

OTFI-01X0 Fiber Illuminator

User's Manual ©

1. Scope

Applicable to OTFI-0100, OTFI-0110, and OTFI-0180 models

2. Symbol description; Symbolbeschreibung; Description des symboles; Descrizione del simbolo; 标志说明; 号の説明



Caution: Refer to Operator's Manual

Achtung: Nähere Angaben siehe Benutzerhandbuch

Attention : se reporter au manuel d'utilisation

Attenzione: Consultare il manuale d'uso

小心：请参见《操作手册》

注意：操作マニュアルをご参照ください

3. Warnings and Precautions; Warnungen und Sicherheitshinweise; Avertissements et précautions; Avvertenze e precauzioni; 警告和预防措施; 警告と安全上のご注意



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

使用前请仔细阅读所有说明

ご使用前にすべての指示説明をよくお読みください

3.2. WHEN CHANGING FIBER, DEVICE SHOULD BE TURNED OFF

BEIM WECHSEL DES LICHTWELLENLEITERS SOLLTE DAS GERÄT ABGESCHALTET SEIN

LORS DU REMPLACEMENT DE LA FIBRE, L'APPAREIL DOIT ÊTRE ÉTEINT

QUANDO SI CAMBIA LA FIBRA, L'APPARECCHIO DEVE ESSERE SPENTO

更换光纤时应关闭装置

ファイバーを交換する際は、装置の電源をお切りください

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.

工作期间某些内部元件可能会变热。为避免受伤的可能性，在更换光纤或适配器或用别的方法暴露内部元件之前，必须关闭本装置并冷却30秒。

操作中、内部コンポーネントの一部が熱くなる場合があります。けがを未然に防ぐため、ファイバーまたはアダプタを交換する際、またはそれ以外の目的で内部コンポーネントを開ける場合には、装置の電源を切ってから必ず 30 秒間の冷却時間をおいてください。

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

随时保持充分的通风

常に充分な通気を保つようにしてください

Allow clearance for the ventilation slots as described in section 1.1 to insure the device does not overheat and trigger the internal shut-off mechanism.

Lassen Sie ausreichend Platz für die Belüftungsschlitze, wie in Abschnitt 1.1 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 1.1 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 1.1, in modo da prevenire il surriscaldamento dell'apparecchio che innescherebbe lo spegnimento automatico.

按 1.1 节所述，预留通风孔的间隙，确保装置不会过热和触发内部断路机构。

機器のオーバーヒートにより内臓シャットダウンシステムが作動するのを防ぐため、セクション1.1に説明されているように、通気スロット周辺には充分なスペースを設けてください。

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

直视LED发出的光可能有害

放射光を裸眼で見ることは危険です

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 factors 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)

避免直视光线。所有 LED 和基于 LED 的产品都是光源，在某些情况下可能伤害眼睛。造成任何眼睛受伤的可能性取决于许多因素，包括但不限于：

- 暴露时长和暴露前的瞳孔扩张程度
- 光源到眼睛的距离
- 由光强设置决定的提供给LED的驱动电流
- 束型（聚焦度）

光線を裸眼で見ることはお避けください。すべての LED および LED 使用製品は、状況次第で目に損傷を発生させ得る光源です。眼球の損傷の危険は多くの要素に左右され、それには以下の要素も含まれます（これに限定されるものではありません）。

- 光に曝される時間および光に曝される前の瞳孔拡張の度合い
- 光源から目までの距離
- 光の強度設定によって決定される、LED に供給される駆動電流
- ビームのパターン (焦点の度合い)


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

只使用随产品一起提供的电源转换器

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製品に付属の電力コンバータのみをお使いください

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.

使用其它电源转换器可能会损坏产品, 使保修失效, 并且可能导致工作不安全。

他の電力コンバータをご使用の場合、製品が破損する可能性があり、これにより保証は無効となり、操作に危険が伴う恐れがあります。

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

交流电线只能插入适当接地的交流插座内

電源コードは適切に接地された交流用コンセントのみに接続してください

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

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

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

FARE USO DELL'APPARECCHIO ATTENENDOSI ALLE ISTRUZIONI DEL PRODUTTORE

必须按制造商规定的方式使用本装置

本装置は、常に製造業者の指定に従ってお使いください

If the device 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.

如果未按制造商规定的方式使用本装置, 可能会削弱设备所提供的保护。

本装置が製造業者の指定を外れた方法で使用された場合、装置に備えられた保護機能が損なわれる可能性があります。

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

不得用于医学用途

医療用の使用はお避けください

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.

本产品不适合医用。

本製品は、医療向けに作られたものではありません。

4. General Information

4.1. Intended use of equipment

The Excelitas Technologies OTFI-01X0 series Fiber Illuminator is a LED-based fiber optic illuminator designed for general microscopy and for industrial applications such as assembly illumination, machine vision, boroscopes, and inspection.

4.2. Technical specifications

Technical data	Value
Light output at maximum intensity, models OTFI-0100 & OTFI-0180	905 lumens typical ¹
Light output at maximum intensity, models OTFI-0110	710 lumens typical ¹
Color temperature	5,000 to 6,000°K ²
Input voltage	100 to 240V AC, 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, models OTFI-0100 & OTFI-0110	5.9 lbs/2.7kg
Weight, model OTFI-0180	4.2lbs/1.9kg

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

¹Measured luminous flux directly out of Fiber Illuminator

²Measured CCT from the distal end of a 5 mm glass fiber bundle with NA = 0.6. CCT may vary if measured with optical fibers having different characteristics.

4.3. Instructions for use

See sections 5 (Equipment Installation) and sections 6 (Equipment Operation).

4.4. Electrical Interference

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

4.5. Equipment components

The product includes the following components:

- Fiber illuminator
- External power converter (AC power supply) with ferrite and attached cord
- AC power cord (sold separately)
- Adapter-holder for fiber optic bundles (sold separately)



5. Equipment installation

5.1. Positioning the device

Choose a suitable location that provides the following:

- Adequate clearance to connect the power converter per section 5.2.
- Within reach of a grounded AC outlet.
- Adequate clearance to operate the controls per sections 6.2 and 6.3.
- Clearance for ventilation per section 1.1.

5.2. Connections to the AC power supply

5.2.1. Insert the male plug from the external power converter into the female power jack on the back of the unit.

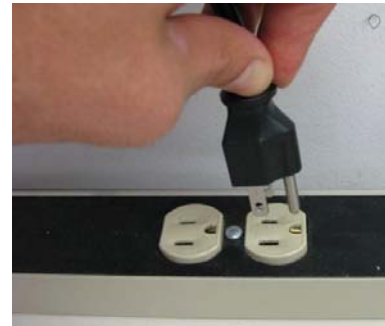
5.2.2. Plug the AC cord into the receptacle on the external power converter and into the AC outlet.

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.

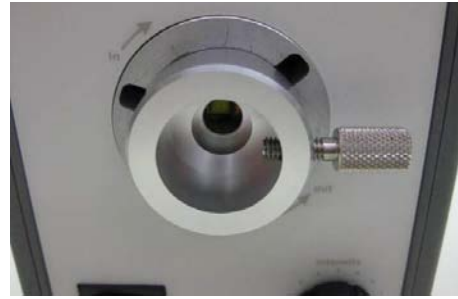


6. Equipment operation

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.

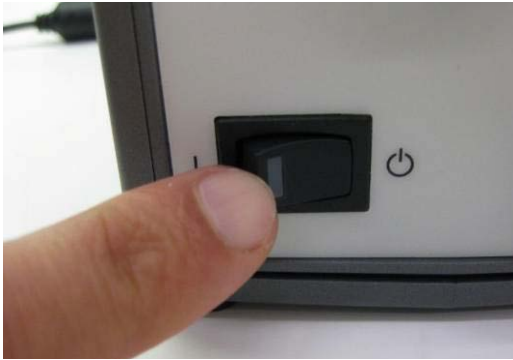




6.2. Turning the device on and off

To turn the device 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 device is powered on.

To turn the device 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 device 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 device and may void your warranty.

6.4.2. The ventilation slots can be cleaned by gently blowing aerosol- based dusting air into the slots. Do not blow compressed "shop-air" into the device as such air often contains oil and water mist which may degrade the internal optics.

7. Applicable standards

Category	Regulatory body	Title of standard	Standard
EMI	European Union	Electromagnetic Compatibility	Directive 2004/108/EC
Safety	European Union	Low Voltage Directive (LVD)	Directive 2006/95/EC
RoHS	European Union	Restriction of the use of Hazardous Substances in Electrical and Electronic Equipment	Directive 2002/95/EC
Immunity	EN	Electrical equipment for measurement, control and laboratory use- EMC requirements- Part 1: General requirements	EN 61326-1:2006
Emissions	EN	Industrial, Scientific and medical (ISM) Radio Frequency Equipment- Electromagnetic Disturbance Characteristics- Limits and Methods of Measurement	EN 55011:2007 Amendment A2:2007, Group 1, Class B
Emissions	EN	Electromagnetic compatibility (EMC)-Part 3-2: Limits- Limits for harmonic current emission (equipment input current ≤ 16 A per phase)	EN 61000-3-2:2006
Emissions	EN	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection.	EN 61000-3-3:1995 Amendment A1:2001 to EN 61000-3-3:1995 and Amendment A2:2005 to EN 61000-3-3:1995
Emissions	ICES	Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard Digital Apparatus	ICES-003 Issue 4 Class B February 2004
Emissions	FCC	FCC Rules and Regulations/Unintentional Radiators Class B Digital Devices	FCC Part 15, Subpart B, Sections 15.107a and 15.109a Class B Digital Devices
Safety	IEC/EN	Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 1- General Requirements	IEC/EN 61010-1:2001
Safety	UL	Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 1- General Requirements	UL 61010-1: 2005-07-22
Safety	CSA	Safety requirements for electrical equipment for measurement, control, and laboratory use. Part 1- General Requirements	CSA C22.2 NO 61010-1-2004-07

8. Markings



9. Patents

The OTFI-01XX products are covered by "U.S. Pat. No. D629,947". Other patents pending.

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10. Limited Warranty

Excelitas Technologies warrants the OTFI-01XX product to be free from defects in material and workmanship and to be in conformance with the written specification for a period of 12 months from date of purchase.

If any defect in material or workmanship or failure to conform to such specification is found, the Purchaser should promptly notify Excelitas Technologies. After a Returned Material Authorization number is assigned by Excelitas Technologies, Purchaser may return the product to Excelitas Technologies, carrying charges prepaid. Products will not be accepted for repair, replacement, credit or refund, without the written authorization of and in accordance with Excelitas Technologies instructions.

Excelitas Technologies shall analyze the failures, making use, when appropriate of technical information provided by Purchaser relating to the circumstances surrounding the failures. At Excelitas Technologies option, we will repair or replace the product found to be defective, and shall return the product carrying charges prepaid. Excelitas Technologies correction of any defects by the grant of credit, replacement or repair shall constitute fulfillment of all of its obligations and liability to the Purchaser hereunder.

Excelitas Technologies is not responsible for damage to its product caused by misuse, neglect, accident, shipping, abuse, maintenance, cleaning procedures, use or attempts to operate above its rated capacity intentionally or that otherwise deviate from the parameters established in the user integration manual and applicable specifications; or to products that have been improperly installed, stored, maintained, repaired or altered by anyone other than Excelitas Technologies; or have had their serial numbers or month and year of manufacture or shipment removed, defected or altered. Any actions cited above shall terminate this Warranty and shall relieve Excelitas Technologies from any further responsibility.

Excelitas Technologies shall not be liable for any incidental, special, or consequential damages in any claim action, suit or proceeding arising under this Warranty or any other part of the agreement of sale between Excelitas Technologies and the Purchaser, nor shall there be any liability hereunder for claims for labor, loss of profits or good will, repairs or other expenses incidental to replacement.

This warranty does not extend to any system into which a product is incorporated. No other warranty, including warranties of merchantability or fitness for a particular purpose is given with respect to such service or any other service provided by Excelitas Technologies under this Agreement. This warranty applies only to Purchaser and may not be assigned or extended by Purchaser to any of its customers or other users of the Items. Excelitas Technologies will not accept any returns from Purchaser's customers or users of Purchaser's products.


Product specifications are subject to change without notice.

Service Contact Information

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