

MODEL SPECIFIC OPERATIONAL MANUAL



ARCHITECT SERIES

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INTRODUCTION

Thank you for purchasing this KVANT product.

To ensure proper operation, please read this manual carefully before using the product.
After reading it, keep it in a safe place for future reference.

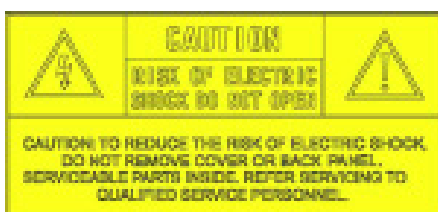
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GENERAL INFORMATION

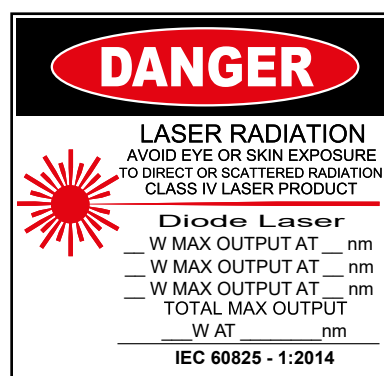


The following chapters explain important information about lasers in general, basic laser safety and some tips about how to use this device correctly.

Please spend some time reading these information as some of them are critical for safe and efficient operation of this laser display system.



LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO
DIRECT OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT
IEC 60825-1:2014



user manual

KVANT

This product is in conformity with performance standards for laser products under 21 CFR Part 1010.4 and 1040.11 except with respect to those characteristics authorized by Variance Number: 2012-V-0620 Effective Date: Dec.31 . 2018

Date of Manufacture 03 2021
Month Year

KVANT spol. s.r.o.
Opavska 24, 831 01 Bratislava 37, Slovakia
Made in Slovakia

Max current at 110V: 3A
Max current at 230V: 3A

Caution



This Architect laser system is rated as a **Class IV laser product** and manufactured in accordance to **EN 60825-1:2014**. Avoid eye or skin exposure to direct or scattered radiation. Wear protective goggles of suitable optical density if necessary.



If the laser is operated in a situation where health or property injury may occur the operation must be stopped immediately.



The manufacturer and its distributors cannot be held responsible for any damages caused by improper use or misuse of this KVANT laser system. The owner/user is fully responsible for using this product in accordance to laser safety regulations of the country or state where the system is being used.

Please note that some other optical devices such as cameras, camcorders, video projector etc. can be damaged if exposed to excessive laser radiation.

Handling precautions

This laser system is a precision device that contains some sensitive opto-electronics components. DO NOT drop it or subject it to physical shock.

This laser system has waterproof and dust-proof enclosure.

The laser system contains precision electronic circuitry. Never attempt to disassemble the laser yourself.

If the laser is suddenly brought in from the cold into a warm room, condensation may form on the laser and internal parts.

If condensation forms on the laser body, do not use the laser as this may damage the laser system. If there is condensation, wait until it has evaporated before using it.

WHAT IS A LASER AND HOW DOES IT WORK?

What is a LASER?

The laser is a device that creates continuous visible light energy waves (streams of photons that are referred to as “laser radiation”) with the same amplitude and phase that are flowing in the same direction; meaning they are coherent – they stick together and form a laser beam.

The width of a single wave is measured in nano-meters and defines the colour and visibility of the laser beam. The visible spectrum of the human eye is roughly between 400nm and 700nm, going from violet to a dark red colour. A human eye is most sensitive to a green light of around 555nm, meaning that a 1W of green laser will always appear more visible than 1W of any other colour laser. 1W of quality laser light is very powerful and although it doesn't sound like much it can burn eye retinas, skin and clothes or even start a fire!

What makes the laser visible in mid-air?

Mainly it is the particles of dust in the air that the laser beam hits on its path, scattering the light. This dust or fog is called a “scattering medium”. That's why we “laserists” use haze or smoke machines to make lasers more visible. Too much of the haze or smoke will greatly attenuate the visibility, but the right amount will make all the difference between no show and a great show.

When outdoors, lasers mainly reflect off dust and mist in the air but due to unpredictable wind conditions we can never make sure the hazers or smoke machines will be effective enough. And that's why we use high power lasers for outdoor shows – to substitute for the lack of dust, haze and smoke.

Colours

Standard full colour analogue lasers use three primary colours: Red, Green and Blue. By mixing those together you can pretty much get any secondary colour:

Red + Blue = Magenta
Red + Green = Yellow
Green + Blue = Cyan
Red + Green + Blue = White

Of course the number and precision of the colours is determined by the modulation, stability and linearity of the system. If the system is not stable enough, it will produce different colours every time it is used, making it virtually impossible to match the colours of two systems at any one time. This is very often the case with systems from far east manufacturers and with re-branded lasers that are being presented as European makes.

How far does it travel?

Technically, the laser light will travel forever until it strikes a surface and is absorbed. A better question is – how far will the light travel and still be useful? Depending on the power output of the system and weather conditions, the laser can be visible for miles – that is why we need to be cautious about aircrafts when performing outdoor shows. And if you get a system that is powerful enough then yes, it can reach the Moon.

Scanning System

A scanning system is essentially two tiny mirrors, each moving on X or Y axis. By working together they can “scan” the laser beam over a wide angle in front of the projector. The scanning system can not only direct the laser beam to specific, static locations, but it can also create shapes by rapidly moving the laser beam over a path. Once a shape is scanned more than 20 times per second, it appears static to the human eye. So any shape drawn by a laser is actually produced by one single laser beam being moved by these mirrors very quickly. Every scanning system has a mechanical limit of how fast it can move its mirrors and therefore how many points it can display at any one second and that is usually represented in Points Per Second at a certain scanning angle, i.e. 8 degrees.

LASER SAFETY FIRST!



Before proceeding any further, please read the following safety page very carefully. It could help you avoid dangerous and hazardous situations which could lead to serious injury or property damage.



Any laser system classified as a Class 4 laser must be used with caution. If you are an inexperienced laser operator, we strongly recommend that you attend a laser display safety course before you use this laser system in public areas. There are various places in Europe where you can attend quality training and even a one day course will give you a good amount of valuable information to safely start with.

Unless you are very competent with the use of lasers and about the laser safety, make sure you at least follow these basic laser safety rules:

1. Never look directly into a laser beam.
2. Never look directly into laser aperture if the laser system is switched on.
3. Be aware that lasers can burn the eye retina, skin or cause fires if not used correctly.
4. Audience Scanning is a technique that involves projecting laser effects directly into an audience. Never perform Audience Scanning unless you: a) are trained to do Audience Scanning; b) use a projector that has the proper safety systems built in (such as PASS); and c) have verified that the projected light levels do not exceed the applicable MPE for the jurisdiction. Otherwise, always project with the laser above audience head level – at least 3m above floor level.
5. When projecting the laser outdoors, avoid pointing the laser at aircrafts, buses, trains, etc. Never leave the laser system unattended when it's switched on.
6. Always check for reflective surfaces within the laser range – these can be very dangerous (i.e. mirror behind the bar in a club could bounce the beam into bar attendant's eye).
7. Never hesitate to use the Emergency STOP if you think there's a fault within the laser system or a potential danger to a person/object caused by the laser performance.

INSTALLATION OF THE SYSTEM

Please follow these rules during the installation:

1. Do not connect the device to power supply during the installation. Only connect the device to power after the installation and mounting have been completed.
2. Mount the system only to mounting point that is strong, secure and away from places where nonauthorised person could get an access to.
3. Always make sure the system is properly tightened down, and that it cannot get loose and move as a result of sound vibrations, cables pulled on, or similar external disturbances.
4. Always attach a safety chain or cable between the projector and its structure (such as truss).
5. Ensure that all the cables have enough length just incase they get caught.
6. Ensure that the system is placed at least 20cm away from walls or any other objects including drapes etc.
7. Ensure that the system is placed well away from any heat sources including spotlights, moving heads, radiators, etc. Make sure there is a sufficient air-flow around the laser system.
8. It is essential that the fan openings are never covered during the laser operation.
9. Always follow the Laser Safety Regulations of respective country where the laser is being used.



The manufacturer is not liable for damages or a injury caused by improper installation of the system. The installation should be carried by a qualified installer who should follow the Laser Safety Regulations of respective country.



CONTROL SYSTEM

The overall performance of any KVANT laser system is also dependent on the control system that you use for operating the laser as well as the correct device configuration in the laser control software.

Please make sure all the laser settings in your control system are set correctly before you start using your Kvant laser display system.

2.5

CONTROL OPTIONS

Analog control option

Kvant Architect laser system with analog control option is dedicated to display static beams with locally adjustable brightness for each of R, G or B colour. Remote controller with adjusters for each colour is supplied with each fixture.

Manufacturer can supply fixture with analog signal inputs for each colour. Control voltage within range 0 to +5V DC can be applied to each colour input. Modulation frequency can be up to 100 kHz.

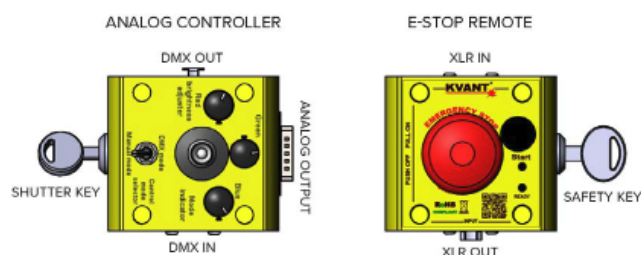
DMX 512 control option

Kvant Architect laser system with DMX 512 control option is dedicated to display static beams with remotely adjustable dynamic brightness for each of R, G or B colour.

DMX controller is not included with the fixture. The fixture use 3 DMX channels, one for each colour R, G and B. Each colour output has 255 values to set the corresponding colour brightness. The user can control the brightness of each basic colour by setting of corresponding DMX channel. Desired outputting colour and overall brightness of the output beam can be adjusted by various combinations of each of these three DMX channels. DMX address switch is located inside of the fixture and it is accessible through opening of top cover.

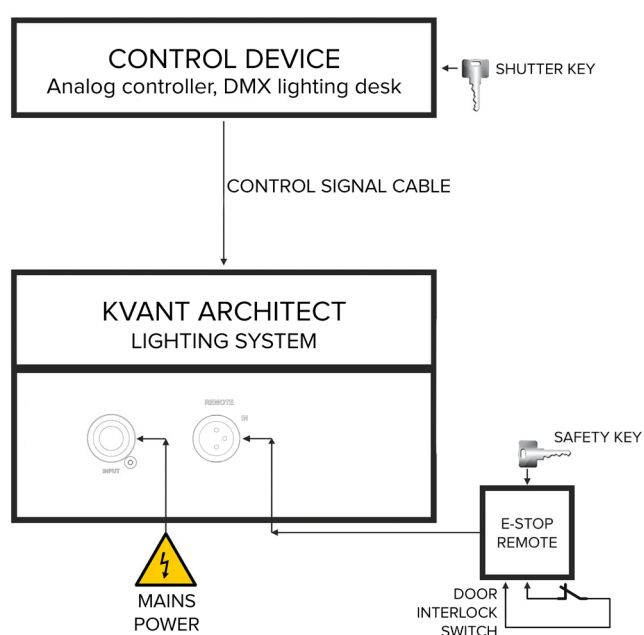
You can connect the DMX signal to the fixture through the DMX signal input cable.

E-STOP remote and Remote Controller view



2.6 CONNECTION DIAGRAM

Please check that all the control and power leads and interlock door circuitry are correctly connected. Please see following connection diagram.



E-STOP Remote safety key must be inserted and switched to ON position in order to disable the interlock.

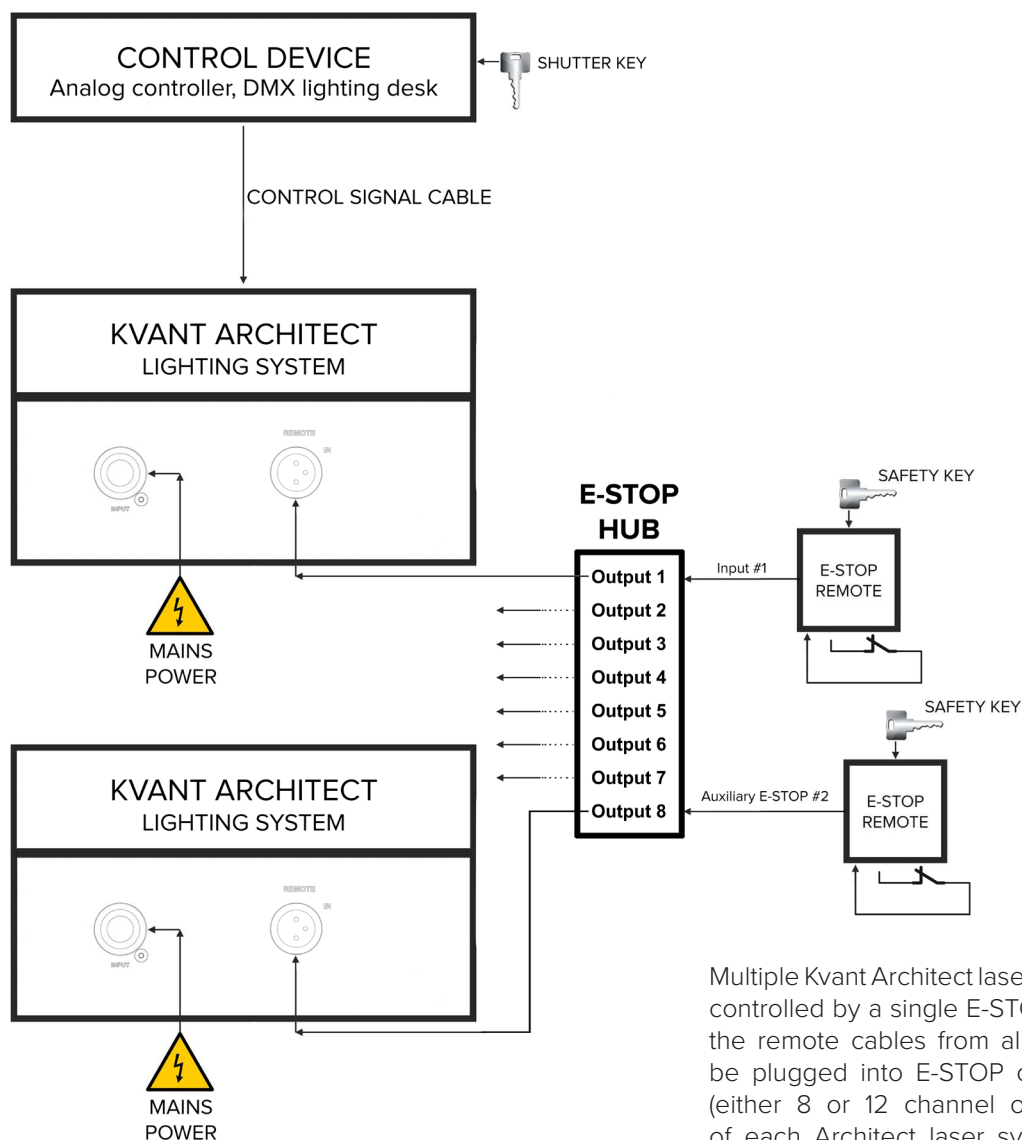


Shutter key must be inserted and switched to ON position in order to enable laser emission.



Door interlock switch circuitry must be inserted in the E-STOP Remote interlock connector as well in order to disable the interlock.

MULTIPLE SYSTEM INTERLOCK



Multiple Kvant Architect laser systems may be operated and controlled by a single E-STOP Remote. In order to do this, the remote cables from all Architect laser systems must be plugged into E-STOP outputs of the E-STOP splitter (either 8 or 12 channel output version). Remote cable of each Architect laser system should be plugged into individual output of E-STOP splitter. This device ensures proper functionality and distribution of E-STOP commands from the E-STOP Remote to each plugged Architect laser system and they are fully compatible with all Kvant laser systems using E-STOP Remote standard. The E-STOP splitter has two inputs, thus two E-STOP Remotes can be used and you can control the Architect laser systems from two different locations. The START buttons of all plugged E-STOP Remotes must be pressed by the operator to disable the interlock and enable the emission. After an Emission Delay period the laser projectors will be ready for use. The E-STOP splitter is not included with the supply and needs to be ordered separately.

SWITCHING ON SEQUENCE AND USER INTERLOCK



Please make sure that all laser display safety requirements are fulfilled in accordance with laws of the country where this KVANT laser system is being used before switching the system ON.

1. Connect the system as showed on Connection Diagram.
2. Turn E-STOP Remote and safety key to ON position.
3. Turn Shutter key to ON position
4. Release the E-STOP button by pulling it upwards.
5. Press the START button on the E-STOP Remote.
6. After an Emission Delay Period the Architect laser system will be ready for use.

Interlock Enabled, Laser Output Terminated

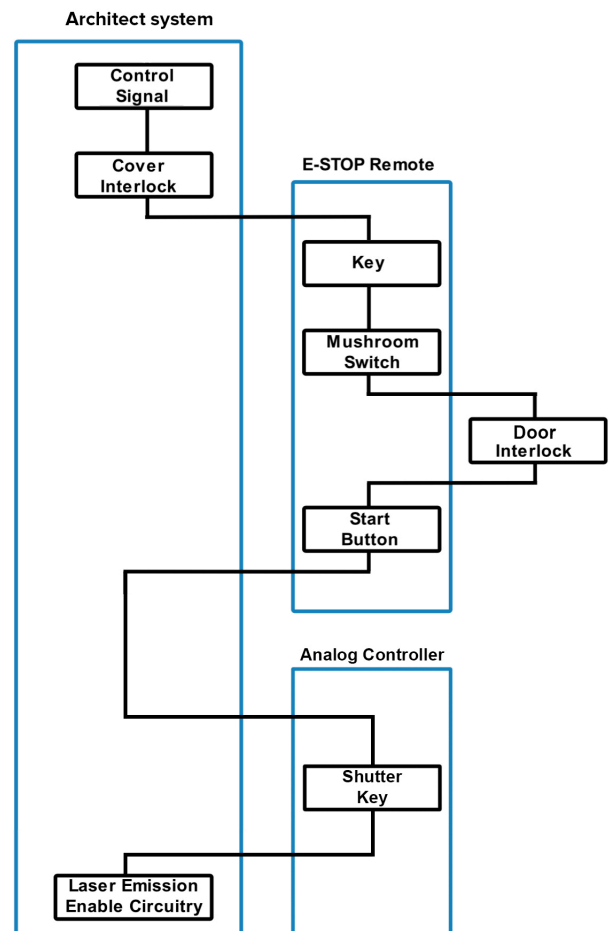
The laser emission of running Architect laser system will be terminated if any of the following events happen:

1. Power loss lasting greater than 2 seconds.
2. Mushroom emergency switch depressed.
3. Safety key Switch on E-STOP Remote turned to OFF position.
4. Shutter key turned to OFF position
5. E-STOP Remote disconnected from KVANT Architect laser system.
6. Door interlock circuitry connected to the E-STOP Remote interlock connector is open. Door interlock may be replaced by the user's own interlock system using a switch or dry relay closure to connect pins 1 and 2 of the E-STOP Remote interlock connector. With pins 1 and 2 shorted, Laser Emission is possible, while all other interlock conditions are in active state. With pins 1 and 2 open, NO Laser Emission is possible. Refer to Connection Drawing below.
7. Cover interlock is opened by removing the top cover.

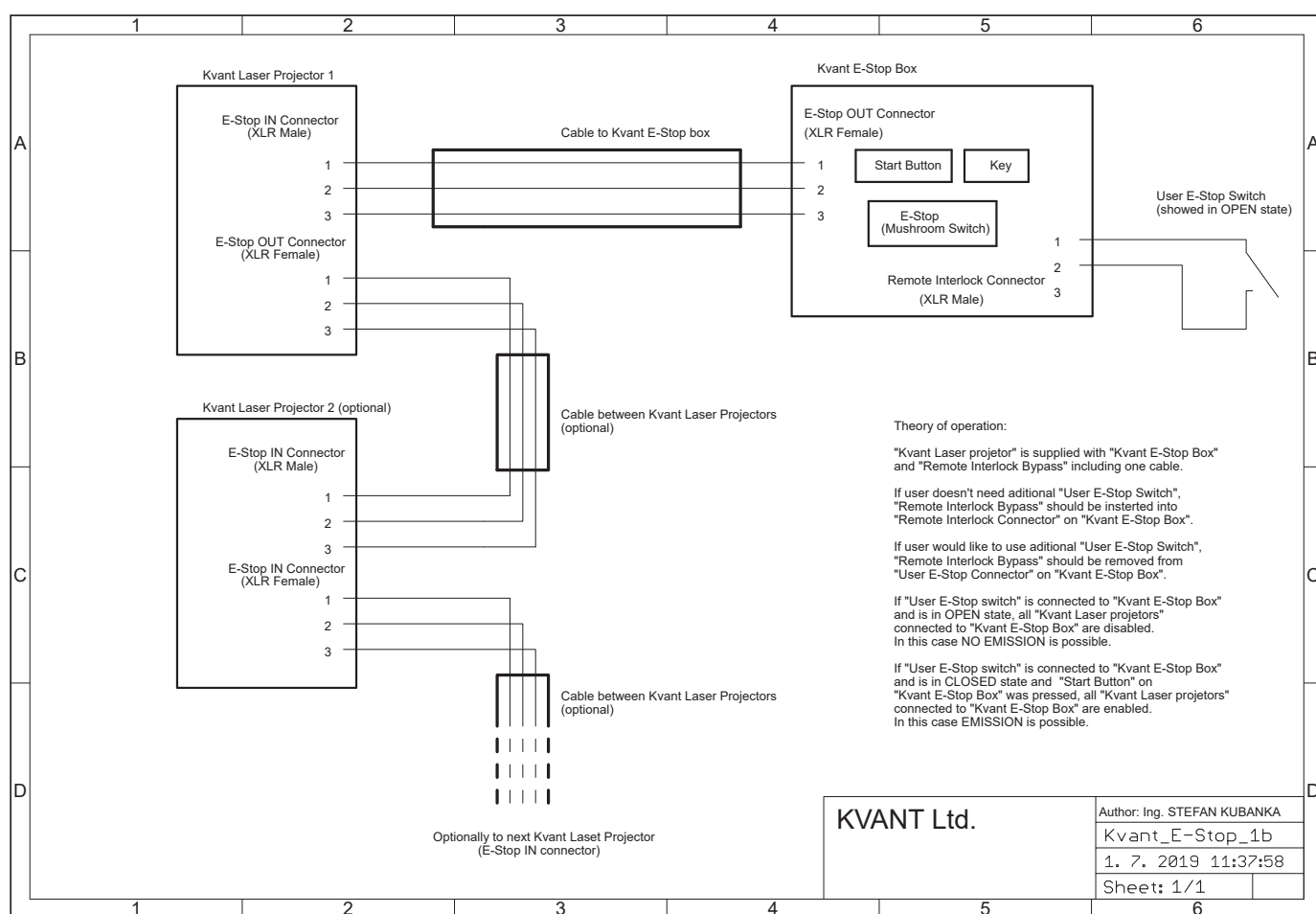
Restarting Laser After Interlock or Power Failure Event

After the event has been corrected the START button on the E-STOP Remote must be pressed by the operator to disable the Interlock and after an Emission Delay period the laser projector will be ready for use.

Interlock Connection Diagram



E-STOP Connection Drawing including User Interlock option



The E-STOP Remote is an integral part of the laser projector. It is there for the safety of the public as well as the operator. Modifying or using anything other than the E-STOP Remote provided, in the manner it was intended, may invalidate your KVANT laser system's variance.

MAINTENANCE

Maintenance: no user serviceable parts inside.

Please note that a laser light entering the aperture of your laser projector (reflected or from another laser) or wrongly reflected beams inside the projector can permanently damage the laser sources.

The manufacturer's warranty does not cover such damage.

Aperture Window

To clean the aperture output window use a soft cloth and medical grade isopropyl alcohol. If necessary, you can remove the top cover of the Architect laser system and clean the inside of the window as well. Outdoor installation and also interior operation of KVANT laser system requires special care of cleanness of the output windows. Dried rain drops and all kind of dirt brought by wind or gravity to the window surface can decrease the visual brightness of the output beam or even destroy the output windows due to high visible power density. Therefore, regular and frequent cleaning of the output windows is essential for maintaining best performance and flawless operation of KVANT laser system. You should perform visual check of output window cleanness and clean up every month if the laser is used regularly or even more often if it is used in dusty conditions.

External cooler

Use compressed air for cleaning the cooling fans of external cooler. Please always ensure that they are spinning freely. You should perform this service every 2 months if the laser is used regularly or even more often if it is used in dusty conditions.

Cooling fluid level

Regularly check the cooling fluid level indicator located at the cooling fluid tank. In case of noticing fluid level out of min-to-max range please contact [Kvant technical support](#) before further steps. Always add certified cooling fluid only! Using not certified fluids immediately voids warranty and can cause corrosion and/or damage of the cooling system.

Internal Optics

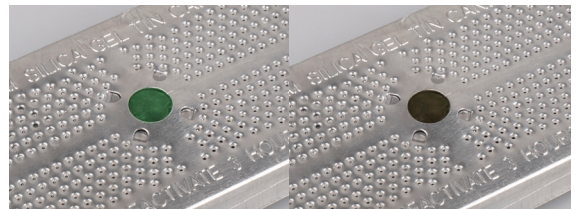
The cleaning of the internal optical components should be performed by an authorised technician only. Incorrect techniques or wrong choice of chemicals used for cleaning could cause serious damage to the laser system. Due to the fact that the optical compartment is split and sealed from the rest of the laser system it shouldn't be necessary to perform this procedure more often than once a year.

Drying agent cartridge

Drying agent cartridge (silica gel desiccant) helps to prevent water condensation inside the optical compartment of the Architect laser system, which is much needed in high temperatures and high humidity environments. The desiccant cartridge is installed on the inside of the optical compartment cover.



It is essential to regularly inspect the condition of the silica gel granules inside the cartridges. That can be done through the opening in the middle of the cartridge. If the colour of the granules inside the cartridge is green, instead of brown (brown is when they are dry), it means they are soaked, and they must be dried out. Inspect the cartridge every time you open the optical compartment, or at least once a month.



The drying out process is pretty simple:

1. Detach the cartridge from the cover and place it into the conventional oven - do not use microwave!!!
2. Heat the oven to 120°C (250°F) and leave the cartridge inside for about 2-3 hours, until all the moisture is released.
3. Insert the cartridge back into its place and close the optical compartment cover as soon as the cartridge cools down. That way, it will absorb the maximum amount of moisture from the inside of the optical section.



If the granules don't turn brown during this process, they must be replaced with new ones.







Disposal of the equipment

The equipment is made of components and materials such as metal, plastic, aluminium, which can be dismantled, sorted and recycled in accordance with the Waste Act at the end of the life of the equipment or when it is no longer functional.

The equipment can also be handed over as a whole in a collection yard.

ITEM CHECKLIST

Before starting, check that all the following items have been included with your laser system. If anything is missing, contact your supplier.

Item	Number of units	Descriptions
	1x	KVANT Architect Laser System
	1x	Emergency STOP remote and Remote Controller US version BUS ID: 1647 EU version BUS ID: 1648
	1x	Remote Interlock Bypass (for USA only) BUS ID: 651
	2x	Safety and Shutter Keys
	1x	User manual USB drive BUS ID: 1054
	1x	Heavy duty flight case



SYSTEM OVERVIEW

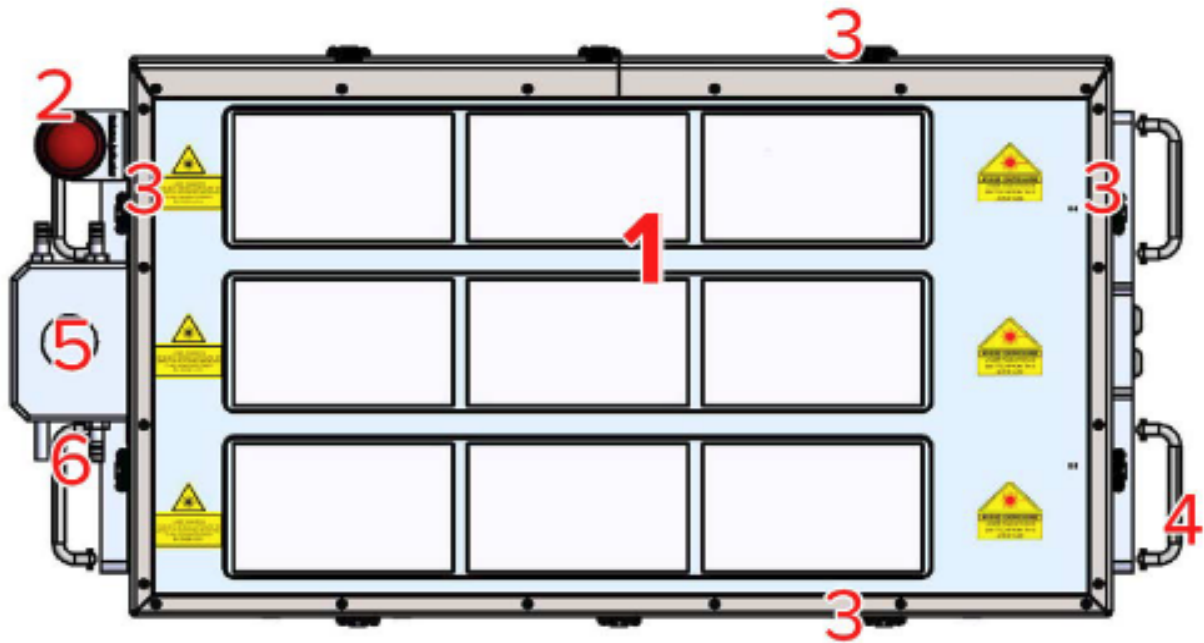
KVANT Architect is a full colour, semiconductor diode laser system designed for professional laser illumination purposes and static visual beam effects.

When operated correctly and in the right conditions the Kvant Architect laser system is able to deliver astonishing visual effects in both outdoor and indoor installations and venues. The Architect laser system can create beam with virtually any colour within the basic RGB palette, secondary mixed colours and white.

The system is fluid cooled and designed with no airflow going through the optical compartment of the system. This ensures that all important optical parts of the system stay clean for longer, keeping the maintenance time down to a minimum. This is a real advantage for permanent outdoor installations and all options of use where dust, smoke or haze are present on a daily basis.

This laser is IP rated up to IP67 (depending on model). It is however important to understand that this system must not be exposed to extreme temperatures, aggressive environment or excessive amounts of dust.

TOP VIEW



1. Laser apertures.

2. Laser emission indicator.
When this indicator is lit up the laser system can emit the laser radiation.

3. 10pcs top cover fast access fasteners.

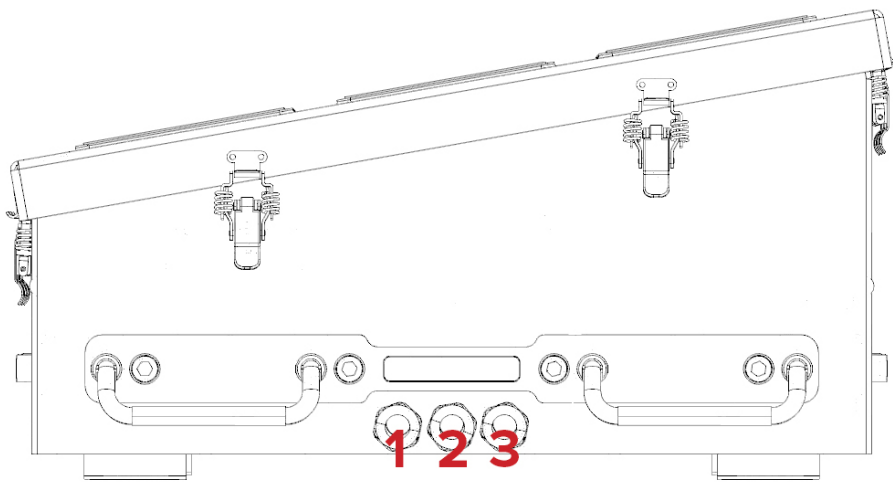
To access the optical compartment of the laser system pull up the fasteners and release the clamps from hooks and carefully remove the top cover.

4. 4pcs transportation handles.

5. Cooling fluid tank.

6. Cooling fluid level indicator.

SIDE VIEW



1. Mains power input cable.

2. E-STOP Remote input cable.

In order to use the laser system, the Interlock must be closed circuit. This is done by connecting the E-STOP Remote input cable to the Emergency STOP Remote. Door interlock switch circuitry must be inserted in the E-STOP Remote interlock connector as well in order to disable the interlock and enable emission.

3. Input signal cable.

Kvant Architect systems use either analog input levels 0-5V or DMX signal to control the output power. This is model specific.



The E-STOP Remote is an integral part of the laser projector. It is there for the safety of the public as well as the operator. In most countries it is required by law to have a fully working Emergency STOP in place for every laser system used. Modifying or using anything other than the E-STOP Remote provided, in the manner it was intended, may invalidate your laser projector's variance.

5

BEAM ALIGNMENT

It is possible that due to transportation, rigging, moving around or vibrations caused by various elements during a set up or laser performance some of the internal optical parts can move slightly resulting in individual beam misalignment.

If decline angle of misaligned beam reach greater values, it can be disturbing and it is necessary to carry out the beam alignment procedure.



This Architect laser system is rated as a **Class IV laser product** and manufactured in accordance to **EN 60825-1:2014**. Avoid eye or skin exposure to direct or scattered radiation. Wear protective goggles of suitable optical density if necessary.



Be cautious when aligning the beams and wear sufficient laser safety protection to avoid accidental exposure to Class 4 laser radiation.

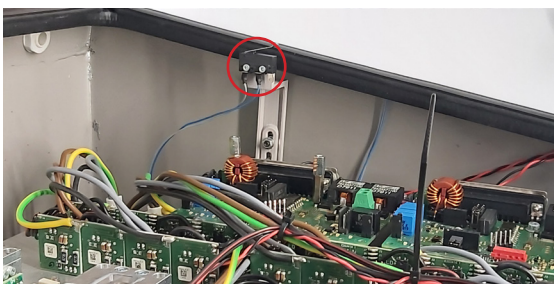
ARCHITECT BEAM ALIGNMENT



Although KVANT uses the latest technology to protect all the critical components inside this laser system against Electrostatic Discharge, the semiconductor laser diodes within this system are extremely vulnerable to it. This is due to some of the electronic components being exposed when the top cover is taken off.

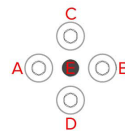
If you decide to proceed with the Beam Alignment process yourself, it is absolutely essential that all the common ESD protection rules are strictly followed. We don't accept any responsibility for Electrostatic Discharge damages to laser diodes caused by customer.

1. Release and open 10pcs top cover fast access fasteners.
2. Slowly remove the cover – **detach the GND wire** that is attached to the top cover from the inside of the system! To detach the wire gently pull it out from the connector.
3. Removal of the cover will show the two internal microswitch interlocks. Depress both microswitches to operate the system in service mode.



4. Set small brightness of one of three colour channels you want to align (either R, G or B) on your DMX or remote controller. Keep other two colour channels at zero level (other two colours have no output).
5. Power up the system as normal.
6. Determinate the misaligned laser diode' beam position among all diodes. It is easy to find it by hiding individual diode beam with not reflective and not flammable metal object.
7. Set the position of reflection mirror's mount that reflects misaligned laser beam with metric hex key #1,5mm according following picture.
8. After the setting is done, service technician must verify the functionality of both interlock microswitches and close the top cover of Architect laser system.

How to use the beam alignment mechanism (to align each beam)



A + B | Adjusters for moving the beam LEFT & RIGHT

- To move the beam LEFT: loosen screw A and then tighten screw B
- To move the beam RIGHT: loosen screw B and then tighten screw A

C + D | Adjusters for moving the beam UP & DOWN

- To move the beam UP: loosen screw C and then tighten screw D
- To move the beam DOWN: loosen screw D and then tighten screw C

E - fixed position pivoting bolt - DO NOT USE!



TECHNICAL SPECIFICATIONS

All the technical specifications are subject to change without prior notice.

TECHNICAL SPECIFICATIONS

[ARCHITECT A270B - WHITE BALANCED]

Low divergent, high power, full colour, full diode, static architectural laser source

Total optical power 270W consist of: 112W red, 96W green, 64W blue

Total luminous flux: 63 700 lm

Air cooled version.

General specifications	Red	Green	Blue	White
Optical power (at the laser head output)	112 W	96 W	64 W	270 W
Laser wavelenght	638 nm	525 nm	455 nm	-
Laser wavelenght tolerance	± 5 nm			
Linear polarization	No			
Beam matrix structure	288 individual beams, 2-7mm diameter each			
Total beam matrix size	250 x 880 mm			
Beam full angle divergence	3.2 mrad			
NOHD	1667m			
Luminous efficiency (relative to optical power)*	138 lm/W	485 lm/W	26 lm/W	-
Calculated luminous flux*	15 460 lm	46 560 lm	1 660 lm	63 700
Diode life time	6-8 000 h	> 12 000 h	> 12 000 h	-
Cooling	Air, 1500 m3/h			
Dimming	0 - 100 %			
Operating temperature range	Preliminary 5 – 35 °C			
Storage temperature range	-10 – 80 °C			
IP rating	IP54, for permanent outdoor installation			
Warranty	2 years			
Control signal output	Analog 0 – 5 V or DMX			
Total electrical power consumption	200-240VAC, 50-60Hz, <2.5kVA			
Dimensions (LxWxH)	1062 x 917 x 312 incl. rain protection			
Weight (kg)	~ 80 kg			

*according to human photopic eye response

TECHNICAL SPECIFICATIONS

[ARCHITECT W270B - WHITE BALANCED]

Low divergent, high power, full color, full diode, static architectural laser source

Total optical power 270W consisting of: 112W red, 96W green, 64W blue

Total luminous flux: 63 700 lm

Water cooled version

General specifications	Red	Green	Blue	White
Optical power (at the laser head output)	112 W	96 W	64 W	270 W
Laser wavelenght	637 nm	520 nm	450 nm	-
Laser wavelenght tolerance	± 5 nm			
Linear polarization	No			
Beam matrix structure	288 individual beams, 2-7mm diameter each			
Total beam matrix size	250 x 880 mm			
Beam full angle divergence	3.2 mrad			
NOHD	1667m			
Luminous efficiency (relative to optical power)*	138 lm/W	485 lm/W	26 lm/W	-
Calculated luminous flux*	15 460 lm	46 560 lm	1 660 lm	63 700
Diode life time	>10 000 h	> 20 000 h	> 20 000 h	-
Cooling	Water, ~6 l/min, 10 degree Celsius			
Dimming	0 - 100 %			
Operating temperature range	Preliminary 5 – 35 °C			
Storage temperature range	-10 – 80 °C			
IP rating	IP54, for permanent outdoor installation			
Warranty	2 years			
Control signal output	Analog 0 – 5 V or DMX			
Total electrical power consumption	200-240VAC, 50-60Hz, <2kVA			
Dimensions (LxWxH)	1022 x 540 x 277 mm (without water tank)			
Weight (kg)	~ 60 kg			

*according to human photopic eye response

TECHNICAL SPECIFICATIONS

[ARCHITECT A300]

Low divergent, high power, full color, full diode, static architectural laser source

Total optical power 300W consist of: 45W red, 192W green, 64W blue

Total luminous flux: 101 000 lm

Air cooled version

General specifications	Red	Green	Blue	White
Optical power (at the laser head output)	45 W	192 W	64 W	301 W
Laser wavelenght	637 nm	520 nm	450 nm	-
Laser wavelenght tolerance	± 5 nm			
Linear polarization	No			
Beam matrix structure	288 individual beams, 2-7mm diameter each			
Total beam matrix size	250 x 880 mm			
Beam full angle divergence	3.2 mrad			
NOHD	1769m			
Luminous efficiency (relative to optical power)*	138 lm/W	485 lm/W	26 lm/W	-
Calculated luminous flux*	6 210 lm	93 120 lm	1 664 lm	101 000 lm
Diode life time	6-8 000 h	> 12 000 h	> 12 000 h	-
Cooling	Air, 1500 m3/h			
Dimming	0 - 100 %			
Operating temperature range	Preliminary 5 – 35 °C			
Storage temperature range	-10 – 80 °C			
IP rating	IP54, for permanent outdoor installation			
Warranty	2 years			
Control signal output	Analog 0 – 5 V or DMX			
Total electrical power consumption	200-240VAC, 50-60Hz, <2.5kVA			
Dimensions (LxWxH)	1062 x 917 x 312 incl. rain protection			
Weight (kg)	~ 80 kg			

*according to human photopic eye response

TECHNICAL SPECIFICATIONS

[ARCHITECT W300]

Low divergent, high power, full color, full diode, static architectural laser source

Total optical power 300W consist of: 45W red, 192W green, 64W blue

Total luminous flux: 101 000 lm

Water cooled version

General specifications	Red	Green	Blue	White
Optical power (at the laser head output)	45 W	192 W	64 W	301 W
Laser wavelenght	637 nm	520 nm	450 nm	-
Laser wavelenght tolerance	± 5 nm			
Linear polarization	No			
Beam matrix structure	288 individual beams, 2-7mm diameter each			
Total beam matrix size	250 x 880 mm			
Beam full angle divergence	3.2 mrad			
NOHD	1769m			
Luminous efficiency (relative to optical power)*	138 lm/W	485 lm/W	26 lm/W	-
Calculated luminous flux*	6 210 lm	93 120 lm	1 664 lm	101 000 lm
Diode life time	>10 000 h	> 20 000 h	> 20 000 h	-
Cooling	Water, ~6 l/min, 10 degree Celsius			
Dimming	0 - 100 %			
Operating temperature range	Preliminary 5 – 35 °C			
Storage temperature range	-10 – 80 °C			
IP rating	IP54, for permanent outdoor installation			
Warranty	2 years			
Control signal output	Analog 0 – 5 V or DMX			
Total electrical power consumption	200-240VAC, 50-60Hz, <2kVA			
Dimensions (LxWxH)	1022 x 540 x 277 incl. rain protection			
Weight (kg)	~ 60 kg			

*according to human photopic eye response

C5 **TECHNICAL SPECIFICATIONS** **[ARCHITECT W660B - WHITE BALANCED]**

Low divergent, high power, full color, full diode, static architectural laser source

Total optical power 600W consist of: 269W red, 224W green, 168W blue

Total luminous flux: 150 000 lm

Water cooled version

General specifications	Red	Green	Blue	White
Optical power (at the laser head output)	269 W	224 W	168 W	661 W
Laser wavelenght	638 nm	525 nm	455 nm	-
Laser wavelenght tolerance	± 5 nm			
Linear polarization	No			
Beam matrix structure	496 individual beams, 2-12mm diameter each			
Total beam matrix size	390 x 1350 mm			
Beam full angle divergence	10 mrad			
NOHD	835m			
Luminous efficiency (relative to optical power)*	138 lm/W	485 lm/W	26 lm/W	-
Calculated luminous flux*	37 122 lm	108 640 lm	4368 lm	150 000 lm
Diode life time	> 10 000 h	> 20 000 h	> 20 000 h	-
Cooling	Water, 12 l/min, 10 degree Celsius			
Dimming	0 - 100 %			
Operating temperature range	Preliminary 5 to 35 °C			
Storage temperature range	-10 to +80 °C			
IP rating	IP54, for permanent outdoor installation			
Warranty	3 years			
Control signal output	Analog 0 – 5 V or DMX			
Total electrical power consumption	2 x 200 - 240VAC, 50-60Hz, <5kVA (1 phase 230VAC for optical unit <3kVA, 1 phase for chiller <2kVA)			
Dimensions (LxWxH)	~ 550 x 1550 x 500 mm			
Weight (kg)	~ 130 kg			

*according to human photopic eye response

TECHNICAL SPECIFICATIONS

[ARCHITECT W900B - WHITE BALANCED]

Low divergent, high power, full color, full diode, static architectural laser source

Total optical power 900W consist of: 365W red, 305W green, 230W blue

Total luminous flux: 203 600 lm

Water cooled version

General specifications	Red	Green	Blue	White
Optical power (at the laser head output)	365 W	305 W	230 W	900 W
Laser wavelenght	638 nm	525 nm	455 nm	-
Laser wavelenght tolerance	± 5 nm			
Linear polarization	No			
Beam matrix structure	672 individual beams, 2-12mm diameter each			
Total beam matrix size	460 x 1450 mm			
Beam full angle divergence	10 mrad			
NOHD	978m			
Luminous efficiency (relative to optical power)*	138 lm/W	485 lm/W	26 lm/W	-
Calculated luminous flux*	50 370 lm	147 925 lm	5 980 lm	204 000 lm
Diode life time	> 10 000 h	> 20 000 h	> 20 000 h	-
Cooling	Water, 12 l/min, 10 degree Celsius			
Dimming	0 - 100 %			
Operating temperature range	Preliminary 5 to 35 °C			
Storage temperature range	-10 to +80 °C			
IP rating	IP54, for permanent outdoor installation			
Warranty	2 years			
Control signal output	Analog 0 – 5 V or DMX			
Total electrical power consumption	3 x 400VAC, 50-60Hz, <6kVA (2 phases 230VAC for optical unit <4kVA, 3rd phase for chiller <2kVA)			
Dimensions (LxWxH)	~ 650 x 1700 x 520 mm			
Weight (kg)	~ 160 kg (optical unit), ~80 kg (chiller)			

*according to human photopic eye response