User Manuel

Stereo Photometric Light

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1 GENERAL INFORMATION

1.1 Disclaimer

This user manual has been prepared to ensure the correct and safe usage of the Stereo Photometric Light product developed by Prion Industrial Lighting. All information provided in this manual is accurate and up to date as of the publication date; however, it may be subject to change due to technical developments.

Prion Industrial Lighting shall not be held liable for any direct or indirect damages, losses, or malfunctions resulting from the use of this product. The user assumes full responsibility for the use of the product. The device must be used only in accordance with the specified technical conditions and for its intended purpose. Improper use will void the warranty.

Installation, connection, and operation of the device must be performed only by authorized personnel. Prion Industrial Lighting accepts no responsibility for issues arising from incorrect installation or faulty connections.

Please read this manual carefully and keep it for future reference.

1.2 Forbidden use

The Stereo Photometric Light must not be used in any way that contradicts the instructions and intended applications specified in this manual. The following uses are strictly prohibited:

- Using the device in environments or applications where failure could result in personal injury, death, or serious property damage (e.g., life support systems, nuclear facilities, critical safety systems).
- Modifying, disassembling, or tampering with the device in any way.
- Operating the lighting system outside the specified voltage, temperature, or mechanical limits.
- Using the device in explosive or highly flammable environments without proper certification.
- Integrating the lighting into systems without proper testing and validation.
- Exposing the lighting unit to excessive force, shock, vibration, or moisture beyond the specified limits.

Such uses will void the warranty and may result in permanent damage to the product. Prion Industrial Lighting accepts no responsibility for any consequences resulting from prohibited use.

2 WARRANTY

2.1 Warranty

Prion Industrial Lighting warrants that this Stereo Photometric Light is free from defects in materials and workmanship under normal use and service conditions for a period of [12] months from the date of purchase.

This warranty covers only the hardware components of the product. Damages resulting from the following conditions are not covered under warranty:

- Improper installation or misuse
- Unauthorized modifications or repairs
- Use outside the specified operating conditions
- Accidents, abuse, or negligence
- Natural disasters or force majeure events

If a defect occurs within the warranty period, the product must be returned with proof of purchase. Prion Industrial Lighting reserves the right, at its sole discretion, to repair, replace, or refund the product.

This warranty is limited and non-transferable. No other warranties, express or implied, including merchantability or fitness for a particular purpose, are provided.

3 INTRODUCTION

3.1 Manual and conventions

Thank you for choosing the Stereo Photometric Light developed by Prion Industrial Lighting. This lighting system is designed for high-precision surface analysis, depth mapping, and structured light-based image processing tasks in various industrial and research applications.

Thanks to its LED array synchronized with specific lighting angles, it creates an illumination environment compatible with stereo and photometric imaging techniques by highlighting surface geometry and microscopic details. With this capability, the system serves as a high-performance imaging component in applications such as surface defect detection, volumetric analysis, robotic guidance, and quality control.

This user manual provides comprehensive information about the device's technical specifications, installation, operation, and safety instructions. Please read this manual carefully before using the product to achieve the best results in your system and ensure optimal performance in your image processing applications.

For any questions or technical support requests, feel free to contact the Prion Industrial Lighting Technical Service.

3.2 Storage Conditions

To maintain the performance and longevity of the Stereo Photometric Light, it must be stored under proper environmental conditions. Failure to comply with these guidelines may result in damage or degradation of the device.

Recommended storage conditions:

- Temperature: -10°C to +60°C
- Humidity: 0% to 85% relative humidity, non-condensing
- Keep away from direct sunlight, dust, and corrosive substances
- Store in the original packaging or in an anti-static container
- Avoid mechanical stress, shock, or vibration during storage
- Do not store in environments with strong electromagnetic fields

If the Stereo Photometric Light has been stored for an extended period, it should be thoroughly inspected before use.

3.4 Cleaning and maintenance

Proper cleaning and regular maintenance are essential to ensure the reliable operation and extended lifespan of the Stereo Photometric Light. The following guidelines should be followed:

Cleaning:

- Always power off and disconnect the device before cleaning.
- Use a soft, dry cloth to wipe the exterior surface.
- For more persistent dirt, use a lightly dampened cloth with water or isopropyl alcohol. Avoid excessive moisture.
- Do not use abrasive cleaners, solvents, or pressurized air that could damage the housing or internal components.
- Avoid getting any liquid inside the device.

Maintenance:

- Periodically inspect the device and its connectors for dust, corrosion, or physical damage.
- Ensure that mounting and wiring remain secure and vibration-resistant.
- Do not attempt to open or repair the device; if malfunction is suspected, contact Prion Endüstriyel Aydınlatma technical service for assistance.

Following these steps will help maintain optimal performance and prevent unnecessary failures.

4 GETTING STARTED

4.1 Overview

The Stereo Photometric Light developed by Prion Endüstriyel Aydınlatma is a high-performance lighting system designed to enhance surface visibility and geometry detection in machine vision applications. By utilizing synchronized light angles and structured illumination, it enables precise imaging in industrial environments.

Key features include:

- Structured light for enhanced surface detail analysis
- Synchronized multi-angle LED illumination
- Compatibility with stereo and photometric imaging techniques
- Robust design for industrial environments
- Uniform and shadow-free lighting
- Easy integration with vision systems and cameras

This lighting solution is ideal for applications such as defect detection, 3D surface mapping, object measurement, and robotic guidance. With proper usage and configuration, it provides reliable, high-contrast illumination, improving the accuracy of machine vision processes.

4.2 Accessories

To ensure optimal performance and reliable operation, the Stereo Photometric Light should be used with the following accessories:

Controller Unit:

The controller is essential for synchronized operation and precise adjustment of the lighting modes. It allows you to control LED brightness, adjust light angles, and manage trigger functionality when required. The controller must be selected based on your system's technical requirements and the operating modes of the light.

Trigger Cable and Connectors:

Trigger cables are used to synchronize the lighting with the camera system. This enables the light to activate only during image capture, optimizing energy use and ensuring precise illumination timing. High-quality connectors are required for secure and stable operation.

Mounting Accessories:

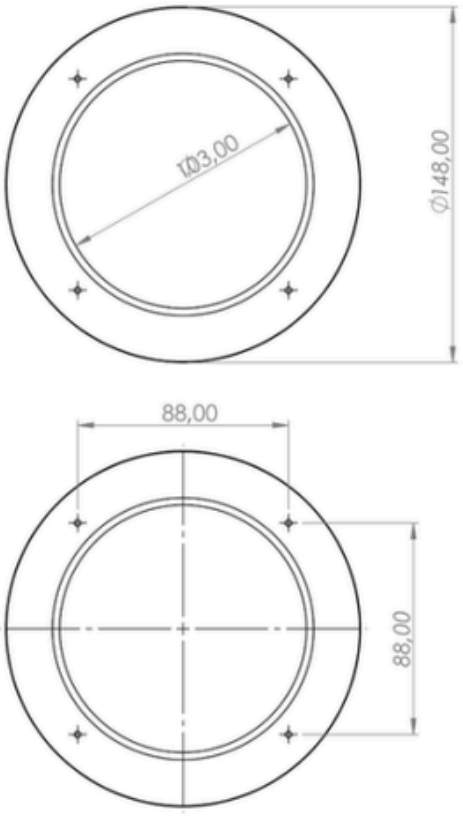
Mounting brackets, adjustable arms, or rail systems are necessary to position the light correctly at the desired angle and location. Proper mounting ensures stability and consistent lighting performance.

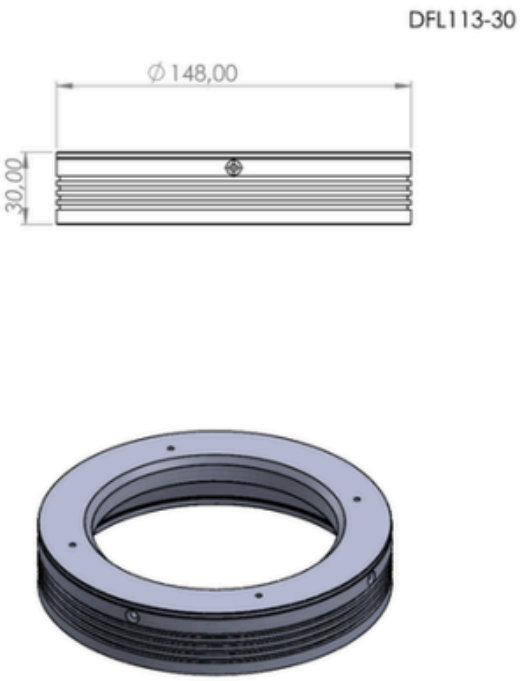
Using these accessories together ensures seamless integration of the Stereo Photometric Light into your machine vision setup and contributes to high-precision imaging.

5 TECHNICAL SPECIFICATIONS

Illumination Type-Stereo Photometric Structured Light
LED Configuration-Multiple directional LED arrays (typically 3 or 4 angles)
Wavelength Options-White (6000–6500K), Red (625nm), Blue (470nm),)
Light Control-Adjustable brightness, selectable channel/angle control
Synchronization-External trigger input (TTL/24V), compatible with camera trigger systems
Operating Voltage-24V DC (±10%)
Power Consumption-Varies by model, typically 15–30 W
Interface-M8 or M12 industrial connector (4 to 8 pins)
Mounting-Side or back mounting holes, compatible with standard machine vision brackets
Housing Material-Anodized aluminum with passive cooling
Operating Temperature-0°C to +50°C
Storage Temperature--10°C to +60°C
Humidity Range-0%–85% RH, non-condensing
Environmental Protection-IP65 (dustproof and water-resistant)
Dimensions-Custom or model-dependent (e.g., 120×120×30 mm)
Weight-Approx. 500–1000 g (depending on model)
Response Time-< 10 ms (from trigger to full intensity)

5.1 Physically Specification





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