



Saphyr[®] System Safety Guide for Saphyr P/N 60325

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Revision History

REVISION	NOTES
A	Initial release.
B	Updated document template.
C	Update laser safety section

Saphyr System Safety Guide

For Research Use Only. Not for use in diagnostic procedures.

This guide provides important safety information pertaining to the installation, servicing, and operation of the Bionano Genomics® Saphyr® System (PN 60325). Read this document before performing any procedures on the system.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Important

You must read the *Saphyr Site Preparation Guide* and *Saphyr System User Guide* before plugging the instrument into the power supply.

Before the installation day, we recommend that you familiarize yourself with the relevant safety and installation instructions provided in the following documents.

These documents contain information and warnings that must be followed by the customer for safe operation and for keeping the product in a safe condition. Before use of the instrument, please review all safety instructions to avoid injury and prevent damage to this instrument and any products connected to it.

The following documents are available for download from www.bionanogenomics.com.

Resource	Description
<i>Saphyr Site Preparation Guide</i>	Provides specifications for laboratory space, electrical requirements, and environmental considerations.
<i>Saphyr System User Guide</i>	Provides an overview of instrument components and software, proper maintenance, and troubleshooting.
<i>Bionano Access Software Guide</i>	Provides an overview of data analysis.

Safety Warnings

Make sure that all personnel are trained in the correct operation of the instrument and any potential safety considerations.

Type	Description
	Hazard: Indicates a potential electrical shock hazard that may lead to personal injury
	Hazard: Indicates a potential laser exposure hazard that may lead to personal injury

Laser Safety Warnings

The Saphyr system has a laser system classification of a Class 1 product, which uses embedded Class 3B and one Class 4 laser. The Saphyr System is certified to the IEC 60825-1:2014 standards.

The nominal wavelength outputs include the following optical power:

- 500 mW (532 nm)
- 140 mW (637 nm, 2 each)
- 400 mW (488 nm)
- 90 mW (785 nm)

A Class 1 laser product is safe under all conditions of normal use.

A CLASS 4 LASER PRODUCT IS HAZARDOUS IF THE EYE OR SKIN IS DIRECTLY EXPOSED TO THE LASER. PROTECTIVE EYE WEAR IS REQUIRED WHEN A PERSON IS VIEWING A CLASS 3B OR CLASS 4 LASER BEAM. ALL CLASS 3B AND CLASS 4 LASERS MUST BE EQUIPPED WITH A KEY SWITCH AND A SAFETY INTERLOCK. PREVENTING RADIATION EXPOSURE

- Do not open the front panel of the instrument because you could come into contact with a Class 4 laser.
- If you operate the instrument with any panels removed, you risk radiation exposure from the direct or reflected laser light.
- If you use controls or make adjustments that are not specified in The Saphyr Safety Guide, you can be exposed to hazardous radiation.

SAFETY LABELING



Figure 1. Class 4 Laser Warning

Sound Level Safety Warnings

The instrument produces sounds when operated. All noise is under 85 dBA (the OSHA limit for safety).

LED Exposure Warning

Do not gaze at the light-emitting diode (LEDs) on the front of the instrument for an extended period of time. Exposure to high-intensity LED may increase the risk of vision impairment and discomfort.

Electrical Safety Warnings

- Do not remove the outer panels from the instrument. Operating the instrument without all of the panels creates potential exposure to hazardous AC and DC voltages.
- For protection against electrical shock hazard, the instrument must be plugged into a three-wired grounded receptacle.
- Do not attach the power cord to an extension cord or to a multiple portable socket.
- Do not connect the instrument to anything.
- Do not open the sample door during scanning, as this could expose potentially hazards.
- Only Bionano Field Service Engineers or Bionano certified personnel are qualified to replace the internal fuses. The power entry module includes two input fuses on the high-voltage input lines.
- Under no circumstances should the user modify the safety features of this instrument.

ELECTRICAL SPECIFICATIONS

Type	Specification
Line Voltage	100–240 VAC at 50/60 Hz
Power Consumption (instrument, instrument controller, and monitor)	≤ 300 Watt
Power Connector	The instrument is shipped with only power cords for North America. The necessary power cords required for all other countries are provided at set-up.

Uncrating, Installing and Moving the Instrument



CAUTION: Only an authorized Bionano personnel can uncrate and install the instrument.

The instrument is heavy and can cause serious injury if dropped or mishandled. Make sure there are three people to assist the Field Service Engineer with lifting the Saphyr instrument from the crate. Ensure that the power outlets powering the instrument are easily accessible and free of any obstructions.

Significant risks to optical and mechanical alignment can occur if the instrument is moved.

Ensure the instrument is installed on a clean, sturdy, level, bench without exposure to direct sunlight or heat sources.

Do not set the instrument up where liquid or chemicals are used. Ensure that no liquids are spilled into the instrument.

Do not operate the instrument in the presence of flammable gases or fumes.

DIMENSIONS

Measurement	Instrument
Height	38 cm (15 in)
Width	86 cm (34 in)
Depth	71 cm (28 in)
Weight	103 kg (227 lb)

Environmental Considerations

This instrument is designed for indoor use only.

Element	Specification
Temperature	Maintain a lab temperature of 19°C (66°F) to 25°C (77°F).
Humidity	Maintain a noncondensing relative humidity between 20–80%.
Elevation	The instrument may only be operated at a location where the elevation is 2,000m (6,500 ft) or less above mean sea-level.
Ventilation	Provide at least 5 cm (2 in) of clearance behind the instrument to allow sufficient ventilation and access to instrument power connection. Overhead clearance required for installation and service is 93 cm (37 inch).
Air Quality	Operate the instrument in a Pollution Degree II environment or better.

Technical Assistance

For technical assistance, contact Bionano Genomics Technical Support.

You can retrieve documentation on Bionano products, SDS's, certificates of analysis, frequently asked questions, and other related documents from the Support website or by request through e-mail and telephone.

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