

FIBERSTARS[®]
Fiber Optic Technology in Lighting™

EFO[®]
Efficient Fiber Optics

**International List Price Book
And Reference Guide**

Effective December 15, 2004

EFO is an energy efficient fiber optic downlighting system for accent and task lighting applications. EFO is designed to equal the *center beam candlepower* and *beam spread* of common MR16 lamps while using up to *80% less energy*.

EFO Accent Lighting System...	Approximates The Output Of...
EFO-4+4 (eight downlights)	(8) 50w MR16 lamps
EFO-3+3 (six downlights)	(6) 75w MR16 lamps
EFO-2+2 (four downlights)	(4) 100w MR16 lamps

EFO also has *little heat* in the light and *longer lamp life* than the MR16 lamps. EFO can also be specified with custom light bars to efficiently light display cases with *no IR or UV* in the light.

Fiberstars, Inc.
44259 Nobel Drive * Fremont, CA 94538 USA
(800) 327-7877 Toll-Free * (510) 490-0719 * (510) 490-3247 Fax
www.fiberstars.com efoinfo@fiberstars.com

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NOTE: Pricing and information on Fiberstars other fiber optic lighting systems are available in a separate Reference Pricing Guide Book.

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EFO-4+4 Illuminator

Ordering Guide

Model Options	Color Options	Voltage Options	Accessory Option
EFO-4+4	2NC 2 Ports, No Color 2SC 2 Ports, 2 Single Colors	120 120V, 60Hz 240 240V, 60Hz 240I 240V, 50Hz	00 Standard Hardwire Connection PC Power Cord WM Wall Mount Kit CR Caddy Rails, Set of 2

EFO-4+4

UL Listed for Damp Locations

<table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">Base Unit</td> <td style="width: 60%;">EFO-4+4-2NC-120-00 EFO Illuminator, (8) 12/10mm FiberJack Ports <i>68-Watt HID Lamp (included), No Color, 120 Volt, Standard Hardwire Connection</i></td> <td style="width: 25%; text-align: right;">\$800.00</td> </tr> </table>	Base Unit	EFO-4+4-2NC-120-00 EFO Illuminator, (8) 12/10mm FiberJack Ports <i>68-Watt HID Lamp (included), No Color, 120 Volt, Standard Hardwire Connection</i>	\$800.00
Base Unit	EFO-4+4-2NC-120-00 EFO Illuminator, (8) 12/10mm FiberJack Ports <i>68-Watt HID Lamp (included), No Color, 120 Volt, Standard Hardwire Connection</i>	\$800.00	
Additions to Base Price			
2SC	2 Ports, 2 Single Colors	\$48.00	
240	Other Domestic Voltages	\$20.00	
240I	International Voltages	\$20.00	
PC	Power Cord	\$20.00	
WM	Wall Mount Kit	\$120.00	
CR	Caddy Rails, Set of 2	\$40.00	
<i>Replacement Lamp(s)--see 'Lamps' on page 13</i>			

EFO-3+3 Illuminator (Available 2005)

Ordering Guide

Model Options

EFO-3+3

Color Options

2NC 2 Ports, No Color
2SC 2 Ports, 2 Single Colors

Voltage Options

120 120V, 60Hz
240 240V, 60Hz
240I 240V, 50Hz

Accessory Option

00 Standard Hardwire Connection
PC Power Cord
WM Wall Mount Kit
CR Caddy Rails, Set of 2

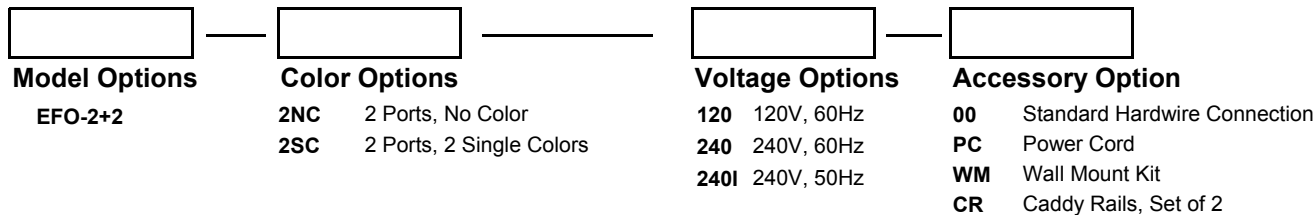
EFO-3+3

UL Listed for Damp Locations

Base Unit EFO-3+3-2NC-120-00 EFO Illuminator, (6) 14/12mm FiberJack Ports <i>68-Watt HID Lamp (included), No Color, 120 Volt, Standard Hardwire Connection</i>		\$800.00
Additions to Base Price		
2SC	2 Ports, 2 Single Colors	\$48.00
240	Other Domestic Voltages	\$20.00
240I	International Voltages	\$20.00
PC	Power Cord	\$20.00
WM	Wall Mount Kit	\$120.00
CR	Caddy Rails, Set of 2	\$40.00
<i>Replacement Lamp(s)--see 'Lamps' on page 13</i>		

EFO-2+2 Illuminator (Available 2005)

Ordering Guide



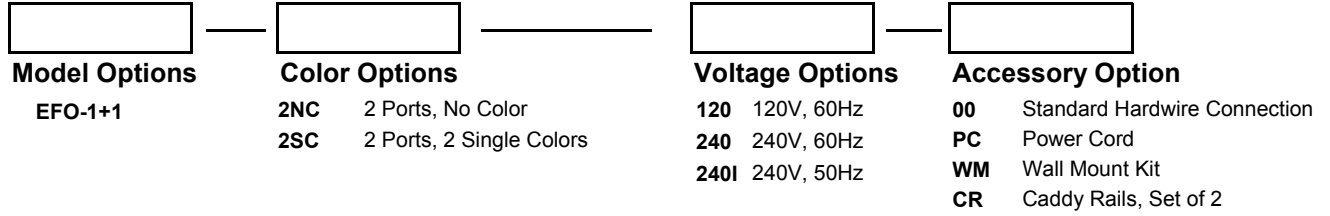
EFO-2+2

UL Listed for Damp Locations

Base Unit EFO-2+2-2NC-120-00 EFO Illuminator, (4) 17/15mm FiberJack Ports <i>68-Watt HID Lamp (included), No Color, 120 Volt, Standard Hardwire Connection</i>		\$800.00
Additions to Base Price		
2SC	2 Ports, 2 Single Colors	\$48.00
240	Other Domestic Voltages	\$20.00
240I	International Voltages	\$20.00
PC	Power Cord	\$20.00
WM	Wall Mount Kit	\$120.00
CR	Caddy Rails, Set of 2	\$40.00
<i>Replacement Lamp(s)—see 'Lamps' on page 13</i>		

EFO-1+1 Illuminator (Formerly 'AD')

Ordering Guide



EFO-1+1

UL Listed for Damp Locations

Base Unit EFO-1+1-2NC-120-00		EFO Illuminator, (2) Ports for OptiCore or FSPT (One harness or 500 FSPT Fibers* Per Port) <i>68-Watt HID Lamp (included), No Color, 120 Volt, Standard Hardwire Connection</i>	\$800.00
Additions to Base Price			
2SC	2 Ports, 2 Single Colors		\$48.00
240	Other Domestic Voltages		\$20.00
240I	International Voltages		\$20.00
PC	Power Cord		\$20.00
WM	Wall Mount Kit		\$120.00
CR	Caddy Rails, Set of 2		\$40.00
<i>Replacement Lamp(s)--see 'Lamps' on page 13</i>			

**For information on FSPT stranded fiber options, consult Fiberstars Commercial Products Catalog, Volume 1, or the factory.*

EFO-AG Illuminator

Ordering Guide

Model Options	Color Options	Voltage Options	Accessory Option
EFO-AG	WW 2 Ports, White Light 2SC 2 Ports, 2 Single Colors CCS 2 Ports, Synchronized Color Wheels	120 120V, 60Hz 240 240V, 60Hz 240I 240V, 50Hz	00 Standard Hardwire Connection PC Power Cord

EFO-AG

UL Listed for Wet Locations

Base Unit	EFO-AG-WW-120-00	EFO Illuminator, (2) Ports for OptiCore or FSPT (One harness or 500 FSPT Fibers* Per Port), UL Wet Listed <i>68-Watt HID Lamp (included), No Color, 120 Volt, Standard Hardwire Connection</i>	\$1,300.00
Additions to Base Price			
2SC	2 Ports, 2 Single Colors		\$48.00
CCS	2 Ports, Synchronized Color Wheels		\$180.00
240	Other Domestic Voltages		\$20.00
240I	International Voltages		\$20.00
PC	Power Cord		\$20.00
<i>Replacement Lamp(s)--see 'Lamps' on page 13</i>			

**For information on FSPT stranded fiber options, consult Fiberstars Commercial Products Catalog, Volume 1, or the factory.*

Fiber Optic Cables

End-Emitting

Product Name	Inner Diameter	Outer Diameter	Min Bend Radius	Outer Jacket	List Price	Technical Remarks:
EFO FiberJacks						
For use with EFO-4+4, EFO-3+3 and EFO-2+2 illuminators. Each OptiCore® fiber tail includes a FiberJack connector on one end and a fixture connector (bayonet) on the other end. This method of fiber connection provides the highest light output with an EFO-4+4, EFO-3+3 or EFO-2+2 illuminator. No cutting, harnessing, or ferruling required, just plug in and go. Available in standard lengths of 10' or in custom lengths from 5' to 25'. Minimum bend radius is 8x inner diameter.						
EFO-FJ-12/10MM-10	0.39", 10mm	0.47", 12mm	3.8", 96mm	Black	\$86.00	For use with 'EFO-4+4' illuminators. (1) EFO-12/10mm fiber @ 10' with connectors.
EFO-FJ-14/12MM-10	0.47", 12mm	0.55", 14mm	4.4", 112mm	Black	\$100.00	For use with 'EFO-3+3' illuminators. (1) EFO-14/12mm fiber @ 10' with connectors.
EFO-FJ-17/15MM-10	0.59", 15mm	0.67", 17mm	5.4", 136mm	Black	\$300.00	For use with 'EFO-2+2' illuminators. (1) EFO-17/15mm fiber @ 10' with connectors.
EFO-FJ-F-12/10MM-10	0.39", 10mm	0.47", 12mm	3.8", 96mm	Black	\$180.00	For use with 'EFO-4+4' illuminators and EFO-MBF-F-XX fixtures. (1) EFO-12/10mm fiber @ 10' with Flex-Arm and connector attached.
EFO-FJ-F-14/12MM-10	0.47", 12mm	0.55", 14mm	4.4", 112mm	Black	\$200.00	For use with 'EFO-3+3' illuminators and EFO-MBF-F-XX fixtures. (1) EFO-14/12mm fiber @ 10' with Flex-Arm and connector attached.

EFO Factory Assembled Harnesses

For use with EFO-1+1 or EFO-AG illuminators. These large core, end emitting fiber harnesses are available in four configurations. EFO-HF5-9/8-10 has five tails of EFO-9/8mm at 10' coupled to an EFO optical port. EFO-HF4-12/10-10 has four tails of EFO-12/10mm at 10' coupled to an EFO optical port. EFO-HF3-14/12-10 has three tails of EFO-14/12mm at 10' coupled to an EFO optical port. EFO-HF1-22/19-10 has one tail of EFO-22/19mm at 10' coupled to an EFO optical port. The other end of the fiber tail has fixture bayonets attached. Minimum bend radius is 8x inner diameter. Harnesses easily screw onto illuminator port hubs. Standard fiber length is 10'. Consult factory for custom lengths up to 25'.

EFO-HF5-9/8-10	0.27", 6.8mm	0.35", 9mm	2.8", 72mm	Black	\$378.00	(5) EFO-9/8mm cables at 10'.
EFO-HF4-12/10-10	0.43", 11mm	0.47", 12mm	3.8", 96mm	Black	\$314.00	(4) EFO-12/10mm cables at 10'.
EFO-HF3-14/12-10	0.47", 12mm	0.55", 14mm	4.4", 112mm	Black	\$334.00	(3) EFO-14/12mm cables at 10'.
EFO-HF1-22/19-10	0.75", 19mm	0.87", 22.1m	7", 177mm	Black	\$408.00	(1) EFO-22/19mm cable at 10'.
EFO-HF5-F-9/8-10	0.27", 6.8mm	0.35", 9mm	2.8", 72mm	Black	\$878.00	(5) EFO-9/8mm cables at 10' with Flex-Arms attached. For use with EFO-MBF-F-XX fixture.
EFO-HF4-F-12/10-10	0.43", 11mm	0.47", 12mm	3.8", 96mm	Black	\$712.00	(4) EFO-12/10mm cables at 10' with Flex-Arms attached. For use with EFO-MBF-F-XX fixture.
EFO-HF3-F-14/12-10	0.47", 12mm	0.55", 14mm	4.4", 112mm	Black	\$632.00	(3) EFO-14/12mm cables at 10' with Flex-Arms attached. For use with EFO-MBF-F-XX fixture.

EFO OptiCore

For use with EFO-1+1 and EFO-AG illuminators. Consult factory for custom lengths sold by the foot. Factory FiberJacks assemblies or harnesses are strongly recommended, see above. Minimum bend radius is 8x inner diameter.

EFO-9/8mm	0.27", 6.8mm	0.35", 9mm	2.8", 72mm	Black	Consult Factory
EFO-12/10mm	0.39", 10mm	0.47", 12mm	3.8", 96mm	Black	Consult Factory
EFO-14/12mm	0.47", 12mm	0.55", 14mm	4.4", 112mm	Black	Consult Factory
EFO-17/15mm	0.59", 15mm	0.67", 17mm	5.4", 136mm	Black	Consult Factory

Fiber Optic Cables

Side-Emitting

Product Name	Inner Diameter	Outer Diameter	Min Bend Radius	Outer Jacket	List Price	Technical Remarks:
EFO-BriteCore® and EFO-TT						
For use with EFO-1+1 or EFO-AG illuminators. Side lit large core fiber is available in both interior and exterior versions. The EFO-TT fiber uses a new Titanium-based technology, allowing greater brightness than the EFO-BC fiber. Minimum bend radius is 8x inner diameter. EFO-Britecore side light is beautifully transparent. EFO-TT side light offers a brighter "solid light" look.						
EFO-BC1300	0.46", 11.7mm	0.51", 12.9m	2", 52mm	Clear	\$13.00	75' Max Length. For indoor installation
EFO-BC1400-E	0.46", 11.7mm	0.54", 13.8m	2.2", 55mm	Clear	\$15.00	75' Max Length. For exterior installation.
EFO-TT1300	0.46", 11.7mm	0.51", 12.9m	2", 52mm	Clear	\$16.00	75' Max Length. For indoor installation. Uses new Titanium Technology.
EFO-TT1400-E	0.46", 11.7mm	0.54", 13.8m	2.2", 55mm	Clear	\$18.00	75' Max Length. For exterior installation. Uses new Titanium Technology.

Fixtures

Part Number	Description	Finish Options-XX	Mounting:	List Price:
Fixed Aim				
EFO-MBF-XX	Multi-Beam Fixture, Fixed	WT-White or MB-Black	T-Bar Ceiling Grid or Hard Ceiling (optional)	\$60.00
		PB-Gold		\$76.00
EFO-FAW-18-XX	Fixed Aim Wall Washer	WT-White or MB-Black	T-Bar Ceiling Grid or Hard Ceiling (optional)	\$76.00
EFO-LPS-25-XX	Low Profile, Side Entry, 25° Beam	WT-White or MB-Black	T-Bar Ceiling Grid	\$120.00
EFO-LPS-25-HC-XX	Low Profile, Side Entry, 25° Beam	WT-White or MB-Black	Hard Ceiling	\$120.00
EFO-LPS-60-XX	Low Profile, Side Entry, 60° Beam	WT-White or MB-Black	T-Bar Ceiling Grid	\$120.00
EFO-LPS-60-HC-XX	Low Profile, Side Entry, 60° Beam	WT-White or MB-Black	Hard Ceiling	\$120.00

Adjustable Aim

EFO-MBF-F-XX	Multi-Beam Fixture with Flex Arm	WT-White or MB-Black	T-Bar Ceiling Grid or Hard Ceiling (optional)	\$120.00
EFO-AAL-1R-XX	Adjustable Accent Light 1-Spot	WT-White or MB-Black	T-Bar Ceiling Grid	\$320.00
EFO-AAL-1R-HC-XX	Adjustable Accent Light 1-Spot	WT-White or MB-Black	Hard ceiling	\$320.00
EFO-AAL-2R-XX	Adjustable Accent Light 2-Spot	WT-White or MB-Black	T-Bar Ceiling Grid	\$320.00
EFO-AAL-2R-HC-XX	Adjustable Accent Light 2-Spot	WT-White or MB-Black	Hard ceiling	\$320.00
EFO-AAL-3R-XX	Adjustable Accent Light 3-Spot	WT-White or MB-Black	T-Bar Ceiling Grid	\$320.00
EFO-AAL-3R-HC-XX	Adjustable Accent Light 3-Spot	WT-White or MB-Black	Hard ceiling	\$320.00
EFO-AAL-4R-XX*	Adjustable Accent Light 4-Spot	WT-White or MB-Black	T-Bar Ceiling Grid	\$320.00

*If mounting EFO-AAL-4R in hard ceilings, consult factory for instructions

Beam Effect Filters

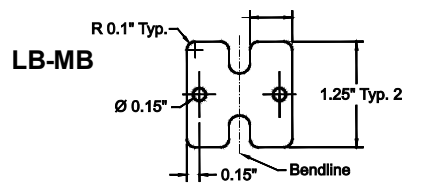
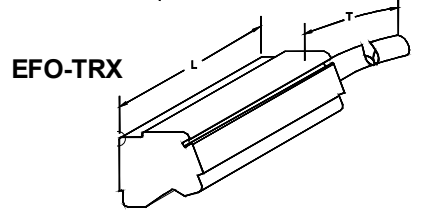
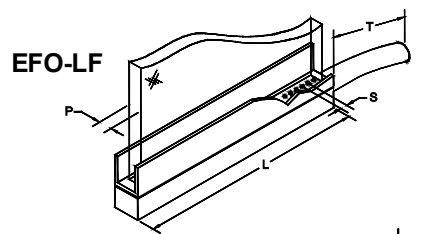
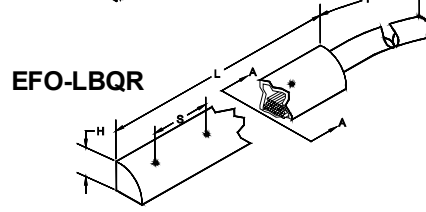
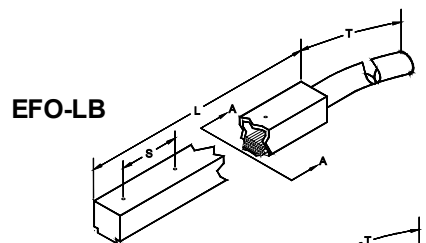
Part Number	Description	Notes	List Price:
MBF-SOL	Edge Softening Filter	For use with EFO-MBF, EFO-FAW, and EFO-AAL. Beam Effect Filters must be ordered with fixtures. Filters require mounting clips (EFO-AAL-FC) for EFO-AAL fixtures.	\$6.00
MBF-HEX	Hexagon Louver	For use with EFO-MBF, EFO-FAW, and EFO-AAL. Beam Effect Filters must be ordered with fixtures. Filters require mounting clips (EFO-AAL-FC) for EFO-AAL fixtures.	\$7.00
EFO-AAL-FC	Filter Clip	Holds filters into EFO-AAL fixtures	\$2.80

Lightly Expressed® Light Bars for EFO®

LightBeam, LightBeam QR, LightFrame, and TRX*

Intensity	Lit Length	10 Foot Tail	20 Foot Tail	30 Foot Tail	
EFO Bright 6 Fibers Per Inch	up to 12"	\$197.60	\$259.80	\$322.20	
	13" - 24"	\$350.40	\$464.80	\$579.20	
	25" - 36"	\$508.60	\$675.20	\$841.60	
	37" - 48"	\$672.00	\$890.60	\$1,109.20	
	49" - 60"	\$840.60	\$1,111.20	\$1,382.00	
	61" - 72"	\$1,014.40	\$1,337.20	\$1,660.00	
EFO Extra-Bright 10 Fibers Per Inch	up to 12"	\$291.60	\$388.80	\$485.80	
	13" - 24"	\$542.20	\$726.20	\$910.00	
	25" - 36"	\$801.60	\$1,072.20	\$1,343.00	
	37" - 50"	\$1,115.00	\$1,487.00	\$1,859.00	
	EFO TRX Bright 5 Fibers Per Inch	up to 12"	\$197.00	\$254.20	\$311.40
		13" - 24"	\$348.00	\$452.20	\$556.40
25" - 36"		\$505.80	\$657.80	\$809.80	
37" - 48"		\$666.20	\$865.40	\$1,064.40	
49" - 60"		\$833.60	\$1,080.40	\$1,327.20	
61" - 72"		\$1,003.60	\$1,297.40	\$1,591.20	
	73" - 84"	\$1,180.60	\$1,522.00	\$1,863.60	
	85" to 100"	\$1,421.40	\$1,826.00	\$2,230.60	

Mounting Brackets	LB-MB-CL Clear (standard)	\$6.00 each
	LB-MB-BL Black	\$6.00 each



CUSTOM OPTIONS are available--call factory for pricing

Lamps, Tools, Mounting, and Accessories

Part Number:	Description:	Use:	List Price:
Lamps			
EFO-068	68 Watt, Metal Halide, 3500K, Dual Port	EFO-AD, EFO-1+1, EFO-2+2, EFO-3+3, EFO-4+4	\$138.00
EFO-068-D	68 Watt, Metal Halide, 3500K, Dual Port, Door Attached	EFO-AD, EFO-1+1, EFO-2+2, EFO-3+3, EFO-4+4	\$156.00
EFO-068-SC	68 Watt, Metal Halide, 3500K, Dual Port, Single Color	EFO-AD, EFO-1+1, EFO-2+2, EFO-3+3, EFO-4+4	\$162.00
EFO-068-SC-D	68 Watt, Metal Halide, 3500K, Dual Port, Single Color, Door Attached	EFO-AD, EFO-1+1, EFO-2+2, EFO-3+3, EFO-4+4	\$184.00
EFO-068-AG	68 Watt, Metal Halide, 3500K, Dual Port	EFO-AG	\$138.00
EFO-068-AG-SC	68 Watt, Metal Halide, 3500K, Dual Port, Single Color	EFO-AG	\$162.00
Color Wheels			
AG-04C*	4 Color, 3.625" Octagon	EFO-AG	\$90.00
<i>*Motor is NOT included with wheels</i>			
Optical Ports			
AG-1PK	Port Kit for FSPT stranded fiber including 200, 300, 400, and 500 fiber tips	EFO-1+1, EFO-AD, EFO-AG, EFO-UI	\$74.00
Mounting and Anchors			
FS-131	Double-sided Tape	For TEMPORARY mounting of side-emitting fiber cables; 5/16" wide x 165' long (8mm x 50m); use with FS-136	\$33.00
FS-136	Silicone Adhesive	Approved for adhering side-emitting fibers and track, 10.3oz Tube (300 ml)	\$12.00
FS-138	Silicone Adhesive (case)	Approved for adhering side-emitting fibers and track, case of (24) 10.3oz Tubes (300 ml)	\$260.00
EFO-CR	Set of 2 Caddy Rails	For mounting EFO illuminators (except EFO-AG) and primary mounting method for certain EFO fixtures in t-bar ceilings: EFO-MBF, -FAW, -F, and -LPS	\$28.00
AD-WM-KIT	EFO Illuminator Wall Mount Kit	EFO illuminators (except EFO-AG)	Consult Factory
EFO-BFB	Butterfly Brackets, Set of 2	For alternate mounting of certain fixtures—consult factory	\$33.00
EFO-BH	Flat Bar Hanger	For mounting most EFO fixtures in t-bar and hard ceilings—consult factory	Consult Factory
EFO-CL	Clips for Flat Bar Hanger	Use with EFO-BH Flat Bar Hangers—consult factory	Consult Factory
Cutting Tools			
FSOC	Opticutter	Only cutter for 15+mm large core fibers; also use for rough cuts of 8-14mm large core fibers	\$30.00
FSFC	Flexicut	High-efficiency cutter for 8-14mm large core fibers	\$378.00
FSFCB	100 Replacement Blades	Use with FSFC	\$50.00
Services	<i>Consult factory for custom cutting, assembly, and harnessing of fibers.</i>		

POLICIES: Order Processing

BEFORE AN ORDER CAN BE RELEASED TO MANUFACTURING:

1. The original purchase order must be sent via fax, e-mail or mail.
2. If the order does not meet the minimum order amount of \$100, a \$25 service charge will be added to the order, except for replacement parts (lamps, c/w motor, ballast, etc).
3. The purchase order must reference a job name, specifier, job location, Fiberstars estimate/quote number and terms.
4. FOB & PPD: **Customer Purchase Order must reflect our standard freight terms**, collect, no freight allowed. **Order must state: FOB-Fremont, Factory, Origin, or Shipping Point.**
5. To ensure the fastest delivery, all pertinent information needs to be included. Lack of complete information will delay the order process.
6. International orders will be held and shipped complete unless otherwise indicated on the purchase order.

POLICIES: International Terms and Conditions

Credit All payments must be made in U.S. dollars. International orders will only be accepted with wire transfer, letter of credit, credit card, or U.S. funds check on U.S. bank with order. Payment may be rendered in one of the following methods:

1. Prepayment Mail to: Fiberstars, Inc.
 Attn.: Accounts Receivable
 44259 Nobel Drive
 Fremont, CA 94538

2. Direct Wire Transfer or Irrevocable Commercial Letter of Credit:

Bank Information:
 Comerica Bank
 333 West Santa Clara
 San Jose, CA 95113
 Account: 1891867473
 ABA Number: 121137522
 SWIFT Code: MNBDUS33

Beneficiary:
 Fiberstars, inc.
 44259 Nobel Drive
 Fremont, CA 94538
 Telephone: 510-490-0719

Charges: All banking charges are for the account of the applicant. A \$200 US processing fee will be charged for any L/C under \$10,000 US.

3. Credit Card Visa, MasterCard, or American Express may be used for pre-payment. **A three percent (3%) service charge will be added on all credit card transactions.**

Orders Orders will only be accepted with a written purchase order signed by the purchaser. Written confirmation of a phone order must be clearly marked "CONFIRMATION." Fiberstars will not be responsible for duplications.

Cancellation If a sales order is cancelled after the order is in production, there will be a \$100.00 cancellation processing fee as well as up to a 50% restocking charge.

Freight All prices are F.O.B. Fremont, CA, USA. Shipping method must be specified on the purchase order. If method is not indicated, Fiberstars will choose best method. All estimates of freight costs before actual shipment are only estimates and Fiberstars is not liable for the difference between an estimate and the actual cost of the shipment.

Loss or Damage The purchaser should take up loss or damage of shipments with the purchaser's local agent of the shipping firm. We will provide a copy of the original bill of lading and can provide assistance in filing your claim with the carrier.

Limited Warranty Fiberstars, Inc. warrants its fiber optic cable to be free from defects in material and/or workmanship, under normal use and service, for a period of **two years** from the date of original purchase, provided the product is installed to the specifications outlined by Fiberstars. Fiberstars, Inc. warrants its illuminators, hardware and fixtures *excluding the lamp* to be free from defects in material and/or workmanship, under normal use and service, for a period of **one year** from the date of original purchase, provided the product is installed to the specifications outlined by Fiberstars. In the event of a defect in material or workmanship during the warranty period, Fiberstars will repair or replace (at its option) your lighting system component, under the conditions of the warranty. See Limited Warranty Policies sheet for details.

Returns All returns require a Return Goods Authorization Number (RGA #). Fiberstars will not be responsible for product returned without an RGA #. Refer to Returned Goods Authorization Policies sheet for further details.

POLICIES: Returned Goods Authorizations

Get an RGA Number All returns require a Return Goods Authorization Number (RGA #). Call Fiberstars' Customer Support Department at 1-800-327-7877, ext. 300 before returning any products to get an RGA number. Fiberstars will not be responsible for product returned without an RGA number.

Expiration Date RGA numbers are good for a period of 90 days from issuance.

Minimum Restocking Charge A minimum restocking charge of 50% will be made on standard products returned in their factory sealed shipping cartons within three months (90 Days) of original shipping date. Products are not returnable for credit or exchange after 90 days.

Custom products including fiber tubing cut to length, color wheels, products that have opened cartons and/or products that have been used are not returnable.

Shipping Fiberstars is not responsible for shipping charges incurred when returning product to or from the factory. When returning any products, the RGA number must be clearly marked on each carton. Products should be returned to:

Fiberstars, Inc.
Attn: RGA # _____ (*MUST be on outside of box to avoid refusal*)
44259 Nobel Drive
Fremont, CA 94538

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Reimbursement Costs Fiberstars is not responsible for costs incurred when removing product to be returned for repair or for reinstallation costs after repair.

POLICIES: Limited Warranty

Fiberstars, Inc. (“Fiberstars”), warrants its fiber optic cable to be free from defects in material and/or workmanship, under normal use and service, for a period of **two years** from the date of original purchase, provided the product is installed to the specifications outlined by Fiberstars. Fiberstars warrants its illuminators, hardware, and fixtures *excluding the lamp* to be free from defects in material and/or workmanship, under normal use and service, for a period of **one year** from the date of original purchase. A Lighting System is defined as a Fiberstars Illuminator coupled with Fiberstars fiber optic cable to deliver fiber optic lighting. The use of a Fiberstars component (illuminator or fiber optic cable) with a non-Fiberstars component voids all warranties. Fiberstars components are designed to be part of a Fiberstars system. Their use with other components will affect their performance and therefore will not be under warranty.

In the event of a defect in material or workmanship during the warranty period, Fiberstars will repair or replace (at its option) the component(s) under the conditions of this Warranty. Fiberstars will do so at its expense for the cost of materials but not for shipping. THIS REMEDY IS THE SOLE AND EXCLUSIVE REMEDY FOR ANY AND ALL CLAIMS RELATING TO ANY BREACH OF WARRANTY BY FIBERSTARS.

LIMITATIONS, EXCLUSIONS AND OTHER RIGHTS:

- A. EXCEPT AS PROVIDED HEREIN, FIBERSTARS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ALL SUCH WARRANTIES ARE EXPRESSLY DISCLAIMED. Some states do not allow the exclusion of an implied warranty, so the above exclusion may not apply to you.
- B. IN NO EVENT SHALL FIBERSTARS BE LIABLE FOR INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF FIBERSTARS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. THIS DISCLAIMER APPLIES DURING AND AFTER THE WARRANTY PERIOD. Some states do not allow the exclusion or limitation of indirect, incidental or consequential damages, so the above limitation or exclusion may not apply to you.
- C. Fiberstars is not responsible for defects or malfunctions in and/or damage to Lighting Systems where a sale is specifically made without warranty. In such sales, the disclaimers of warranty and liability, set forth above, shall continue to apply.
- D. This Warranty covers normal consumer use and does not cover damage which occurs in shipment or failure with results from alteration, accident, theft, misuse, abuse, abnormal use, negligent installation, improper maintenance or where adequate care has not been taken to prevent ice or snow damage to the Lighting System.
- E. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE.

If you discover a defect or malfunction during the period to which this Warranty applies, write or phone Fiberstars for information on receiving warranty service. Please address your inquiries to:

Fiberstars, Inc.
Warranty Service/Customer Support
Commercial Lighting Division
44259 Nobel Drive
Fremont, CA 94538 USA
1-800-327-7877 ext#300

Illuminator Mounting

EFO® Illuminators

- Minimum clearance of 12" (on all sides except bottom) and must have sufficient ventilation.
- Must be accessible for relamping and maintenance.

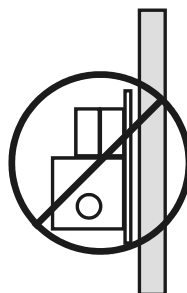
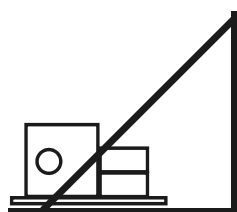
EFO-4+4, EFO-3+3, EFO-2+2, EFO-1+1 Illuminators

Mount either: 1) Horizontally on a horizontal surface with either:

- No mounting accessories
- Caddy Rails (EFO-CR) for t-bar ceilings

-OR-

2) Horizontally to a vertical surface with Wall Mount Kit (AD-WM-KIT) (see diagrams below)

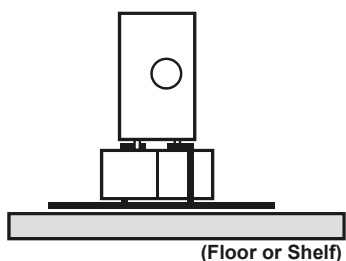


EFO-AG Illuminators

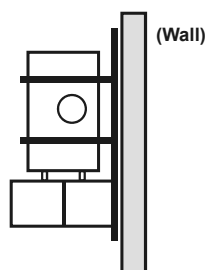
Mount either: 1) Horizontally on a horizontal surface with included mounting accessories (see diagrams below):

-OR-

2) Horizontally to a vertical surface with included mounting accessories (see diagrams below):



To preserve UL listing, use mounting plate and floor brackets (all included) when mounting to a horizontal surface



To preserve UL listing, use mounting plate and floor brackets (all included) when mounting to a vertical surface

GROUP RE-LAMPING

A group re-lamping program is extremely important to ensure the integrity of fiber optic lighting projects.

- **In an end-emitting application (i.e. downlights) group re-lamping is crucial to ensure consistent light output from all downlights in an area.** Lamps must be replaced in all illuminators at the same time. If the lamps are replaced on an “as needed” basis, some groups of downlights will appear brighter and/or a different color than other groups of downlights.
- **The situation is even more noticeable with a side-emitting application (i.e. neon replacement).** For example, if you have a lamp failure in one illuminator on a run of fiber that is fed from two illuminators and only the failed lamp is replaced; your fiber run could be noticeably brighter at one end than at the other. To avoid this situation, group re-lamping is the solution.
- **Group re-lamping should take place at 80% of manufacturer’s rated lamp life.** A percentage of the working lamps replaced should be kept. These lamps would be used for any early failures and should last until the next scheduled re-lamping.
- **If lamps are burned beyond rated life, light output diminishes** while energy consumption and risk of rupture increases. Metal halide lamps are constructed of an outer bulb with an internal arc tube made of quartz. The arc tube operates under high pressure at very high temperatures. The arc tube and the outer bulb may unexpectedly rupture due to internal causes or external factors.
- **Continuous operation can lead to unexpected lamp rupture.** Since Fiberstars’ EFO illuminators use metal halide lamps, we recommend that in continuously operating systems (24 hours/day, 7 days/week), turn lamps (illuminators) off once per day for at least one hour. Failure to comply increases the chance of rupture. Please include this recommendation on all projects that are specified with Fiberstars fiber optic lighting systems.
- **Without a re-lamping program, projects have a tendency to deteriorate.** Low light and/or uneven output will result in complaints, which will lead to customer service calls. The bottom line is that Fiberstars and fiber optic lighting in general will be viewed in a negative light.

Please encourage your specifiers and end users to utilize a group re-lamping program. This will keep all Fiberstars projects working to their maximum potential, which will keep the customer satisfied.

Troubleshooting Guide

Fiber optic cable not as bright as when first installed

- Check lamp and re-lamp if necessary.
- Inspect fiber cut at port. If uneven, pulled-back, or melted/burnt, fiber port must be re-terminated.

Fiber optic cable has melted

- Verify that illuminator is installed to specifications in installation manual, including appropriate ventilation.
- Be sure fiber port is cleaned before re-terminating.
- Recut fiber optic cable at least 8-10 inches behind melted fiber following instructions in installation manual.

Illuminator will not come on

- Check wiring for input voltage.
- Check circuit breaker.
- If a lamp is having trouble starting, it is near the end of its life. Replace lamp.
- Make sure lid is closed completely in order to make contact with the limiting switch.

Illuminator comes on for 5-15 minutes, then turns off

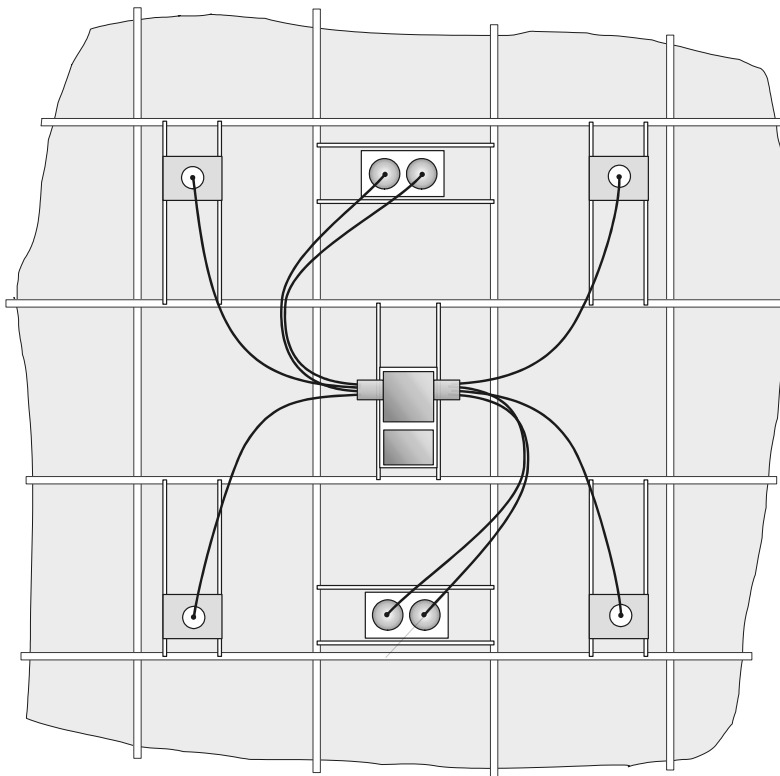
- Check lamp, it may be at the end of life. Replace lamp.
- Illuminator may be overheating, check ventilation and correct if necessary.

Color wheel will not rotate (EFO-AG only)

- Check color wheel to insure the progress is not impeded.
- Check wiring to switch to insure a good electrical path is present.

EFO® Downlighting Installation—Drop Ceilings

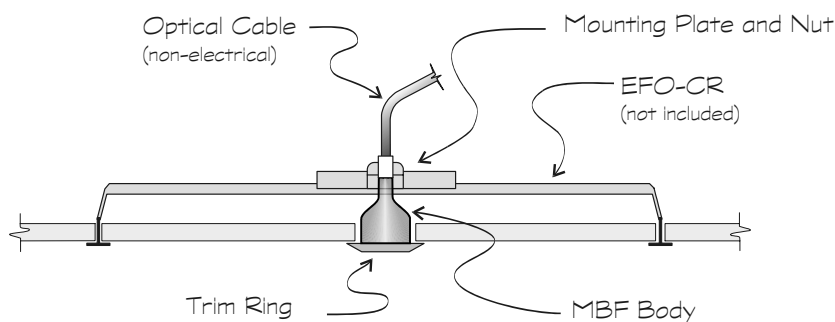
Use EFO downlights as you would any other downlights. Fixtures are available in adjustable and fixed aim, multiple adjustable beam spreads, and recessed in or protruding from the ceiling. Products for drop ceilings mount on the t-bar rails that hold the tiles. Some products include mounting hardware—see catalog spec sheets for details.



MATERIALS SHOWN

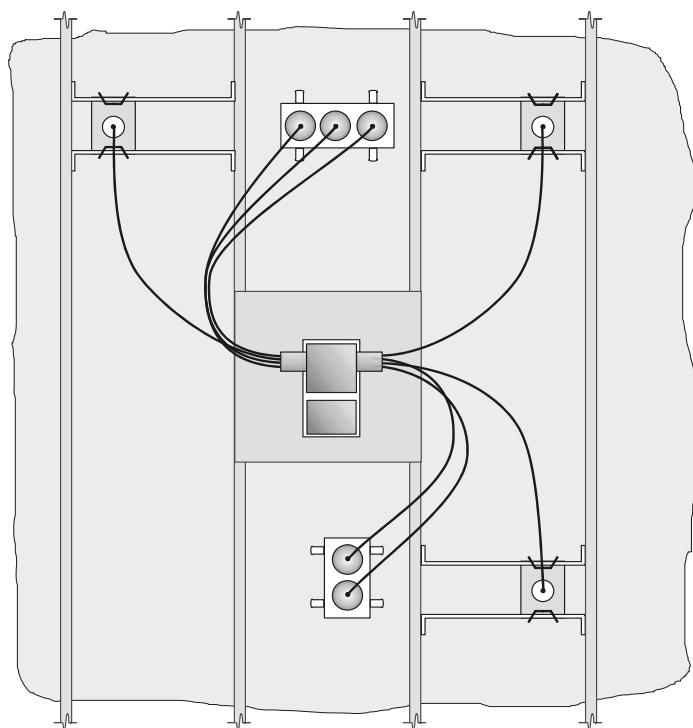
- (1) EFO-4+4-120 illuminator
- (8) EFO-12/10mm-10 cables
- (2) EFO-AAL-2R aimable fixtures—
for accent lighting
- (4) EFO-MBF fixtures—
for ambient lighting
- (7) Pair EFO-CR Caddy Rails

Plan view, EFO system
on t-bar drop ceiling



EFO® Downlighting Installation—Hard Ceilings

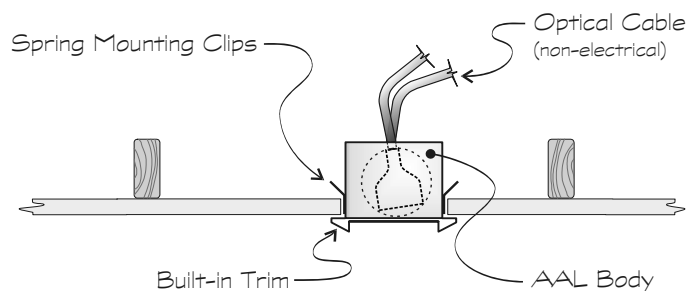
Use EFO downlights as you would any other downlights. Fixtures are available in adjustable and fixed aim, multiple adjustable beam spreads, and recessed in or protruding from the ceiling. Products for hard ceilings mount directly on the wallboard/plaster with spring clips or on rails attached to studs. Fixtures mounted with spring clips are installed from below the ceiling. Hard ceiling products include standard mounting hardware—see catalog spec sheets for details.



MATERIALS SHOWN

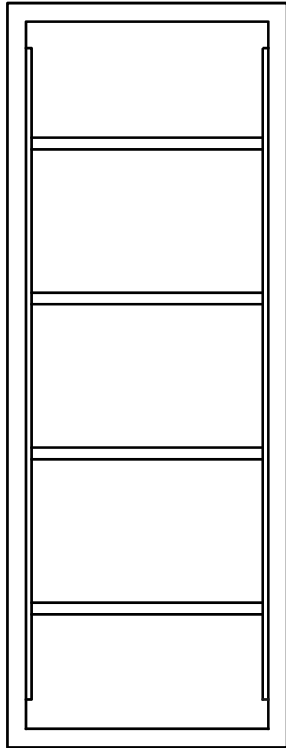
- (1) EFO-4+4-120 illuminator
- (8) EFO-12/10mm-10 cable
- (1) EFO-AAL-3R-HC fixture—
For aimable accent lighting
- (1) EFO-AAL-2R-HC fixture—
For aimable accent lighting
- (3) EFO-MBF fixtures—
for ambient lighting
- (3) Pair EFO-BH Flat Bar Hanger
- (3) Pair EFO-BFB Butterfly Brackets

Plan view, EFO system in hard ceiling

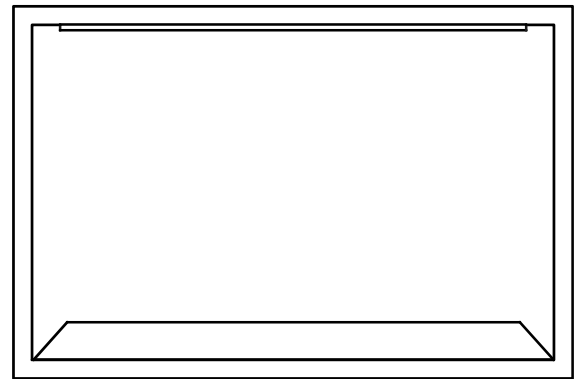
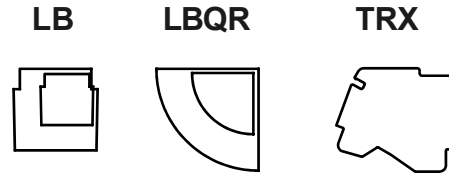


Section view, EFO-AAL-2R Mounted From Below the Ceiling with Spring Clips

Display Case Installation



Tall Case
Vertical Fixture Orientation (Sides)



Long Case
Horizontal Fixture Orientation (Top)

NOTES:

1. Attach fixtures with adjustable LB-MB brackets using threaded fasteners and/or VHB type adhesive.
2. Refer to fixture-cable dimensions to determine bend radius of feed Cable.
3. Install illuminator in vented location within 30 feet of illuminated panel.

Specification Registration

Submitted by (Name/Agency) _____
 Project Name _____
 Project Address _____
 City/State/Zip _____
 Phone # _____

Specification Location

Contact/Title _____
 Architect _____
 Engineer _____
 Lighting Designer _____

Purchasing Location

Distributor _____

Shipping Location

Ship To Location _____
 Contractor _____

Primary Bill of Materials

Quantity	Part Number	Description

Approx. Date Specs will be out _____ Approx. Bid Date _____

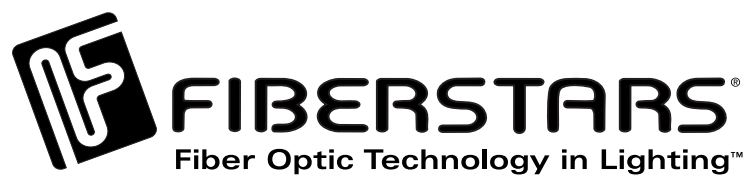
Approx. Shipping Date _____ Approx. Project Completion Date _____

Please Check One: One Time Job Permanent Specification National Account

Important: Specification credit will be allowed only if specification registration is received by Fiberstars, Inc. prior to our receipt of release for shipment.

FACTORY USE ONLY					
Spec Rep #		Copies to		Date Received	
Order Rep #		Recorded by		Date	
Ship Rep #		Confirmations sent		Date	

Notes



Fiberstars, Inc.

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