

How does the International Electrotechnical Commission (IEC) Laser Risk Group impact your Projector Business?

Risk Group 2 Projectors - Advantages

Introduction

In business and professional installations, the use of laser projectors is becoming more common. As a consequence, the number of products and manufacturers active in this area is also rapidly increasing. There are attractive benefits to be gained from projectors with a laser light source. Key highlights are the impressive visualization alongside the extraordinary long lifetime of the laser light source and significantly lower maintenance effort, leading to an attractive Total Cost of Ownership (TCO).

When comparing projectors from different manufacturers, while they may offer the same light output and projection technology, some projectors demand significantly more effort during installation and operation than others when taking into account the Risk Group category.

What about standards?

This category of device is regulated by a projector safety standard. According to the International Electrotechnical Commission, IEC 62471-5 standard, laser and lamp-based projectors are to be treated in the same way.

Background: Within the laser projector, the laser light passes through several components including diffusion lenses, the optical prism and color wheels etc. From the laser diode source to the lens of the projector, the original non-diffused laser light beam is scattered and finally the light output from the lens is directed towards the screen; the resulting beam is treated in the same manner as the light created by lamp based projectors.

Regardless of the technical components of the projector, the hardware design results in classification of different Risk Group categories based on the IEC 62471-5 standard. Depending on the Risk Group* category, end-users and system integrators may have to invest significant efforts to meet relevant safety requirements during the installation and operation of the projector.

Risk Group 0/1: Projectors for home-use or pico-projectors

Projectors are safe under normal usage except for direct eye exposure into the light beam for over 100 seconds.

Risk Group 2: Projectors for business and professional use

Products which generally do not cause an optical hazard under the assumption that the natural eye response will prevent looking directly into the light beam. Safe under normal usage except for direct eye exposure into the light beam. Besides this, no other safety precautions are required.

Risk Group 3: Projectors for business and professional use

Even a brief glance into the light beam at close range causes an optical hazard. Safety measures are absolutely necessary and must be adhered to by the integrator and the end-user. The operation of Risk Group 3 projectors is only allowed for professional use. A designated area in front of the projector called hazard distance (RG3 area) must be maintained to restrict entry.



* Explanations of risks are based on the IEC 62471-5: 2015

How does the Risk Group impact your business?

The information required for a correct projector installation and operation is listed in the user or installation manuals.

- For **Risk Group 2 projectors** - no out of the ordinary safety procedures are required.
- For **Risk Group 3 projectors** - important safety measures must be adhered to.

Here are some key extracts listed in the manuals:

Risk Group 3 projectors are only allowed for professional usage.

For projectors used in overhead installation, a 3m distance is recommended between the floor and the RG3 area.

- The end-user is responsible for compliance to the safety procedures.
- The administrator/supervisor must set up a barrier to restrict anyone from entering the RG3 area in front of the projector:
 - This precaution ensures that nobody can look directly into the light beam.
 - The barrier position must maintain a safety zone of at least 2.5m beyond the RG3 area.
- The integrator must be trained by the projector manufacturer regarding the RG3 area and must ensure that the safety distance is adhered to.

Besides the safety standard, set out by the Interactional Electrotechnical Commission, further national regulatory requirements might be considered.

How you can benefit from NEC laser projectors

Effortless operation of audio visual equipment is key, enabling you to focus on the operation of your business. The effort resulting from different Risk Group categories has a decisive influence on a projector's TCO calculation.

All NEC laser projectors up to 10,000 ANSI lumen light output listed below are Risk Group 2 compliant. This means that there are no prescribed safety precautions necessary and therefore installation and operation requires less effort.

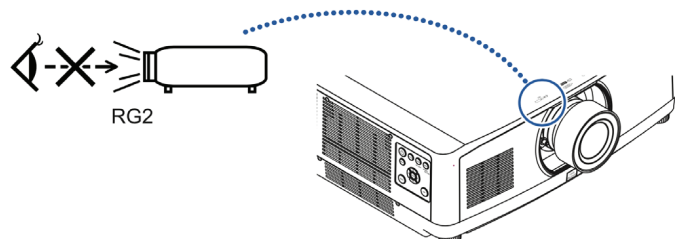
There are many other projectors on the market offering the same light output yet categorized as Risk Group 3. These require significantly greater effort regarding safety measures both during the installation phase and on a regular basis during operation.

Manufacturer	Projector, Brightness	Risk Group 2	Risk Group 3
NEC	P502HL-2 5,000 lm	✓	-
	PA653UL 6,500 lm	✓	-
	PA803UL 8,000 lm	✓	-
	PX602UL 6,000 lm	✓	-
	PX602WL 8,000 lm	✓	-
	PX803UL 8,000 lm	✓	-
	PX1004UL 10,000 lm	✓	-
	PH1202HL 12,000 lm	-	✓

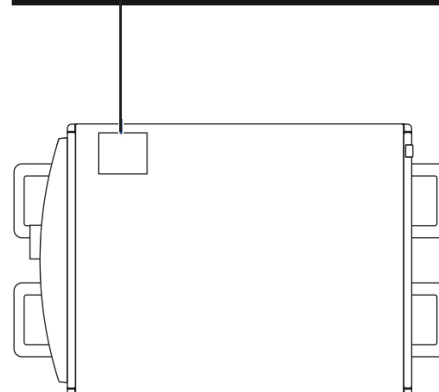
Where do I find the Risk Group information?

To avoid additional effort during the planning phase, installation and during ongoing operation, check the projectors' Risk Group first.

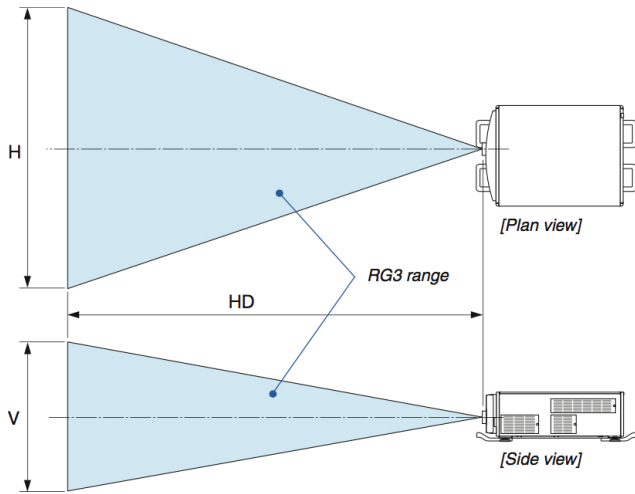
Risk Group 2 information you'll find labelled or engraved near the lens on the projector housing.



Risk Group 3 information will be clearly and obviously labelled on the projector.



In addition, information on the RG3 area and further safety measures are provided in the user or installation manual.



Note: If lens shift is utilized, please consider the shift of projected image according the volume of lens shift.

Conclusion

Independent of the light output, there is a significant variation in the level of safety requirements to be considered during installation and ongoing operation of the projector. With Risk Group 2 categorized projectors, only minimal effort is needed. On the other hand, Risk Group 3 projectors demand significant additional effort leading to higher installation and operational costs, making the TCO less attractive.

In order to avoid any risk for operators and end-users, it is recommended to select Risk Group 2 over Risk Group 3 projectors when deciding upon a safe and future-proof purchase.

The information provided in this whitepaper is aimed at offering a general understanding of Risk Groups and is not intended to be legal advice or conclusive in any way. Besides the IEC requirements, national regulations also need to be taken into consideration.

