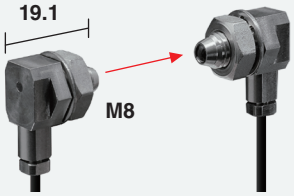
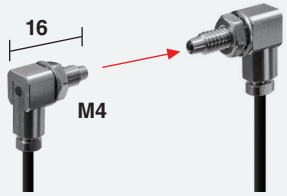
Oil and Heat Resistant Fiber-Optic Cables

Through-beam type

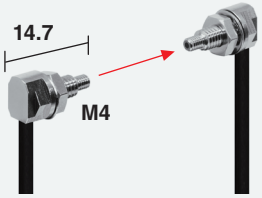
NF-TR8CF
Oil resistance IP68G | Built-in lens



NF-TR4CF
Oil resistance IP68G | Built-in lens

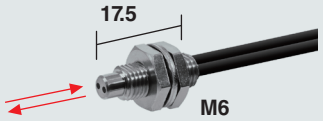


NF-TR4F
IP67

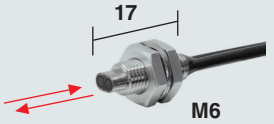


Diffuse type

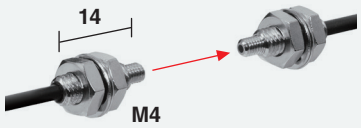
NF-DM6-H10
Heat resistant 100°C



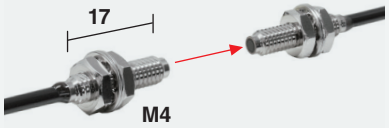
NF-DM6-H15
Heat resistant 150°C | IP67



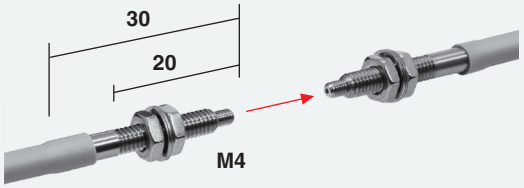
NF-TM4-H10
Heat resistant 100°C



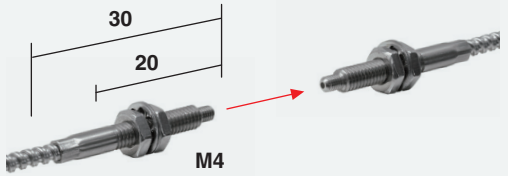
NF-TM4-H15
Heat resistant 150°C | IP67



NF-TM4-H20
Heat resistant 200°C | IP67



NF-TM4-H35
Heat resistant 350°C | IP67



(Unit: mm)

Attachment lens

NF-TA33
Long range

Applicable models
- NF-TR4F
- NF-TM4-H10
- NF-TM4-H20
- NF-TM4-H35

NF-TA34
Ultra-long range
Heat resistant

Applicable models
- NF-TR4F
- NF-TM4-H10
- NF-TM4-H15
- NF-TM4-H20
- NF-TM4-H35

NF-TA35
Side-view
Heat resistant

Applicable models
- NF-TM4-H10
- NF-TM4-H20
- NF-TM4-H35

NF-TA36
Long range
Heat resistant

Applicable models
- NF-TM4-H15

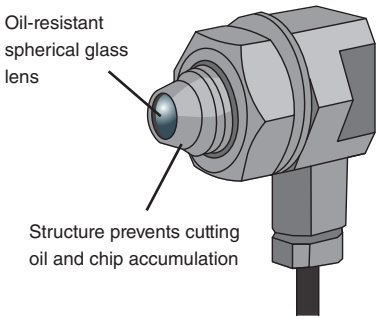
Lineup

■ Fiber-Optic Cables

Type	Model	Thread Size	Product image	Features	Ambient temperature	Min. bending radius (mm)	D4RF sensing distance (mm)							D12R sensing distance (mm)			
							16/22 µs	70 µs	250 µs	500 µs	1 ms	2 ms	8 ms	50 µs	250 µs	1 ms	4 ms
Through-beam type	NF-TR8CF	M8		Thread type, Side view, Flexible, Free cut, IP68G, Oil resistance	-25 ... +70°C	R1	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
	NF-TR4CF	M4		Thread type, Side view, Flexible, Free cut, IP68G, Oil resistance	-40 ... +70°C	R1	900	3,000	3,500	3,500	3,500	3,500	3,500	1,015	2,925	3,500	3,500
	NF-TR4F	M4		Thread type, Side view, Flexible, Free cut, IP67, Lens attachable	-25 ... +70°C	R1	350	1,000	1,700	2,100	3,000	3,500	3,500	435	1,275	1,875	2,900
	NF-TM4-H10	M4		Thread type, Flexible, Free cut, Heat resistant, M2.6, Lens attachable	-40 ... +100°C When used continuously: -40 ... +90°C	R2	450	1,200	2,000	2,500	3,000	3,500	3,500	470	1,365	1,935	3,250
	NF-TM4-H15	M4		Thread type, Free cut, Heat resistance, IP67, Lens attachable	-40 ... +150℃ When used continuously: -40 ... +130°C	R35	500	1,600	2,000	2,500	3,500	3,500	3,500	630	1,630	2,285	3,500
	NF-TM4-H20*	M4		Thread type, Heat resistance, IP67, M2.6, Lens attachable	-40 ... +200°C	R10	200	550	900	1,100	1,300	1,700	3,000	275	780	1,105	1,780
	NF-TM4-H35*	M4		Thread type, Heat resistance, IP67, M2.6, Lens attachable	-60 ... +350°C	R25	350	900	1,400	1,900	2,500	3,000	3,500	410	1,205	1,730	2,740
Diffuse type	NF-DM6-H10	M6		Thread type, Flexible, Heat resistant	-40 ... +100°C When used continuously: -40 ... +90°C	R2	130	350	450	550	650	800	1,500	145	435	570	980
	NF-DM6-H15	M6		Thread type, Heat resistant, IP67	-40 ... +150℃ When used continuously: -40 ... +130°C	R35	300	600	800	1,000	1,200	1,600	2,200	260	660	885	1,410

●The sensing distances for diffuse reflective Fiber-Optic Cables are reference values measured using a 500 × 500 mm white paper.

* Due to fiber cable length, the fiber insertion indicators of the D4RF Series Fiber-Optic Sensors cannot be used.



Oil-resistant structure

The fiber cables of NF-TR8CF and NF-TR4CF are coated with fluoropolymer to prevent cutting oil from seeping inside. The detection area features a structure that prevents the accumulation of cutting oil and chips, as well as an oil-resistant spherical glass lens.

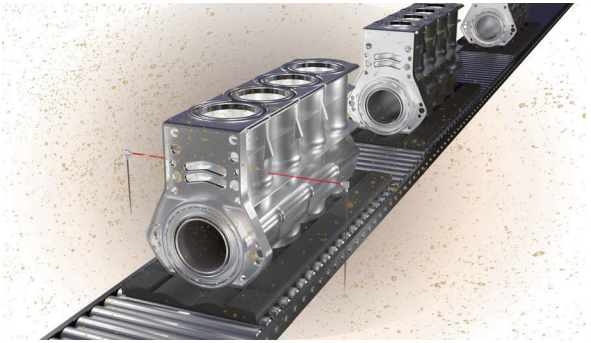
160 different types of Fiber-Optic Cables are available. Find more details on the “Fiber-Optic Sensors” webpage.

■ Attachment lens

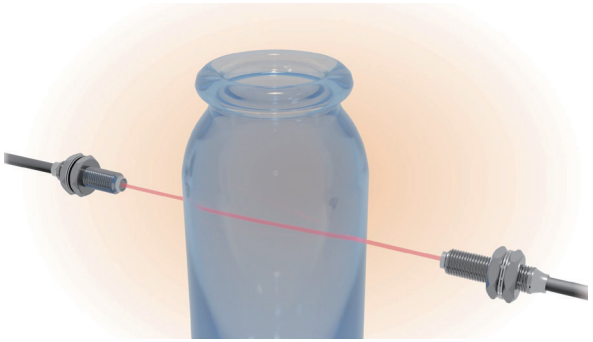
Type	Model	Product image	Applicable Fiber-Optic Cables	D4RF sensing distance (mm)							D12R sensing distance (mm)				Ambient temperature
				16/22 µs	70 µs	250 µs	500 µs	1 ms	2 ms	8 ms	50 µs	250 µs	1 ms	4 ms	
Long range	NF-TA33		NF-TR4F	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	-40 ... +200°C
			NF-TM4-H10	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	
			NF-TM4-H20	1,800	3,500	3,500	3,500	3,500	3,500	3,500	2,600	3,500	3,500	3,500	
			NF-TM4-H35	1,500	3,500	3,500	3,500	3,500	3,500	3,500	2,600	3,500	3,500	3,500	
Ultra-long range	NF-TA34		NF-TR4F	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	-40 ... +350°C
			NF-TM4-H10	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	
			NF-TM4-H15	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	
			NF-TM4-H20	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	
			NF-TM4-H35	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	
Side-view	NF-TA35		NF-TM4-H10	500	1,300	2,000	2,500	3,000	3,500	3,500	585	1,690	2,200	3,500	-40 ... +200°C
			NF-TM4-H20	250	600	900	1,200	1,500	1,800	2,500	285	830	1,230	2,230	
			NF-TM4-H35	250	800	1,200	1,500	1,900	2,300	3,000	320	890	1,220	2,260	
Long range	NF-TA36		NF-TM4-H15	2,500	3,500	3,500	3,500	3,500	3,500	3,500	2,500	3,500	3,500	3,500	-40 ... +200°C

Applications

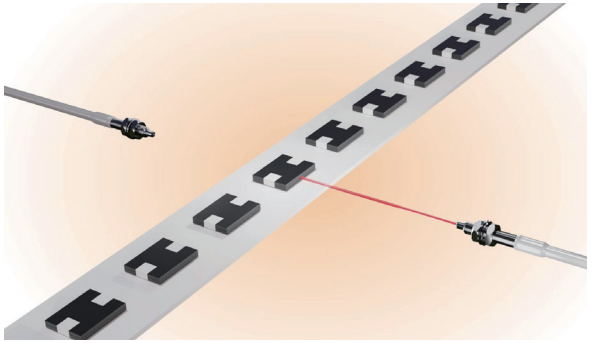
Detection of engine blocks in oil mist environments



Detection of of bottles in high temperature environment



Detecting chip parts in high temperature environment



Easy-to-Read, Easy-to-Use, Fiber-Optic Sensors

Simple, stand-alone Fiber-Optic Sensors
D12R Series

NEW

■ Response time
50 µ/250 µs/1 ms/4 ms

■ Cross-talk prevention
Up to 4 units

■ External input
Teach input, Emitter off, Zero reset, Trigger

Fiber-Optic Sensors for various applications
D4RF/D4IF Series

IO-Link

■ Ultra-fast response time
16 µs*

* When using stand-alone type or main unit of interconnection type independently.

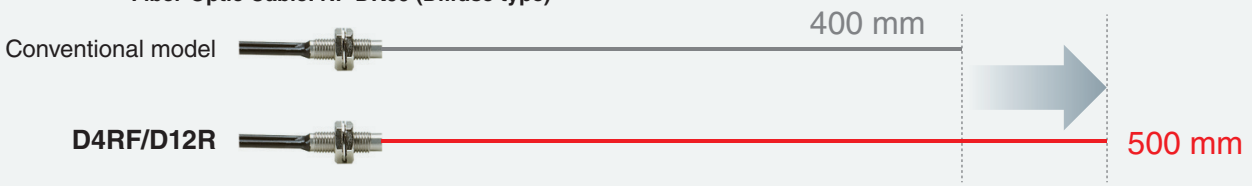
■ Interconnection type
Expandable up to 16 units

■ Various communication
IO-Link, Analog output, Digital I/O

■ Water detection by D4IF Series

■ Sensing distance (Response time: 250 µs)

Fiber-Optic Cable: NF-DK06 (Diffuse type)



●Specifications are subject to change without prior notice.

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The information in this catalog is correct as of November 2025.

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