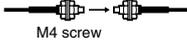
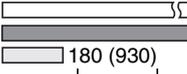
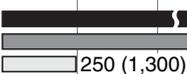
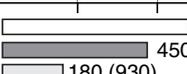
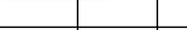
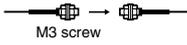
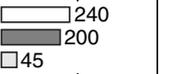
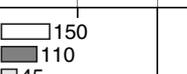
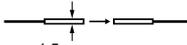
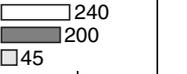
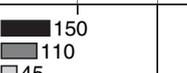


Fiber for Robot Application R4 (Strong against repeatable bending)
Throughbeam fiber unit

 High resolution mode  Standard mode
 Super long-distance mode  Super high-speed mode
 Green light  Red light

Features	Shape	Applicable Amplifier Unit	Sensing distance (mm) ^{*1} (Parentheses: With E39-F1 Lens Unit)	Standard object ^{*2} (min. sensing object) (Parentheses: Opaque object)	Model	Permissible bending radius
Ideal for mounting on moving sections (R4) Free-cut	 M4 screw	E3X-DA□-S	 900 (4,000) ^{*3} 680 (3,600) 180 (930)	1.0 mm ø (0.005 mm ø)	E32-T11	4 mm
		E3X-DA□-N	 850 (4,000) ^{*3} 680 (3,600) 250 (1,300)	1.0 mm ø (0.01 mm ø)		
		E3X-MDA	 580 (3,000) 450 (2,300) 180 (930)	1.0 mm ø (0.005 mm ø)		
		E3X-NA□(V)	 360	1.0 mm ø (0.03 mm ø)		
		E3X-NAG□	 65			
		E3X-NA□F	 100	1.0 mm ø (0.2 mm ø)		
	 M3 screw	E3X-DA□-S	 240 200 45	0.5 mm ø (0.005 mm ø)	E32-T21	
		E3X-DA□-N	 220 200 80	0.5 mm ø (0.01 mm ø)		
		E3X-MDA	 150 110 45	0.5 mm ø (0.005 mm ø)		
		E3X-NA□(V)	 100	0.5 mm ø (0.03 mm ø)		
		E3X-NAG□	 18			
		E3X-NA□F	 30	0.5 mm ø (0.1 mm ø)		
	 1.5-mm ø	E3X-DA□-S	 240 200 45	0.5 mm ø (0.005 mm ø)	E32-T22B	
		E3X-DA□-N	 220 200 80	0.5 mm ø (0.01 mm ø)		
		E3X-MDA	 150 110 45	0.5 mm ø (0.005 mm ø)		
		E3X-NA□(V)	 100	0.5 mm ø (0.03 mm ø)		
		E3X-NAG□	 18			
		E3X-NA□F	 30	0.5 mm ø (0.1 mm ø)		

*1. Sensing distance based on a white paper.
 *2. Indicates values for standard mode.
 *3. Sensing distance by using the lens unit E39-F1.

Diffuse reflection fiber units

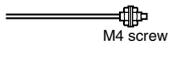
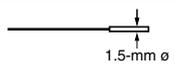
High resolution mode Standard mode
 Super long-distance mode Super high-speed mode
 Green light Red light

Features	Shape	Applicable Amplifier Unit	Sensing distance (mm) ^{*1}	Standard object ^{*2} (min. sensing object) (Parentheses: Opaque object)	Model	Permissible bending radius
Ideal for mounting on moving sections (R4)	 <p>M6 screw</p>	E3X-DA□-S	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 300 <div style="width: 20px; height: 10px; background-color: gray; margin-right: 5px;"></div> 170 <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 50 </div>	300x300 (0.005 mm ø)	E32-D11	4 mm
		E3X-DA□-N	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background-color: black; margin-right: 5px;"></div> 220 <div style="width: 20px; height: 10px; background-color: gray; margin-right: 5px;"></div> 170 <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 80 </div>	300x300 (0.01 mm ø)		
		E3X-MDA	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 170 <div style="width: 20px; height: 10px; background-color: gray; margin-right: 5px;"></div> 125 <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 50 </div>	300x300 (0.005 mm ø)		
		E3X-NA□(V)	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background-color: lightblue; margin-right: 5px;"></div> 90 </div>	150x150 (0.01 mm ø)		
		E3X-NAG□	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 15 </div>	25x25 (0.1 mm ø)		
		E3X-NA□F	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background-color: blue; margin-right: 5px;"></div> 30 </div>	50x50 (0.015 mm ø)		
	 <p>M3 screw</p>	E3X-DA□-S	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 50 <div style="width: 20px; height: 10px; background-color: gray; margin-right: 5px;"></div> 30 <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 8 </div>	50x50 (0.005 mm ø)	E32-D21	
		E3X-DA□-N	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background-color: black; margin-right: 5px;"></div> 40 <div style="width: 20px; height: 10px; background-color: gray; margin-right: 5px;"></div> 30 <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 10 </div>	50x50 (0.01 mm ø)		
		E3X-MDA	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 30 <div style="width: 20px; height: 10px; background-color: gray; margin-right: 5px;"></div> 22 <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 8 </div>	50x50 (0.005 mm ø)		
		E3X-NA□(V)	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 15 </div>	25x25 (0.01 mm ø)		
		E3X-NA□F	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> 5 </div>	25x25 (0.02 mm ø)		

*1. Sensing distance based on a white paper.

*2. Indicates values for standard mode.

High resolution mode Standard mode
 Super long-distance mode Super high-speed mode
 Green light Red light

Features	Shape	Applicable Amplifier Unit	Sensing distance (mm) ^{*1}			Standard object ^{*2} (min. sensing object) (Parentheses: Opaque object)	Model	Permissible bending radius
Ideal for mounting on moving sections (R4)	 <p>M4 screw</p>	E3X-DA□-S	 110	 70	 20	100x100 (0.005 mm ø)	E32-D21B	4 mm
		E3X-DA□-N	 90	 70	 25	100x100 (0.01 mm ø)		
		E3X-MDA	 70	 50	 20	100x100 (0.005 mm ø)		
		E3X-NA□(V)	 15			25x25 (0.01 mm ø)		
		E3X-NAG□	 2.4			25x25 (0.1 mm ø)		
		E3X-NA□F	 5			25x25 (0.02 mm ø)		
	 <p>1.5-mm ø</p>	E3X-DA□-S	 50	 30	 8	50x50 (0.005 mm ø)	E32-D22B	
		E3X-DA□-N	 40	 30	 10	50x50 (0.01 mm ø)		
		E3X-MDA	 30	 22	 8	50x50 (0.005 mm ø)		
		E3X-NA□(V)	 7			25x25 (0.01 mm ø)		
		E3X-NA□F	 2.3			25x25 (0.02 mm ø)		

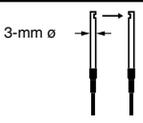
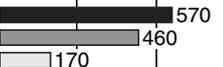
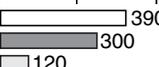
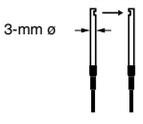
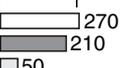
*1. Sensing distance based on a white paper.

*2. Indicates values for standard mode.

Side view

Throughbeam fiber units

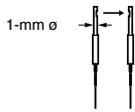
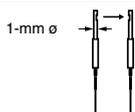
High resolution mode
 Super long-distance mode
 Green light
 Standard mode
 Super high-speed mode
 Red light

Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) ^{*1} (Parentheses: With E39-F1 Lens Unit)	Standard object (min. sensing object ^{*2}) (Parentheses: Opaque object)	Model	Permissible bending radius
Long distance; space-saving Free-cut		E3x-DA□-S		1.0 mm ø (0.005 mm ø)	E32-T14L	25 mm
		E3x-DAG□-S E3x-DAB□-S				
		E3x-DA□-N		1 mm ø (0.01 mm ø)		
		E3x-DAB11-N				
		E3x-DAH□-N				
		E3x-MDA		1.0 mm ø (0.005 mm ø)		
		E3x-NA□(V)		1.0 mm ø (0.03 mm ø)		
		E3x-NAG□				
		E3x-NA□F		1.0 mm ø (0.2 mm ø)		
Space-saving Free-cut		E3x-DA□-S		1.0 mm ø (0.005 mm ø)	E32-T14LR	1 mm
		E3x-DA□-N		1 mm ø (0.01 mm ø)		
		E3x-MDA		1.0 mm ø (0.005 mm ø)		
		E3x-NA□(V)		1.0 mm ø (0.03 mm ø)		
		E3x-NA□F		1.0 mm ø (0.2 mm ø)		

*1. Sensing distance based on white paper.

*2. Indicates values for standard mode.

High resolution mode Standard mode
 Super long-distance mode Super high-speed mode
 Green light Red light

Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) ^{*1} (Parentheses: With E39-F1 Lens Unit)			Standard object (min. sensing object ^{*2}) (Parentheses: Opaque object)	Model	Permissible bending radius
Suitable for detecting minute sensing objects; small ϕ Free-cut		E3x-DA□-S	 160 130 30			0.5 mm ϕ (0.005 mm ϕ)	E32-T24	10 mm
		E3x-DA□-N	 150 130 55			0.5 mm ϕ (0.01 mm ϕ)		
		E3x-MDA	 100 70 30			0.5 mm ϕ (0.005 mm ϕ)		
		E3x-NA□(V)	 90			0.5 mm ϕ (0.03 mm ϕ)		
		E3x-NAG□	 12					
		E3x-NA□F	 27			0.5 mm ϕ (0.3 mm ϕ)		
Suitable for detecting minute sensing objects; small ϕ Free-cut		E3x-DA□-S	 60 50 10			0.5 mm ϕ (0.005 mm ϕ)	E32-T24R	1 mm
		E3x-DA□-N	 60 50 25			0.5 mm ϕ (0.01 mm ϕ)		
		E3x-MDA	 35 27 10			0.5 mm ϕ (0.005 mm ϕ)		
		E3x-NA□(V)	 30			0.5 mm ϕ (0.03 mm ϕ)		
		E3x-NA□F	 9			0.5 mm ϕ (0.3 mm ϕ)		

*1. Sensing distance based on white paper.

*2. Indicates values for standard mode.

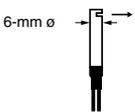
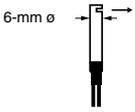
High resolution mode
 Super long-distance mode
 Green light
 Standard mode
 Super high-speed mode
 Red light

Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) ^{*1} (Parentheses: With E39-F1 Lens Unit)	Standard object (min. sensing object ^{*2}) (Parentheses: Opaque object)	Model	Permissible bending radius
Screw-mounting type Free-cut		E3x-DA□-S	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 100%;"></div> <div style="text-align: right;">4,500 3,400 900</div> </div>	4 mm ø (0.1 mm ø)	E32-T14	25 mm
		E3x-DAG□-S E3x-DAB□-S	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 100%;"></div> <div style="text-align: right;">320 260 160</div> </div>			
		E3x-DA□-N	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 100%;"></div> <div style="text-align: right;">4,000 3,400 1,250</div> </div>	4 mm ø (0.01 mm ø)		
		E3x-DAB11-N	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 100%;"></div> <div style="text-align: right;">320 260 160</div> </div>			
		E3x-DAH□-N	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 100%;"></div> <div style="text-align: right;">1,120 900 330</div> </div>	4 mm ø (0.1 mm ø)		
		E3x-MDA	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 100%;"></div> <div style="text-align: right;">2,900 2,200 900</div> </div>			
		E3x-NA□(V)	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 100%;"></div> <div style="text-align: right;">1,800</div> </div>			
		E3x-NAG□	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 100%;"></div> <div style="text-align: right;">330</div> </div>			
		E3x-NA□F	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 100%;"></div> <div style="text-align: right;">540</div> </div>	4.0 mm ø (0.2 mm ø)		

*1. Sensing distance based on white paper.
 *2. Indicates values for standard mode.

Diffuse reflective fiber units

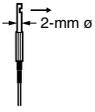
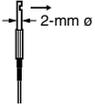
High resolution mode Standard mode
 Super long-distance mode Super high-speed mode
 Green light Red light Infrared ray

Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) ^{*1}	Standard object (min. sensing object: Gold wire) ^{*2}	Model	Permissible bending radius
6 mm ø Long distance Free-cut		E3x-DA□-S	 200 110 36	200x200 (0.005 mm ø)	E32-D14L	25 mm
		E3x-DA□-N	 150 110 50	200x200 (0.01 mm ø)		
		E3x-DAH□-N	 35 25 10	50x50 (0.01 mm ø)		
		E3x-MDA	 110 80 36	200x200 (0.005 mm ø)		
		E3x-NA□(V)	 40	50x50 (0.03 mm ø)		
		E3x-NAG□	 10	25x25 (0.3 mm ø)		
		E3x-NA□F	 13	25x25 (0.03 mm ø)		
6 mm ø Free-cut		E3x-DA□-S	 80 45 14	100x100 (0.005 mm ø)	E32-D14LR	1 mm
		E3x-DA□-N	 60 45 25	100x100 (0.01 mm ø)		
		E3x-MDA	 45 33 14	100x100 (0.005 mm ø)		
		E3x-NA□(V)	 16	25x25 (0.03 mm ø)		
		E3x-NA□F	 5			

*1. Sensing distance based on white paper.

*2. Indicates values for standard mode.

High resolution mode Standard mode
 Super long-distance mode Super high-speed mode
 Green light Red light Infrared ray

Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) ^{*1}			Standard object ^{*2} (min. sensing object: Gold wire)	Model	Permissible bending radius
2 mm ø small ø; space-saving Free.cut		E3x-DA□-S	□ 50 ■ 30 8			50x50 (0.005 mm ø)	E32-D24	10 mm
		E3x-DA□-N	■ 40 ■ 30 10			50x50 (0.01 mm ø)		
		E3x-MDA	□ 30 ■ 22 8			50x50 (0.005 mm ø)		
		E3x-NA□(V)	15			25x25 (0.03 mm ø)		
		E3x-NAG□	2.4			25x25 (0.3 mm ø)		
		E3x-NA□F	5			25x25 (0.03 mm ø)		
		E3x-DA□-S	□ 26 ■ 15 4			50x50 (0.005 mm ø)	E32-D24R	1 mm
		E3x-DA□-N	■ 25 ■ 15 6			50x50 (0.01 mm ø)		
		E3x-MDA	□ 15 ■ 10 4			50x50 (0.005 mm ø)		
		E3x-NA□(V)	7			25x25 (0.03 mm ø)		
		E3x-NA□F	2.3					

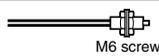
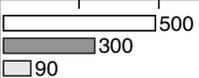
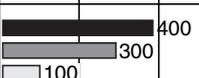
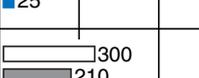
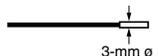
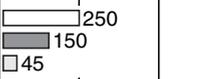
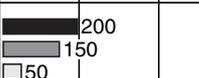
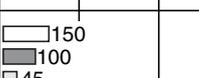
*1. Sensing distance based on white paper.

*2. Indicates values for standard mode.

Coaxial fiber

Diffuse reflective fiber units

High resolution mode Standard mode
 Super long-distance mode Super high-speed mode
 Green light Red light Infrared ray

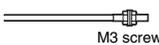
Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) ^{*1}	Standard object ^{*2} (min. sensing object: Gold wire)	Model	Permissible bending radius
M6 coaxial; high-precision positioning Free-cut		E3X-DA□-S		500x500 (0.005 mm ø)	E32-CC200	25 mm
		E3X-DAG□-S E3X-DAB□-S		100x100 (0.1 mm ø)		
		E3X-DA□-N		500x500 (0.01 mm ø)		
		E3X-DAB#-N		100x00 (0.1 mm ø)		
		E3X-DAH□-N		100x100 (0.01 mm ø)		
		E3X-MDA		500x500 (0.005 mm ø)		
		E3X-NA□(V)		200x200 (0.01 mm ø)		
		E3X-NAG□		50x50 (0.1 mm ø)		
		E3X-NA□F		75x75 (0.015 mm ø)		
3 mm ø; small ø; coaxial; high-precision positioning Free-cut		E3X-DA□-S		300x300 (0.005 mm ø)	E32-D32L	25 mm
		E3X-DA□-N		300x300 (0.01 mm ø)		
		E3X-MDA		300x300 (0.005 mm ø)		
		E3X-NA□(V)		100x100 (0.01 mm ø)		
		E3X-NAG□		25x25 (0.1 mm ø)		
		E3X-NA□F		50x50 (0.02 mm ø)		

*1. Sensing distance based on a white paper.

*2. Indicates values for standard mode.

*3. Refer to page "AB-" when using the optional lens unit

High resolution mode Standard mode
 Super long-distance mode Super high-speed mode
 Green light Red light Infrared ray

Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) ^{*1}		Standard object ^{*2} (min. sensing object: Gold wire)	Model	Permissible bending radius
M3 coaxial high precision positioning Free-cut Small spot lens mountable (E39-F3A, F3A-5, F3B, F3C)		E3X-DA□-S	 120 75 22	Spot ϕ ^{*3} • Adjustable in the range 0.1 to 0.6-mm ϕ	100x100 (0.005 mm ϕ)	E32-EC31	25 mm
		E3X-DA□-N	 100 75 25	Spot ϕ Adjustable in the range 0.5 to 1.0 mm ϕ .	100x100 (0.01 mm ϕ)		
		E3X-MDA	 75 50 22		100x100 (0.005 mm ϕ)		
		E3X-NA□(V)	 40		50x50 (0.01 mm ϕ)		
		E3X-NAG□	 6		25x25 (0.1 mm ϕ)		
		E3X-NA□F	 13		25x25 (0.02 mm ϕ)		
M3 coaxial high precision positioning Free-cut Small spot lens mountable (E39-F3A, F3A-5, F3B, F3C)		E3X-DA□-S	 50 35 8	Spot ϕ • 0.1-mm ϕ • 0.2-mm ϕ • 4.0-mm ϕ max	50x50 (0.005 mm ϕ)	E32-EC41	
		E3X-DA□-N	 45 35 10	Spot ϕ • 0.1 mm ϕ • 0.2 mm ϕ • 4.0 mm ϕ max.	50x50 (0.01 mm ϕ)		
		E3X-MDA	 35 22 8		50x50 (0.005 mm ϕ)		
		E3X-NA□(V)	 15		25x25 (0.01 mm ϕ)		
		E3X-NA□F	 5		25x25 (0.02 mm ϕ)		
2 mm ϕ coaxial; high-precision positioning Small spot lens mountable (E39-F3A,)		E3X-DA□-S	 50 35 8	Spot ϕ • Adjustable in the range 0.1 to 0.6-mm ϕ .	50x50 (0.005 mm ϕ)	E32-C42	
		E3X-DA□-N	 45 35 10	Spot ϕ • Adjustable in the range 0.1 to 0.6 mm ϕ	50x50 (0.01 mm ϕ)		
		E3X-MDA	 35 22 8		50x50 (0.005 mm ϕ)		
		E3X-NA□(V)	 15		25x25 (0.01 mm ϕ)		
		E3X-NA□F	 5		25x25 (0.02 mm ϕ)		

*1. Sensing distance based on a white paper.
 *2. Indicates values for standard mode.
 *3. Refer to page "AB-" when using the optional lens unit