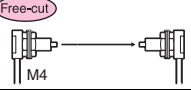
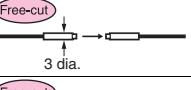
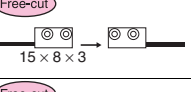
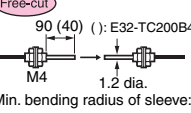
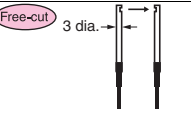
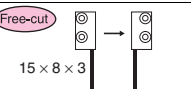
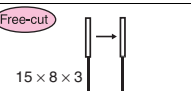
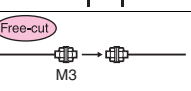
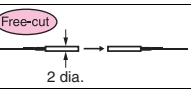
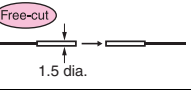
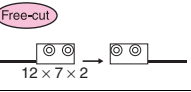
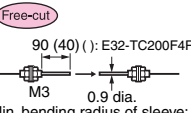
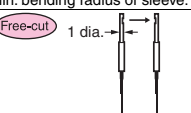
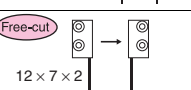
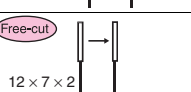


Ordering Information

Through-beam Fiber Units Standard models

High-resolution mode Standard mode High-speed mode *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).
(Super-high-speed mode)

Type	Appearance (mm) *2	Dimensions page	Sensing distance (mm)	Standard object (min. sensing object) (mm) *1	Min. bending radius (mm)	Features	Model number
Flexible (new standard)	Standard size	 M4	40	1 dia. (0.005 dia.)		M4 right angle	E32-T11N
		 M4	40			M4 screw	E32-T11R
		 3 dia.	40			3-dia. cylinder	E32-T12R
		 15 x 8 x 3	40			Flat shape	E32-T15XR
		 90 (40) (): E32-TC200B4R M4 1.2 dia. Min. bending radius of sleeve: 5	40			M4 screw, with sleeve	E32-TC200BR E32-TC200B4R
		 3 dia.	40			3-dia. cylinder, side-view	E32-T14LR
		 15 x 8 x 3	41			Flat shape, side-view	E32-T15YR
		 15 x 8 x 3	41			Flat shape, flat-view	E32-T15ZR
		 M3	40			M3 screw (small)	E32-T21R
		 2 dia.	40			2-dia. cylinder (small)	E32-T22R
	Small size	 1.5 dia.	40	0.5 dia. (0.005 dia.)		1.5-dia. cylinder (small)	E32-T222R
		 12 x 7 x 2	40			Flat shape (small)	E32-T25XR
		 90 (40) (): E32-TC200F4R M3 0.9 dia. Min. bending radius of sleeve: 5	40			M3 screw (small), with sleeve	E32-TC200FR E32-TC200F4R
		 1 dia.	41			1-dia. cylinder (small), side-view	E32-T24R
		 12 x 7 x 2	41			Flat shape (small), side-view	E32-T25YR
		 12 x 7 x 2	41			Flat shape (small), flat-view	E32-T25ZR

*1. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

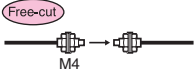
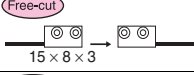
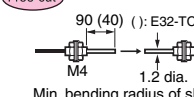
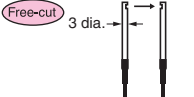
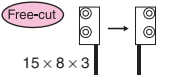
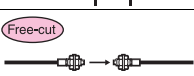
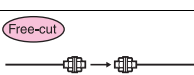
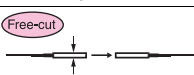
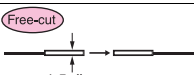
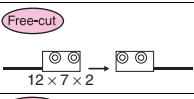
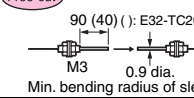
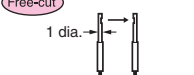
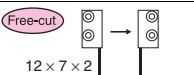
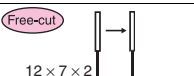
*2.  Indicates models that allow free cutting.

 Flexible  Break-resistant  Fluoresoresin coating

Through-beam Fiber Units

Standard models

High-resolution mode Standard mode High-speed mode *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).
 Super-high-speed mode

Type	Appearance (mm) *2	Dimensions page	Sensing distance (mm)	Standard object (min. sensing object) (mm) *1	Min. bending radius (mm)	Features	Model number
Standard	Standard size	 (Free-cut) M4	40			M4 screw	E32-TC200
		 (Free-cut) M4	40			3-dia. cylinder	E32-T12
		 (Free-cut) 15 × 8 × 3	40	1,000 760 500 (200)		Flat shape	E32-T15X
		 (Free-cut) 90 (40) (): E32-TC200B4R M4 1.2 dia. Min. bending radius of sleeve: 5	40			M4 screw, with sleeve	E32-TC200B E32-TC200B4
		 (Free-cut) 3 dia.	40			3-dia. cylinder, side-view	E32-T14L
		 (Free-cut) 15 × 8 × 3	41	600 460 300 (120)		Flat shape, side-view	E32-T15Y
		 (Free-cut) 15 × 8 × 3	41			Flat shape, flat-view	E32-T15Z
	Small size	 (Free-cut) M3	40	900 680 450 (180)		M3 screw (small)	E32-TC200A E32-TC200E
		 (Free-cut) M3	40			2-dia. cylinder (small)	E32-T22
		 (Free-cut) 2 dia.	40			1.5-dia. cylinder (small)	E32-T222
		 (Free-cut) 1.5 dia.	40	270 220 125 (50)		Flat shape (small)	E32-T25X
		 (Free-cut) 12 × 7 × 2	40			M3 screw (small), with sleeve	E32-TC200F E32-TC200F4
		 (Free-cut) 90 (40) (): E32-TC200F4R M3 0.9 dia. Min. bending radius of sleeve: 5	40			1-dia. cylinder (small), side-view	E32-T24
		 (Free-cut) 1 dia.	41	160 130 75 (30)		Flat shape (small), side-view	E32-T25Y
		 (Free-cut) 12 × 7 × 2	41			Flat shape (small), flat-view	E32-T25Z
		 (Free-cut) 12 × 7 × 2	41				

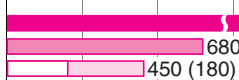
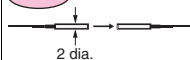
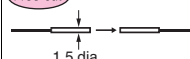
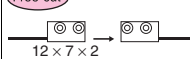
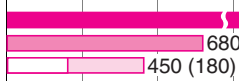
*1. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*2. (Free-cut) Indicates models that allow free cutting.

R Flexible B Break-resistant U Fluororesin coating

Standard models

 High-resolution mode
 Standard mode
 High-speed mode
 Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *2	Dimensions page	Sensing distance (mm)			Standard object (min. sensing object) (mm) *1	Min. bending radius (mm)	Features	Model number
Break-resistant	Standard size 	42				1 dia (0.005 dia.)	 R4	M4 screw	E32-T11
		42		900 680 450 (180)	3-dia. cylinder			E32-T12B	
		42			Flat shape			E32-T15XB	
	Small size 	42				0.5 dia (0.005 dia.)		M3 screw (small)	E32-T21
		42		240 200 110 (45)	2-dia. cylinder (small)			E32-T221B	
		42			1.5-dia. cylinder (small)			E32-T22B	
		42		180 150 85 (35)	Flat shape (small)			E32-T25XB	
	Coating		42		900 680 450 (180)	1 dia. (0.005 dia.)		 R4	M4 screw, fluorine coating

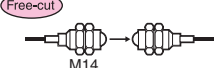
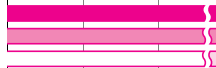
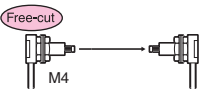
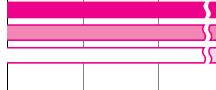
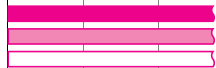
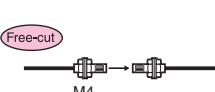
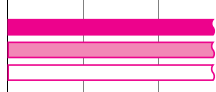
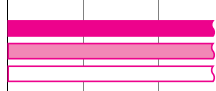
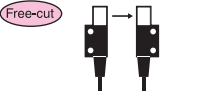
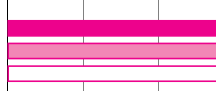
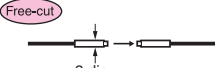
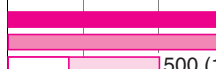
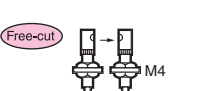
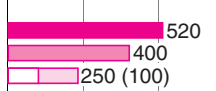
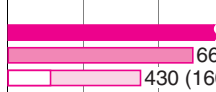
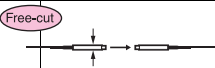
*1. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*2. Free-cut Indicates models that allow free cutting.

R Flexible **B** Break-resistant **U** Fluororesin coating

Through-beam Fiber Units Special-beam models

High-resolution mode Standard mode High-speed mode Super-high-speed mode *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *2	Dimensions page	Sensing distance (mm)	Standard object (min. sensing object) (mm) *1	Min. bending radius (mm)	Features	Model number
Long-distance, high-power		43	 20,000*3 20,000*3 10,000 (4,000)	10 dia.	R25	Large built-in lens, M14 screw	E32-T17L
		40 60	 4,000 3,700 2,400 (970)	4 dia. (0.1 dia.)	R1	M4 right angle	E32-T11N+ E39-F1
		40 60	 4,000*4 4,000*4 2,600 (1,500)		R25	M4 screw	E32-TC200+ E39-F1
		40 60	 4,000*4 3,700 2,400 (970)		R1	M4 screw, flexible fiber	E32-T11R+ E39-F1
		42 60	 4,000*4 3,600 2,300 (930)		R4	M4 screw, break-resistant	E32-T11+ E39-F1
		43	 4,000*4 3,400 2,250 (900)			Screw mounting, side-view	E32-T14
		43	 1,700 1,330 870 (350)	1.4 dia. (0.01 dia.)	R25	M4 screw	E32-T11L
		43				3-dia. cylinder	E32-T12L
		43 60	 910 800 500 (180)	3 dia. (0.1 dia.)	R25	M4 screw, side-view	E32-T11L+ E39-F2
		40 60	 520 400 250 (100)		R1	M4 screw, side-view, flexible fiber	E32-T11R+ E39-F2
		42 60	 820 660 430 (160)		R4	M4 screw, side-view, break-resistant	E32-T11+ E39-F2
		43	 540 440 250 (100)	0.9 dia. (0.005 dia.)	R10	M3 screw (small)	E32-T21L
		43				2-dia. cylinder (small)	E32-T22L

*1. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*2.  Indicates models that allow free cutting.

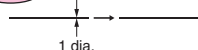
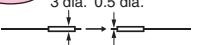
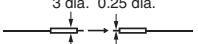
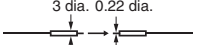
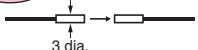
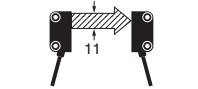
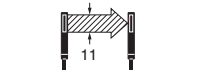
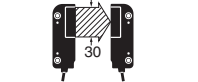
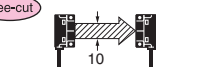
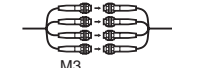
*3. The optical fiber is 10 m long on each side, so the sensing distance is 20,000 mm.

*4. The optical fiber is 2 m long on each side, so the sensing distance is 4,000 mm.

 Flexible  Break-resistant  Fluororesin coating

Special-beam models

 High-resolution mode
 Standard mode
 High-speed mode
 Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *2	Dimensions page	Sensing distance (mm)			Standard object (min. sensing object) (mm)*1	Min. bending radius (mm)	Features	Model number
Ultracompact, thin-sleeve	Free-cut  1 dia.	44	160	130	75 (30)	0.5 dia. (0.005 dia.)	R R1	1-dia. cylinder, flexible fiber	E32-T223R
	Free-cut  3 dia. 0.5 dia. Sleeve cannot be bent.	44	53	44	25 (10)	0.25 dia. (0.005 dia.)	R10	0.5-dia. sleeve; 0.25-dia. opening	E32-T33-S5
	 3 dia. 0.25 dia. Sleeve cannot be bent.	44	12	10	6 (4)	0.125 dia. (0.005 dia.)		0.25-dia. sleeve; 0.125-dia. opening	E32-T333-S5
	 3 dia. 0.22 dia. Sleeve cannot be bent.	44	6	5	3 (2)	0.1 dia. (0.005 dia.)		0.22-dia. sleeve; 0.1-dia. opening	E32-T334-S5
Fine-beam	Free-cut  3 dia.	44	2,500	1,900	1,250 (500)	1.7 dia. (0.1 dia.)	R10	3-dia. cylinder	E32-T22S
	Free-cut  3.5 dia.	44	1,750	1,300	870 (350)	2 dia. (0.1 dia.)		3.5-dia. cylinder, side-view	E32-T24S
Area-sensing	Free-cut  11	45	1,100	840	560 (220)	(0.2 dia.) *3	R R1	Area width: 11 mm	E32-T16PR
		45	1,500	1,100	750 (300)		R10		E32-T16P
	Free-cut  11	45	980	750	480 (190)	(0.2 dia.) *3	R R1	Area width: 11 mm; side-view	E32-T16JR
		45	1,300	1,000	650 (260)		R10		E32-T16J
	Free-cut  30	44	1,700	1,300	850 (340)	(0.3 dia.) *3	R R1	Area width: 30 mm	E32-T16WR
		44	2,300	1,800	1,150 (450)		R10		E32-T16W
Free-cut  10	45	3,700	2,800	1,850 (740)	(0.6 dia.) *4	R25	Area width: 10 mm; long distance	E32-T16	
 M3	44	750	610	350 (140)	2 dia. (0.1 dia.)		Multi-point detection (4-head)	E32-M21	

*1. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

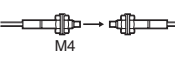
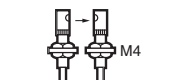
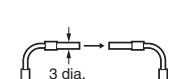
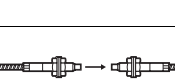
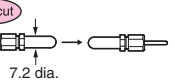
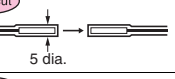
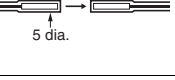
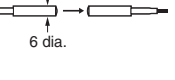
*2. Free-cut Indicates models that allow free cutting.

*3. This is the value for which detection is possible within the sensing area, with the sensing distance set to 300 mm. (The sensing object is stationary.)

*4. This is the value for which detection is possible within the sensing area, with the sensing distance set to give a digital value of 1,000. (The sensing object is stationary.)

Through-beam Fiber Units Environment-resistant models

High-resolution mode Standard mode High-speed mode Super-high-speed mode *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *2	Dimensions page	Sensing distance (mm)	Standard object (min. sensing object) (mm)*1	Min. bending radius (mm)	Features	Model number
Heat-resistant	150°C *5	 Free-cut	46	1,000 760 500 (200)	1.5 dia. (0.1 dia.)	Heat-resistant up to 150°C	E32-T51
		 Free-cut	46	300 230 150 (60)		Heat-resistant up to 150°C; side-view	E32-T54
	200°C *6	 Free-cut	46	360 280 180 (70)	1 dia. (0.005 dia.)	Heat-resistant up to 200°C	E32-T81R-S
		 Free-cut	46 60	600 450 300 (120)	3 dia. (0.1 dia.)	Heat-resistant up to 200°C; side-view	E32-T61-S+ E39-F2
		 Free-cut	46 60	4,000*7 3,400 2,200 (900)	4 dia. (0.1 dia.)	Heat-resistant up to 200°C, long distance	E32-T61-S+ E39-F1
		 Free-cut	46	1,750 1,300 870 (350)	1.7 dia. (0.1 dia.)	Heat-resistant up to 200°C; L-shaped; long distance	E32-T84S-S
	350°C *6	 Free-cut	46	600 450 300 (120)	1 dia. (0.005 dia.)	Heat-resistant up to 350°C	E32-T61-S
Chemical-resistant	 Free-cut	46	2,500 2,000 1,300 (520)	4 dia. (0.1 dia.)	R4	Fluororesin cover, round head	E32-T11F
	 Free-cut	46	4,000*7 3,000 2,000 (800)		R40	Fluororesin cover, long distance	E32-T12F
	 Free-cut	46	500 400 250 (100)	3 dia. (0.1 dia.)		Fluororesin cover, side-view	E32-T14F
	 Free-cut	46	1,800 1,400 900 (350)	4 dia. (0.1 dia.)		Fluororesin cover, heat-resistant up to 150°C *5	E32-T51F
	 Free-cut	46	920 700 460 (190)	1 dia. (0.005 dia.)	R10	Fluororesin cover, heat-resistant up to 200°C *6	E32-T81F-S

*1. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*2.  Indicates models that allow free cutting.

*3. This is the value for which detection is possible within the sensing area, with the sensing distance set to 300 mm. (The sensing object is stationary.)

*4. This is the value for which detection is possible within the sensing area, with the sensing distance set to give a digital value of 1,000. (The sensing object is stationary.)

*5. For continuous operation, use the products within a temperature range of -40°C to 130°C.

*6. The maximum temperature that can be withstood varies with the location. Refer to dimensions diagrams for details.

*7. The optical fiber is 2 m long on each side, so the sensing distance is 4,000 mm.

Environment-resistant models

 High-resolution mode
 Standard mode
 High-speed mode
 Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm)	Dimensions page	Sensing distance (mm)	Standard object (min. sensing object) (mm) *	Min. bending radius (mm)	Features	Model number
Vacuum-resistant		47		1.2 dia. (0.01 dia.)	R30	M4 screw, heat-resistant up to 120°C	E32-T51V 1M
		47		4 dia. (0.1 dia.)		M4 screw, heat-resistant up to 120°C, long distance	E32-T51V 1M+ E39-F1V
		47		1.2 dia. (0.01 dia.)		L-shaped, heat-resistant up to 120°C	E32-T54V 1M
		47		4 dia. (0.1 dia.)		L-shaped, heat-resistant up to 120°C, long distance	E32-T54V 1M+ E39-F1V
		47		2 dia. (0.1 dia.)	R25	L-shaped, heat-resistant up to 200°C, long distance	E32-T84SV 1M
		47					

* The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

Flanges

Appearance (mm)	Dimensions page	Type	Model number
	47	4-channel flange	E32-VF4
	47	1-channel flange	E32-VF1

Lens Units

Appearance (mm)	Dimensions page	Type	Quantity	Remarks
	47	E39-F1V	2	Long-distance Lens Unit Can be used for the E32-T51V and the E32-T54V.

Mounting Brackets

Appearance (mm)	Dimensions page	Type	Quantity	Remarks
	47	E39-L54V	2	Can be used for the E32-T54V.

Fiber Units for Atmospheric-pressure Side

Appearance (mm)	Dimensions page	Type	Model number
Free-cut 	47	Amplifier-Flange Connection Fiber	E32-T10V 2M

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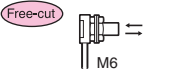
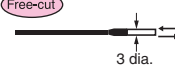
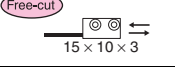
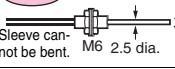
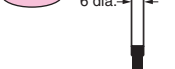
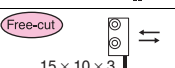
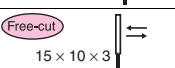
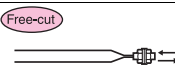
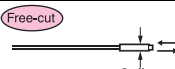
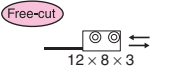
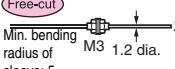
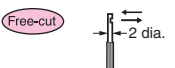
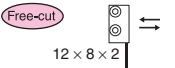
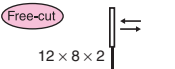
Free-cut

 Indicates models that allow free cutting.

Fiber Units with Reflective Sensors

Standard models

 High-resolution mode
 Standard mode
 High-speed mode
 Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *3	Dimensions page	Sensing distance (mm) *1				(Min. sensing object) (mm) *2	Min. bending radius (mm)	Features	Model number
Flexible (new standard)	Standard size		48						M6 right angle	E32-D11N
			48						M6 screw	E32-D11R
			48	 300	 170	 120 (50)			3-dia. cylinder	E32-D12R
			48						Flat shape	E32-D15XR
			48						M6 screw, with sleeve	E32-DC200BR E32-DC200B4R
			49	 80	 45	 30 (14)			6-dia. cylinder, side-view	E32-D14LR
			49	 70	 40	 26 (12)			Flat shape, side-view	E32-D15YR
			49						Flat shape, flat-view	E32-D15ZR
	Small size		48						M4 screw (small)	E32-D211R
			48						M3 screw (small)	E32-D21R
			48	 50	 30	 20 (8)			3-dia. cylinder (small)	E32-D22R
			48						Flat panel (small)	E32-D25XR
			48						M3 screw (small), with sleeve	E32-DC200FR E32-DC200F4R
			49	 26	 15	 10 (4)			2-dia. cylinder (small), side-view	E32-D24R
			49	 14	 8	 5 (2)			Flat shape (small), side-view	E32-D25YR
			49						Flat shape (small), flat-view	E32-D25ZR

*1. The sensing distances are for white paper.

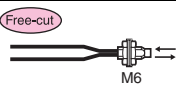
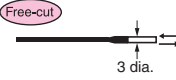
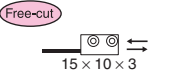
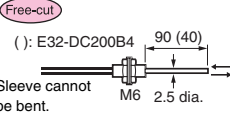
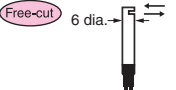
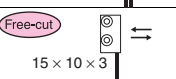
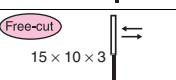
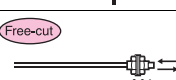
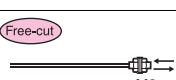
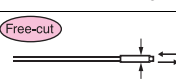
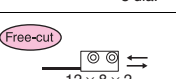
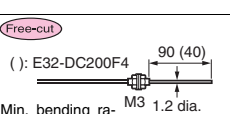
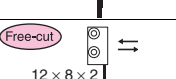
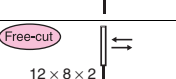
*2. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*3. Free-cut Indicates models that allow free cutting.

R Flexible
 B Break-resistant
 U Fluororesin coating

Standard models

 High-resolution mode
 Standard mode
 High-speed mode
 Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *3	Dimen- sions page	Sensing distance (mm) *1		(Min. sens- ing object) (mm) *2	Min. bending radius (mm)	Features	Model number	
Standard	Standard size	 Free-cut M6	48	500 300 200 (90)			M6 screw	E32-DC200	
		 Free-cut 3 dia.	48	400 230 160 (70)			3-dia. cylinder	E32-D12	
		 Free-cut 15 × 10 × 3	48				Flat shape	E32-D15X	
		 Free-cut (): E32-DC200B4 Sleeve cannot be bent. M6 2.5 dia.	48	500 300 200 (90)			M6 screw, with sleeve	E32-DC200B E32-DC200B4	
		 Free-cut 6 dia.	49	200 110 80 (36)			6-dia. cylinder, side-view	E32-D14L	
		 Free-cut 15 × 10 × 3	49	170 100 65 (30)			Flat shape, side-view	E32-D15Y	
		 Free-cut 15 × 10 × 3	49				Flat shape, flat-view	E32-D15Z	
		Small size	 Free-cut M4	48					M4 screw (small)
	 Free-cut M3		48					M3 screw (small)	E32-DC200E
	 Free-cut 3 dia.		48	130 80 50 (22)			3-dia. cylinder (small)	E32-D22	
	 Free-cut 12 × 8 × 2		48				Flat shape (small)	E32-D25X	
	 Free-cut (): E32-DC200F4 Min. bending radius of sleeve: 5 M3 1.2 dia.		48				M3 screw (small), with sleeve	E32-DC200F E32-DC200F4	
	 Free-cut 2 dia.		49	50 30 20 (8)			2-dia. cylinder (small), side-view	E32-D24	
	 Free-cut 12 × 8 × 2		49	35 20 12 (6)			Flat shape (small), side-view	E32-D25Y	
	 Free-cut 12 × 8 × 2		49				Flat shape (small), flat-view	E32-D25Z	
				(0.005 dia.)					

*1. The sensing distances are for white paper.

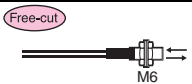
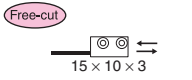
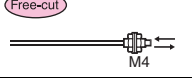
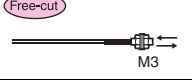
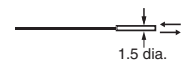
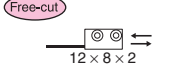
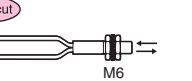
*2. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*3. Free-cut Indicates models that allow free cutting.

R Flexible
 B Break-resistant
 U Fluororesin coating

Fiber Units with Reflective Sensors Standard models

 High-resolution mode
 Standard mode
 High-speed mode
 Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *3	Dimen- sions page	Sensing distance (mm) *1			(Min. sensing object) (mm) *2	Min. bending radius (mm)	Features	Model number	
Break-resistant	Standard size		50	 300	 170	 120 (50)	(0.005 dia.)	 R4	M6 screw	E32-D11
			50						Flat shape	E32-D15XB
	Small size		50	 110	 70	 45 (20)			M4 screw (small)	E32-D21B
			50						3-dia. cylinder (small)	E32-D221B
			50	 50	 30	 20 (8)			M3 screw (small)	E32-D21
			50						1.5-dia. cylinder (small)	E32-D22B
			50	 85	 50	 30 (15)			Flat shape (small)	E32-D25XB
		Coating		50	 300	 170			 120 (50)	(0.005 dia.)

*1. The sensing distances are for white paper.

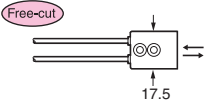
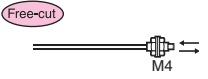
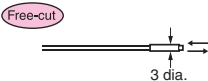
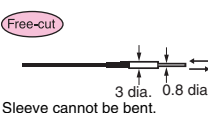
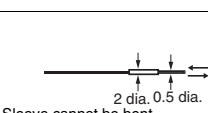
*2. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*3. Free-cut Indicates models that allow free cutting.

R Flexible
 B Break-resistant
 U Fluororesin coating

Special-beam models

High-resolution mode
 Standard mode
 High-speed mode
 Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *3	Dimensions page	Sensing distance (mm) *1	(Min. sensing object) (mm) *2	Min. bending radius (mm)	Features	Model number
Long-distance, high-power		51	40 to 1,000 40 to 700 40 to 450 (40 to 240)	---	B R4	Large built-in lens, screw mounting	E32-D16
		51	650 400 260 (110)	(0.005 dia.)	R25	M6 screw	E32-D11L
		51	210 130 80 (35)		R10	M4 screw	E32-D21L
		51				3-dia. cylinder	E32-D22L
Ultracompact, thin-sleeve	 Sleeve cannot be bent.	51	25 16 10 (4)	(0.005 dia.)	R4	0.8-dia. sleeve	E32-D33
	 Sleeve cannot be bent.	51	5 3 2 (0.8)			0.5-dia. sleeve	E32-D331

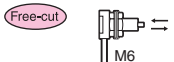
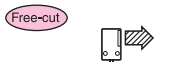
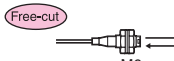
*1. The sensing distances are for white paper.

*2. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*3. Free-cut Indicates models that allow free cutting.

Fiber Units with Reflective Sensors Special-beam models

High-resolution mode Standard mode High-speed mode *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).
(Super-high-speed mode)

Type	Appearance (mm) *3	Dimen- sions page	Sensing distance (mm) *1			(Min. sens- ing object) (mm) *2	Min. bending radius (mm)	Features	Model number	
Coaxial, small-spot		52	 280	 170	 160 (50)	(0.005 dia.)	 R4	M6 right angle	E32-C11N	
		52	 40	 25	 23 (7)			M3 right angle	E32-C31N	
		52	 250	 150	 100 (45)			M6 screw	E32-CC200R	
		52	 500	 300	 200 (90)				E32-CC200	
		52	 250	 150	 100 (45)		3-dia. cylinder	E32-D32L		
		52	 120	 75	 50 (22)		M3 screw (small)	E32-C31		
		52	 120	 75	 50 (22)		2-dia. cylinder (small)	E32-D32		
		52	6 to 15 mm; spot diameter: 0.1 to 0.6 mm					Small spot (variable)	E32-C42+ E39-F3A	
		60	Spot diameter of 0.5 to 1 mm at distances in the range 6 to 15 mm 						E32-D32+ E39-F3A	
		52	Spot diameter of 0.1 mm at 7 mm					Small spot	E32-C41+ E39-F3A-5	
		60	Spot diameter of 0.5 mm at 7 mm 						E32-C31+ E39-F3A-5	
		52	Spot diameter of 0.2 mm at 17 mm					Long distance, small spot	E32-C41+ E39-F3B	
		60	Spot diameter of 0.5 mm at 17 mm 						E32-C31+ E39-F3B	
		52	Spot diameter of 4 mm max. at distances in the range 0 to 20 mm					Long-dis- tance sensing, parallel light	E32-C31+ E39-F3C	
Area-sensing		53	 250	 150	 100 (45)	(0.005 dia.)	 R4	Beam width: 11 mm	E32-D36P1	
Retroreflective		53	 10 to 250	 10 to 250	 10 to 250 (10 to 250)	(0.1 dia.)	R10	M6 screw	E32-R21+ E39-R3 (Attached)	
		53	 150 to 1,500	 150 to 1,500	 150 to 1,500 (150 to 1,500)	(0.2 dia.)	R25	Screw mount- ing, long dis- tance	E32-R16+ E39-R1 (Attached)	

*1. The sensing distances are for white paper.

*2. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*3.  Indicates models that allow free cutting.

 Flexible  Break-resistant  Fluororesin coating

Special-beam models

 High-resolution mode
 Standard mode
 High-speed mode
 Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *3	Dimensions page	Sensing distance (mm) *1			(Min. sensing object) (mm) *2	Min. bending radius (mm)	Features	Model number
Convergent-reflective	Free-cut	54	3.3	3.3	3.3 (3.3)	(0.005 dia.)	R25	Small level differences, high power, side-view	E32-L25
	Free-cut	54	3.3	3.3	3.3 (3.3)			Small level differences, top-view	E32-L25A
	Free-cut	54	0 to 4	0 to 4	0 to 4 (0 to 4)		R10	Ultracompact, flat-view	E32-L24S
	Free-cut	54	2 to 6 (center: 4)	2 to 6 (center: 4)	2 to 6 (2 to 6) (center: 4)			Heat resistant up to 105°C *4, top-view	E32-L24L
	Free-cut	54	5.4 to 9 (center: 7.2)	5.4 to 9 (center: 7.2)	5.4 to 9 (5.4 to 9) (center: 7.2)			Heat resistant up to 105°C *4, top-view	E32-L25L
		55	4 to 10	4 to 10	4 to 10 (4 to 10)	Soda glass with reflection factor of 7%	R25	Heat resistant up to 200°C, flat-view	E32-L86
		55	1 to 5	1 to 5	1 to 5			Heat resistant up to 300°C	E32-L64
	Free-cut	55	0 to 8	0 to 8	0 to 6			Ideal for detecting glass stock.	E32-A10

*1. The sensing distances are for white paper.

*2. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*3.

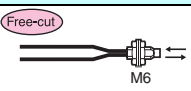
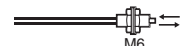
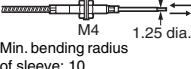
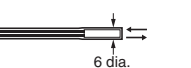
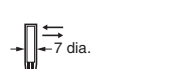
Free-cut

 Indicates models that allow free cutting.

*4. For continuous operation, use the products within a temperature range of -40°C to 90°C.

Fiber Units with Reflective Sensors Environment-resistant models

 High-resolution mode
 Standard mode
 High-speed mode
 Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *3	Dimensions page	Sensing distance (mm) *1	(Min. sensing object) (mm) *2	Min. bending radius (mm)	Features	Model number
Heat-resistant	150°C *4 	56	 400 230 160 (72)	(0.005 dia.)	R35	Heat resistant up to 150°C	E32-D51
	200°C *5 	56	 150 90 60 (27)		R10	Heat resistant up to 200°C	E32-D81R-S E32-D81R*6
	350°C *5 	56	 100 60 40 (18)		R25	Heat resistant up to 350°C	E32-D61-S E32-D61*6
	400°C *5 	56				Heat resistant up to 400°C, with sleeve	E32-D73-S E32-D73*6
Chemical-resistant		56	 160 95 65 (30)	(0.005 dia.)	R40	Fluororesin cover, long distance	E32-D12F
		56	 70 40 30 (10)			Fluororesin cover, side-view	E32-D14F

*1. The sensing distances are for white paper.

*2. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*3. Free-cut Indicates models that allow free cutting.

*4. For continuous operation, use the products within a temperature range of -40°C to 90°C.

*5. The maximum temperature that can be withstood varies with the location. Refer to dimensions diagrams for details.

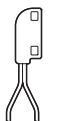
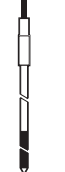
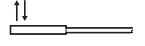
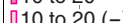
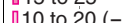
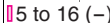
*6. Order the Fiber Unit based on the Amplifier Unit. Use the E32-D□-S if the E3X-DA□-S, E3X-MDA□, or E3X-DAC□-S is used. Use the E32-D□ if any other Amplifier is used.

R Flexible
 B Break-resistant
 U Fluororesin coating

Ordering Information

Application-corresponding Fiber Units

■ High-resolution mode
 ■ Standard mode
 ■ High-speed mode
 ■ Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *2	Dimensions page	Sensing distance (mm)				Standard object (min. sensing object) (mm)*1	Min. bending radius (mm)	Features	Model number
Label-detection	 	57	 10  10  10 (10)				4 dia. (0.1 dia.)	R25	Slot sensor (no adjustment of optical axis required)	E32-G14
	 	43	 4,500  3,400  2,250 (900)						Screw mounting, side-view	E32-T14
Liquid-level detection	 	57	Applicable tube: Transparent tube with a diameter in the range 8 to 10 mm and a recommended wall thickness of 1 mm					R10	Compact	E32-L25T
	 	57	Applicable tube: Transparent tube (no restriction on diameter)					R4	No restriction on tube diameter, resistant to bubbles and drops of water	E32-D36T
	 	58	Applicable tube: Transparent tube with a diameter of 3.2, 6.4, or 9.5 mm and a recommended wall thickness of 1 mm						Light ON when fluid is present, resistant to bubbles and drops of water	E32-A01
	 	58	Applicable tube: Transparent tube with a diameter in the range 6 to 13 mm and a recommended wall thickness of 1 mm						Light ON when fluid is not present, resistant to bubbles and drops of water	E32-A02
	 	58	Liquid-contact models					R40	Heat resistant up to 200°C, fluororesin cover	E32-D82F1 E32-D82F2
Glass-substrate-alignment	 	54	 0 to 15  0 to 15  0 to 15 (0 to 12)				Soda glass with reflection factor of 7%	R25	Variation of detection position within the detection range: 0.1 mm	E32-L16-N
		58	 10 to 20  10 to 20  10 to 20 (-)							E32-A08
		58	 15 to 25  15 to 25  10 to 20 (-)							E32-A07E1*5 E32-A07E2*5
	 	58	 5 to 18  5 to 18  5 to 16 (-)						Heat resistant up to 300°C *3, *4	E32-L66
	 	54	 10 to 20  10 to 20  10 to 20						Heat resistant up to 300°C	E32-A08H2

*1. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*2.  Indicates models that allow free cutting.

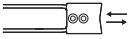
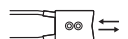
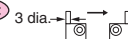
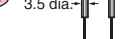
*3. The maximum temperature that can be withstood varies with the location. Refer to dimensions diagrams for details.

*4. These values are based on the assumption that there are no repeated sudden changes in temperature.

*5. The characteristics for sensing object incline are different between the Attachments with model numbers ending in "E1" and "E2." Refer to page 52 for installation precautions.

Application-corresponding Fiber Units

 High-resolution mode
 Standard mode
 High-speed mode
 Super-high-speed mode
 *When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type	Appearance (mm) *2	Dimensions page	Sensing distance (mm)	Standard object (min. sensing object) (mm)*1	Min. bending radius (mm)	Features	Model number
Glass-substrate-mapping	Free-cut 	59	15 to 38 (center: 25)	Edge of soda glass with reflection factor of 7% (t = 0.5 mm, rounded edge)	R25	Resistant to tilting	E32-A09
		59	15 to 38 (center: 25) 15 to 38 (center: 25) (-)		R35	Heat resistant up to 150°C *3	E32-A09H
		59	20 to 30 (center: 25) 20 to 30 (center: 25) 20 to 30 (center: 25) (-)		R25	Heat resistant up to 300°C *4, *5	E32-A09H2
Wafer-mapping	Free-cut 	59		2 dia. (0.1 dia.)	R R1	Opening angle: 1.5°; optical axis adjusted before delivery	E32-A03
	Free-cut 	59	1,150 890 600 (250)		R R10	Opening angle: 1.5°; with mounting flange; optical axis adjusted before delivery	E32-A03-1
	Free-cut 	44	1,750 1,300 870 (350)			Long distance; opening angle: 4°	E32-T24S
	Free-cut 	59		1.2 dia. (0.1 dia.)	R R10	Ultraslim (t = 2 mm); opening angle: 3°; optical axis adjusted before delivery	E32-A04
	Free-cut 	59	460 340 225 (100)			Ultraslim (t = 2 mm); opening angle: 3°; with mounting flange; optical axis adjusted before delivery	E32-A04-1

*1. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*2.

Free-cut

 Indicates models that allow free cutting.

*3. For continuous operation, use the products within a temperature range of -40°C to 130°C.

*4. The maximum temperature that can be withstood varies with the location. Refer to dimensions diagrams for details.

*5. These values are based on the assumption that there are no repeated sudden changes in temperature.

R

 Flexible

B

 Break-resistant

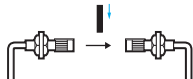
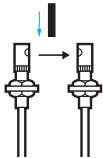
U

 Fluororesin coating

Accessories

Lens Units

*When used in combination with the E3X-DA-S Amplifier Unit (general-purpose).

Type		Appearance	Dimensions page	Applicable Fiber Units	Sensing distance (mm)				Standard object (min. sensing object) (mm) *1	Features	Model number
					High-resolution mode	Standard mode	High-speed mode	Super-high-speed mode			
Through-beam Lens Units	Long-distance Lens Units		60	E32-T11L	4,000*2	3,200	2,100	840	4 dia. (0.1 dia.)	Long-distance sensing; opening angle: 5° to 40° (heat resistant up to 200°C)	E39-F1
				E32-TC200	4,000*2	4,000*2	2,600	1,500			
				E32-T11R	4,000*2	3,700	2,400	970			
				E32-T11	4,000*2	3,600	2,300	930			
				E32-T11U	4,000*2	3,600	2,300	930			
				E32-T81R-S	2,650	2,100	1,300	520			
				E32-T61-S	4,000*2	3,400	2,200	900			
	Side-view Units		60	E32-T11L	910	800	500	180	3 dia. (0.1 dia.)	Side-view, space-saving (heat resistant up to 200°C)	E39-F2
				E32-TC200	840	700	450	160			
				E32-T11R	520	400	250	100			
				E32-T11	820	660	430	160			
				E32-T11U	820	660	430	160			
				E32-T81R-S	360	280	180	70			
				E32-T61-S	600	450	300	120			
	Reflection Units		60	E32-T11L E32-TC200 E32-T11R E32-T11 E32-T11U E32-T81R-S E32-T61-S	---				---	Long distance reflection (heat resistant up to 200°C)	E39-F3
Reflective Lens Units	Small-spot Lens Units		60	E32-C42	Spot diameter variable in the range 0.1 to 0.6 mm at distances in the range 6 to 15 mm				Small spot (variable)	E39-F3A	
				E32-D32	Spot diameter variable in the range 0.5 to 1 mm at distances in the range 6 to 15 mm						
		60	E32-C41	0.1-dia. spot at a distance of 7 mm				Small spot	E39-F3A-5		
			E32-C31	0.5-dia. spot at a distance of 7 mm							
		60	E32-C41	0.2-dia. spot at a distance of 17 mm				Long distance, small spot	E39-F3B		
			E32-C31	0.5-dia. spot at a distance of 17 mm							
		60	E32-C31 E32-C41	Spot diameter of 4 mm max. at distances in the range 0 to 20 mm				Long-distance sensing, parallel light	E39-F3C		

*1. The values for the minimum sensing object are representative values that indicate values obtained in standard mode with the sensing distance and sensitivity set to optimum values.

*2. The optical fiber is 2 m long on each side, so the sensing distance is 4,000 mm.

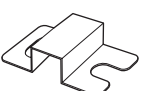
Accessories

Protective Spiral Tube

Appearance	Dimen- sions page	Application	Applicable Fiber Units	Tube length	Model number
	61	Fiber protection	M3-screw models E32-D21/E32-D21R E32-DC200E E32-DC200F□ E32-C31	500 mm	E39-F32A5
				1 m	E39-F32A
			M3-screw models E32-T21□ (Except the E32-T21R.) E32-TC200E E32-TC200F□	500 mm	E39-F32B5
				1 m	E39-F32B
	61		M4-screw models E32-T11□ (except the E32-T11N Right-angle Model) E32-TC200 E32-TC200B□ E32-T51 E32-D21L/E32-D21B	500 mm	E39-F32C5
				1 m	E39-F32C
	61		M6-screw models E32-D11□ (except the E32-D11N Right-angle Model) E32-DC200 E32-DC200B E32-CC200□ E32-D51	500 mm	E39-F32D5
				1 m	E39-F32D

Note: Before using a Protective Spiral Tube, remove the protective tube that protects the area between the head and the optical fiber provided with some models. The Lens Unit and Spiral Tube cannot be used at the same time.

Other Accessories

Appearance	Dimensions page	Application	Name	Applicable Fiber Units	Remarks	Model number
	62	Used to cut the fiber.	Cutter	Fiber Units that allow free cutting	Provided with applicable Fiber Units.	E39-F4
	62	Attachments for inserting thin fibers into Amplifier Units	Thin-fiber Attachments	Fiber Units that allow free cutting and have a 1.0-dia. sheath	• 2 per set • Provided with applicable Fiber Units.	E39-F9
	62	Used to extend fibers.		Fiber Units that allow free cutting and have a 2.2-dia. sheath	---	E39-F10
	62	Easy-to-use, one-touch relay connectors	Fiber Connectors	Fiber Units that allow free cutting	E39-F13: Used for Fiber Units with a 2.2-dia. sheath. E39-F14: Used for Fiber Units with a 1.0-dia. sheath. E39-F15: Used to connect Fiber Units with different sheath diameters, 1.0 mm and 2.2 mm.	E39-F13 E39-F14 E39-F15
	62	Used to bends in sleeves.	Sleeve Bender	E32-TC200B(4) E32-TC200F(4) E32-DC200F(4)	---	E39-F11
	62	Used to secure the 3.5-dia. Fiber Head	Mounting Bracket	E32-T24S E32-A03	Provided with applicable Fiber Units.	E39-L83