

LED Fiber Optic Illuminator

Oriel[®] LED Fiber Optic Illuminator



66088-LED
66088-LED50

User's Manual

 **Newport[®] Products**

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1 GENERAL INFORMATION

Thank you for your purchase of this LED fiber optic illuminator from Oriel Instruments.

Please carefully read the following important safety precautions prior to unpacking and operating this equipment. In addition, please refer to the complete User's Manual for additional important notes and cautionary statements regarding the use and operation of the system.

Do not attempt to operate the system without reading all the information provided with each of the components.

2 SYMBOLS AND DEFINITIONS

	WARNING Situation has the potential to cause damage to property or equipment as well as bodily harm or death.
	ELECTRICAL SHOCK Hazard arising from dangerous voltage. Any mishandling could result in irreparable damage to the equipment, and personal injury or death.
Note:	Additional important information the user or operator should consider.

Please read all instructions that were provided prior to operation of the system.

If there are any questions, please contact Oriel Instruments or the representative through whom the system was purchased.

3 SYSTEM SETUP

3.1 UNPACKING

Remove all items from the box and verify each item is accounted for. The system is carefully packaged to minimize the possibility of damage during shipment. Inspect the shipping box for external signs of damage or mishandling. Inspect the contents for damage. The contents of the box include:

- 66088-LED or 66088-LED50 light source
- AC power adapter
- This manual

If any item is missing or damaged, immediately contact Oriel Instruments or the Newport representative from whom the system was purchased.

It is suggested to save the packaging material and box, in case the equipment needs to be stored or relocated at a future date.

**WARNING**

Do not attempt to operate this equipment if there is evidence of shipping damage or there is suspicion that the equipment will not operate correctly. Damaged equipment may present hazards.

3.2 CHOOSING A LOCATION

Choose an installation location where the power requirements can be met for the system. Be sure power is not applied to the system until the setup has been completed.

The environment should be that of a typical laboratory atmosphere, without excessive humidity and contaminants in the air. Air should be able to circulate freely around the system.

4 OPERATION

4.1 INTERFACE

66088-LED

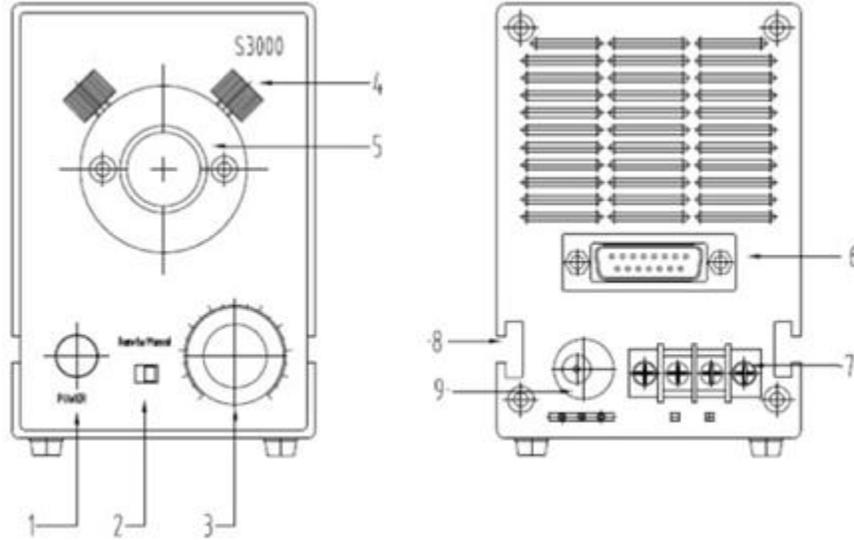


Figure 1: 66088-LED Interface Schematic

- | | |
|-------------------------|-----------------------|
| 1. Power on/off button | 6. DB15 connector |
| 2. Remote/Manual switch | 7. Fence DC 24V input |
| 3. Light intensity knob | 8. T fixed slot |
| 4. Holding screw | 9. Round DC 24V input |
| 5. Light guide socket | |

DB15 connector pinout:

1	ON DC 3.5-24V / OFF DC 1.5V
2	GND
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC
9	NC
10	PWM / DC 0-5V INPUT +
11	GND
12	NC
13	NC
14	NC
15	NC

66088-LED50

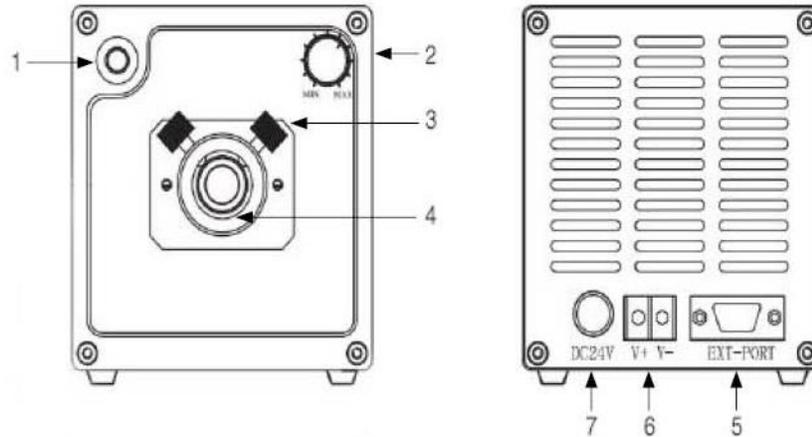


Figure 2: 66088-LED50 Interface Schematic

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. Power on/off button 2. Light intensity knob 3. Holding screw 4. Light guide socket | <ul style="list-style-type: none"> 5. DB9 connector 6. Fence DC 24V input 7. Round DC 24V input |
|--|--|

DB9 connector pinout:

1	High Speed Trigger (DC 5-12V, High level effective)
2	5V internal power output (2mA max)
3	Adjust Potentiometer to dim intensity
4	DIM (External dimmer 0-5V analog voltage or 5V PWM)
5	EN (External Standby signal pin)
6	GND
7	GND
8	GND
9	GND

4.2 INPUT POWER

There are two ways to supply input power to the 66088-LED(50):

1. Supply input voltage to the light source by connecting the AC power adapter to the Round DC24 input at the rear panel of the unit and plugging the power adapter into a suitable outlet.
2. Connect a DC power supply directly to the Fence DC24 input, also located on the rear panel, and provide 24V, along with the necessary current per the specification table..

When a suitable input voltage method has been connected to the 66088-LED(50), press the POWER button on the front panel of the light source. The internal fan of the unit will become audible upon powering up.

Further, Model 66088-LED can be turned on/off via the DB15 connector. Input 2-12 VDC to Pins 1 and 2 to turn the light source on. Input 0-0.5 VDC to Pins 1 and 2 to turn them off.

4.3 BRIGHTNESS CONTROL

There are three methods of controlling the brightness of the 66088-LED(50) output light:

1. Manual Control – The brightness can be controlled by using the light intensity knob located on the front panel. For the 66088-LED model, first set the Remote/Manual switch to Manual. Turning the knob clockwise proportionally increases the brightness of the light source, as turning the knob counterclockwise proportionally decreases the brightness of the light source.
2. Analog Control –
 - a. For the 66088-LED model: set the Remote/Manual switch to Remote. Using a low noise DC power supply capable of outputting 5 VDC, connect the power supply to PIN 10 and PIN 11 via the DB15 connector located on the rear of the light source. Inputting 0 VDC will result in no light output from the light source and inputting 5 VDC will result in the highest light output intensity from the light source. Varying the input voltage from 0-5 VDC will proportionally change the output light intensity.
 - b. For the 66088-LED50 model: Using a low noise DC power supply capable of outputting 5 VDC, connect the power supply to PIN 4 and PIN 6 via the DB9 connector located on the rear of the light source. Inputting 0 VDC will result in no light output, while 5 VDC will result in the highest light output intensity. Varying the input voltage from 0-5 VDC will proportionally change the output light intensity.
3. Pulse Width Modulation (PWM) Control –
 - a. For the 66088-LED model: set the Remote/Manual switch on front panel to Remote. Input a PWM signal (200Hz, 5V) into PIN 10 and PIN 11 via the DB15 connector located on the rear of the light source. To increase the brightness of the light source, increase the duty cycle of the PWM signal.
 - b. For the 66088-LED50 model: Input a PWM signal (200Hz, 5V) into PIN 4 and PIN 6 via the DB9 connector located on the rear of the light source. To increase the brightness of the light source, increase the duty cycle of the PWM signal.

Exclusive to model 66088-LED50, there are two additional light control features:

1. High Speed Trigger – Apply 5-12 VDC to Pin 1 and ground signal to Pins 6-9 to enable high speed trigger control. The response time of the instrument is on the order of 100ns from receiving the voltage signal, with an LED ON time as low as 10 μ s. This is suitable for strobe/pulsed applications.
2. External Dimmer Control – If using an external potentiometer for manual analog control, apply 5 VDC to Pin 2 and ground signal to Pins 6-9. Pin 3 will act as the adjustment control when connected across a 5-10 k Ω resistor to the external potentiometer.

4.4 CONNECTING A LIGHT GUIDE

A suitable light guide can be attached to the socket on the front of the light source. See the drawing below for the interior dimensions of the socket. Place the light guide into this socket and tighten the fixed screws to hold the light guide in place.

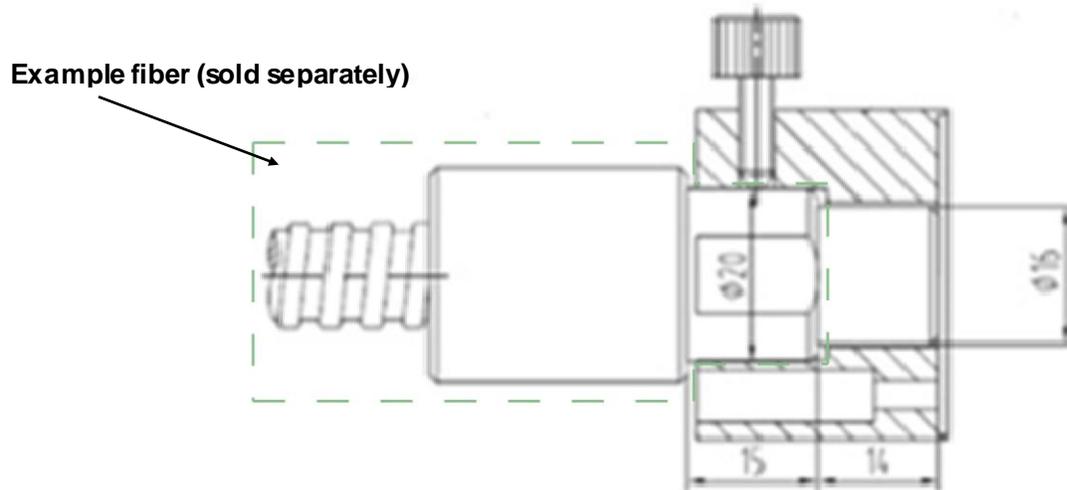


Figure 3: Interior dimensions (in mm) of the light guide socket.

66088-LED-ADAPT (sold separately)



Photo 1: 66088-LED-ADAPT product offering

The 66088-LED-ADAPT optimally couples any 11 mm ferrule terminated fiber to the output of the 66088-LED(50) fiber optic illuminators. A hex wrench is included for easy attachment to an 11 mm ferrule. Once the fiber is installed, use the screws on the front panel of the light source to secure the 66088-LED-ADAPT. For fibers that do not have 11 mm ferrule termination, easy to attach ferrules are sold separately to allow for installation into the 66088-LED-ADAPT.

5 SPECIFICATIONS

5.1 SYSTEM SPECIFICATIONS

Model	66088-LED	66088-LED50
LED Power (W)	15	50
Spectral Range (nm)	420 - 780	
Illumination Type	Fiber Optic Illuminator	
Compatible Light Guide Adaptor	20 mm interface	
Optical Power (Watt)	0.10	0.98
Illumination Mode	Constant or Trigger	
LED Power Supply	Constant-Current System	
Intensity Control Option	0-100% (Manual/Analog control DC 0-5V/PWM 200Hz-100kHz 5V)	
Input Voltage	AC 96-240 V power adapter, 50/60Hz / DC 24V, 1.5 A	AC 90-250V power adapter / DC 24V, 5.0A
Maximum Power Consumption (W)	15	65
Average Illuminance (Lx)	Approximately 143,000	572,000
Color Temperature (K)	5,000	6,500
Lamp Life	Approximately 30,000 hr	
Cooling	Body + High Speed Fan	
Net Weight (kg)	0.84	2.2
Dimensions (L, W, H)	186 x 70 x 104 mm	225 x 100 x 111 mm
Operating Temperature (°C)	0 – 50	
Relative Humidity (%)	20 – 80	
CE/RoHS	No	

5.2 OUTPUT WAVELENGTH

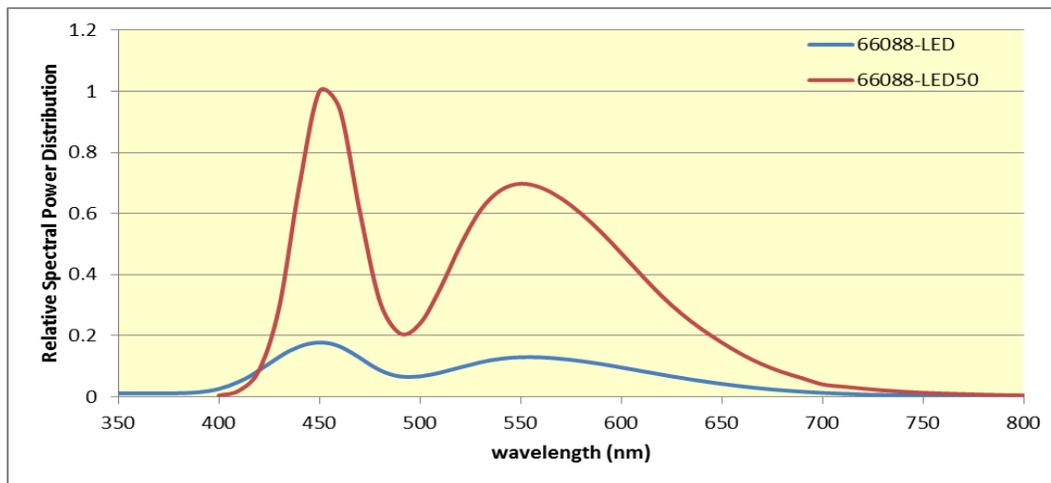


Figure 4: Comparison of relative output power

5.3 DIMENSIONS

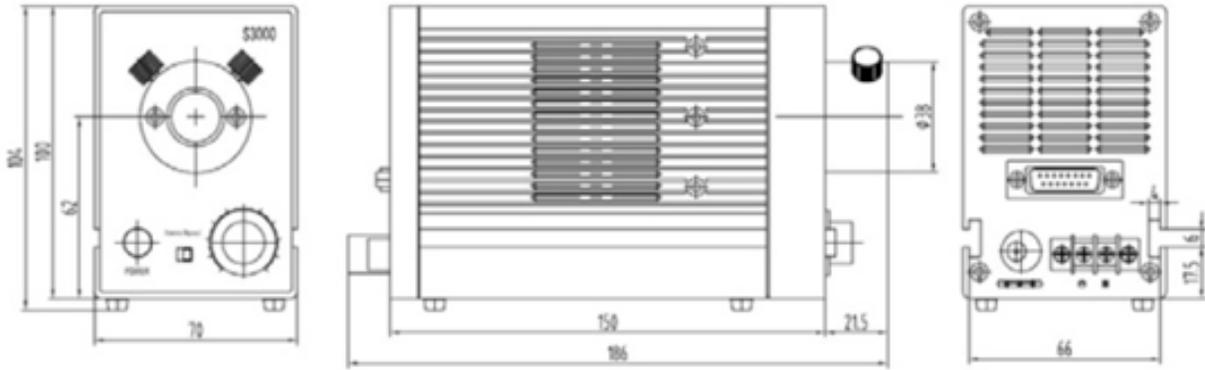


Figure 5: 66088-LED dimensions in mm.

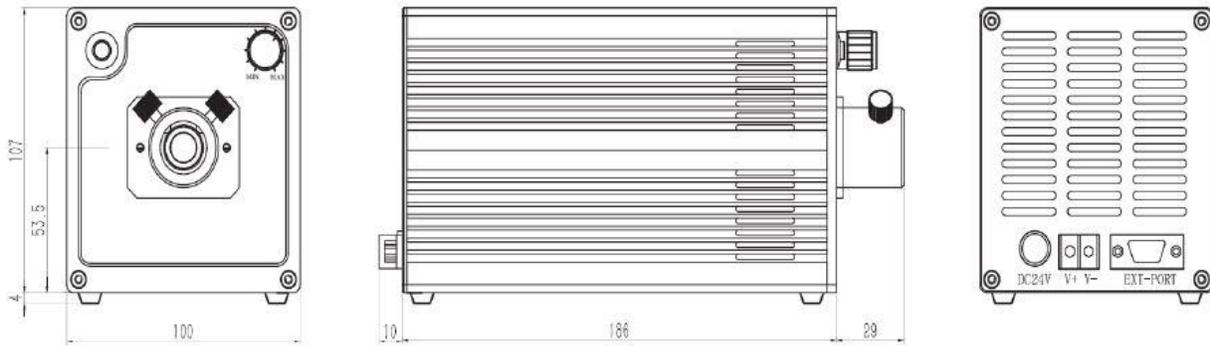


Figure 6: 66088-LED50 dimensions in mm.

6 WARRANTY AND SERVICE

6.1 CONTACTING ORIEL INSTRUMENTS

Oriel Instruments belongs to Newport Corporation's family of brands. Thanks to a steadfast commitment to quality, innovation, hard work and customer care, Newport is trusted the world over as the complete source for all photonics and laser technology and equipment.

Founded in 1969, Newport-Oriel is a pioneering single-source solutions provider of laser and photonics components to the leaders in scientific research, life and health sciences, photovoltaics, microelectronics, industrial manufacturing and homeland security markets.

Newport Corporation proudly serves customers across Canada, Europe, Asia and the United States through 9 international subsidiaries and 24 sales offices worldwide. Every year, the Newport Resource catalog is hailed as the premier sourcebook for those in need of advanced technology products and services. It is available by mail request or through Newport's website. The website is where one will find product updates, interactive demonstrations, specification charts and more.

To obtain information regarding sales, technical support or factory service, United States and Canadian customers should contact Oriel Instruments directly.

Oriel Instruments
1791 Deere Avenue
Irvine CA 92606 USA

Telephone: 800-222-6440 (toll-free in United States)
949-253-1727

Fax: 949-253-1680

Sales: oriel.sales@newport.com
Technical assistance: oriel.tech@newport.com
Repair Service: rma.service@newport.com

Customers outside of the United States must contact their regional representative for all sales, technical support and service inquiries. A list of worldwide representatives can be found on Newport's website: <https://www.newport.com/contact/contactslocations>

6.2 REQUEST FOR ASSISTANCE / SERVICE

Please have the following information available when requesting assistance or service:

Contact information for the owner of the product.
Instrument model number (located on the product label).
Product serial number and date of manufacture (located on the product label).
Description of the problem.

To help Oriel's Technical Support Representatives diagnose the problem, please note the following:

Is the system used for manufacturing or research and development?
What was the state of the system right before the problem?
Had this problem occurred before? If so, when and how frequently?
Can the system continue to operate with this problem, or is it non-operational?
Were there any differences in the application or environment before the problem occurred?

6.3 REPAIR SERVICE

This section contains information regarding factory service for this product. The user should not attempt any maintenance or service of the system beyond the procedures outlined in this manual. This product contains no user serviceable parts other than what is noted in this manual. Any problem that cannot be resolved should be referred to Oriel Instruments.

If the instrument needs to be returned for service, a Return Material Authorization (RMA) number must be obtained prior to shipment to Oriel Instruments. This RMA number must appear on both the shipping container and the package documents.

Return the product to Oriel Instruments, freight prepaid, clearly marked with the RMA number and it either will be repaired or replaced at Oriel's discretion.

Oriel is not responsible for damage occurring in transit. The Owner of the product bears all risk of loss or damage to the returned Products until delivery at Oriel's facility. Oriel is not responsible for product damage once it has left the facility after repair or replacement has been completed.

Oriel is not obligated to accept products returned without an RMA number. Any return shipment received by Oriel without an RMA number may be reshipped by Newport, freight collect, to the Owner of the product.

6.4 NON-WARRANTY REPAIR

For Products returned for repair that are not covered under warranty, Newport's standard repair charges shall be applicable in addition to all shipping expenses. Unless otherwise stated in Newport's repair quote, any such out-of-warranty repairs are warranted for ninety (90) days from date of shipment of the repaired Product.

Oriel will charge an evaluation fee to examine the product and determine the most appropriate course of action. Payment information must be obtained prior to having an RMA number assigned. Customers may use a valid credit card, and those who have an existing account with Newport Corporation may use a purchase order.

When the evaluation had been completed, the owner of the product will be contacted and notified of the final cost to repair or replace the item. If the decision is made to not proceed with the repair, only the evaluation fee will be billed. If authorization to perform the repair or provide a replacement is obtained, the evaluation fee will be applied to the final cost. A revised purchase order must be submitted for the final cost. If paying by credit card, written authorization must be provided that will allow the full repair cost to be charged to the card.

6.5 WARRANTY REPAIR

If there are any defects in material or workmanship or a failure to meet specifications, notify Oriel Instruments promptly, prior to the expiration of the warranty.

Except as otherwise expressly stated in Oriel's quote or in the current operating manual or other written guarantee for any of the Products, Oriel warrants that, for the period of time set forth below with respect to each Product or component type (the "Warranty Period"), the Products sold hereunder will be free from defects in material and workmanship, and will conform to the applicable specifications, under normal use and service when correctly installed and maintained. Oriel shall repair or replace, at Oriel's sole option, any defective or nonconforming Product or part thereof which is returned at Buyer's expense to Oriel facility, provided, that Buyer notifies Oriel in writing promptly after discovery of the defect or nonconformity and within the Warranty Period. Products may only be returned by Buyer when accompanied by a return material authorization number ("RMA number") issued by Oriel, with freight prepaid by Buyer. Oriel shall not be responsible for any damage occurring in transit or obligated to accept Products returned for

warranty repair without an RMA number. Buyer bears all risk of loss or damage to the Products until delivery at Oriel's facility. Oriel shall pay for shipment back to Buyer for Products repaired under warranty.

WARRANTY PERIOD

All Products (except consumables such as lamps, filters, etc.) described here are warranted for a period of twelve (12) months from the date of shipment.

Lamps, gratings, optical filters and other consumables / spare parts (whether sold as separate Products or constituting components of other Products) are warranted for a period of ninety (90) days from the date of shipment.

WARRANTY EXCLUSIONS

The above warranty does not apply to Products which are (a) repaired, modified or altered by any party other than Oriel; (b) used in conjunction with equipment not provided or authorized by Oriel; (c) subjected to unusual physical, thermal, or electrical stress, improper installation, misuse, abuse, accident or negligence in use, storage, transportation or handling, alteration, or tampering, or (d) considered a consumable item or an item requiring repair or replacement due to normal wear and tear.

DISCLAIMER OF WARRANTIES; EXCLUSIVE REMEDY

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES. EXCEPT AS EXPRESSLY PROVIDED HEREIN, ORIEL MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, REGARDING THE PRODUCTS, SOFTWARE OR SERVICES. NEWPORT EXPRESSLY DISCLAIMS ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE FOR THE PRODUCTS, SOFTWARE OR SERVICES. THE OBLIGATIONS OF ORIEL SET FORTH IN THIS SECTION SHALL BE ORIEL'S SOLE LIABILITY, AND BUYER'S SOLE REMEDY, FOR BREACH OF THE FOREGOING WARRANTY. Representations and warranties made by any person including distributors, dealers and representatives of Oriel / Newport Corporation which are inconsistent or in conflict with the terms of this warranty shall not be binding on Oriel unless reduced to writing and approved by an expressly an authorized officer of Newport.

6.6 LOANER / DEMO MATERIAL

Persons receiving goods for demonstrations or temporary use or in any manner in which title is not transferred from Newport shall assume full responsibility for any and all damage while in their care, custody and control. If damage occurs, unrelated to the proper and warranted use and performance of the goods, recipient of the goods accepts full responsibility for restoring the goods to their original condition upon delivery, and for assuming all costs and charges.

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The Newport programs and all materials furnished or produced in connection with them ("Related Materials") contain trade secrets of Newport and are for use only in the manner expressly permitted. Newport claims and reserves all rights and benefits afforded under law in the Programs provided by Newport Corporation.

Newport shall retain full ownership of Intellectual Property Rights in and to all development, process, align or assembly technologies developed and other derivative work that may be developed by Newport. Customer shall not challenge, or cause any third party to challenge the rights of Newport.

Preservation of Secrecy and Confidentiality and Restrictions to Access:

Customer shall protect the Newport Programs and Related Materials as trade secrets of Newport, and shall devote its best efforts to ensure that all its personnel protect the Newport Programs as trade secrets of Newport Corporation. Customer shall not at any time disclose Newport's trade secrets to any other person, firm, organization, or employee that does not need (consistent with Customer's right of use hereunder) to obtain access to the Newport Programs and Related Materials. These restrictions shall not apply to information (1) generally known to the public or obtainable from public sources; (2) readily apparent from the keyboard operations, visual display, or output reports of the Programs; (3) previously in the possession of Customer or subsequently developed or acquired without reliance on the Newport Programs; or (4) approved by Newport for release without restriction.

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