

RTI ANGO 600

High-power sky beamer



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ISO 9001:2008

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Legal notice:

Thank you for purchasing this RTI projector

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This manual and its content have been made with due care but LaserAnimation Sollinger GmbH cannot, however, take any responsibility for any errors, omissions or any resulting damages forthwith.

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Attention: This device is a show laser device for commercial use. This device is not a laser pointer, not suitable for pointing purposes and must not be used as a laser pointer.

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Die in dieser Bedienungsanleitung genannten Marken und Produktnamen sind Warenzeichen oder eingetragene Warenzeichen der jeweiligen Titelhälter.

Achtung: Bei diesem Gerät handelt es sich um ein Showlasergerät für den gewerblichen Einsatz. Dieses Gerät ist kein Laserpointer, nicht für Zeigzwecke geeignet und darf auch nicht dafür verwendet werden.

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Les noms de marques et de produits utilisés dans ce mode d'emploi sont des marques de fabrique ou des marques déposées.

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. »

Attention : Cet appareil est un projecteur laser destiné à un usage commercial. Cet appareil n'est pas un pointeur laser, il ne convient pas pour le pointage et ne doit pas être utilisé à cette fin.

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1 Contents of Package

Please make sure that all components were delivered correctly:

Name	Quantity
RTI ANGO projector	1
Interlock connector	1
Safety key	2

The projector 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 in its original packing.

If you discover that anything is missing, please contact your dealer.

2 Safety Hints

2.1 General Hints



1. The laser projector is intended only for proper use for projecting pictures and animations onto a projection surface (walls, screens) or beams 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**. Pay attention to the hints in the chapter "Getting Started".
Please note the local safety regulations.
4. The laser unit has to be used according to this manual. LaserAnimation does not assume liability for damages caused by non-observation of this manual.
5. Before starting any maintenance or cleaning **remove the unit from the power supply!**
6. In case of malfunctions please send the device to **your dealer for inspection and repair** in its original packing.
Do not open the device!
7. **Attention!**
Warranty is void if the device is misused, damaged, modified in any way, or for unauthorized repairs or parts.

8. When used outdoors the device **necessarily has to be protected against overheating and excessively low temperatures**. Note the respective maximum and minimum ambient temperatures for operation specified in the technical details.
9. The laser unit may not be operated in environments polluted with sand, dust or acrid fumes or gases.
10. Do not expose the laser unit to direct intensive light sources e.g. spotlight.

2.2 Hints for Laser Safety



Caution – use of controls or 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 application of Class 4 laser products must be observed!

1st Eye Protection

- The lightest sensitive organ of the human is the eye. **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 this 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 laser class 4.

2nd 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.

3rd Protection of the Audience

- The operation of laser systems with lasers class 4 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 4m 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 following warning labels are placed on the laser device:

Next to emission laser window:



3 Getting Started

3.1 Installation

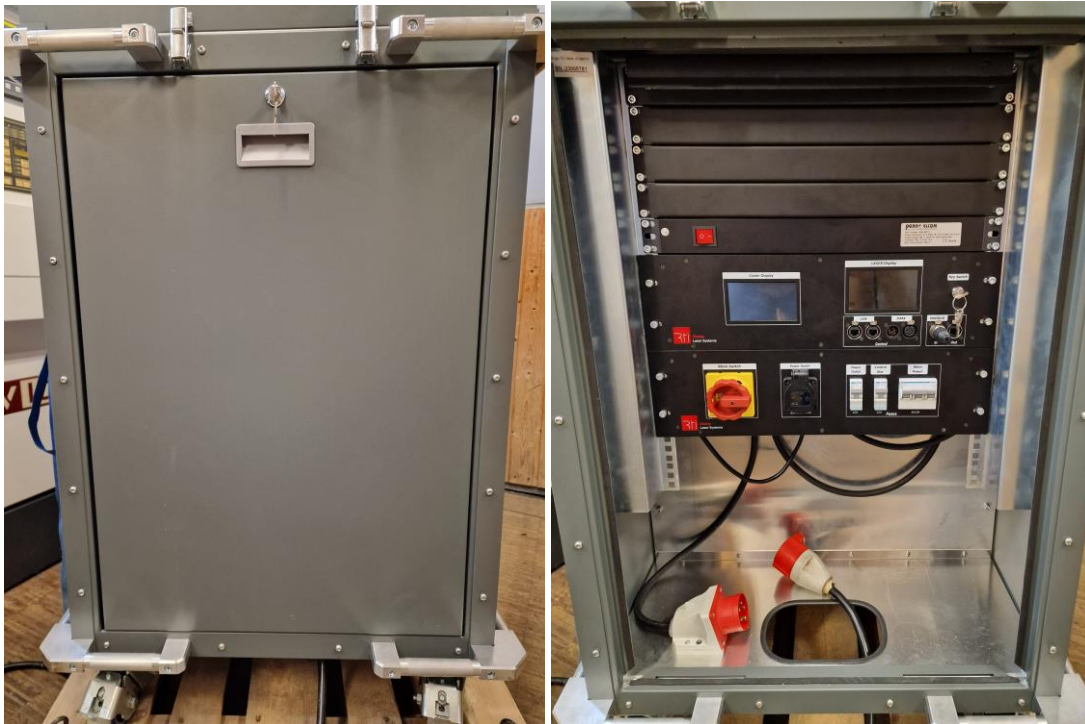
Standing Operation:

Place the device on a stable ground and make sure to lock the wheel brakes to secure unit on its location.

Do not block the sides panels of the projector because internal chiller is ventilating through these side panels / grids.

The projector needs a 16A CEE 3phase power supply.

Open the rear panel of the projector using the included access key for the rear panel.



Closed view

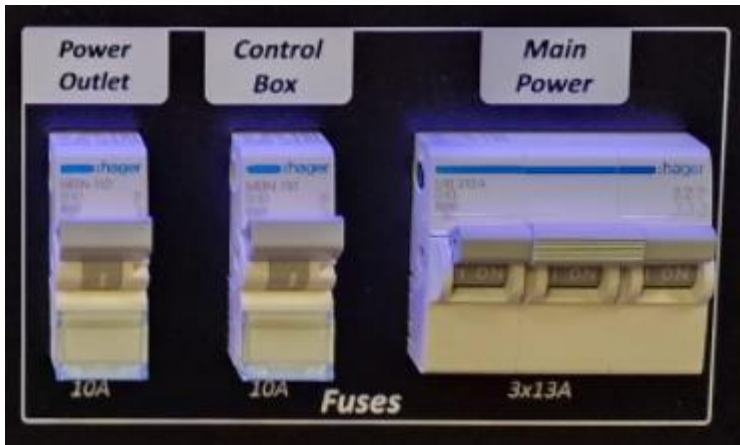
Open view



IP rating of projector is only guaranteed when operating the device with closed rear panel!

Once opened, you will have access to the rear control panel as well as to the 16A CEE 3-phase power cable.

Please make sure that all fuses are set to “ON” and that the main switch is set to “OFF”.



Now connect your power supply cable to the 16A CEE connector to power up the projector.

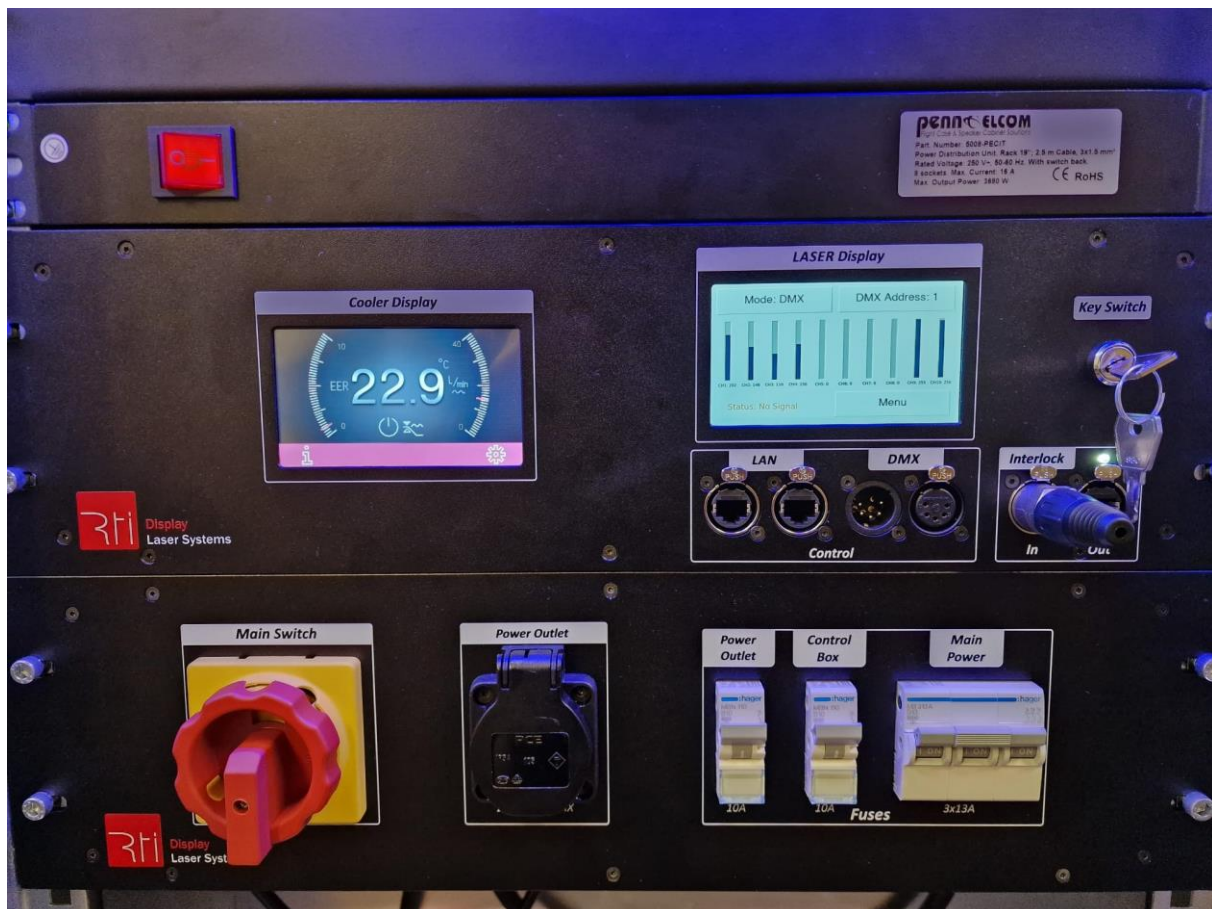
Once connected, turn the “Main Switch” to “ON” (see 3.2 Connectors, Displays, Settings).

Note:

The 16A CEE should not be connected or disconnected under load!

As next, the deflection mirror will perform its homing (PAN / TILT) – please make sure that no one touches the rotating mirror block.

3.2 Connectors, Displays, Settings



- 1 Main power switch and power outlet for small utility and corresponding fuses
- 2 Cooler Display with relevant information about internal chiller status
- 3 Main control display with touchscreen functionality for setting adjustments
- 4 Interlock EtherCON IN and OUT for E-stop (not included) or included Interlock plug
- 5 Key switch for laser emission control
- 6 ArtNet IN and OUT EtherCON connectors as well as DMX512 XLR 5 pin connectors for moving head and color signals

3.3 Establish Connections

3.3.1 Control via DMX512 or ArtNet

Connect your DMX512 cable to the dedicated 5 pin XLR connector or to the EtherCon port for Artnet control.

3.3.2 Remote / Interlock Connection

1. Emergency Stop Switch (Interlock loop) with or without Key switch

- ✓ **The operation of laser systems with lasers class 4 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.**
- ✓ **After activating the E-Stop (opening the interlock loop) your device is blocked from any laser emission.**

2. Interlock Plug

If no E-Stop shall be used it is necessary that the included Interlock plug is inserted into the "Interlock IN" connector for closing the Interlock loop.

The Interlock connector needs PIN 7 and 8 to be shortened together to enable laser emission.

Open Interlock means no laser output!



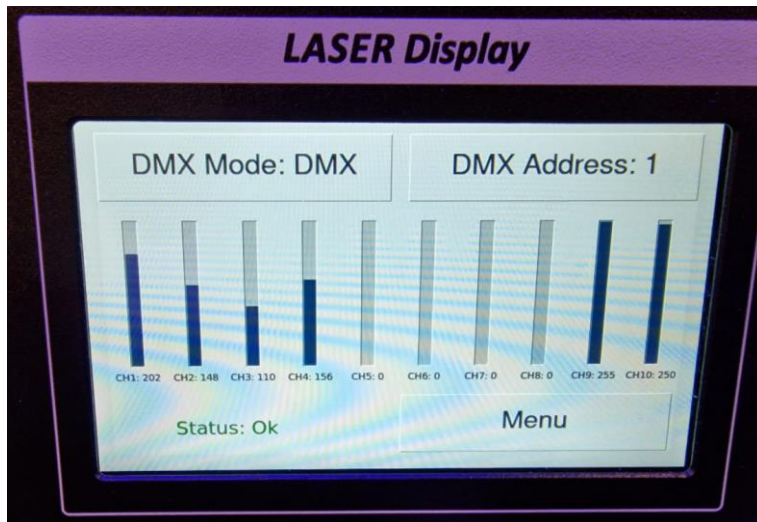
IP rating of projector is only guaranteed when operating the device with closed rear panel!

3.4 Initialization – control display and settings menu

Before powering up the device, please check the coolant fluid level by opening the rear panel (opposite side of the control panel). Coolant fluid level must be between MIN / MAX marks. If the coolant fluid level is too low, please refill slowly with suitable coolant until the level is again between MIN / MAX. Please contact LaserAnimation Sollinger GmbH for purchasing additional coolant fluid.

1. Main display

Once powered up, you will have following main display shown:



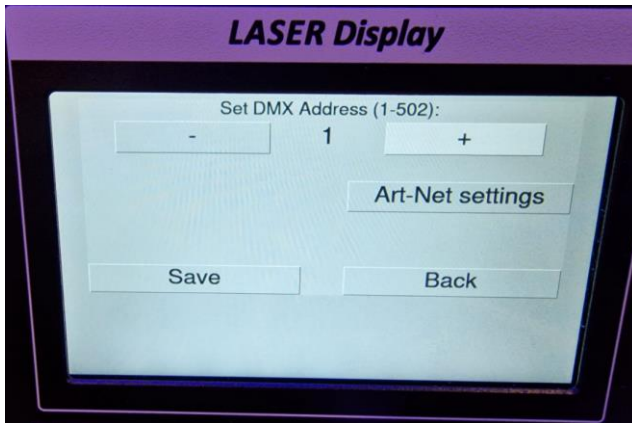
2. DMX settings

By pressing on “DMX Mode: DMX”, you will enter the DMX mode selection, where you can select between DMX or Art-Net mode. Press on the desired control mode to access the next configuration step:



3. DMX address setting

Using the “+” and “-” buttons, you can configure your desired DMX address. Once selected, click on “Save”.



4. Art-Net settings

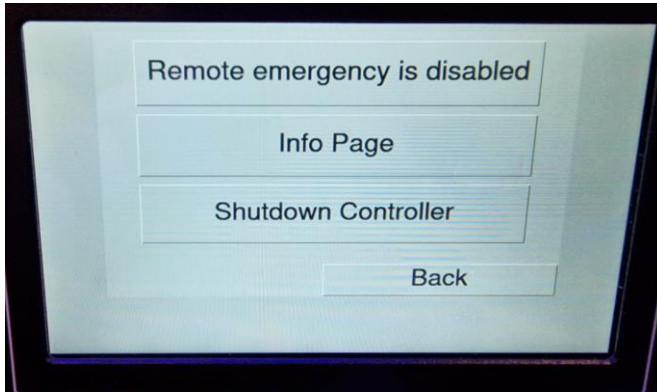
By pressing on “Art-Net settings” you will access the Art-Net configuration menu as shown below:



Once settings are done, go back by clicking on “Back” and “Save” your settings again.

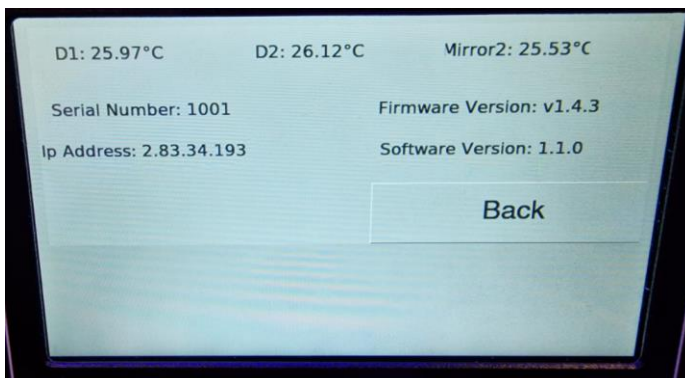
5. Menu button on start screen

Press Menu to access the internal menu and device information pages:



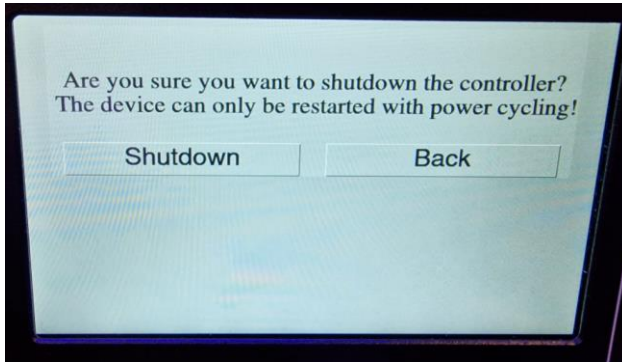
6. Info page

The information menu will list various information such as device IP address, and temperature readings within the unit. Click on "Back" to exit this menu page.



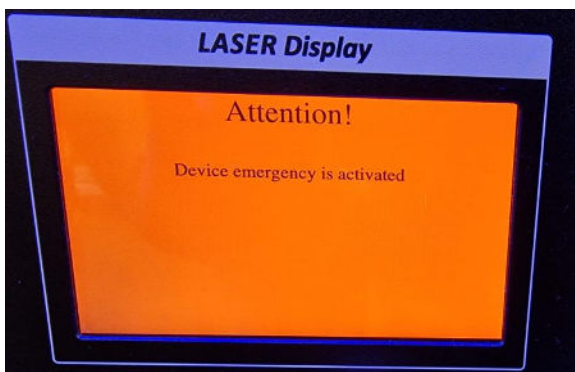
7. Shutdown button

“Shutdown controller” can be accessed via the “Menu” button. By pressing on “Shutdown Controller”, it will shutdown the main controller of the RTI ANGO, requiring a power cycling in order to be restarted.



8. Colored warning displays

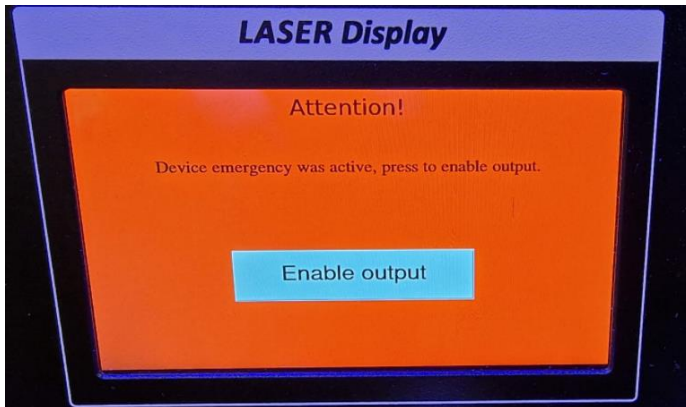
RTI ANGO touchscreen will turn red in case of E-stop interruption or in case of key switch being turned to “OFF”.



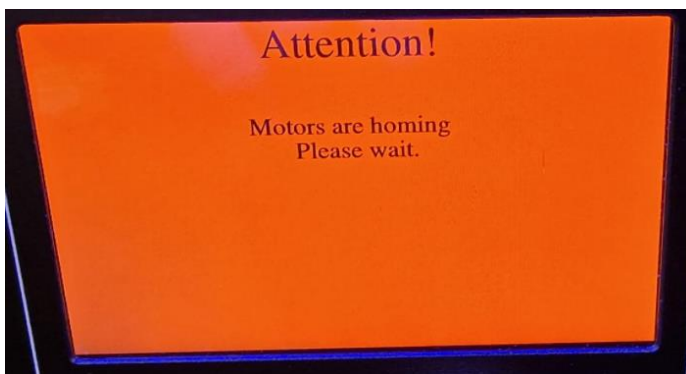
Key switch being “OFF”

Once key switch has been set to "ON" and that interlock connector is connected, main display will ask to confirmation for output enable.

Press "Enable output" to activate the projector.



As next, the deflection mirror will perform a homing (PAN / TILT) – please make sure that no one touches the rotating mirror block.



After this, the projector will be ready for operation and will be waiting for a valid DMX512 or Art-Net signal for operation.



Never look into the emission window while turning the laser on!
Make sure that no persons or highly combustible materials are located in the way of the laser beam.

4 DMX Chart

DMX Channel	Function	Values
1	PAN	Min : 0 – Max : 255
2	PAN – fine	Min : 0 – Max : 255
3	TILT	Min : 0 – Max : 255
4	TILT – fine	Min : 0 – Max : 255
5	RED – 0 – 100%	Min : 0 – Max : 255
6	GREEN – 0 – 100%	Min : 0 – Max : 255
7	BLUE – 0 – 100%	Min : 0 – Max : 255
8	DIMMER 0 – 100%	Min : 0 – Max : 255
9	STROBE :	value 0 : OFF / blackout values 1-254 : 1-15Hz strobe value 255 : laser beam ON / no strobe
10	SAFETY channel – IMPORTANT!	Value MUST be 250 to activate laser emission, in all other cases : blackout

5 Hints Maintenance



Turn the laser off and disconnect the device from the mains before doing any maintenance!

Please check the ventilation grids on both sides of the projector on a regular basis!

Depending on the operating environment amounts of dirt can accumulate on the fans. The dirt definitely has to be removed to guarantee trouble free operation! Remove any dust using a brush, a vacuum cleaner or an oil-free compressed air cleaner.

The housing of the device may be cleaned with a soft fluff-less cloth and a mild detergent.

The laser emission window can be polluted during the operation (fog machines, open air operation etc.).

A polluted window can reduce the laser output power and influence the beam quality.

We recommend the laser output window to be cleaned from time to time. Please use methanol (against finger prints) and/or acetone and lens paper for cleaning. Be carefully during cleaning and do not touch the cleaning surface of the lens paper with your fingers.

Methanol and Acetone are hazardous materials: Please observe the related precautions!

Malfunctions

In case of other malfunctions please send the device in the original packing to your dealer for inspection and repair.

6 Technical Specifications

Laser System

Type	CW analog modulated; laser class 4		
Wavelengths	637 nm	525 nm	455 nm
Output Power			
Total	Red	Green	Blue
600 W*	200 W	170 W	280 W

*Failure of individual laser emitters is not considered as a defect on the device, as long as guaranteed output power is not undercut or as long as the overall appearance of the laser beam is not seriously affected.

Laser Safety

Interlock Loop
Physical path blocking system

Projection System

Moving head	PAN / TILT moving mirror
- Scan angle	PAN: 14° TILT: 340° (adjustable)
- Beam size	100 x 100mm
- Beam Divergence	1.0 mrad

Connectors

AC Mains Connector	16A CEE 3-phase
Control signal	DMX512 or ArtNet
Interlock	EtherCON RJ45

Physical

Dimensions (L x W x H)	154,3 x 71.2 x 166.9 cm
Weight	Approx. 360kg incl. transport box

Thermal

Max. ambient temperature	50°C
Min. ambient temperature	-5°C
Cooling	Built-in chiller

Electrical

AC Input	16A CEE 3-phase
Input power	7,5 kW maximum

Control

Via integrated touchscreen display

Conformity / Warranty

CE compliant / Legal warranty: 12 month after delivery day.

Note: Technical specifications subject to change without notice!

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.

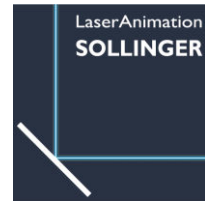
No warranty can be given for the correctness of the information.

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E-Mail: info@laseranimation.com
Internet: www.laseranimation.com





EU Declaration of Conformity

Manufacturer:

LaserAnimation Sollinger GmbH

Product Name:

RTI ANGO 300

RTI ANGO 600

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

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

Berlin, 15.11.2022

Martin Werner



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