

Lightlines

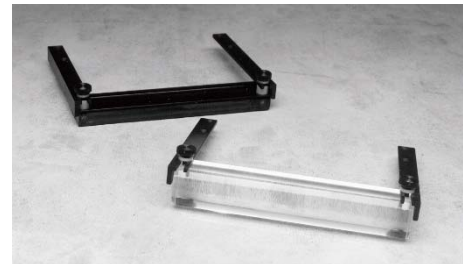
Uniform lines of light ideal for Machine Vision and line scan applications achieving higher uniformity than any LED chips due to position density



12" Lightline, A08912



Dual Lightlines, A08975



Apertured Lens, A08806, Cylindrical Lens A08826,

Product and Performance Characteristics

- Calibrated with DDL-bulb to a specified number of gray scale levels (see chart) at a mean of 200 with a gamma setting of 1.0 to deliver optimum uniformity (See reference section for more information on uniformity of fiber optic products)
- Assembly method accurately positions the fiber line within the body on all three planes, to a tolerance of $\pm .004''(0.1)\dagger$, assuring the fiber axis will be parallel with the mounting surface of the body
- Fiber bundle exit locations include back-side (standard exit), back-center, and true-side
- Rugged aluminum body and light source ferrule with black anodized finish, PVC covered metal tubing protects the fiber bundle
- Lightline holders and support products available
- Custom lengths, bundle exits, multiple combinations (dual, quad, etc.) and line widths can be designed for your unique requirements
- Cylindrical and apertured lenses are available for most lightline models (Made-to-Order)

Matrix for A08903 & A08916 Lightline Drawing

Part No.	A	B	C	D	E	F
A08903	3" (76)	.040" (1.0)	30" (762)	.75" (19.1)	1.5" (39)	n/a
A08904	4" (102)	.036" (.91)	30" (762)	.75" (19.1)	2.5" (64)	n/a
A08905	5" (127)	.040" (1.02)	30" (762)	.75" (19.1)	3.5" (89)	n/a
A08906	6" (152)	.033" (.84)	30" (762)	.75" (19.1)	4.5" (114)	n/a
A08907	7" (178)	.029" (.74)	30" (762)	.75" (19.1)	5.5" (140)	n/a
A08908	8" (203)	.025" (.64)	30" (762)	.75" (19.1)	6.5" (165)	n/a
A08909	9" (229)	.022" (.56)	30" (762)	.75" (19.1)	7.5" (191)	n/a
A08910	10" (254)	.020" (.51)	30" (762)	.75" (19.1)	8.5" (216)	n/a
A08911	11" (279)	.018" (.46)	30" (762)	.75" (19.1)	9.5" (241)	n/a
A08912	12" (305)	.016" (.41)	30" (762)	.75" (19.1)	10.5" (267)	n/a
A08913	13" (330)	.015" (.38)	30" (762)	.75" (19.1)	6.13" (156)	11.5" (292)
Custom	14" (336)	.014" (.38)	30" (762)	.75" (19.1)	6.63" (168)	12.5" (316)
A08915	15" (381)	.013" (.33)	30" (762)	.75" (19.1)	7.13" (181)	13.5" (343)
A08916	16" (406)	.012" (.30)	30" (762)	.75" (19.1)	7.63" (194)	14.5" (368)

Input: Black Anodized Aluminium
 Body: Black Anodized Aluminium
 Sheathing: PVC Covered Metal Tubing

Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call SCHOTT to discuss moving cable/hose carrier applications.

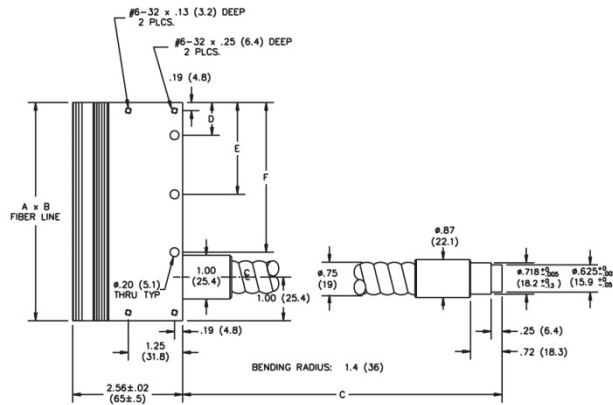
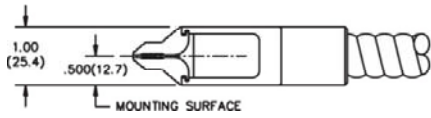
Dimensions in () are in mm



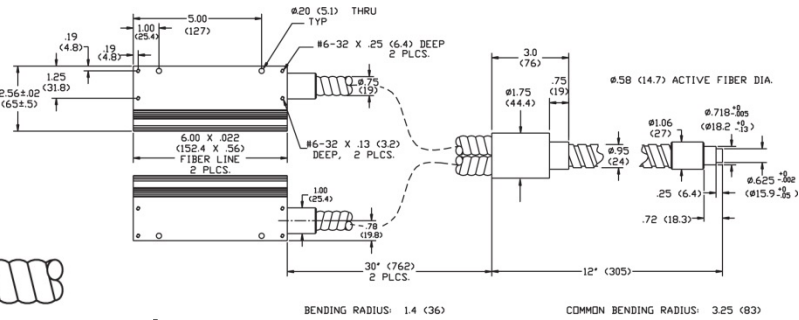
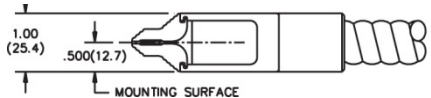
Specifications

Dimensions in () are in mm

Lightlines A08903 – A08916



Dual Lightlines A08975



Lightlines and Lenses Single Line Configuration with 30" Bundle Length and Back-Side Single Exit

Part No.	Line Dimension Length x Width	Input Active Fiber Diameter	Gray Scale Uniformity [^]	Part No. for Lens	
				Cylindrical	Apertured
A08903	3" x .040" (76 x 1.02)	.39" (10)†	± 8	*A08823	*A08803
A08904	4" x .036" (102 x .91)	.43" (11)	± 8	*A08824	*A08804
A08905	5" x .040" (127 x 1.02)	.51" (13)	± 8	*A08825	*A08805
A08906	6" x .033" (152 x .84)	.51" (13)	± 8	*A08826	*A08806
A08907	7" x .029" (178 x .74)	.51" (13)	± 8	*A08827	Custom
A08908	8" x .025" (203 x .64)	.51" (13)	± 8	*A08828	*A08808
A08909	9" x .022" (229 x .56)	.51" (13)	± 8	*A08829	Custom
A08910	10" x .020" (254 x .51)	.51" (13)	± 8	*A08830	*A08810
A08911	11" x .018" (279 x .46)	.51" (13)	± 8	*A08831	Custom
A08912	12" x .016" (305 x .41)	.51" (13)	± 8	*A08832	*A08812
A08913	13" x .015" (330 x .38)	.51" (13)	± 10	*A08833	Custom
Custom	14" x .014" (356 x .36)	.51* (13)	± 10	*A08834	Custom
A08915	15" x .013" (381 x .33)	.51" (13)	± 10	*A08835	Custom
A08916	16" x .012" (406 x .30)	.51" (13)	± 10	*A08836	*A08816

* Made-to-order products. Items made to order, and may require additional 3-4 weeks delivery. ^ Gamma setting of 1.0. Dimensions in () are in mm.

Lightlines and Lenses Single Line Configuration with 30" Bundle Length and Back-Side Single Exit

Part No.	Line Dimension Length x Width	Input Active Fiber Diameter	Gray Scale Uniformity [^]	Part No. for Lens	
				Cylindrical	Apertured
A08975	6" x .022" (152 x .56)	.58" (16)	± 8	A08826	A08806

Dimensions in () are in mm.

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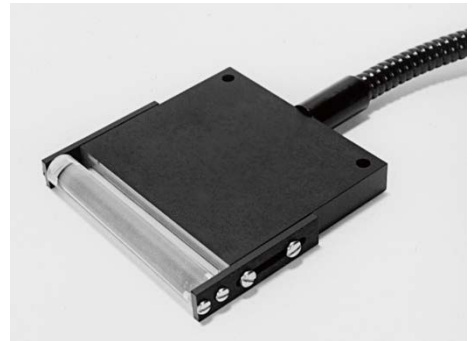


Lightlines, 1", 2", & 3"

For narrower and elongated illumination for Microscopy and Machine Vision Inspection applications



2" Dual Lightline, A08583



One leg of Dual or Quad 3" (76) Lightline with Cylindrical Lens

Input: Black Anodized Aluminium
 Body: Black Anodized Aluminium
 Sheathing: PVC Covered Metal Tubing

Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call SCHOTT to discuss moving cable/hose carrier applications.

Product and Performance Characteristics

Alternative to fiber optic bundles for narrower and elongated illumination for Microscopy and Machine Vision Inspection applications with higher uniformity than any LED chips can achieve due to position density

- Small, uniform fields of view
- Narrow body design and offset position of the line on 1" (25) and 2" (51) bodies allows close positioning for darkfield effect
- 3"(76)* models are calibrated with DDL-bulb to ± 8 gray scale levels at a mean of 200 with a gamma setting of 1.0 to deliver optimum uniformity (see chart)
- Uniformity of 1"(25) and 2"(51) lines is better than ± 8 gray scales (See reference section for more information on uniformity of fiber optic products)
- Rugged aluminum body and light source ferrule with black anodized finish, PVC covered metal tubing protects the fiber bundle
- Lightline holders and support products available
- Custom lengths, bundle exits, multiple combinations (dual, quad, etc.) and line widths can be designed for your unique requirements; Combine lightlines with other fiber optic components in a single input to create unique lighting effects
- Cylindrical and apertured lenses are available for most lightline models (Made-to-Order)

Matrix for A08588 & A08589 Lightlines

Dimensions in () are in mm

Part No.	A	B	C	D	E	F	G
A08588	1"(25)	.07"(1.8)	1.25"(31.8)	38"(965.2)	.16"(4.1)	1.1"(28)	2"(50.8)
A08589	2"(51)	.035"(.89)	2.25"(57.2)	38.5"(978)	.16"(4.1)	2.1"(53)	2.5"(63.5)

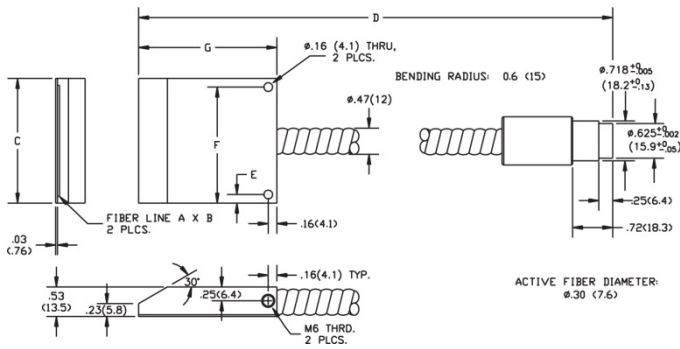
Matrix for A08579 & A08583 Lightlines

Part No.	A	B	C	D	E	F	G
A08579	1"(25)	.07" (1.8)	1.25"(31.8)	38"(965.2)	.16"(4.1)	1.1"(28)	2"(50.8)
A08583	2"(51)	.035"(.89)	2.25"(57.2)	38.5"(978)	.16"(4.1)	2.1"(53)	2.5"(63.5)

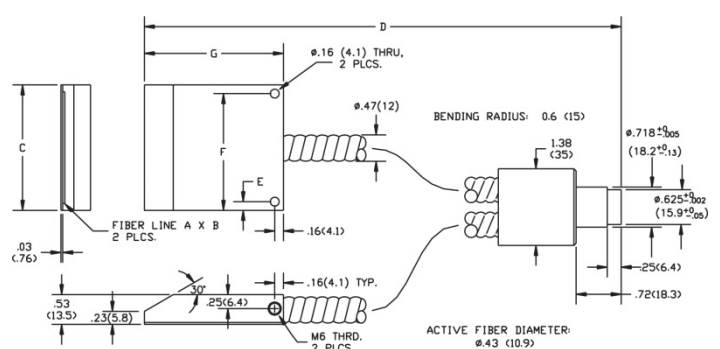
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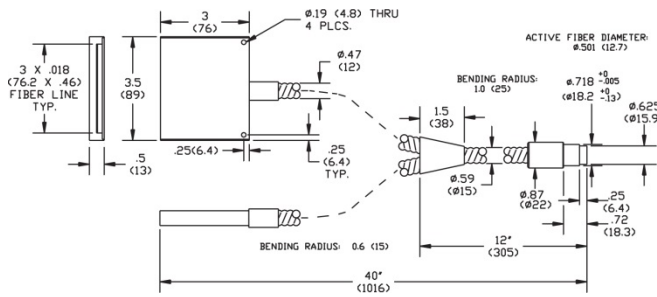
Single Lightlines A08588 & A08589



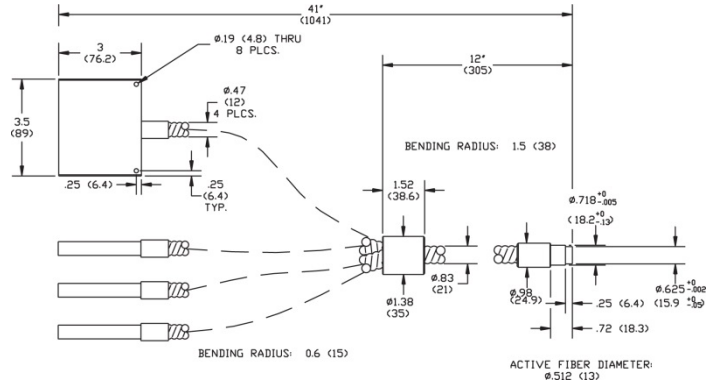
Dual Lightlines A08579 & A08583



Dual Lightline A08580



Quad Lightline A08584



Dimensions in () are in mm

Lightlines, 1", 2", & 3" and Lenses. Single Line Configuration with 36" Bundle Length

Part No.	Line Dimension Length x Width	Input Active Fiber Diameter	Gray Scale Uniformity [^]	Part No. for Lens	
				Cylindrical	Apertured
A08588	1" x .070" (25 x 1.8)*	.30" (7.6)	< ± 8	*A08571	Custom
A08589	2" x .035" (51 x .89)	.30" (7.6)	< ± 8	*A08572	Custom

[^] Gamma setting of 1.0 Dimensions in () are in mm. * Made-to-order products

Lightlines, 1", 2", & 3" and Lenses. Dual Line Configuration with 36" Bundle Length

Part No.	Line Dimension Length x Width	Input Active Fiber Diameter	Gray Scale Uniformity [^]	Part No. for Lens	
				Cylindrical	Apertured
A08579	1" x .070" (25 x 1.8)	.43" (10.9)	< ± 8	A08571	Custom
A08583	2" x .035" (51 x .89)	.43" (10.9)	< ± 8	A08572	Custom
A08580	3" x .018" (76 X .46)	.36" (9.1)	± 8	A08582	Custom

[^] Gamma setting of 1.0 Dimensions in () are in mm

Lightlines, 1", 2", & 3" and Lenses. Quad Line Configuration with 36" Bundle Length

Part No.	Line Dimension Length x Width	Input Active Fiber Diameter	Gray Scale Uniformity [^]	Part No. for Lens	
				Cylindrical	Apertured
A08584	3" x .018" (76 X .46)	.51" (13.0)	± 8	*A08582	Custom

[^] Gamma setting of 1.0 Dimensions in () are in mm. * Made-to-order products

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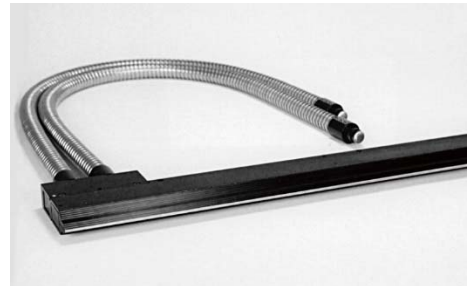
SCHOTT
 glass made of ideas

Spatially Randomized Lightlines

A patented exclusive, these 24" and 40" lightlines are ideal for web and line scanning applications requiring exceptional uniformity



Continuous Lightline, A08940



Continuous Lightline, A08964

Input: Black Anodized Aluminium
 Body: Black Anodized Aluminium
 Sheathing: PVC Covered Metal Tubing

Product and Performance Characteristics

- Manufactured using a patented process called spatial randomization, the process allows light from each input to be distributed over the entire length of the line so that if a light source fails while using multiple inputs, intensity is evenly reduced over the length of the line, rather than losing all light in a section of the line
- Calibrated to ± 15 gray scale levels at a mean of 200 with a gamma setting of 1.0 to deliver optimum uniformity (See reference section for more information on uniformity of fiber optic products)
- Assembly method accurately positions the fiber line within the body on all three planes, to a tolerance of $\pm .004"$ (0.1) \dagger , assuring the fiber axis will be parallel with the mounting surface of the body
- 24" (610) lightline accepts our dichroic filters and diffusers, to use color filters on the 40" (1016) line part number A08931, color filter adapter, is required
- Rugged aluminum body with a black anodized finish, stainless steel tubing protects the fiber bundle
- Cylindrical lenses are available and are designed to collect light exiting the lightline to increase intensity up to a factor of 10
- Custom lengths, bundle exits, and line widths can be designed for your unique requirements

Lightlines and Lenses

Part No.	Line Dimension Length x Width	Input Active Fiber Diameter	Gray Scale Uniformity [^]	Bundle Length	Part No. for Lens	
					Cylindrical	Apertured
A08940	40"x.015" (1016x.38)	.62" (16)*	± 15	30" (762)	* A08860	Custom
A08964	24"x.022" (610x.56)	.57" (14)	± 15	40" (1016)	* A08864	Custom

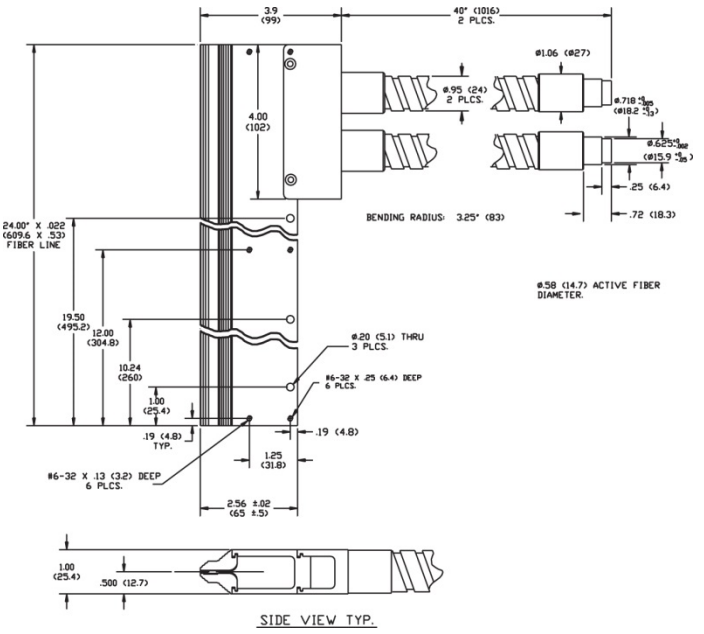
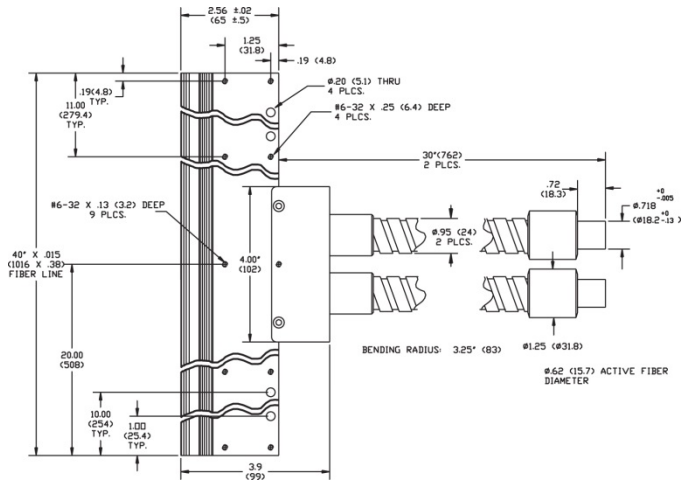
* Made-to-order products

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Spatially Randomized Lightline A08940, 40" (1016)

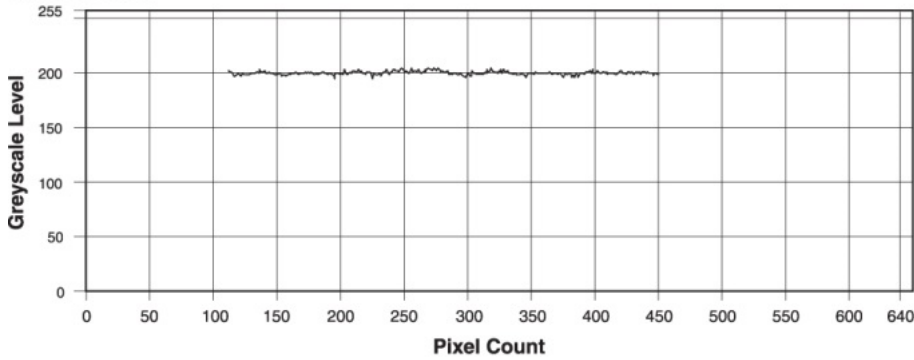
Spatially Randomized Lightline A08964, 24" (610)



Example of Line Scan Results

Dimensions in () are in mm

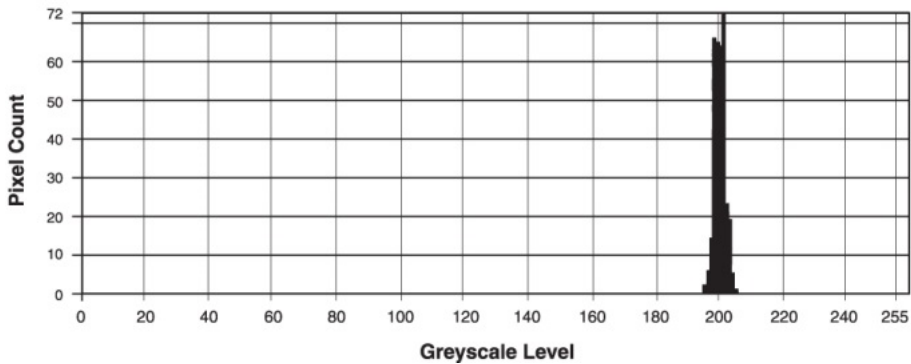
LINE PROFILE



GLOBAL REPORT

Mean Value	Maximal Value	Minimal Value	Standard Variation	Area (pixels)	%
199.78	205.00	195.00	1.74	337	1.40

HISTOGRAM



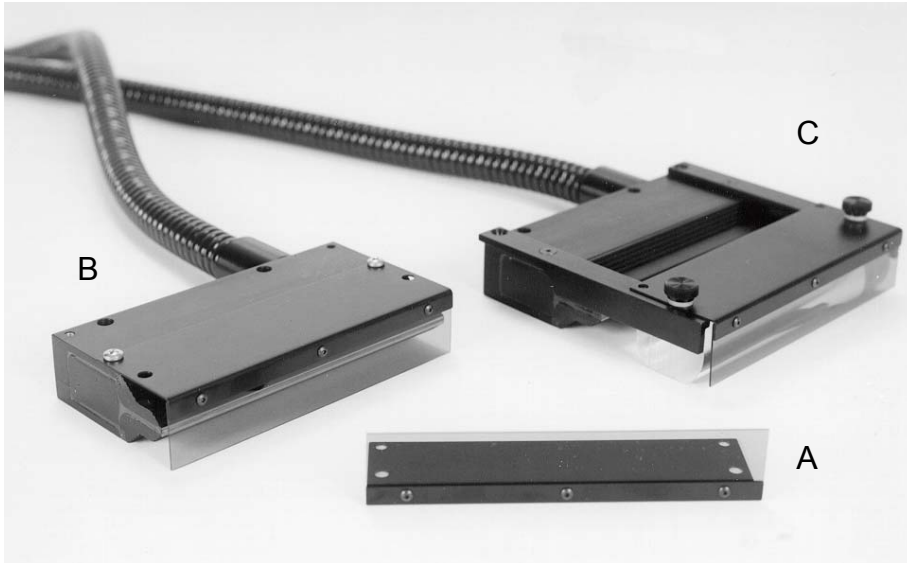
Warning : This product is manufactured with glass fiber. Not for use in cable/hose carrier. Call SCHOTT to discuss moving cable/hose carrier applications.

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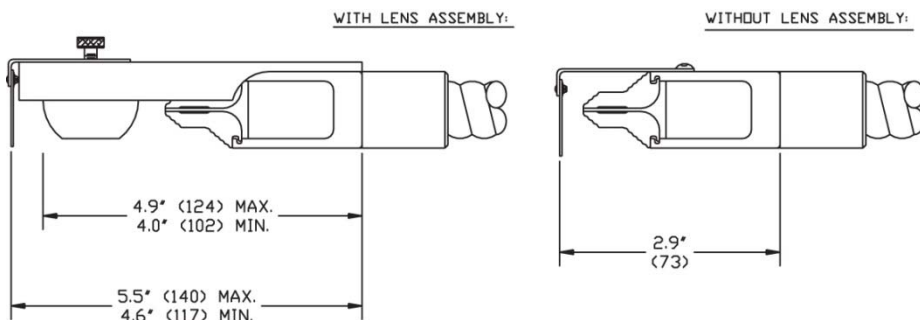
Lightline Linear Polarizer Kits



(A) Lightline polarizer assembly, A08845,
 (B) Polarizer affixed to a 5" lightline,
 (C) Polarizer affixed to a cylindrical lens
 on a lightline

Product and Performance Characteristics

- Developed for use with 3" to 16" (227 to 406 mm) lightlines to enhance contrast on highly reflective surfaces for area and line scanning applications
- Easily mount on SCHOTT lightlines alone or with cylindrical and apertured lenses affixed to the lightline
- Polarizer(s) should be used with an analyzer supplied by the customer which is typically attached to the camera objective
- Two polarizers are included in the kit; one polarizes in the horizontal axis and the other polarizes in the vertical axis
- Most options are made-to-order or custom



Dimensions in () are in mm

Lightline Part No.	Polarizer Kits Part No.
A08903	Custom
A08904	*A08844
A08906	Custom
A08908	Custom
A08910	Custom
A08912	Custom
A08914	Custom
A08916	Custom
A08975	Custom
* Made-to-order product	

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Lightlines Support Apparatus

For accurate positioning in both industrial and laboratory environments.



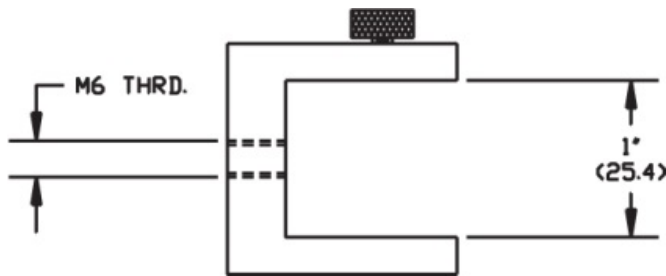
3" Lightline, A08903, with Holder, A08901, supported by an articulated arm, A08506, and base, A08507



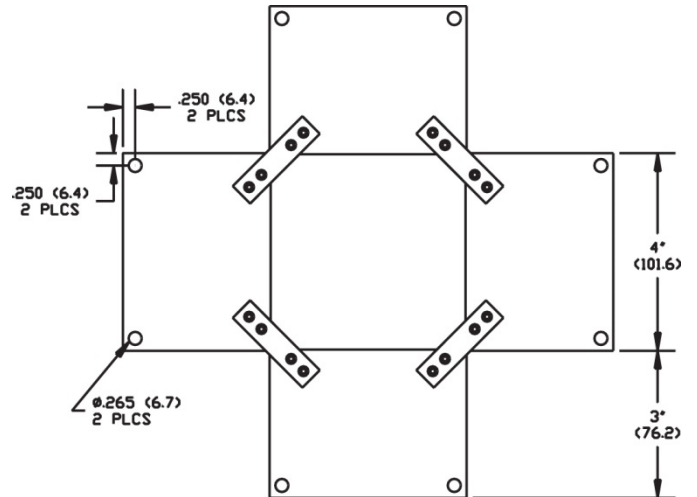
Lightline Holder, A08901

Part No.	Description
A08901	Custom Lightline holder with M6 thread. Will support 3" (76) to 10" (254) single lightlines when attached to an articulated arm and base.

Holder, A08901



Quad Holder



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Lightline Lenses

Cylindrical and apertured lenses for 1" to 16" lightlines.



Cylindrical Lens, A08582



3" (76 mm) Lightline with A08582 Cylindrical Lens

Product and Performance Characteristics

- Cylindrical and apertured lenses are available for most lightline models, most are Made-to-Order but they can be custom made for all models
- Cylindrical lens attachments are designed to collect light exiting the lightline to increase intensity up to a factor of 10
- Apertured lens attachments are designed to project a more collimated line of light, not to increase light intensity
- Lenses are adjustable and easily attach to SCHOTT lightlines
- Custom length and configurations are available

Lightline and Polarizer Kits 1", 2" & 3" Lightlines

Part No.	Part No. for Lens	
	Cylindrical	Apertured
A08579	* A08571	Custom
A08580	* A08582	Custom
A08583	* A08572	Custom
A08584	A08572	Custom
A08588	A08571	Custom
A08589	A08572	Custom

* Made-to-order products

Lightline and Polarizer Kits 45 Degree Lightline

Part No.	Part No. for Lens	
	Cylindrical	Apertured
Custom	Custom	Custom

Lightline and Polarizer Kits 3" to 16" Continuous Lightlines

Part No.	Part No. for Lens	
	Cylindrical	Apertured
A08903	A08823	Custom
A08904	A08824	Custom
A08905	A08825	Custom
A08906	A08826	Custom
A08907	A08827	Custom
A08908	A08828	Custom
A08909	A08829	Custom
A08910	A08830	Custom
A08911	A08831	Custom
A08912	A08832	Custom
A08913	A08833	Custom
A08914	A08834	Custom
A08915	A08835	Custom
A08916	A08836	Custom
A08975	A08826	A08806

Lightline and Polarizer Kits 24" to 40" Continuous Lightlines

Part No.	Part No. for Lens	
	Cylindrical	Apertured
A08940	A08860	Custom
A08964	A08864	Custom

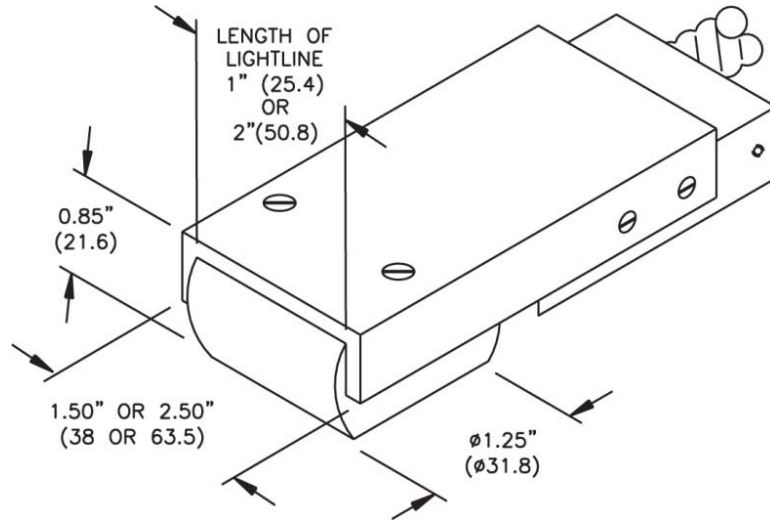
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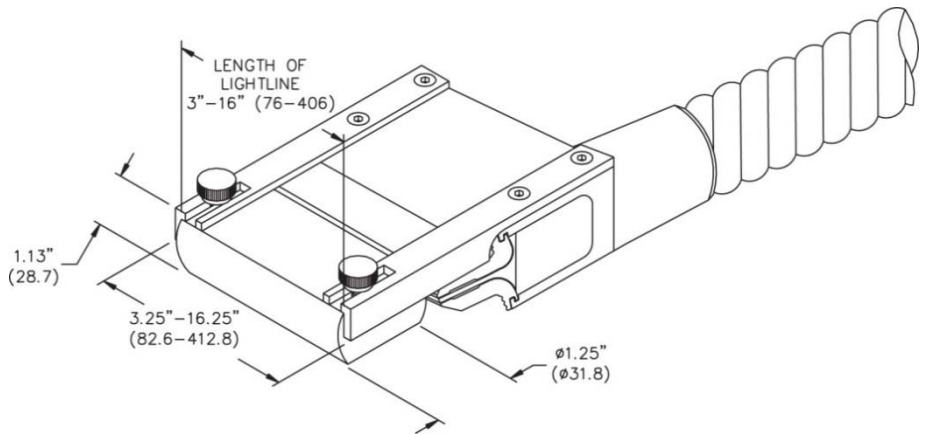
Specifications Lightline Lenses

Dimensions in () are in mm

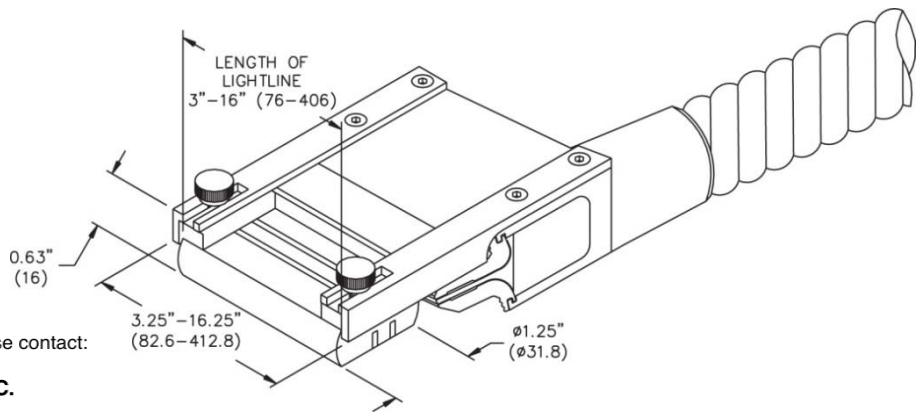
**A08571
Cylindrical and Apertured Lenses**



**A08824, A08826, A08832
Cylindrical Lenses**



**A08806
Apertured Lenses**



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