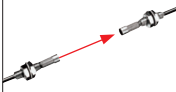
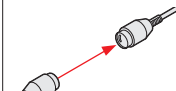

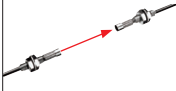
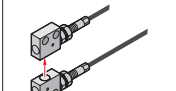


**FIBER OPTIONS**

**Lens (For thru-beam type fiber)**

The dimensions are on p.120~.

Designation	Model No.	Description																																																																																																	
For thru-beam type fiber	Expansion lens (Note 1)	 <p><b>FX-LE1</b></p> <p>Increases the sensing range by 5 times or more.</p> <p>• Ambient temperature: -60 to +350 °C -76 to +662 °F (Note 5)</p>	<p><b>Sensing range for FX-300 red LED type (mm) [Lens on both sides] (Note 3)</b></p> <table border="1"> <thead> <tr> <th>Fiber \ Mode</th> <th>U-LG</th> <th>LONG</th> <th>STDF</th> <th>STD</th> <th>FAST</th> <th>S-D</th> <th>H-SP</th> </tr> </thead> <tbody> <tr> <td><b>FT-B8</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,000</td> <td>2,500</td> <td>2,000</td> <td>1,000</td> <td>1,000</td> </tr> <tr> <td><b>FT-FM2</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>2,500</td> <td>1,300</td> <td>1,000</td> </tr> <tr> <td><b>FT-T80</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>2,500</td> <td>1,300</td> <td>1,000</td> </tr> <tr> <td><b>FT-R80</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>2,300</td> <td>1,600</td> <td>800</td> <td>750</td> </tr> <tr> <td><b>FT-W8</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>2,900</td> <td>2,000</td> <td>1,000</td> <td>900</td> </tr> <tr> <td><b>FT-P80</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>2,500</td> <td>1,100</td> <td>1,000</td> </tr> <tr> <td><b>FT-P60</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>1,500</td> <td>900</td> <td>800</td> </tr> <tr> <td><b>FT-P81X</b></td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,100</td> <td>950</td> </tr> <tr> <td><b>FT-H35-M2</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>2,500</td> <td>2,000</td> <td>1,500</td> <td>750</td> <td>700</td> </tr> <tr> <td><b>FT-H20W-M1</b></td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,300</td> <td>900</td> <td>500</td> <td>400</td> </tr> <tr> <td><b>FT-H20-M1</b></td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,100</td> <td>900</td> <td>600</td> </tr> </tbody> </table>	Fiber \ Mode	U-LG	LONG	STDF	STD	FAST	S-D	H-SP	<b>FT-B8</b>	3,500 (Note 2)	3,500 (Note 2)	3,000	2,500	2,000	1,000	1,000	<b>FT-FM2</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	2,500	1,300	1,000	<b>FT-T80</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	2,500	1,300	1,000	<b>FT-R80</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	2,300	1,600	800	750	<b>FT-W8</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	2,900	2,000	1,000	900	<b>FT-P80</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	2,500	1,100	1,000	<b>FT-P60</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	1,500	900	800	<b>FT-P81X</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,100	950	<b>FT-H35-M2</b>	3,500 (Note 2)	3,500 (Note 2)	2,500	2,000	1,500	750	700	<b>FT-H20W-M1</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,300	900	500	400	<b>FT-H20-M1</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,100	900	600
			Fiber \ Mode	U-LG	LONG	STDF	STD	FAST	S-D	H-SP																																																																																									
			<b>FT-B8</b>	3,500 (Note 2)	3,500 (Note 2)	3,000	2,500	2,000	1,000	1,000																																																																																									
			<b>FT-FM2</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	2,500	1,300	1,000																																																																																									
			<b>FT-T80</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	2,500	1,300	1,000																																																																																									
<b>FT-R80</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	2,300	1,600	800	750																																																																																												
<b>FT-W8</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	2,900	2,000	1,000	900																																																																																												
<b>FT-P80</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	2,500	1,100	1,000																																																																																												
<b>FT-P60</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	1,500	900	800																																																																																												
<b>FT-P81X</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,100	950																																																																																												
<b>FT-H35-M2</b>	3,500 (Note 2)	3,500 (Note 2)	2,500	2,000	1,500	750	700																																																																																												
<b>FT-H20W-M1</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,300	900	500	400																																																																																												
<b>FT-H20-M1</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,100	900	600																																																																																												
Super-expansion lens (Note 1)	 <p><b>FX-LE2</b></p> <p>Tremendously increases the sensing range with large diameter lenses.</p> <p>• Ambient temperature: -60 to +350 °C -76 to +662 °F (Note 5)</p>	<p><b>Sensing range for FX-300 red LED type (mm) [Lens on both sides] (Note 3)</b></p> <table border="1"> <thead> <tr> <th>Fiber \ Mode</th> <th>U-LG</th> <th>LONG</th> <th>STDF</th> <th>STD</th> <th>FAST</th> <th>S-D</th> <th>H-SP</th> </tr> </thead> <tbody> <tr> <td><b>FT-B8</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> </tr> <tr> <td><b>FT-FM2</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> </tr> <tr> <td><b>FT-R80</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> </tr> <tr> <td><b>FT-W8</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> </tr> <tr> <td><b>FT-P80</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> </tr> <tr> <td><b>FT-P60</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> </tr> <tr> <td><b>FT-P81X</b></td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> </tr> <tr> <td><b>FT-H35-M2</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> </tr> <tr> <td><b>FT-H20W-M1</b></td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,500</td> <td>1,600 (Note 2)</td> </tr> <tr> <td><b>FT-H20-M1</b></td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> <td>1,600 (Note 2)</td> </tr> <tr> <td><b>FT-H13-FM2</b></td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> <td>3,500 (Note 2)</td> </tr> </tbody> </table>	Fiber \ Mode	U-LG	LONG	STDF	STD	FAST	S-D	H-SP	<b>FT-B8</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	<b>FT-FM2</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	<b>FT-R80</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	<b>FT-W8</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	<b>FT-P80</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	<b>FT-P60</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	<b>FT-P81X</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	<b>FT-H35-M2</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	<b>FT-H20W-M1</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,500	1,600 (Note 2)	<b>FT-H20-M1</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	<b>FT-H13-FM2</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	
		Fiber \ Mode	U-LG	LONG	STDF	STD	FAST	S-D	H-SP																																																																																										
		<b>FT-B8</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)																																																																																										
		<b>FT-FM2</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)																																																																																										
		<b>FT-R80</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)																																																																																										
<b>FT-W8</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)																																																																																												
<b>FT-P80</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)																																																																																												
<b>FT-P60</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)																																																																																												
<b>FT-P81X</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)																																																																																												
<b>FT-H35-M2</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)																																																																																												
<b>FT-H20W-M1</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,500	1,600 (Note 2)																																																																																												
<b>FT-H20-M1</b>	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)	1,600 (Note 2)																																																																																												
<b>FT-H13-FM2</b>	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)	3,500 (Note 2)																																																																																												
Side-view lens	 <p><b>FX-SV1</b></p> <p>Beam axis is bent by 90°.</p> <p>• Ambient temperature: -60 to +300 °C -76 to +572 °F (Note 5)</p>	<p><b>Sensing range for FX-300 red LED type (mm) [Lens on both sides] (Note 3)</b></p> <table border="1"> <thead> <tr> <th>Fiber \ Mode</th> <th>U-LG</th> <th>LONG</th> <th>STDF</th> <th>STD</th> <th>FAST</th> <th>S-D</th> <th>H-SP</th> </tr> </thead> <tbody> <tr> <td><b>FT-B8</b></td> <td>1,450</td> <td>1,100</td> <td>660</td> <td>530</td> <td>400</td> <td>186</td> <td>180</td> </tr> <tr> <td><b>FT-FM2</b></td> <td>1,800</td> <td>1,200</td> <td>810</td> <td>600</td> <td>440</td> <td>210</td> <td>210</td> </tr> <tr> <td><b>FT-T80</b></td> <td>1,800</td> <td>1,200</td> <td>810</td> <td>600</td> <td>440</td> <td>210</td> <td>210</td> </tr> <tr> <td><b>FT-W8</b></td> <td>1,300</td> <td>900</td> <td>600</td> <td>450</td> <td>330</td> <td>160</td> <td>160</td> </tr> <tr> <td><b>FT-P80</b></td> <td>1,800</td> <td>1,200</td> <td>810</td> <td>600</td> <td>440</td> <td>210</td> <td>210</td> </tr> <tr> <td><b>FT-P60</b></td> <td>850</td> <td>650</td> <td>400</td> <td>300</td> <td>200</td> <td>130</td> <td>120</td> </tr> <tr> <td><b>FT-P81X</b></td> <td>1,800</td> <td>1,200</td> <td>810</td> <td>600</td> <td>440</td> <td>200</td> <td>200</td> </tr> <tr> <td><b>FT-H35-M2</b></td> <td>840</td> <td>550</td> <td>370</td> <td>280</td> <td>200</td> <td>90</td> <td>90</td> </tr> <tr> <td><b>FT-H20W-M1</b></td> <td>400</td> <td>310</td> <td>180</td> <td>140</td> <td>100</td> <td>50</td> <td>50</td> </tr> <tr> <td><b>FT-H20-M1</b></td> <td>840</td> <td>550</td> <td>370</td> <td>280</td> <td>200</td> <td>90</td> <td>90</td> </tr> </tbody> </table>	Fiber \ Mode	U-LG	LONG	STDF	STD	FAST	S-D	H-SP	<b>FT-B8</b>	1,450	1,100	660	530	400	186	180	<b>FT-FM2</b>	1,800	1,200	810	600	440	210	210	<b>FT-T80</b>	1,800	1,200	810	600	440	210	210	<b>FT-W8</b>	1,300	900	600	450	330	160	160	<b>FT-P80</b>	1,800	1,200	810	600	440	210	210	<b>FT-P60</b>	850	650	400	300	200	130	120	<b>FT-P81X</b>	1,800	1,200	810	600	440	200	200	<b>FT-H35-M2</b>	840	550	370	280	200	90	90	<b>FT-H20W-M1</b>	400	310	180	140	100	50	50	<b>FT-H20-M1</b>	840	550	370	280	200	90	90									
		Fiber \ Mode	U-LG	LONG	STDF	STD	FAST	S-D	H-SP																																																																																										
		<b>FT-B8</b>	1,450	1,100	660	530	400	186	180																																																																																										
		<b>FT-FM2</b>	1,800	1,200	810	600	440	210	210																																																																																										
		<b>FT-T80</b>	1,800	1,200	810	600	440	210	210																																																																																										
<b>FT-W8</b>	1,300	900	600	450	330	160	160																																																																																												
<b>FT-P80</b>	1,800	1,200	810	600	440	210	210																																																																																												
<b>FT-P60</b>	850	650	400	300	200	130	120																																																																																												
<b>FT-P81X</b>	1,800	1,200	810	600	440	200	200																																																																																												
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Expansion lens for vacuum fiber (Note 1)	 <p><b>FV-LE1</b></p> <p>Sensing range increases by 4 times or more.</p> <p>• Ambient temperature: -60 to +350 °C -76 to +662 °F (Note 5)</p>	<p><b>Sensing range for FX-300 red LED type (mm) [Lens on both sides] (Note 3, 4)</b></p> <table border="1"> <thead> <tr> <th>Fiber \ Mode</th> <th>U-LG</th> <th>LONG</th> <th>STDF</th> <th>STD</th> <th>FAST</th> <th>S-D</th> <th>H-SP</th> </tr> </thead> <tbody> <tr> <td><b>FT-H30-M1V</b></td> <td>1,600</td> <td>1,200</td> <td>650</td> <td>450</td> <td>300</td> <td>150</td> <td>200</td> </tr> </tbody> </table>	Fiber \ Mode	U-LG	LONG	STDF	STD	FAST	S-D	H-SP	<b>FT-H30-M1V</b>	1,600	1,200	650	450	300	150	200																																																																																	
		Fiber \ Mode	U-LG	LONG	STDF	STD	FAST	S-D	H-SP																																																																																										
<b>FT-H30-M1V</b>	1,600	1,200	650	450	300	150	200																																																																																												
Vacuum resistant side-view lens (Note 1)	 <p><b>FV-SV2</b></p> <p>Beam axis is bent by 90°.</p> <p>• Ambient temperature: -60 to +300 °C -76 to +572 °F (Note 5)</p>	<p><b>Sensing range for FX-300 red LED type (mm) [Lens on both sides] (Note 3, 4)</b></p> <table border="1"> <thead> <tr> <th>Fiber \ Mode</th> <th>U-LG</th> <th>LONG</th> <th>STDF</th> <th>STD</th> <th>FAST</th> <th>S-D</th> <th>H-SP</th> </tr> </thead> <tbody> <tr> <td><b>FT-H30-M1V</b></td> <td>1,600</td> <td>1,200</td> <td>650</td> <td>450</td> <td>300</td> <td>150</td> <td>200</td> </tr> </tbody> </table>	Fiber \ Mode	U-LG	LONG	STDF	STD	FAST	S-D	H-SP	<b>FT-H30-M1V</b>	1,600	1,200	650	450	300	150	200																																																																																	
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- Notes: 1) Be careful when installing the thru-beam type fiber equipped with the expansion lens, as the beam envelope becomes narrow and alignment is difficult. Especially when installing a fiber with many cores (sharp bending fibers and heat-resistant glass fiber), please be sure to use it only after you have adjusted it sufficiently.
- 2) The fiber cable length practically limits the sensing range to 3,500 mm **137.795 in** long (**FT-H20W-M1**, **FT-P81X** and **FT-H20-M1**: 1,600 mm **62.992 in**).
- 3) The sensing ranges are the values for **FX-300** series red LED type amplifier. Please contact our office for details on sensing ranges for other types of amplifiers.
- 4) The fiber cable length for the **FT-H30-M1V** is 1 m **3.281 ft**. The sensing ranges in U-LG and LONG modes take into account the length of the **FT-J8** atmospheric side fiber.
- 5) Refer to p.101~ for the ambient temperatures of fibers to be used in combination.

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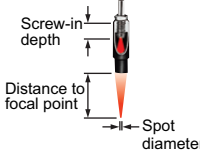
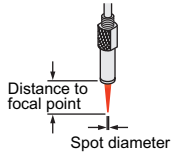
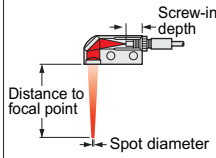
**FX-301-F**

Other Products

FIBER OPTIONS

Lens (For reflective type fiber)

The dimensions are on p.121~.

Designation	Model No.	Description	
For reflective type fiber	Pinpoint spot lens <b>FX-MR1</b>		Pinpoint spot of $\varnothing 0.5$ mm $\varnothing 0.020$ in. Enables detection of minute objects or small marks. • Distance to focal point: $6 \pm 1$ mm $0.236 \pm 0.039$ in • Applicable fibers: <b>FD-WG4, FD-G4</b> • Ambient temperature: $-40$ to $+70$ °C $-40$ to $+158$ °F (Note 1)
	Zoom lens <b>FX-MR2</b>		The spot diameter is adjustable from $\varnothing 0.7$ to $\varnothing 2$ mm $\varnothing 0.028$ to $\varnothing 0.079$ in according to how much the fiber is screwed in. • Applicable fibers: <b>FD-WG4, FD-G4</b> • Ambient temperature: $-40$ to $+70$ °C $-40$ to $+158$ °F (Note 1) • Accessory: <b>MS-EX-3</b> (mounting bracket)
	Finest spot lens <b>FX-MR3</b>		Extremely fine spot of $\varnothing 0.3$ mm $\varnothing 0.012$ in approx. achieved. • Applicable fibers: <b>FD-WG4, FD-G4, FD-EG1, FD-EG2, FD-EG3, FD-G6X, FD-G6</b> • Ambient temperature: $-40$ to $+70$ °C $-40$ to $+158$ °F (Note 1)
	Finest spot lens <b>FX-MR6</b>		Extremely fine spot of $\varnothing 0.1$ mm $\varnothing 0.004$ in approx. achieved. • Applicable fibers: <b>FD-WG4, FD-G4, FD-EG1, FD-EG2, FD-EG3, FD-G6X, FD-G6</b> • Ambient temperature: $-20$ to $+60$ °C $-4$ to $+140$ °F (Note 1)
	Zoom lens (side-view type) <b>FX-MR5</b>		<b>FX-MR2</b> is converted into a side-view type and can be mounted in a very small space. • Applicable fibers: <b>FD-WG4, FD-G4</b> • Ambient temperature: $-40$ to $+70$ °C $-40$ to $+158$ °F (Note 1)

**Sensing range for red LED type (Note 2)**

Screw-in depth	Distance to focal point	Spot diameter
7mm	18.5 mm approx.	$\varnothing 0.7$ mm
12mm	27 mm approx.	$\varnothing 1.2$ mm
14mm	43 mm approx.	$\varnothing 2.0$ mm

**Sensing range for red LED type (Note 2)**

Fiber model No.	Distance to focal point	Spot diameter
<b>FD-EG3</b>	$7.5 \pm 0.5$ mm	$\varnothing 0.15$ mm approx.
<b>FD-EG2</b>	$7.5 \pm 0.5$ mm	$\varnothing 0.2$ mm approx.
<b>FD-EG1</b>	$7.5 \pm 0.5$ mm	$\varnothing 0.3$ mm approx.
<b>FD-WG4/G4/G6X/G6</b>	$7.5 \pm 0.5$ mm	$\varnothing 0.5$ mm approx.

**Sensing range for red LED type (Note 2)**

Fiber model No.	Distance to focal point	Spot diameter
<b>FD-EG3</b>	$7 \pm 0.5$ mm	$\varnothing 0.1$ mm approx.
<b>FD-EG2</b>	$7 \pm 0.5$ mm	$\varnothing 0.15$ mm approx.
<b>FD-EG1</b>	$7 \pm 0.5$ mm	$\varnothing 0.2$ mm approx.
<b>FD-WG4/G4/G6X/G6</b>	$7 \pm 0.5$ mm	$\varnothing 0.4$ mm approx.

**Sensing range for red LED type (Note 2)**

Screw-in depth	Distance to focal point	Spot diameter
8 mm	13 mm approx.	$\varnothing 0.5$ mm
10 mm	15 mm approx.	$\varnothing 0.8$ mm
14 mm	30 mm approx.	$\varnothing 3.0$ mm

Notes: 1) Refer to p.101~ for the ambient temperatures of fibers to be used in combination.  
2) The sensing ranges are the values when used in combination with **FX-300** series red LED type amplifier. Please contact our office for details on sensing ranges for other types of amplifier.

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**FIBER OPTIONS**

**Others**

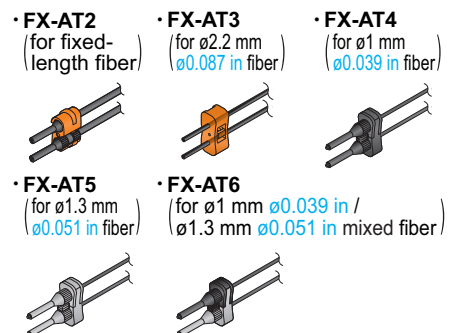
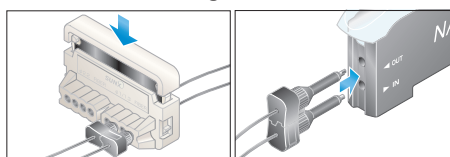
Designation	Model No.	Description	
Protective tube (For thru-beam type fiber)	FTP-500 (0.5 m 1.640 ft)	For M4 thread	FT-B8 FT-FM2 FT-FM2S FT-H13-FM2
	FTP-1000 (1 m 3.281 ft)		FT-P80 FT-P60 FT-FM2S4
	FTP-1500 (1.5 m 4.921 ft)		
	FTP-N500 (0.5 m 1.640 ft)	For M3 thread	FT-T80 FT-NFM2 FT-NFM2S FT-NFM2S4
	FTP-N1000 (1 m 3.281 ft)		FT-P40 FD-T40 FD-P40
Protective tube (For reflective type fiber)	FDP-500 (0.5 m 1.640 ft)	For M6 thread	FD-B8 FD-FM2 FD-FM2S FD-FM2S4
	FDP-1000 (1 m 3.281 ft)		FD-P80 FD-H13-FM2
	FDP-1500 (1.5 m 4.921 ft)	For M4 thread	
	FDP-N500 (0.5 m 1.640 ft)		
	FDP-N1000 (1 m 3.281 ft)		FD-T80 FD-NFM2 FD-NFM2S FD-NFM2S4
FDP-N1500 (1.5 m 4.921 ft)			
Fiber bender	FB-1	The fiber bender bends the sleeve part of the fiber head at the proper radius. (Note 1)	
Universal sensor mounting stand (Note 2)	MS-AJ1-F	Horizontal mounting type	Mounting stand assembly for fiber (For M3, M4 or M6 threaded head fiber)
	MS-AJ2-F	Vertical mounting type	
Fiber cutter	FX-CT2	The free-cut type fiber can be easily cut.	
	FX-CT1	[ Accessory. FX-CT1 is attached with the FT-P80 or the FD-P80. The FX-CT2 is provided with fibers other than this. ]	
Attachment for fixed-length fiber	FX-AT2	This is the attachment for the fixed length fiber. (Accessory)	
Attachment for ø2.2 mm ø0.087 in fiber	FX-AT3	This is the attachment for the ø2.2 mm ø0.087 in fiber. (Accessory. Does not attach with the FT-P80 or the FD-P80.)	
Attachment for ø1 mm ø0.039 in fiber	FX-AT4	This is the attachment for the ø1 mm ø0.039 in fiber. (Accessory)	
Attachment for ø1.3 mm ø0.051 in fiber	FX-AT5	This is the attachment for the ø1.3 mm ø0.051 in fiber. (Accessory)	
Attachment for ø1 mm ø0.039 in / ø1.3 mm ø0.051 in mixed fiber	FX-AT6	This is the attachment for the ø1 mm ø0.039 in / ø1.3 mm ø0.051 in mixed fiber. (Accessory)	

Notes: 1) Do not bend the sleeve part of any side-view type fiber or ultra-small diameter head type fiber.  
2) Refer to p.799 for details of the universal sensor mounting stand.

**Fiber attachment**

It's possible to simultaneously cut two fibers to the same length

Each fiber (with some exceptions) has a newly developed two-in-one fiber attachment (FX-AT3/AT4/AT5/AT6) which enables two fibers to be cut simultaneously to the same length with the new fiber cutter (FX-CT2). Also, since the fibers can be attached to the amplifier while being fixed in position in the two-in-one fiber attachment, sensitivity changes resulting from variation in the amount of fiber insertion do not occur.



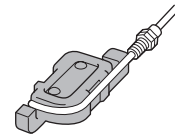
**Protective tube**

- FTP-□
- FDP-□



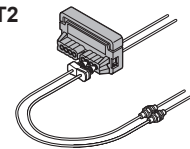
**Fiber bender**

- FB-1

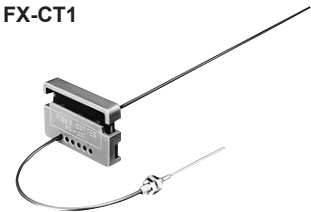


**Fiber cutter**

- FX-CT2

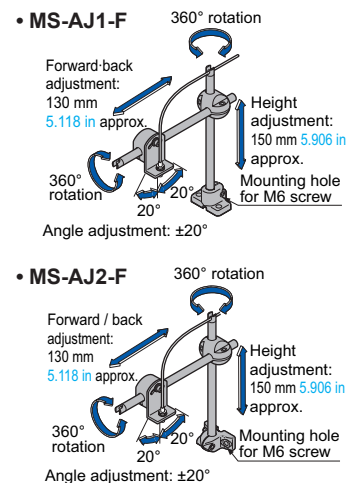


- FX-CT1



**Universal sensor mounting stand**

Using the arm which enables adjustment in the horizontal direction, sensing can also be done from above an assembly line.



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