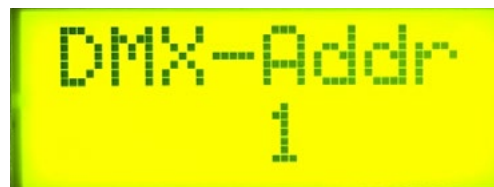
It is possible to do settings directly at the device by means of the integrated 16 digit display and the 5 buttons next to it. The arrow buttons (up/down) navigate you through the menu. The + / - buttons change the value of the selected mode and the button in the middle changes the channel (1-6).



By switching on the device for the very first time, DMX:1 appears on the display:



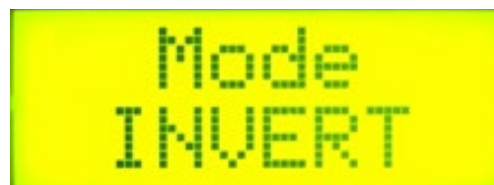
Press the down button (arrow down) and change the DMX address by using the +/- buttons:



By pressing the down button (arrow down) again the mode can be changed by using the +/- buttons. In 'normal' mode the device is in the hanging position or inverted as a floor stand:



In 'invert' mode the X and Y axis are inverted and the output channels are changed to the inverted order 6 to 1. So the output channel 1 is always on the left side from the front direction of the device if this option is chosen:



### Beam Block Panel

The Beam Block Panel is meant as additional protection to prevent laser emission, e.g. into the audition area. To prevent laser emission please loosen the screws and slide the panel in front of the beam outlets. Fasten the screws again. Loosen the screws, slide the Beam Block Panel down and fasten the screws to enable laser emission.

**Attention: Do not open or close the Beam Block Panel while the device emits laser beams!**

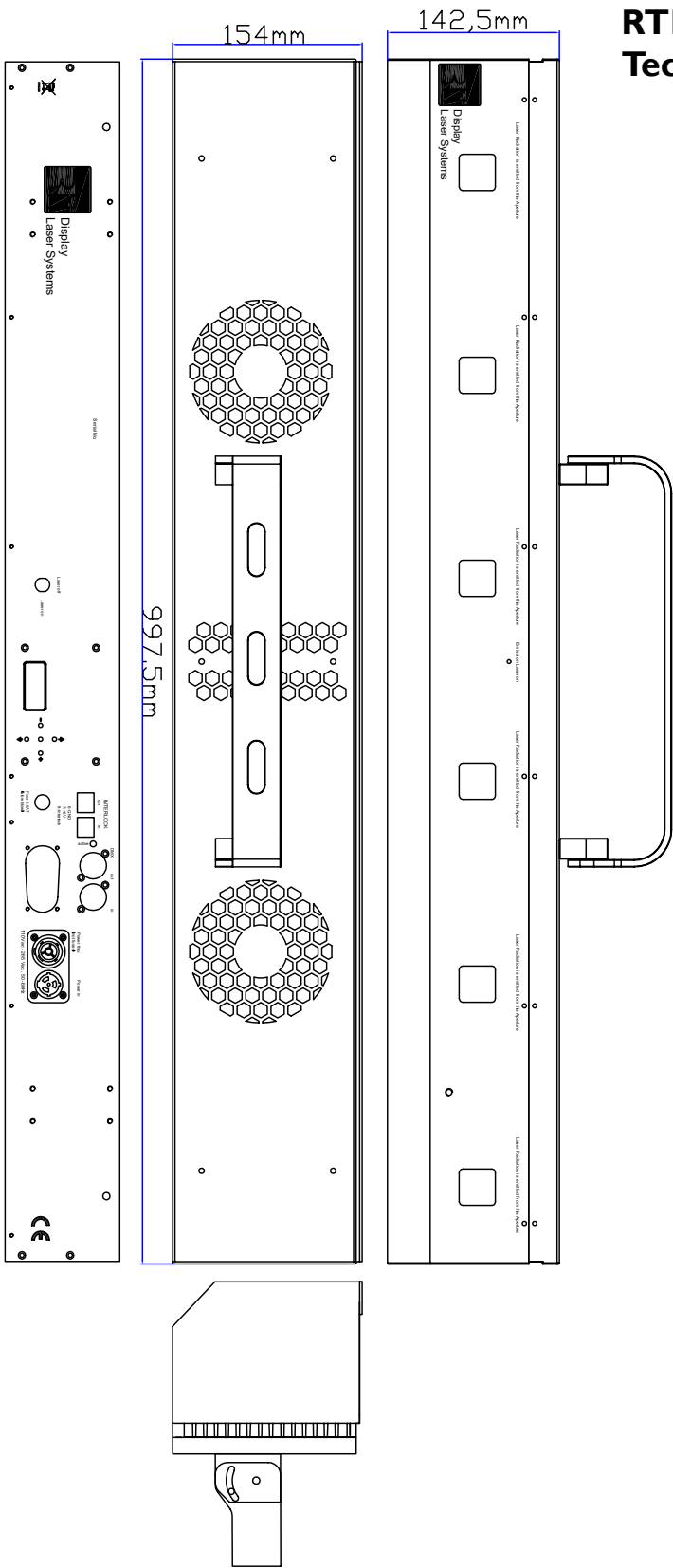
### Turn off

To turn off the device, switch the key switch to off and disconnect the power cable from the mains.

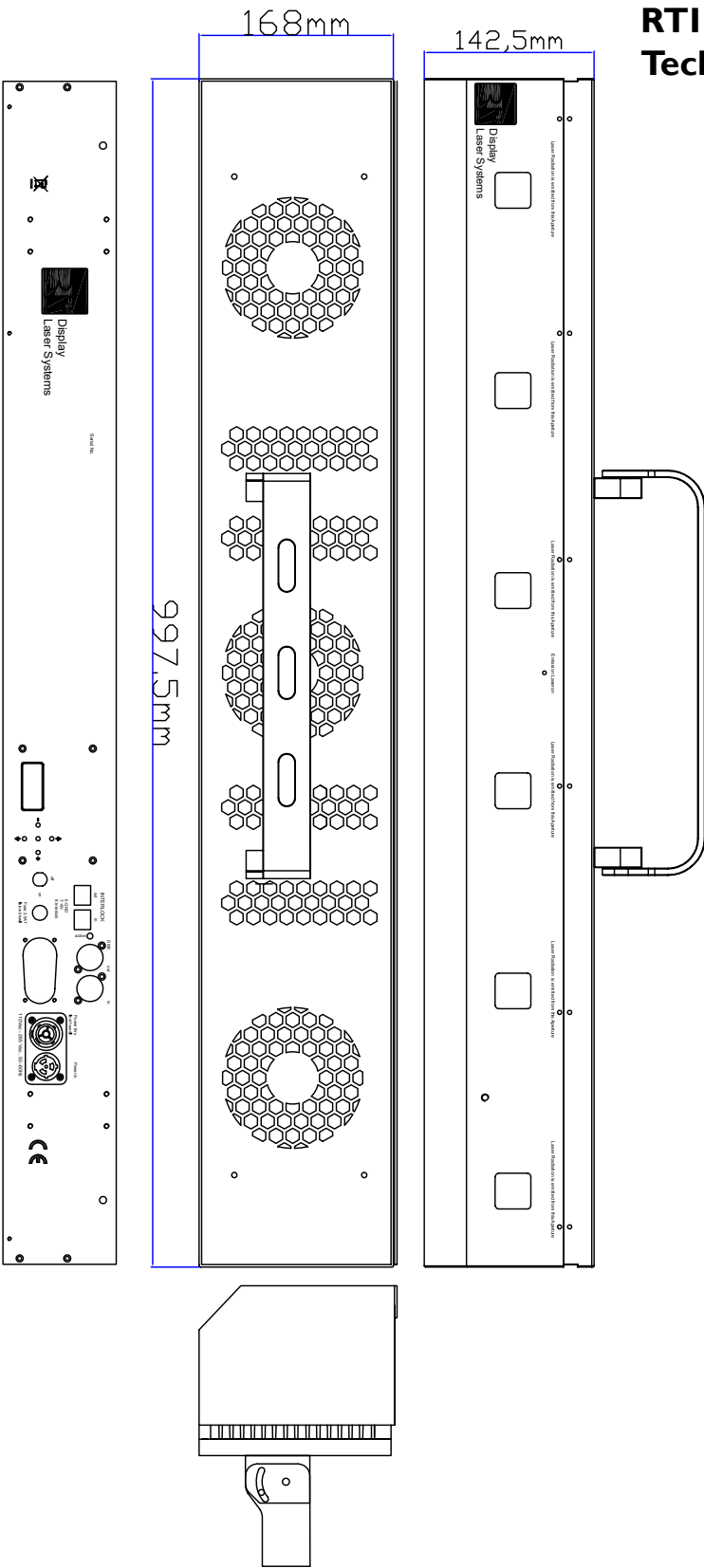
### Important:

Before transporting the laser device, remove both the key and the Interlock connector to prevent damage.





RTI NEO 6  
Technical Drawing



RTI NEO 12  
Technical Drawing



5 Technical Specifications

Laser			
Laser Source	Diode (red / green / blue)		
Type	CW analog modulated, laser class 4		
Typical wavelengths	638 nm	520 nm	450 nm
Scanner	45kpps ILDA 8°		
Scan angle	max. 45°		
Operation mode	DMX		
Power supply	85 VAC – 264 VAC, 50 - 60 Hz, universal		
Operating temperature	+10°C - +30°C		
IP rated	IP5X		
Device-dependent laser specifications			
RTI NEO 6			
Total power	1800 mW		
Power per color at aperture	6 x 135 mW (Red)	6 x 70 mW (Green)	6 x 95 mW (Blue)
Beam divergence*	0.5 mrad*		
Beam diameter	3 mm		
Power consumption	360 W		
Dimensions (L x W x H)	997.5 x 154 x 142.5 mm (open beam block panel, w/o bracket)		
Weight (net)	8 kg		
RTI NEO 12			
Total power	12000 mW		
Power per color at aperture	6 x 600 mW (Red)	6 x 500 mW (Green)	6 x 900 mW (Blue)
Beam divergence*	0.9 mrad*		
Beam diameter	5 mm		
Power consumption	500 W		
Dimensions (L x W x H)	997.5 x 168 x 142,5 mm (open beam block panel, w/o bracket)		
Weight (net)	17.5 kg		

\*FWHM average depending on model



Final statement

All our products and their packaging are individually checked and leave our facilities in a flawless and proper condition. If you notice any damage or defects when receiving the product, please contact your dealer immediately. Damages caused by improper handling are not subject to the manufacturer's or dealer's responsibility and no liability or warranty is assumed for it. The operator of the device must follow the local safety regulations and the warnings in the manual. If changes are made to this manual, we cannot inform you. Please contact your dealer for service and any other questions. Only use original spare parts.

Subject to change without notice. No warranty can be given for the correctness of the information.

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## EU Declaration of Conformity

### Manufacturer:

LaserAnimation Sollinger GmbH

### Product Name:

RTI NEO 6  
RTI NEO 12

### Products covered by this declaration: Laser display systems

We here declare that the product described above is in conformity with the following directives:

- 2014/35/EU Low Voltage Directive
- 2014/30/EU Electromagnetic Compatibility Directive
- 2014/53/EU Directive for harmonisation of the laws of the Member States relating to the making available on the market of radio equipment


The following harmonized standards have been applied:

- DIN EN 61000-6-1 VDE 0839-6-1:2007-10  
Electromagnetic compatibility (EMC)  
Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments
- DIN EN 61000-6-2 VDE 0839-6-2:2006-03  
Electromagnetic compatibility (EMC)  
Part 6-2: Generic standards - Immunity for industrial environments
- DIN EN 61000-6-3 VDE 0839-6-3:2011-09  
Electromagnetic compatibility (EMC)  
Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments
- DIN EN 61000-6-4 VDE 0839-6-4:2011-09  
Electromagnetic compatibility (EMC)  
Part 6-4: Generic standards – Emission standard industrial environments
- DIN EN 60825-1 VDE 0837-1:2015-07  
Safety of laser products  
Part 1: Equipment classification and requirements
- DIN EN 55032:2016-02 VDE 0878-32:2016-02  
Electromagnetic compatibility of multimedia equipment - Emission Requirements

The included technical documents (files) demonstrate that the product has been produced according to the requirements of the abovementioned directives.

The EU declaration of conformity is available for inspection by the market surveillance authorities at any time.

Berlin, 28.03.2023



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