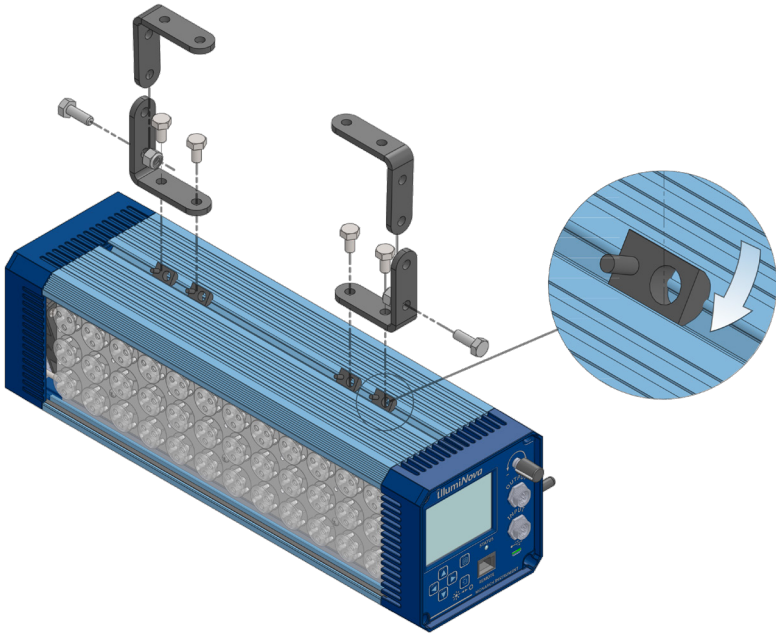




MONARCH INSTRUMENT

Installation Manual

IllumiNova®



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SAFEGUARDS AND PRECAUTIONS



- Read and follow all instructions in this manual carefully and retain this manual for future reference.
- The contents of this manual are correct at the time of issue. The contents may change at any time without prior notification. This is due to continuous developments to the stroboscope and its functionality.
- Do not use this instrument in any manner inconsistent with these operating instructions or under any conditions that exceed the environmental specifications stated.
- Certain stroboscope frequencies can trigger epileptic seizures in those prone to that type of condition.
- Objects viewed with this product may appear to be stationary when in fact they are moving at high speeds. Always keep a safe distance from moving machinery and do not touch the target.

Symbols

One or more of the following symbols may appear on the stroboscope labeling:



Refer to manual for instructions see section [1.3 Installation](#).



Caution - Risk of electric shock



Optical Radiation – Do not stare directly at light source



Directive 2012/19/EU WEEE: Waste Electrical and Electronic Equipment

WARNING



This warning sign on the unit cautions the user to read this manual to determine the nature of the hazard and any precautions which should be taken.

This instrument is not safe for use in hazardous environments, and serious personal injury or death could occur as a result of improper use. Please refer to your facility's safety program for proper precautions.

Warning and Safety Notice



This Safety Notice has been included to emphasize the **DANGER OF HAZARDOUS VOLTAGES** internal to the unit. **USE EXTREME CAUTION WHEN INSTALLING OR SERVICING** your unit. Please read the warnings below and the entire contents of section [1.3 Installation](#) within this manual before attempting to install or service your instrument.

1. **Before any connections are made to the stroboscope, ensure the protective earth wire in the AC mains cable is connected to a protective conductor.**
2. **Any interruption of the protective conductor inside or outside the stroboscope, or disconnection of the protective earth wire is likely to make the stroboscope dangerous under some fault conditions. Intentional interruption is prohibited.**

3. Any adjustment, maintenance, and repair of the opened stroboscope under voltage should be strictly avoided but, if inevitable, should be carried out only by a skilled person who is aware of the hazard involved. All repairs should be carried out only by authorized service personnel or returned to an authorized repair center.

Note: In order to comply with the requirements of safety standard EN61010, the stroboscope must have one of the following as a disconnecting device, located within easy reach of the operator, and be labeled as the disconnecting safety device:

- A switch or circuit breaker which complies with the requirements of IEC 60947-1 and IEC 60947-3
- A separable coupler which can be disconnected without the use of a tool
- A separable plug, without a locking device, to mate with a socket outlet in the building

CAUTION



1. The protective earth terminal must remain connected during operation of the stroboscope. Whenever it is likely that protection has been impaired, the stroboscope should be made inoperative and secured against operation.
2. Where conductive pollution such as condensation or conductive dust is present, adequate air conditioning, filtering and/or sealing must be installed.
3. Signal and supply voltage wiring should be kept separate from one another. Where this is impractical, shielded cables should be used for the signal wiring.
4. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment might be impaired or inadequate.

OPTICAL RADIATION



Users should not stare directly at the light source. Intense light sources have a high secondary blinding effect. A temporary reduction in visual acuity and afterimages can occur, leading to irritation, annoyance, visual impairment, and even accidents - depending on the situation.

1. Always consider the use of light filtering and darkening protective eye wear and be fully aware of surrounding setups when viewing intense light sources to minimize or eliminate such risks to avoid accidents related to temporary blindness.
2. Prolonged exposure to the light can cause headaches in some people.



In order to comply with EU Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE): This product may contain material which could be hazardous to human health and the environment. DO NOT DISPOSE of this product as unsorted municipal waste.

This product needs to be RECYCLED in accordance with local regulations; contact your local authorities for more information. This product may be returnable to your distributor for recycling; contact the distributor for details.

Monarch Instrument's Limited Warranty applies.

See www.monarchinstrument.com for details.

Warranty Registration and Extended Warranty Coverage information is available online at

www.monarchinstrument.com.

1.1 EQUIPMENT HANDLING

1.1.1 Initial Inspection

Exercise care when unpacking the instrument from the shipping carton. The instrument is packed in a shockproof foam retainer to prevent damage during normal transit. If damage to the shipping carton is evident, ask the carrier's representative to be present when the instrument is unpacked.

1.1.2 Unpacking Procedure

To unpack your stroboscope, carefully cut open the outer box to reveal the instrument surrounded by foam retainers. Place the power cord, mounting hardware, and documentation aside and then remove the instrument from the shipping carton. Gently remove the foam retainers from the instrument. Two people are recommended for longer length instruments. Retain the packing material in case of prolonged storage or any need for return.

1.1.3 Detected Damage

If damage is detected after unpacking the instrument, repack the instrument and return it to the factory as described in the following section.

1.1.4 Equipment Return

Before returning a damaged or malfunctioning instrument to the factory for repairs, contact the sales organization from which you purchased the instrument. A Return Merchandise Authorization (RMA) number must be obtained from the factory before returning an instrument for any reason.

1.1.5 Storage

For prolonged storage before installation, repack the stroboscope in the shipping container. Cushion the stroboscope with foam molding or an equivalent and store in a cool, dry area. It is not recommended to store the unit for more than one year. If longer storage time is required, contact the factory for additional storage information.

1.2 ENVIRONMENT AND LOCATION

The instrument is intended to operate in the following environment:

Indoor Use Only

Installation Category II per IEC 664

Pollution Degree Level II per IEC61010-1

Measurement Category I per IEC61010-1

Altitude: up to 2,000 m

Temperature: 32 °F – 104 °F (0 °C – 40 °C) operating per IEC61010-1

Humidity: Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C, non-condensing

AC Mains Supply: 115/230 V ac ~ ±10% 50/60 Hz

Maximum VA:

Model	50	100	200	300	400	500	600	700	800
Max VA	37	60	110	160	260	325	360	430	470

1.3 INSTALLATION

Read this entire section before proceeding with installation.

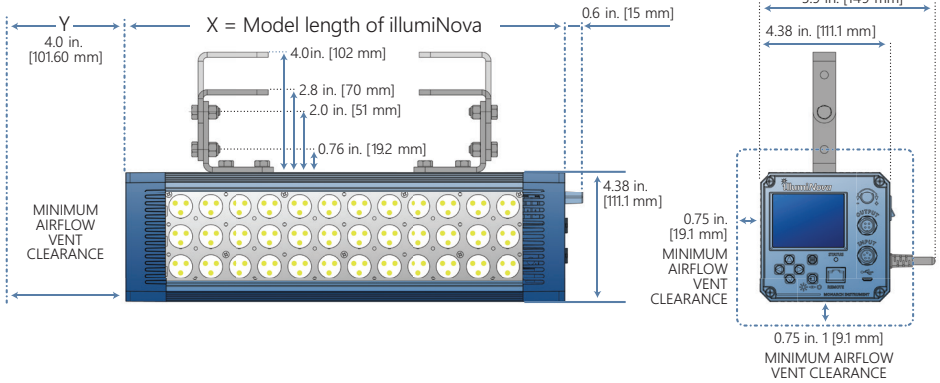


Note: The strobe is designed to be permanently mounted and as such should be considered as fixed equipment or permanently connected. Disconnection from the supply must be possible via a customer supplied switch or circuit breaker rated at 115 V or 230 V (dependent on local voltage supply), 5 amp minimum when connected to an AC supply. This disconnection device must disconnect all current-carrying conductors. It must be included in the installation and should be clearly marked, in close proximity to the equipment and easily accessible to the operator.



WARNING: Ensure all mains power is turned off before proceeding with installation.

Adequate ventilation space should be provided around the fan and vents. Actual dimensions are shown below:



Dimensional Length by Model:

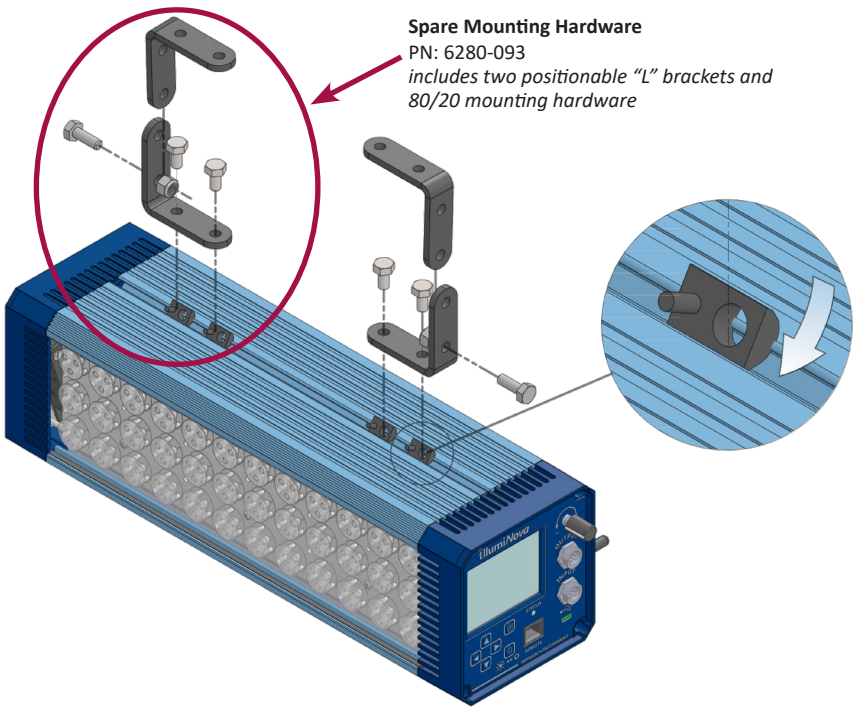
Model	50	100	200	300	400	500	600	700	800
X inches	9.25	15.50	27.50	40	52	64	76	88	100
X cm	24	39	70	102	132	162	193	223	245

Dimension Y – clearance for fan: 4 inches [10.16 cm] minimum

The illuminova is supplied with brackets and 80/20 mounting hardware for ease of installation. There is a channel on 3 sides of the housing that will accept the Roll-in T-nuts (see next page). A set of hardware comprises of (2) L brackets, (2) Roll-in T-nuts, (2) ¼-20 x ½ in. bolts, (1) ¼-20 ¾ in. bolt, and (1) ¼-20 x 5/16 nylon insert lock nut (see next page for image of grouping). Use one set of hardware to mount model 50s, and two sets of hardware to mount models 100, 200, 300. Use three sets of hardware to mount models 400, 500, 600, and four sets of hardware to mount models 700 and 800.

The strobe needs to be connected to AC mains – 115/230 V ac ~ ±10% 50/60 Hz. The strobe will automatically adjust to the supply voltage.

This unit is provided with a permanently mounted mains cable with an IEC320 C14 socket. Use a cable with mating IEC320 C13 plug with three wire grounded cable.



! Do not allow cables extending from the instrument to come into contact with rotating machinery as serious damage to the equipment or severe personal injury or death may occur.

Always ensure the ground wire (green or green and yellow) or ground pin of the plug is connected to a low impedance safety ground (earth) within the ac power distribution system you are using.

This unit is equipped with an AC mains fuse internally. If this fuse should blow, it generally indicates a serious problem with the stroboscope. **THE FUSE SHOULD NOT BE REPLACED BY AN OPERATOR.** The fuse is a slow-blow 2AG [5 X 15 mm] type – rated 350 V ac (~) with the following current rating:

Model	50	100	200	300	400	500	600	700	800
Fuse	0.5A	1.0A	1.25A	2.0A	2.5A	3.0A	3.5A	4.0A	5.0A

WARNING: Do not use this instrument in any manner inconsistent with these operating instructions or under any conditions that exceed the environmental specifications stated.

1.4 INPUT / OUTPUT CONNECTIONS

1.4.1 Input

The INPUT connector (Aviation Plug M12 x 5) has 5 pins for connection of external trigger sources. These input signals can drive the strobe in the External Mode. The sensor input is compatible with Monarch's inductive, proximity and optical sensors.



Connections are as follows:

Isolated Input:

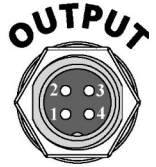
- | | | |
|---|----------------|---|
| 1 | Isolated Input | +5 to 12 V dc @ 50 mA max (brown) |
| 2 | Isolated Input | -300 V dc Isolation, 10 kHz max (white) |

Sensor Input:

- | | | |
|---|--------------|---------------------------|
| 3 | +5 V out | +5 V dc out 60 mA (blue) |
| 4 | Signal Input | 3 to 5 V dc pulse (black) |
| 5 | Common (GND) | Common (gray) |

1.4.2 Output

The OUTPUT connector (Aviation Plug M12 x 4) has 4 pins, 3 of which are used for output signals. The strobe has two outputs. The first mimics the input pulse and can be used for daisy-chaining multiple strobes. The second is a controlled output from the strobe processor and is synchronous with the actual flash of the strobe. Any delays or scaling of the input are reflected in this second output pulse.




Note: Output pulses are not isolated.

Output Pinout:

- | | | |
|---|--------------|--|
| 1 | Pulse Out | 5 V (typ) Output @ 30 mA; controlled by strobe (brown) |
| 2 | Repeater Out | 5 V (typ) Output @ 30 mA; mimics Input pulse (white) |
| 3 | Common (GND) | Common (blue) |

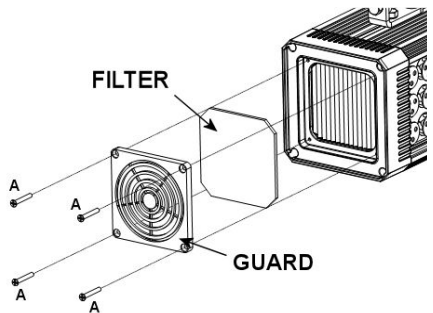
1.5 MAINTENANCE

 Ensure the unit is turned OFF and AC power is disconnected before attempting any maintenance.

The illumiNova has no user serviceable parts inside the enclosure. The only item that requires maintenance is the cooling fan filter which is accessible on the end opposite the display controller. The filter will need cleaning periodically depending on the environment.

Removal requires the use of a Phillips-head screwdriver.

Undo the four screws retaining the fan guard (these are the inner screws – A) and remove from unit. This exposes the fan filter as shown above. Remove the foam filter. It can be cleaned by blowing with compressed air or washing gently with plain water. Once cleaned, replace the filter and guard, and secure the screws (A).



Note: A fan guard/filter replacement kit is available through Monarch. Contact the factory for details.

The Professional's Choice

Monarch Instrument is committed to excellence and quality in manufacturing, sales, and service.



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Frequency Converters



Speed Sensors



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