

# FL-6000

## LED Illuminator

### Operation Manual



# Model FL-6000 LED Fiber Illuminator

## User's Manual

### 1. Scope

Applicable to FL-6000

### 2. Symbol Description ; Symbolbeschreibung; Description des symboles; Descrizione del simbolo

CAUTION: Refer to Operator's Manual



### 3. Warnings and Precautions ; Warnungen und Sicherheitshinweise; Avertissements et précautions; Avvertenze e precauzioni

#### 3.1. READ ALL INSTRUCTIONS BEFORE USE



LESEN SIE VOR DER NUTZUNG ALLE ANWEISUNGEN SORGFÄLTIG  
DURCH  
LIRE TOUTES LES INSTRUCTIONS AVANT UTILISATION  
LEGGERE LE ISTRUZIONI PRIMA DELL'USO

#### 3.2. WHEN CHANGING FIBER, DEVICE SHOULD BE TURNED OFF

BEIM WECHSEL DES LICHTWELLENLEITERS SOLLTE DAS GERÄT  
ABGESCHALTET SEINLORS DU REMPLACEMENT DE LA FIBRE, L'APPAREIL  
DOIT ÊTRE ÉTEINT  
QUANDO SI CAMBIA LA FIBRA, L'APPARECCHIO DEVE ESSERE SPENTO

During operation, some internal components can become hot. To avoid the possibility of injury, always turn the device off and allow 30 seconds for cooling prior to changing the fiber or adapter or otherwise exposing the internal components.

Während des Betriebs können sich einige interne Komponenten erhitzen. Um die Gefahr einer Verletzung zu vermeiden, schalten Sie das Gerät immer ab und lassen Sie es 30 Sekunden abkühlen, bevor Sie den Lichtwellenleiter oder den Adapter austauschen oder die internen Komponenten anderweitig freilegen.

Pendant le fonctionnement de l'appareil, certains composants internes peuvent devenir chauds. Pour éviter tout risque de blessure, toujours éteindre l'appareil et attendre 30 secondes qu'il refroidisse avant de remplacer la fibre ou l'adaptateur, ou d'exposer de quelque façon les composants internes.

Durante l'uso, alcuni componenti interni possono diventare caldi. Per

evitare possibili infortuni, spegnere l'apparecchio e lasciarlo raffreddare per 30 secondi prima di cambiare la fibra, l'adattatore o comunque prima di esporre i componenti interni.

### 3.3. PROVIDE ADEQUATE VENTILATION AT ALL TIMES

STELLEN SIE JEDERZEIT EINE ANGEMESSENE BELÜFTUNG SICHER  
ASSURER À CHAQUE INSTANT UNE VENTILATION ADÉQUATE  
MANTENERE UN LIVELLO DI VENTILAZIONE ADEGUATO

Allow clearance for the ventilation slots as described in section 5.3 to ensure the device does not overheat and trigger the internal shut-off mechanism.

Lassen Sie ausreichend Platz für die Belüftungsschlitze, wie in Abschnitt 5.3 beschrieben, um sicherzustellen, dass das Gerät nicht überhitzt und dadurch einen internen Abschaltmechanismus auslöst.

Veiller à ce que les orifices de ventilation soient dégagés, tel qu'expliqué au paragraphe 5.3 afin de s'assurer que l'appareil ne surchauffe pas et qu'il ne déclenche pas le mécanisme d'arrêt interne.

Assicurare che vi sia uno spazio libero attorno alle prese di ventilazione, come descritto in sezione 5.3, in modo da prevenire il surriscaldamento dell'apparecchio che innescherebbe lo spegnimento automatico.

### 3.4. DIRECT VIEWING OF EXITING LIGHT CAN BE HARMFUL

DER DIREKTE BLICK IN DEN AUSTRETENDEN LICHTSTRAHL KANN  
SCHÄDLICH SEIN  
IL PEUT ÊTRE DANGEREUX DE REGARDER DIRECEMENT LA LUMIÈRE DE  
SORTIE  
GUARDARE DIRETTAMENTE VERSO LA LUCE IN USCITA PUÒ ESSERE  
DANNOSO

Avoid direct viewing of the light. All LEDs and LED-based products are sources of light which can in some circumstances cause damage to the eye. The potential for any eye injury will depend upon many factor including but not limited to:

- duration of exposure and extent of pupil dilation prior to exposure
- distance from light source to eye
- drive current supplied to LEDs determined by the intensity light setting
- beam pattern (degree of focus)

Vermeiden Sie es, direkt in den Lichtstrahl zu blicken. Alle LEDs und LED-basierten Produkte sind Lichtquellen, die unter Umständen Augenschäden verursachen können. Die Gefahr einer Augenschädigung ist von vielen Faktoren abhängig, darunter u. a. – jedoch nicht ausschließlich – folgende:

- Dauer der Lichteinstrahlung und Pupillenerweiterung vor der Einstrahlung
- Abstand des Auges zur Lichtquelle
- Ansteuerungsstrom für die LEDs in Abhängigkeit von der Lichtintensitätseinstellung
- Strahlenmuster (Grad der Fokussierung)

Éviter de regarder directement la lumière. Toutes les DEL et les produits à base de DEL sont des sources lumineuses qui peuvent, dans certaines circonstances, provoquer des lésions oculaires. Le risque de lésion oculaire dépendra de nombreux facteurs, y compris mais de façon non limitative :

- la durée d'exposition et le degré de dilatation de la pupille avant l'exposition
- la distance entre la source lumineuse et l'œil
- le courant d'attaque délivré aux DEL déterminé par le réglage clair de l'intensité
- le motif du faisceau (degré de focalisation)

Evitare di guardare direttamente verso la luce. Tutti i LED e i prodotti a base di LED sono sorgenti luminose che, in alcune circostanze, possono danneggiare la vista. Le probabilità di danno alla vista dipendono da vari fattori, come quelli elencati nel seguente elenco parziale:

- durata dell'esposizione e grado di dilatazione della pupilla prima dell'esposizione
- distanza tra occhi e sorgente luminosa
- flusso di corrente che alimenta i LED determinato dall'intensità di luce impostata
- configurazione del fascio (livello di messa a fuoco)

3.5. USE ONLY THE POWER CONVERTER SUPPLIED WITH THE PRODUCT  
VERWENDEN SIE NUR DEN MIT DEM PRODUKT AUSGELIEFERTEN  
STROMRICHTER

UTILISER UNIQUEMENT LE CONVERTISSEUR DE PUISSANCE FOURNI  
AVEC LE PRODUIT

USARE ESCLUSIVAMENTE IL CONVERTITORE ELETTRICO FORNITO CON  
IL PRODOTTO

Use of other power converters can damage product, will void warranty,  
and may result in unsafe operation

Der Gebrauch von anderen Stromrichtern kann zu Schäden am Produkt  
führen, die Gewährleistung aufheben und zu einem unsicheren Betrieb  
führen.

L'utilisation d'autres convertisseurs peut endommager le produit,  
annuler la garantie et rendre le produit dangereux à utiliser.

Il ricorso ad altri convertitori elettrici può causare danni al prodotto,  
invalidare la garanzia e creare condizioni d'uso pericolose.

### 3.6. PLUG AC CORD ONLY INTO SUITABLY GROUNDED AC RECEPTACLES

STECKEN SIE DAS STROMKABEL NUR IN ANGEMESSEN GEERDETE  
STECKDOSEN

BRANCHER LE CORDON D'ALIMENTATION UNIQUEMENT À UNE PRISE  
CORRECTEMENT MISE À LA TERRE

INSERIRE LA SPINA ELETTRICA SOLO IN PRESE DI CORRENTE ALTERNATA  
CON IDONEA MESSA A TERRA

### 3.7. ALWAYS USE THE DEVICE IN A MANNER SPECIFIED BY THE MANUFACTURER

VERWENDEN SIE DAS GERÄT NUR SACHGEMÄSS ZU DEM VOM  
HERSTELLER ANGEGEBEN ZWECK

TOUJOURS UTILISER L'APPAREIL TEL QU'INDIQUÉ PAR LE FABRICANT

FARE USO DELL'APPARECCHIO ATTENENDOSI ALLE ISTRUZIONI DEL  
PRODUTTORE

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

Wenn das Gerät für einen anderen Zweck als vom Hersteller angegeben  
oder auf unsachgemäße Weise verwendet wird, kann der geräteeigene  
Schutz beeinträchtigt werden.

Si l'appareil est utilisé d'une façon non spécifiée par le fabricant, la  
protection fournie par l'équipement sera endommagée.

Se il dispositivo è utilizzato diversamente da come descritto dal  
produttore, le funzioni di sicurezza dell'apparecchio potrebbero non  
funzionare.

### 3.8. DO NOT USE FOR MEDICAL APPLICATIONS

VERWENDEN SIE DAS GERÄT NICHT ZU MEDIZINISCHEN ZWECKEN

NE PAS UTILISER POUR DES APPLICATIONS MÉDICALES

NON UTILIZZARE PER APPLICAZIONI MEDICHE

This product is not intended for medical use.

Dieses Produkt ist nicht für medizinische Zwecke ausgelegt.

Ce produit n'est pas destiné à un usage médical.

Questo prodotto non è destinato a uso medico.

## 4. General Information

### 4.1. Intended use of equipment

4.2. The FL-6000 series Illuminator is a LED-based fiber optic illuminator designed for general microscopy and for industrial applications such as assembly illumination, machine vision, and boroscope inspection

## Technical specifications

Technical data	Value
Light output at maximum intensity setting	780 lumens typical*
Color temperature	5,000 to 6,000°K
Input voltage	90 to 264VAC, 1.5 A, 50 to 60Hz
Overvoltage Category	II
Dimensions	3.9" W x 5.1" H x 7.0" L (9.9cm W x 13.0cm T x 17.8cm L)
Weight	6.8 lbs/3.1kg

Environmental use conditions	Value
Ambient temperature	0°C to 40°C (32°F to 104°F)
Relative humidity	80% max at 31°C (88°F) decreasing linearly to 50% at 40°C (104°F)
Altitude	Up to 2000 m/6600 ft
Pollution degree	2

\*Theoretical value at fiber input, contact Dolan-Jenner for details.

### 4.3. Instructions for use

See section 6 "Equipment Operation"

#### 4.4 Manufacturer

Name and address of manufacturer or supplier from whom technical assistance may be obtained.

Dolan-Jenner Industries  
159 Swanson Road  
Boxborough, MA 01719  
1-800- 833-4237  
www.dolan-jenner.com

#### 4.5. Equipment components

The product includes the following components:

- FL-6000 Fiber-Optic Illuminator
- External power converter (AC power supply) with attached cord
- AC power cord



#### 5. Equipment installation

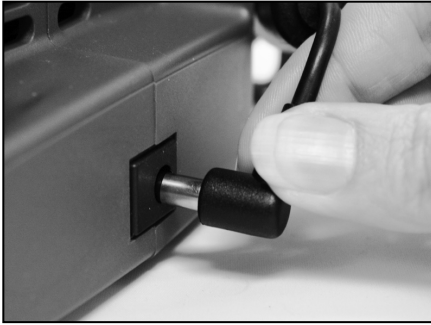
##### 5.1. Positioning the illuminator

- Choose a suitable location that provides the following:
- Adequate clearance to connect the power converter per section 5.2.
- Within reach of a suitable grounded AC outlet.
- Adequate clearance to operate the controls per sections 6.2 and 6.3.
- Clearance for ventilation per section 5.3.

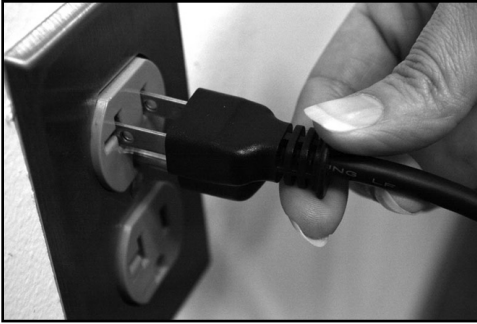
##### 5.2. Connections to the supply

- 5.2.1. Insert the male plug from the external power converter into the female power jack on the back of the unit.
- 5.2.2. Plug the AC cord into the receptacle on the external power converter and into the AC outlet.
- 5.2.3. Plug AC cord only into suitably grounded AC receptacles
- 5.2.4. Use only the power converter provided with the product - use of other power converters can damage product, will void warranty, and may result in unsafe operation."

Inserting power converter plug into rear of Fiber Illuminator

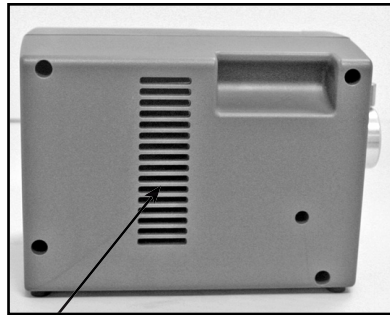


AC plug connection



### 5.3. Ventilation requirements

Do not block the ventilation slots provided for the internal cooling fan. Slots are located on both sides of the unit and on the back.



**Do not block vent slots.**

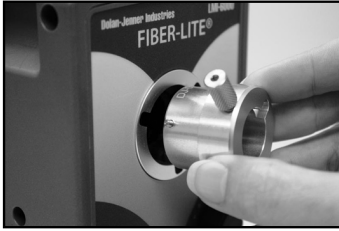




## 6. Equipment operation

### 6.1. Attaching a fiber optic adapter

If fiber adapter is not already attached to Fiber Illuminator unit, orient the adapter such that the adapter code designation is viewable on the top of the adapter as shown below. Insert the adapter into the Fiber Illuminator aligning the three pins with the corresponding three slots, push and twist clockwise until the thumbscrew is oriented horizontally as shown.



### 6.2. Turning the illuminator on and off

To turn the illuminator on, push the power switch on the lower left of the front panel to the ON position. A green indicator light will turn on when the illuminator is powered on.



To turn the illuminator off, push the switch to the OFF position.



### 6.3. Changing intensity

To change the intensity of the light output, rotate the Intensity dial on the bottom right of the front panel. Rotating clockwise increases light output and rotating counterclockwise decreases intensity.

### 6.4. Instructions for cleaning



6.4.1. The exterior of the illuminator can be gently cleaned with a soft cloth dampened with water and mild detergent.

Do not use any solvents or cleaner containing chlorine as these will damage the illuminator and may void your warranty.

6.4.2. The ventilation slots can be cleaned by blowing aerosol- based dusting air into the slots.

Do not blow compressed “shop-air” into the illuminator as such air often contains oil and water mist which may degrade the internal optics.

## 7. Product Ratings



For all CE technical questions, contact Setra Systems, USA. EU customers may contact our EU representative Hengstler GmbH, Uhlandstr 49, 78554 Aldingen, Germany (Tel: +49-7424-890; Fax: +49-7424-89500).