


Ordering Information

Omron offers fiber-optic cables in through-beam, diffuse and retroreflective types. Each cable has a different sensing distance depending on the amplifier selected. The ordering information provides the sensing distance and compatibility with two general classes of amplifiers: DIN rail-mounting DC amplifiers and block style amplifiers with different attributes, such as AC/DC supply

voltage, analog output and color sensing.

 indicates models that customers can cut to length for their application. Models without this mark are pre-cut by the factory to maintain their respective specifications.

■ E3X-SERIES, DIN RAIL-MOUNTING AMPLIFIERS

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

NH E3X-NH (High-precision, auto-tuning amplifier)

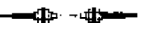

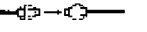

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

■ THROUGH-BEAM, GENERAL PURPOSE TYPE

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Flexible, resists breaking	Ideal for mounting on moving sections 4 mm bending radius	 M4 threaded head x 11.7 mm (0.46 in) L 2 m (6.56 ft) length	A	180 (1,000*) mm	0.2 mm dia.	E32-T11 
			DAN-HS	250 (1,300*) mm	-----	
			DAN-LD	850 (4,000**) mm	-----	
			DAN-SM	680 (3,600*) mm	0.01 mm dia.	
			F	80 (400*) mm	0.2 mm dia.	
			H	360 (2,000*) mm	0.3 mm dia.	
			NH	360 (2,000*) mm	0.04 mm dia.	
			NHB	50 mm	0.04 mm dia.	
			NM	240 (1,300*) mm	0.2 mm dia.	
			NT	260 (1,400*) mm	0.1 mm dia.	
			NV	260 (1,400*) mm	0.1 mm dia.	
			NVG	10 (120*) mm	0.2 mm dia.	
VG	10 (120*) mm	0.2 mm dia.				
Long distance	Compact M4, head, 1.4 mm ID fiber; 25 mm bending radius	 M4 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	A	350 (1,000*) mm	0.5 mm dia.	E32-T11L 
			DAN-HS	490 (1,200*) mm	-----	
			DAN-LD	1,660 (4,000**) mm	-----	
			DAN-SM	1,330 (3,200*) mm	0.02 mm dia.	
			F	150 (550*) mm	0.5 mm dia.	
			H	700 (2,000*) mm	0.5 mm dia.	
			NH	700 (2,000*) mm	0.06 mm dia.	
			NHB	90 (250*) mm	0.06 mm dia.	
			NM	500 (1,200*) mm	0.2 mm dia.	
			NT	540 (1,280*) mm	0.15 mm dia.	
			NV	540 (1,280*) mm	0.15 mm dia.	
			NVG	40 (120*) mm	0.5 mm dia.	
VG	40 (120*) mm	0.5 mm dia.				

Note: * Value in parentheses represents the sensing distance of the fiber when the E39-F1 lens is attached to its tip.

** Value in parentheses is based on each fiber having a cable length of 2 m.

■ THROUGH-BEAM, GENERAL PURPOSE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

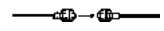

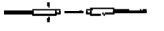

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Flexible (resists breaking)	Can be bent like electric wires; 1 mm bending radius	 M4 screw x 14 mm (0.55 in) 2 m (6.56 ft) length	A	140 (1,000*)	0.2 mm dia.	E32-T11R 
			DAN-HS	200 (1,400*) mm	-----	
			DAN-LD	670 (4,000**) mm	-----	
			DAN-SM	530 (3,700*) mm	0.01 mm dia.	
			F	Contact Omron	Contact Omron	
			H	280 (2,100*)	Contact Omron	
			NH	280 mm (2,100*)	0.1 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	180 (1,300*) mm	0.2 mm dia.	
			NT	200 (1,400*) mm	0.1 mm dia.	
			NV	200 (1,400*) mm	0.1 mm dia.	
			NVG	Contact Omron	Contact Omron	
			VG	Contact Omron	Contact Omron	
Long distance	Compact unthreaded head; 1 mm ID fiber	 3 mm dia. (0.12 in) x 14 mm (0.55 in) 2 m (6.56 ft) length	A	350 mm	0.5 mm dia.	E32-T12L 
			DAN-HS	490 mm	-----	
			DAN-LD	1,660 mm	-----	
			DAN-SM	1,330 mm	0.01 mm dia.	
			F	150 mm	0.5 mm dia.	
			H	700 mm	0.5 mm dia.	
			NH	700 mm	0.06 mm dia.	
			NHB	90 mm	0.06 mm dia.	
			NM	500 mm	0.2 mm dia.	
			NT	540 mm	0.15 mm dia.	
			NV	540 mm	0.15 mm dia.	
			NVG	40 mm	0.5 mm dia.	
			VG	40 mm	0.5 mm dia.	

Note: * Value in parentheses represents the sensing distance of the fiber when the E39-F1 lens is attached to its tip.

** Value in parentheses is based on each fiber having a cable length of 2 m.

■ THROUGH-BEAM, GENERAL PURPOSE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

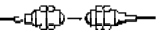

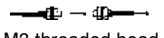

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Long distance	Magnifying lens extends sensing distance; ideal for explosion-proof applications; 25 mm bending radius; M14 head, 1 mm ID fiber	 M14 threaded head x 23 mm (0.91 in) L 10 m (32.8 ft) length	A	7,000 mm	0.8 mm dia.	E32-T17L 
			DAN-HS	9,800 mm	-----	
			DAN-LD	20,000 mm *	-----	
			DAN-SM	20,000 mm *	0.01 mm dia.	
			F	3,000 mm	1.5 mm dia.	
			H	14,000 mm	2.1 mm dia.	
			NH	14,000 mm	0.2 mm dia.	
			NHB	2,000 mm	0.2 mm dia.	
			NM	7,000 mm	0.7 mm dia.	
			NT	7,500 mm	0.5 mm dia.	
			NV	7,500 mm	0.5 mm dia.	
			NVG	800 mm	2.1 mm dia.	
VG	800 mm	2.1 mm dia.				
Flexible (resists breaking)	Ideal for mounting on moving sections; 4 mm bending radius; 0.5 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	A	50 mm	0.2 mm dia.	E32-T21 
			DAN-HS	80 mm	-----	
			DAN-LD	220 mm	-----	
			DAN-SM	200 mm	0.01 mm dia.	
			F	26 mm	0.2 mm dia.	
			H	100 mm	0.2 mm dia.	
			NH	100 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	65 mm	0.2 mm dia.	
			NT	70 mm	0.1 mm dia.	
			NV	70 mm	0.1 mm dia.	
			NVG	6 mm	0.1 mm dia.	
VG	6 mm	0.2 mm dia.				

Note: * Value is based on each fiber having a cable length of 10 m.

■ THROUGH-BEAM, GENERAL PURPOSE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

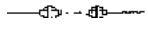

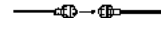

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Long distance	Compact mounting head; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head x 9 mm (0.35 in) L 2 m (6.56 ft) length	A	100 mm	0.2 mm dia.	E32-T21L 
			DAN-HS	180 mm	-----	
			DAN-LD	500 mm	-----	
			DAN-SM	440 mm	0.01 mm dia.	
			F	50 mm	0.2 mm dia.	
			H	200 mm	0.2 mm dia.	
			NH	200 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	150 mm	0.2 mm dia.	
			NT	160 mm	0.1 mm dia.	
			NV	160 mm	0.1 mm dia.	
			NVG	10 mm	0.2 mm dia.	
VG	10 mm	0.2 mm dia.				
Flexible (resists breaking)	Can be bent like electric wires; 1 mm bending radius	 M3 threaded head x 9.5 mm (0.37 in) L 2 m (6.56 ft) length	A	30 mm	0.2 mm dia.	E32-T21R 
			DAN-HS	50 mm	-----	
			DAN-LD	150 mm	-----	
			DAN-SM	130 mm	0.01 mm dia.	
			F	Contact Omron	Contact Omron	
			H	60 mm	0.2 mm dia.	
			NH	60 mm	0.1 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	40 mm	0.2 mm dia.	
			NT	41 mm	0.1 mm dia.	
			NV	41 mm	0.1 mm dia.	
			NVG	Contact Omron	Contact Omron	
VG	Contact Omron	Contact Omron				

■ THROUGH-BEAM, GENERAL PURPOSE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)



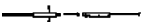

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Minute objects	2 mm dia. head fits in space-confined areas; 25 mm bending radius; 0.5 mm ID fiber	 2 mm dia. (0.8 in) x 22 mm (0.87 in) 2 m (6.56 ft) length	A	50 mm	0.1 mm dia.	E32-T22 
			DAN-HS	90 mm	-----	
			DAN-LD	250 mm	-----	
			DAN-SM	220 mm	0.01 mm dia.	
			F	26 mm	0.1 mm dia.	
			H	100 mm	0.1 mm dia.	
			NH	100 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	70 mm	0.2 mm dia.	
			NT	75 mm	0.1 mm dia.	
			NV	75 mm	0.1 mm dia.	
			NVG	7 mm	0.1 mm dia.	
			VG	7 mm	0.1 mm dia.	
Long distance	2 mm dia. head fits in space-confined areas; 25 mm bending radius; 0.5 mm ID fiber	 2 mm dia. (0.8 in) x 22 mm (0.87 in) 2 m (6.56 ft) length	A	100 mm	0.2 mm dia.	E32-T22L 
			DAN-HS	180 mm	-----	
			DAN-LD	500 mm	-----	
			DAN-SM	440 mm	0.01 mm dia.	
			F	50 mm	0.2 mm dia.	
			H	200 mm	0.2 mm dia.	
			NH	200 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	150 mm	0.2 mm dia.	
			NT	160 mm	0.1 mm dia.	
			NV	160 mm	0.1 mm dia.	
			NVG	10 mm	0.2 mm dia.	
			VG	10 mm	0.2 mm dia.	

■ THROUGH-BEAM, GENERAL PURPOSE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

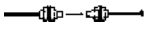

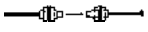

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
General purpose	Compact threaded head; short cable length; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head x 14 mm (0.55 in) L 50 cm (1.64 ft) length	A	200 (1,500*) mm	0.2 mm dia.	E32-TC50 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	80 mm	0.2 mm dia.	
			H	400 (3,000*) mm	0.2 mm dia.	
			NH	Contact Omron	Contact Omron	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
			VG	28 mm (190*) mm	0.2 mm dia.	
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head x 14 mm (0.55 in) L 2 m (6.56 ft) length	A	200 (1,500*) mm	0.2 mm dia.	E32-TC200 
			DAN-HS	280 (2,100*) mm	-----	
			DAN-LD	950 (4,000**) mm	-----	
			DAN-SM	760 (4,000**) mm	0.01 mm dia.	
			F	80 (670*) mm	0.2 mm dia.	
			H	400 (3,000*) mm	0.2 mm dia.	
			NH	400 (3,000*) mm	0.04 mm dia.	
			NHB	55 (420*) mm	0.04 mm dia.	
			NM	270 (2,000*) mm	0.2 mm dia.	
			NT	290 (2,100*) mm	0.1 mm dia.	
			NV	290 (2,100*) mm	0.1 mm dia.	
			NVG	28 mm (190*) mm	0.2 mm dia.	
			VG	28 mm (190*) mm	0.2 mm dia.	

Note: * Value in parentheses represents the sensing distance of the fiber when the E39-F1 lens is attached to its tip.

** Value in parentheses is based on each fiber having a cable length of 2 m.

■ THROUGH-BEAM, GENERAL PURPOSE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

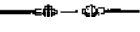

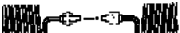

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
General purpose	M3; possible to mount the reflective side-view conversion attachment (E39-F5); 25 mm bending radius; 1 mm ID fiber	 M3 threaded head x 7 mm (0.28 in) L 2 m (6.56 ft) length	A	180 mm	0.2 mm dia.	E32-TC200A 
			DAN-HS	250 mm	-----	
			DAN-LD	850 mm	-----	
			DAN-SM	680 mm	0.01 mm dia.	
			F	80 mm	0.2 mm dia.	
			H	360 mm	0.3 mm dia.	
			NH	360 mm	0.04 mm dia.	
			NHB	55 mm	0.04 mm dia.	
			NM	250 mm	0.2 mm dia.	
			NT	270 mm	0.1 mm dia.	
			NV	270 mm	0.1 mm dia.	
			NVG	28 mm	0.2 mm dia.	
			VG	28 mm	0.2 mm dia.	
General purpose	Spiral coiled cable withstands repeated stretching from reciprocating machine parts; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head x 11 mm (0.43 in) L Coiled 56.5 cm (1.8 ft) L; 2 m (6.56 ft) extended	A	150 (800*) mm	0.2 mm dia.	E32-TC200C 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	60 (350*) mm	0.2 mm dia.	
			H	300 (1,600*) mm	0.2 mm dia.	
			NH	300 (3,600*) mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	200 (800*) mm	0.2 mm dia.	
			NT	210 (850*) mm	0.1 mm dia.	
			NV	210 (850*) mm	0.1 mm dia.	
			NVG	18 (100*) mm	0.2 mm dia.	
			VG	18 (100*) mm	0.2 mm dia.	

Note: *Value in parentheses represents the sensing distance of the fiber when the E39-F1 lens is attached to its tip.

■ THROUGH-BEAM, GENERAL PURPOSE TYPE

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)



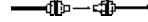

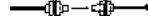

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
General purpose	M3; suitable for detecting minute objects; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	A	50 mm	0.1 mm dia.	E32-TC200E 
			DAN-HS	90 mm	-----	
			DAN-LD	250 mm	-----	
			DAN-SM	220 mm	0.01 mm dia.	
			F	26 mm	0.1 mm dia.	
			H	100 mm	0.1 mm dia.	
			NH	100 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	70 mm	0.2 mm dia.	
			NT	75 mm	0.1 mm dia.	
			NV	75 mm	0.1 mm dia.	
			NVG	8 mm	0.1 mm dia.	
			VG	8 mm	0.1 mm dia.	
General purpose	Extended length and sensing distance; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head x 14 mm (0.55 in) L 5 m (16.4 ft) length	A	200 (1,500*) mm	0.2 mm dia.	E32-TC500 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	80 mm	0.2 mm dia.	
			H	400 (3,000*) mm	0.2 mm dia.	
			NH	Contact Omron	Contact Omron	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
			VG	28 mm	0.2 mm dia.	
General purpose	Extended length and sensing distance; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head x 14 mm (0.55 in) L 10 m (32.8 ft) length	A	500 (1000*) mm	0.01 mm dia.	E32-TC1000 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	500(1,000*) mm	0.01 mm dia.	
			H	500 (1,000*) mm	0.01 mm dia.	
			NH	Contact Omron	Contact Omron	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
			VG	500 (1,000*) mm	0.01 mm dia.	

Note: *Value in parentheses represents the sensing distance of the fiber when the E39-F1 lens is attached to its tip.

■ THROUGH-BEAM, ARMORED TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

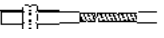
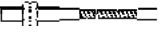
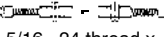
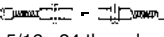
NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
General purpose	Can withstand temperatures to 150°C (302°F)	 5/16 - 24 thread x 3.8 mm (1.5 in) L 0.91 m (3 ft) length	A	200 mm	0.2 mm dia.	E32-UTAT1-3F
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	Contact Omron	Contact Omron	
			H	Contact Omron	Contact Omron	
			NH	Contact Omron	Contact Omron	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
VG	Contact Omron	Contact Omron				
General purpose	Can withstand temperatures to 150°C (302°F)	 5/16 - 24 thread x 3.8 mm (1.5 in) L 1.83 m (6 ft) length	A	170 mm	0.2 mm dia.	E32-UTAT1-6F
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	Contact Omron	Contact Omron	
			H	Contact Omron	Contact Omron	
			NH	Contact Omron	Contact Omron	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
VG	Contact Omron	Contact Omron				
General purpose	Can withstand temperatures to 200°C (392°F)	 5/16 - 24 thread x 38.1 mm (1.5 in) L 0.91 m (3 ft) length	E3JU-X amp only	400 mm	0.25 mm dia.	E32-UTBT1-3F
General purpose	Can withstand temperatures to 200°C (392°F)	 5/16 - 24 thread x 38.1 mm (1.5 in) L 1.83 m (6 ft) length	E3JU-X amp only	400 mm	0.25 mm dia.	E32-UTBT1-6F

■ THROUGH-BEAM, PROBE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

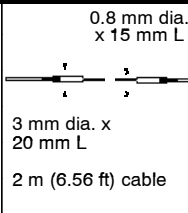

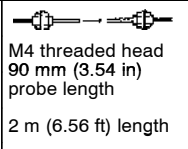

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

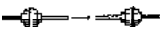

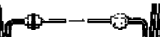

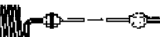

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Needle probe	303 stainless steel probe for ultra small objects; 12 mm heat shrink tubing can provide extra sealing and strain relief; 25 mm bending radius; 0.25 mm ID fiber	 <p>0.8 mm dia. x 15 mm L</p> <p>3 mm dia. x 20 mm L</p> <p>2 m (6.56 ft) cable</p>	A	15 mm	0.06 mm dia.	E32-T33-1 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	15 mm	0.06 mm dia.	
			H	15 mm	0.06 mm dia.	
			NH	Contact Omron	Contact Omron	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
			VG	15 mm	0.06 mm dia.	
Thin fiber	Probe for space-confined sensing areas; 25 mm bending radius; 1 mm ID fiber.	 <p>M4 threaded head 90 mm (3.54 in) probe length</p> <p>2 m (6.56 ft) length</p>	A	180 mm	0.2 mm dia.	E32-TC200B 
			DAN-HS	280 mm	-----	
			DAN-LD	950 mm	-----	
			DAN-SM	760 mm	0.01 mm dia.	
			F	80 mm	0.2 mm dia.	
			H	400 mm	0.2 mm dia.	
			NH	400 mm	0.04 mm dia.	
			NHB	55mm	0.04 mm dia.	
			NM	270 mm	0.2 mm dia.	
			NT	290 mm	0.1 mm dia.	
			NV	290 mm	0.1 mm dia.	
			NVG	28 mm	0.2 mm dia.	
			VG	28 mm	0.2 mm dia.	

■ THROUGH-BEAM, PROBE TYPE (CONT.)

Legend:

A E3X-A (General purpose amplifier)
 DAN-HS E3X-DAN (Digital amplifier- high speed mode)
 DAN-LD E3X-DAN (Digital amplifier- long distance mode)
 DAN-SM E3X-DAN (Digital amplifier- standard distance mode)
 F E3X-F (High performance amplifier- high speed)
 H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)
 NT E3X-NT (Auto-tuning amplifier: general purpose)
 NH E3X-NH (High-precision, auto-tuning amplifier)
 NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)
 NV E3X-NV21 (Water-resistant, red light source amplifier)
 NVG E3X-NVG21 (Water-resistant, green light source amp)
 VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Thin fiber	Probe for space-confined sensing areas; 25 mm bending radius; 1 mm ID fiber	 <p>M4 threaded head 40 mm (1.57 in) probe length</p> <p>2 m (6.56 ft) length</p>	A	180 mm	0.2 mm dia.	E32-TC200B4 
			DAN-HS	280 mm	-----	
			DAN-LD	950 mm	-----	
			DAN-SM	760 mm	0.01 mm dia.	
			F	80 mm	0.2 mm dia.	
			H	400 mm	0.2 mm dia.	
			NH	400 mm	0.04 mm dia.	
			NHB	55 mm	0.04 mm dia.	
			NM	270 mm	0.2 mm dia.	
			NT	290 mm	0.1 mm dia.	
			NV	290 mm	0.1 mm dia.	
			NVG	28 mm	0.2 mm dia.	
VG	28 mm	0.2 mm dia.				
Thin probe	Sensing head with 90 mm probe; spiral coiled cable with-stands repeated stretching from reciprocating machine parts; 25 mm bending radius; 1 mm ID fiber	 <p>M4 threaded head 90 mm (3.54 in) probe length</p> <p>Coiled 56.6 cm (1.85 ft); 2 m (6.56 ft) when extended</p>	A	150 mm	0.2 mm dia.	E32-TC200D 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	60 mm	0.2 mm dia.	
			H	300 mm	0.2 mm dia.	
			NH	300 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
VG	18 mm	0.2 mm dia.				
Thin probe	Sensing head with 40 mm probe; spiral coiled cable withstands repeated stretching from reciprocating machine parts; 25 mm bending radius; 1 mm ID fiber	 <p>M4 threaded head 40 mm (1.57 in) probe length</p> <p>Coiled 56.6 cm (1.85 ft); 2 m (6.56 ft) when extended</p>	A	150 mm	0.2 mm dia.	E32-TC200D4 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	60 mm	0.2 mm dia.	
			H	300 mm	0.2 mm dia.	
			NH	300 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
VG	18 mm	0.2 mm dia.				

■ THROUGH BEAM, PROBE TYPE (CONT.)

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)





NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Thin probe	Sensing head with 90 mm probe; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head 90 mm (3.54 in) length probe 2 m (6.56 ft) length	A	50 mm	0.1 mm dia.	E32-TC200F 
			DAN-HS	90 mm	-----	
			DAN-LD	250 mm	-----	
			DAN-SM	220 mm	0.01 mm dia.	
			F	26 mm	0.1 mm dia.	
			H	100 mm	0.1 mm dia.	
			NH	100 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	70 mm	0.2 mm dia.	
			NT	75 mm	0.1 mm dia.	
			NV	75 mm	0.1 mm dia.	
			NVG	8 mm	0.1 mm dia.	
			VG	8 mm	0.1 mm dia.	
Thin probe	Sensing head with 40 mm probe; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head 40 mm (1.57 in) length probe 2m (6.56 ft) length	A	50 mm	0.1 mm dia.	E32-TC200F4 
			DAN-HS	90 mm	-----	
			DAN-LD	250 mm	-----	
			DAN-SM	220 mm	0.01 mm dia.	
			F	26 mm	0.1 mm dia.	
			H	100 mm	0.1 mm dia.	
			NH	100 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	70 mm	0.2 mm dia.	
			NT	75 mm	0.1 mm dia.	
			NV	75 mm	0.1 mm dia.	
			NVG	8 mm	0.1 mm dia.	
			VG	8 mm	0.1 mm dia.	

■ THROUGH-BEAM, SIDE BEAM TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)





NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Long distance	Built-in lens provides long sensing distance; each sensing head has two 3.2 mm screw mounting holes; 25 mm bending radius; 1 mm ID fiber	 2 m (6.56 ft) length	A	900 mm	0.2 mm dia.	E32-T14 
			DAN-HS	1,250 mm	-----	
			DAN-LD	4,000 mm	-----	
			DAN-SM	3,400 mm	0.01 mm dia.	
			F	380 mm	0.2 mm dia.	
			H	1,800 mm	0.2 mm dia.	
			NH	1,800 mm	0.08 mm dia.	
			NHB	200mm	0.08 mm dia.	
			NM	1,000 mm	0.2 mm dia.	
			NT	1,070 mm	0.2 mm dia.	
			NV	1,070 mm	0.2 mm dia.	
			NVG	80 mm	0.2 mm dia.	
			VG	80 mm	0.2 mm dia.	
Long distance	Space-saving mounting; 25 mm bending radius; 1 mm ID fiber	 3 mm (0.12 in) dia. x 35 mm (1.38 in) L 2 m (6.56 ft) length	A	120 mm	0.1 mm dia.	E32-T14L 
			DAN-HS	170 mm	-----	
			DAN-LD	570 mm	-----	
			DAN-SM	460 mm	0.01 mm dia.	
			F	30 mm	0.2 mm dia.	
			H	240 mm	0.2 mm dia.	
			NH	240 mm	0.08 mm dia.	
			NHB	30 mm	0.08 mm dia.	
			NM	130 mm	0.3 mm dia.	
			NT	140 mm	0.2 mm dia.	
			NV	140 mm	0.2 mm dia.	
			NVG	10 mm	0.1 mm dia.	
			VG	10 mm	0.1 mm dia.	

■ THROUGH-BEAM, SIDE BEAM TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

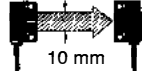
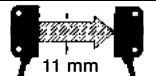
NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Area sensing	10 mm wide beam, long sensing distance; 25 mm bending radius; 1 mm ID fiber; includes 0.5 mm and 1 mm slit masks	 2 m (6.56 ft) length	A	750 mm	6.0 mm dia.*	E32-T16 ✂
			DAN-HS	1,000 mm	-----	
			DAN-LD	3,500 mm	-----	
			DAN-SM	2,800 mm	0.6 mm dia.	
			F	330 mm	7.0 mm dia.*	
			H	1,500 mm	6.0 mm dia.*	
			NH	1,500 mm	2.0 mm dia.*	
			NHB	700 mm	2.0 mm dia.*	
			NM	1,000 mm	5.0 mm dia.*	
			NT	1,070 mm	5.0 mm dia.*	
			NV	1,070 mm	5.0 mm dia.*	
			NVG	150 mm	7.0 mm dia.*	
			VG	150 mm	7.0 mm dia.*	
Area sensing	11 mm wide beam; flexible cable allows 10 mm bending radius; 1 mm ID fiber; includes 0.5 mm and 1 mm slit masks	 2 m (6.56 ft) length	A	300 mm	2.0 mm dia.*	E32-T16P ✂
			DAN-HS	420 mm	-----	
			DAN-LD	1,400 mm	-----	
			DAN-SM	1,100 mm	0.2 mm dia.	
			F	Contact Omron	Contact Omron	
			H	Contact Omron	Contact Omron	
			NH	600 mm	0.4 mm dia.*	
			NHB	Contact Omron	Contact Omron	
			NM	400 mm	1.0 mm dia.*	
			NT	480 mm	1.3 mm dia.*	
			NV	480 mm	1.3 mm dia.*	
			NVG	Contact Omron	Contact Omron	
			VG	Contact Omron	Contact Omron	

Note: *This value was measured at a sensing distance of 100 mm.

■ THROUGH-BEAM, SIDE BEAM TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

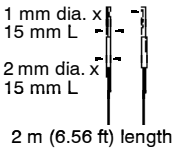

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

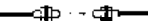

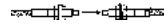
Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Small objects; side view sensing	Suitable for detecting minute objects; 304 stainless steel needle tip; 25 mm bending radius; 0.5 mm ID fiber		A	45 mm	0.1 mm dia.	E32-T24 
			DAN-HS	55 mm	-----	
			DAN-LD	150 mm	-----	
			DAN-SM	130 mm	0.01 mm dia.	
			F	15 mm	0.3 mm dia.	
			H	90 mm	0.1 mm dia.	
			NH	90 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	45 mm	0.2 mm dia.	
			NT	48 mm	0.1 mm dia.	
			NV	48 mm	0.1 mm dia.	
			NVG	2 mm	0.2 mm dia.	
			VG	2 mm	0.2 mm dia.	

■ THROUGH-BEAM, HIGH TEMPERATURE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A	E3X-A (General purpose amplifier)	NM	E3X-NM (4 channel auto-tuning amplifier)
DAN-HS	E3X-DAN (Digital amplifier- high speed mode)	NT	E3X-NT (Auto-tuning amplifier: general purpose)
DAN-LD	E3X-DAN (Digital amplifier- long distance mode)	NH	E3X-NH (High-precision, auto-tuning amplifier)
DAN-SM	E3X-DAN (Digital amplifier- standard distance mode)	NHB	E3X-NHB (High-precision, blue LED, auto-tuning amp)
F	E3X-F (High performance amplifier- high speed)	NV	E3X-NV21 (Water-resistant, red light source amplifier)
H	E3X-H11 (High gain amplifier)	NVG	E3X-NVG21 (Water-resistant, green light source amp)
		VG	E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Heat resistant	Resists 150°C; fiber sheath material: fluororesin. Operating ambient temperature: -40°C to 150°C (-40°F to 302°F); 1.5 mm ID fiber	 M4 threaded head x 17 mm (0.67 in) L 2 m (6.56 ft) length	A	200 mm	1.0 mm dia.	E32-T51 
			DAN-HS	280 mm	-----	
			DAN-LD	950 mm	-----	
			DAN-SM	760 mm	0.01 mm dia.	
			F	80 mm	1.0 mm dia.	
			H	400 mm	1.0 mm dia.	
			NH	400 mm	0.4 mm dia.	
			NHB	35 mm	0.4 mm dia.	
			NM	300 mm	0.4 mm dia.	
			NT	320 mm	0.3 mm dia.	
			NV	320 mm	0.3 mm dia.	
			NVG	20 mm	1.0 mm dia.	
			VG	20 mm	1.0 mm dia.	
Heat resistant	Resists 300°C, with spiral tube; high mechanical strength; fiber sheath material: stainless steel. Operating ambient temperature: -40°C to 300°C (-40°F to 572°F); 1 mm ID fiber	 M4 threaded head x 20 mm (0.79 in) L 2 m (6.56 ft) length	A	150 (1,500*) mm	0.2 mm dia.	E32-T61
			DAN-HS	170 (1,300*) mm	-----	
			DAN-LD	570 (4,000**) mm	-----	
			DAN-SM	450 (3,400*) mm	0.01 mm dia.	
			F	60 (450*) mm	0.5 mm dia.	
			H	300 (3,000*) mm	0.3 mm dia.	
			NH	300 (3,000*) mm	0.12 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	180 (2,000*) mm	0.2 mm dia.	
			NT	190 (2,100*) mm	0.15 mm dia.	
			NV	190 (2,100*) mm	0.15 mm dia.	
			NVG	18 (130*) mm	0.5 mm dia.	
			VG	18 (130*) mm	0.5 mm dia.	

Note: * Value in parentheses represents the sensing distance of the fiber when the E39-F1 lens is attached to its tip.

**Value in parentheses is based on each fiber having a cable length of 2,000 mm.

■ THROUGH-BEAM, SPECIAL PURPOSE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

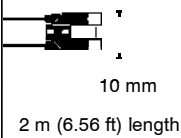

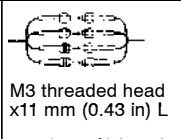
NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Mark/edge detection	Ideal for mark sensing or belt alignment; no optical axis adjustment required; easy to mount; 1 mm ID fiber	 10 mm 2 m (6.56 ft) length	A	10 mm	0.5 mm dia.	E32-G14 
			DAN-HS	10 mm	-----	
			DAN-LD	10 mm	-----	
			DAN-SM	10 mm	0.16 mm dia.	
			F	10 mm	0.5 mm dia.	
			H	10 mm	Contact Omron	
			NH	10 mm	Contact Omron	
			NHB	Contact Omron	Contact Omron	
			NM	10 mm	0.7 mm dia.	
			NT	10 mm	0.4 mm dia.	
			NV	10 mm	0.4 mm dia.	
			NVG	10 mm	0.6 mm dia.	
			VG	10 mm	0.6 mm dia.	
Area sensing	Use with E3XA-CC4A for shape recognition; 0.5 mm ID fiber	 M3 threaded head x11 mm (0.43 in) L 2 m (6.56 ft) length	A	150 mm	0.3 mm dia.	E32-M21
			DAN-HS	250 mm	-----	
			DAN-LD	700 mm	-----	
			DAN-SM	610 mm	0.01 mm dia.	
			F	65 mm	0.3 mm dia.	
			H	300 mm	0.4 mm dia.	
			NH	300 mm	0.04 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	200 mm	0.2 mm dia.	
			NT	210 mm	0.1 mm dia.	
			NV	210 mm	0.1 mm dia.	
			NVG	20 mm	0.3 mm dia.	
			VG	20 mm	0.3 mm dia.	

■ THROUGH-BEAM, SPECIAL PURPOSE TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

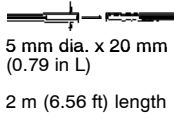

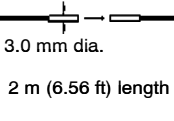

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Chemical resistant	Teflon-coated sensing head for harsh chemical environments. Operating ambient temperature: -30°C to 70°C (-22°F to 158°F); 1 mm ID fiber; 40 mm bending radius	 5 mm dia. x 20 mm (0.79 in L) 2 m (6.56 ft) length	A	800 mm	0.9 mm dia.	E32-T12F 
			DAN-HS	1,100 mm	-----	
			DAN-LD	3,800 mm	-----	
			DAN-SM	3,000 mm	0.01 mm dia.	
			F	300 mm	0.7 mm dia.	
			H	1,600 mm	0.7 mm dia.	
			NH	1,600 mm	0.12 mm dia.	
			NHB	220 mm	0.12 mm dia.	
			NM	1,000 mm	0.3 mm dia.	
			NT	1,070 mm	0.3 mm dia.	
			NV	1,070 mm	0.3 mm dia.	
			NVG	70 mm	0.6 mm dia.	
			VG	70 mm	0.6 mm dia.	
Wafer detection	Ultra narrow beam is ideal for sensing silicon wafers; 10 mm bending radius	 3.0 mm dia. 2 m (6.56 ft) length	A	Contact Omron	Contact Omron	E32-T22S 
			DAN-HS	700 mm	-----	
			DAN-LD	2,300 mm	-----	
			DAN-SM	1,900 mm	0.01 mm dia.	
			F	Contact Omron	Contact Omron	
			H	1,000 mm	Contact Omron	
			NH	1,000 mm	0.08 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	650 mm	0.4 mm dia.	
			NT	650 mm	0.2 mm dia.	
			NV	650 mm	0.2 mm dia.	
			NVG	Contact Omron	Contact Omron	
			VG	Contact Omron	Contact Omron	

■ THROUGH-BEAM, SPECIAL PURPOSE TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

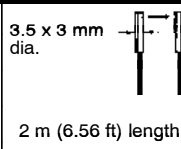


NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
Wafer detection	Side view with narrow field of vision; 10 mm bending radius	 <p>3.5 x 3 mm dia. 2 m (6.56 ft) length</p>	A	Contact Omron	Contact Omron	E32-T24S 
			DAN-HS	500 mm	-----	
			DAN-LD	1,700 mm	-----	
			DAN-SM	1,300 mm	0.01 mm dia.	
			F	Contact Omron	Contact Omron	
			H	700 mm	Contact Omron	
			NH	700 mm	0.08 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	450 mm	0.4 mm dia.	
			NT	480 mm	0.2 mm dia.	
			NV	480 mm	0.2 mm dia.	
			NVG	Contact Omron	Contact Omron	
			VG	Contact Omron	Contact Omron	
Heat resistant	Side view with stainless steel spiral tube sheath; resists 200°C (392°F) at the fiber tip; 25 mm bending radius	 <p>3 mm dia. 2 m (6.56 ft) length</p>	A	Contact Omron	Contact Omron	E32-T84S
			DAN-HS	500 mm	-----	
			DAN-LD	1,700 mm	-----	
			DAN-SM	1,300 mm	0.01 mm dia.	
			F	Contact Omron	Contact Omron	
			H	Contact Omron	Contact Omron	
			NH	700 mm	0.12 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	450 mm	0.3 mm dia.	
			NT	480 mm	0.3 mm dia.	
			NV	480 mm	0.3 mm dia.	
			NVG	Contact Omron	Contact Omron	
			VG	Contact Omron	Contact Omron	

■ DIFFUSE, GENERAL PURPOSE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)





NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
High accuracy positioning	Concentric beam: emitter in the center and a ring of 16 receivers in the 2.5 mm dia. tip; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 20 mm (0.79 in) L 2 m (6.56 ft) length	A	75 mm	0.03 mm dia.	E32-CC200 
			DAN-HS	100 mm	-----	
			DAN-LD	400 mm	-----	
			DAN-SM	300 mm	0.01 mm dia.	
			F	33 mm	0.03 mm dia.	
			H	150 mm	0.015 mm dia.	
			NH	150 mm	0.012 mm dia.	
			NHB	20 mm	0.012 mm dia.	
			NM	100 mm	0.015 mm dia.	
			NT	110 mm	0.012 mm dia.	
			NV	110 mm	0.012 mm dia.	
			NVG	10 mm	0.5 mm dia.	
VG	10 mm	0.5 mm dia.				
Flexible (resists breaking)	Thin fiber for small object detection, ultra flexible cable ; 4 mm bending radius; 0.25 mm ID fiber	 M6 threaded head x 17 mm (0.67 in) L 2 m (6.56 ft) length	A	45 mm	0.03 mm dia.	E32-D11 
			DAN-HS	80 mm	-----	
			DAN-LD	220 mm	-----	
			DAN-SM	170 mm	0.01 mm dia.	
			F	20 mm	0.03 mm dia.	
			H	90 mm	0.015 mm dia.	
			NH	90 mm	0.012 mm dia.	
			NHB	12 mm	0.012 mm dia.	
			NM	60 mm	0.015 mm dia.	
			NT	65 mm	0.012 mm dia.	
			NV	65 mm	0.012 mm dia.	
			NVG	7 mm	0.5 mm dia.	
VG	7 mm	0.5 mm dia.				

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, GENERAL PURPOSE TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)





NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
Long distance	Compact threaded sensing head; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 17 mm (0.67 in) L 2 m (6.56 ft) length	A	100 mm	0.015 mm dia.	E32-D11L 
			DAN-HS	150 mm	-----	
			DAN-LD	500 mm	-----	
			DAN-SM	400 mm	0.01 mm dia.	
			F	45 mm	0.2 mm dia.	
			H	200 mm	0.015 mm dia.	
			NH	200 mm	0.012 mm dia.	
			NHB	26 mm	0.012 mm dia.	
			NM	150 mm	0.015 mm dia.	
			NT	160 mm	0.012 mm dia.	
			NV	160 mm	0.012 mm dia.	
			NVG	10 mm	3.0 mm dia.	
VG	10 mm	3.0 mm dia.				
Flexible (resists breaking)	High flexibility with 1 mm minimum bending radius	 M6 screw x 17 mm (0.67 in) L 2 m (6.56 ft) length	A	45 mm	0.03 mm dia.	E32-D11R 
			DAN-HS	80 mm	-----	
			DAN-LD	220 mm	-----	
			DAN-SM	170 mm	0.01 mm dia.	
			F	Contact Omron	Contact Omron	
			H	Contact Omron	Contact Omron	
			NH	90 mm	0.02 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	60 mm	0.02 mm dia.	
			NT	65 mm	0.02 mm dia.	
			NV	65 mm	0.02 mm dia.	
			NVG	45 mm	0.03 mm dia.	
VG	45 mm	0.03 mm dia.				

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, GENERAL PURPOSE TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)





NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
Flexible (resists breaking)	Flexible thin fiber requires just 4 mm bending radius; mount on moving machinery sections; 0.25 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	A	7 mm	0.03 mm dia.	E32-D21 
			DAN-HS	10 mm	-----	
			DAN-LD	40 mm	-----	
			DAN-SM	30 mm	0.01 mm dia.	
			F	3 mm	0.03 mm dia.	
			H	14 mm	0.015 mm dia.	
			NH	14 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	8 mm	0.015 mm dia.	
			NT	9 mm	0.012 mm dia.	
			NV	9 mm	0.012 mm dia.	
			NVG	1 mm	1.0 mm dia.	
VG	1 mm	1.0 mm dia.				
Long distance	Small sensing head is easy to mount; 25 mm bending radius	 M4 threaded head x 12 mm (0.47 in) L 2 m (6.56 ft) length	A	25 mm	0.03 mm dia.	E32-D21L 
			DAN-HS	45 mm	-----	
			DAN-LD	160 mm	-----	
			DAN-SM	130 mm	0.01 mm dia.	
			F	11 mm	0.26 mm dia.	
			H	50 mm	0.015 mm dia.	
			NH	50 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	35 mm	0.015 mm dia.	
			NT	38 mm	0.012 mm dia.	
			NV	38 mm	0.012 mm dia.	
			NVG	1 mm	1.0 mm dia.	
VG	1 mm	1.0 mm dia.				

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, GENERAL PURPOSE TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)





NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
Flexible (resists breaking)	Easy to mount sensing head with high flexibility cable; 1 mm bending radius	 M3 screw x 11 mm (0.43 in) L 2 m (6.56 ft) length	A	7 mm	0.03 mm dia.	E32-D21R 
			DAN-HS	10 mm	-----	
			DAN-LD	40 mm	-----	
			DAN-SM	30 mm	0.01 mm dia.	
			F	Contact Omron	Contact Omron	
			H	Contact Omron	Contact Omron	
			NH	14 mm	0.02 mm dia.	
			NHB	NA	NA	
			NM	8 mm	0.02 mm dia.	
			NT	9 mm	0.02 mm dia.	
			NV	9 mm	0.02 mm dia.	
			NVG	NA	NA	
			VG	NA	NA	
Long distance	Small diameter head fits space-confined installations; 25 mm bending radius; 0.5 mm ID fiber	 3 mm (0.12 in) dia. x 15 mm (0.59 in) L 2 m (6.56 ft) length	A	25 mm	0.03 mm dia.	E32-D22L 
			DAN-HS	45 mm	-----	
			DAN-LD	160 mm	-----	
			DAN-SM	130 mm	0.01 mm dia.	
			F	11 mm	0.26 mm dia.	
			H	50 mm	0.015 mm dia.	
			NH	50 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	35 mm	0.015 mm dia.	
			NT	38 mm	0.012 mm dia.	
			NV	38 mm	0.012 mm dia.	
			NVG	1 mm	1.0 mm dia.	
			VG	1 mm	1.0 mm dia.	

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, GENERAL PURPOSE TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)





NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
Precise positioning	Concentric beam: light source in the center with a ring of 4 receivers in 2 mm dia. tip; 25 mm bending radius; 0.25 mm ID fiber	 2 mm (0.08 in) dia. x 15 mm (0.59 in) tip; 29 mm (1.14 in) L overall 2 m (6.56 ft) length	A	20 mm	0.03 mm dia.	E32-D32 
			DAN-HS	25 mm	-----	
			DAN-LD	100 mm	-----	
			DAN-SM	75 mm	0.01 mm dia.	
			F	9 mm	0.03 mm dia.	
			H	40 mm	0.015 mm dia.	
			NH	40 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	30 mm	0.015 mm dia.	
			NT	33 mm	0.012 mm dia.	
			NV	33 mm	0.012 mm dia.	
			NVG	2.5 mm	0.5 mm dia.	
			VG	2.5 mm	0.5 mm dia.	
Coaxial diffuse for precise positioning	Concentric beam: light source in the center with a ring of 16 receivers in 3 mm dia. tip; 25 mm bending radius	 3 mm (0.12 in) dia. x 15 mm (0.59 in) L 2 m (6.56 ft) length	A	40 mm	0.04 mm dia.	E32-D32L 
			DAN-HS	50 mm	0.01 mm dia.	
			DAN-LD	200 mm	0.01 mm dia.	
			DAN-SM	150 mm	0.01 mm dia.	
			F	11 mm	1.1 mm dia.	
			H	80 mm	0.015 mm dia.	
			NH	80 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	60 mm	0.04 mm dia.	
			NT	65 mm	0.012 mm dia.	
			NV	65 mm	0.012 mm dia.	
			NVG	4 mm	1 mm dia.	
			VG	4 mm	1 mm dia.	

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, GENERAL PURPOSE TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)





NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
General purpose	Compact threaded head; short cable length; 25 mm bending radius	 M6 threaded head x 14 mm (0.55 in) L 50 cm (19 in) length	A	75 mm	0.015 mm dia.	E32-DC50 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	33 mm	0.015 mm dia.	
			H	150 mm	0.015 mm dia.	
			NH	Contact Omron	Contact Omron	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
			VG	10 mm	0.2 mm dia.	
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 14 mm (0.55 in) L 2 m (6.56 ft) length	A	75 mm	0.015 mm dia.	E32-DC200 
			DAN-HS	100 mm	-----	
			DAN-LD	400 mm	-----	
			DAN-SM	300 mm	0.01 mm dia.	
			F	33 mm	0.015 mm dia.	
			H	150 mm	0.015 mm dia.	
			NH	150 mm	0.012 mm dia.	
			NHB	20 mm	0.012 mm dia.	
			NM	100 mm	0.015 mm dia.	
			NT	110 mm	0.012 mm dia.	
			NV	110 mm	0.012 mm dia.	
			NVG	10 mm	0.2 mm dia.	
			VG	10 mm	0.2 mm dia.	

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, GENERAL PURPOSE TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)





NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
General purpose	Coiled cable ideal for moving parts; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 17 mm (0.67 in) L Coiled 64 cm (2.1 ft) L; 2 m (6.56 ft) extended	A	22 mm	0.03 mm dia.	E32-DC200C 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	10 mm	0.03 mm dia.	
			H	44 mm	0.015 mm dia.	
			NH	44 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	30 mm	0.015 mm dia.	
			NT	33 mm	0.012 mm dia.	
			NV	33 mm	0.012 mm dia.	
			NVG	2.5 mm	1.0 mm dia.	
			VG	2.5 mm	1.0 mm dia.	
General purpose	Thin fiber with small easy-to-mount head.; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	A	18 mm	0.03 mm dia.	E32-DC200E 
			DAN-HS	30 mm	-----	
			DAN-LD	100 mm	-----	
			DAN-SM	80 mm	0.01 mm dia.	
			F	8 mm	0.03 mm dia.	
			H	36 mm	0.015 mm dia.	
			NH	36 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	20 mm	0.015 mm dia.	
			NT	22 mm	0.012 mm dia.	
			NV	22 mm	0.012 mm dia.	
			NVG	2 mm	1.0 mm dia.	
			VG	2 mm	1.0 mm dia.	

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, GENERAL PURPOSE TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

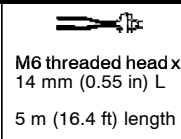

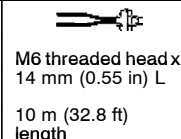

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 14 mm (0.55 in) L 5 m (16.4 ft) length	A	75 mm	0.015 mm dia.	E32-DC500 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	33 mm	0.015 mm dia.	
			H	150 mm	0.015 mm dia.	
			NH	Contact Omron	Contact Omron	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
VG	10 mm	0.2 mm dia.				
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 14 mm (0.55 in) L 10 m (32.8 ft) length	A	75 mm	0.015 mm dia.	E32-DC1000 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	33 mm	0.015 mm dia.	
			H	150 mm	0.015 mm dia.	
			NH	Contact Omron	Contact Omron	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
VG	10 mm	0.2 mm dia.				

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, PROBE TYPE (CONT.)

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

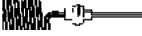


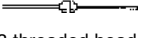
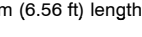

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
Thin probe	Sensing head with 40 mm probe; spiral coiled cable with-stands repeated stretching from reciprocating machine parts; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head 40 mm (1.57 in) probe length  Coiled 64 cm (2.1 ft) L; 2 m (6.56 ft) extended	A	22 mm	0.03 mm dia.	E32-DC200D4 
			DAN-HS	Contact Omron	Contact Omron	
			DAN-LD	Contact Omron	Contact Omron	
			DAN-SM	Contact Omron	Contact Omron	
			F	10 mm	0.03 mm dia.	
			H	44 mm	0.015 mm dia.	
			NH	44 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	Contact Omron	Contact Omron	
			NT	Contact Omron	Contact Omron	
			NV	Contact Omron	Contact Omron	
			NVG	Contact Omron	Contact Omron	
			VG	2.5 mm	1.0 mm dia.	
Thin probe	Sensing head with 90 mm probe; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head 90 mm (3.54 in) length probe  2 m (6.56 ft) length	A	18 mm	0.03 mm dia.	E32-DC200F 
			DAN-HS	30 mm	-----	
			DAN-LD	100 mm	-----	
			DAN-SM	80 mm	0.01 mm dia.	
			F	8 mm	0.03 mm dia.	
			H	36 mm	0.015 mm dia.	
			NH	36 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	20 mm	0.015 mm dia.	
			NT	22 mm	0.012 mm dia.	
			NV	22 mm	0.012 mm dia.	
			NVG	2 mm	1.0 mm dia.	
			VG	2 mm	1.0 mm dia.	

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, SIDE BEAM TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

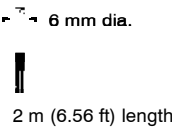

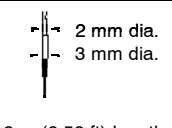

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
Long distance; side view sensing	Space-saving, side view probe for long sensing distances; 1 mm ID fiber; 25 mm bending radius	 6 mm dia. 2 m (6.56 ft) length	A	40 mm	0.03 mm dia.	E32-D14L 
			DAN-HS	50 mm	-----	
			DAN-LD	150 mm	-----	
			DAN-SM	110 mm	0.01 mm dia.	
			F	12 mm	0.5 mm dia.	
			H	40 mm	0.03 mm dia.	
			NH	40 mm	0.015 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	40 mm	0.03 mm dia.	
			NT	44 mm	0.015 mm dia.	
			NV	44 mm	0.015 mm dia.	
			NVG	1.5 mm	1.0 mm dia.	
VG	1.5 mm	1.0 mm dia.				
Small object	Side view; space saving thin fiber; 0.5 mm ID fiber; 25 mm bending radius	 2 mm dia. 3 mm dia. 2 m (6.56 ft) length	A	15 mm	0.03 mm dia.	E32-D24 
			DAN-HS	10 mm	-----	
			DAN-LD	40 mm	-----	
			DAN-SM	30 mm	0.01 mm dia.	
			F	4 mm	0.03 mm dia.	
			H	15 mm	0.03 mm dia.	
			NH	15 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	15 mm	0.03 mm dia.	
			NT	17 mm	0.012 mm dia.	
			NV	17 mm	0.012 mm dia.	
			NVG	1.6 mm	1.0 mm dia.	
VG	1.6 mm	1.0 mm dia.				

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, HIGH TEMPERATURE TYPE

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)



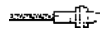
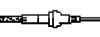
NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
Heat resistant	Resists 150°C; fiber sheath material: fluororesin. Operating ambient temperature: -40°C to 150°C (-40°F to 302°F); 1.5 mm ID fiber; 35 mm bending radius	 M6 threaded head 2 m (6.56 ft) length	A	60 mm	0.03 mm dia.	E32-D51 
			DAN-HS	100 mm	-----	
			DAN-LD	300 mm	-----	
			DAN-SM	230 mm	0.01 mm dia.	
			F	26 mm	0.03 mm dia.	
			H	120 mm	0.03 mm dia.	
			NH	120 mm	0.012 mm dia.	
			NHB	12 mm	0.012 mm dia.	
			NM	60 mm	0.03 mm dia.	
			NT	65 mm	0.012 mm dia.	
			NV	65 mm	0.012 mm dia.	
			NVG	5 mm	1.0 mm dia.	
VG	5 mm	1.0 mm dia.				
Heat resistant	Resists 300°C, with spiral tube; high mechanical strength; fiber sheath material: stainless steel. Operating ambient temperature: -40°C to 300°C (-40°F to 572°F); 1.4 mm ID fiber; 25 mm bending radius	 M6 threaded head 2 m (6.56 ft) length	A	45 mm	0.03 mm dia.	E32-D61
			DAN-HS	30 mm	-----	
			DAN-LD	120 mm	-----	
			DAN-SM	90 mm	0.01 mm dia.	
			F	20 mm	0.03 mm dia.	
			H	45 mm	0.03 mm dia.	
			NH	45 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	45 mm	0.03 mm dia.	
			NT	50 mm	0.012 mm dia.	
			NV	50 mm	0.012 mm dia.	
			NVG	5 mm	1.0 mm dia.	
VG	5 mm	1.0 mm dia.				
Heat resistant	High temperature glass core fiber with probe. Resists 400°C, with spiral tube; high mechanical strength; fiber sheath material: stainless steel. Operating ambient temperature: -40°C to 400°C (-40°F to 752°F); 1 mm ID fiber; 25 mm bending radius	 1.25 mm dia M4 threaded head 2 m (6.56 ft) length	A	30 mm	0.03 mm dia.	E32-D73
			DAN-HS	20 mm	-----	
			DAN-LD	80 mm	-----	
			DAN-SM	60 mm	0.01 mm dia.	
			F	17 mm	0.2 mm dia.	
			H	30 mm	0.03 mm dia.	
			NH	30 mm	0.012 mm dia.	
			NHB	Contact Omron	Contact Omron	
			NM	30 mm	0.03 mm dia.	
			NT	33 mm	0.012 mm dia.	
			NV	33 mm	0.012 mm dia.	
			NVG	3 mm	1.0 mm dia.	
VG	3 mm	1.0 mm dia.				

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, CONVERGENT AND SPECIAL PURPOSE TYPES

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

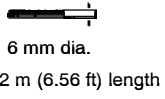



NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
Chemical resistant	Teflon coated sensing head for harsh chemical environments. Operating ambient temperature: -30°C to 70°C (-22°F to 158°F); 40 mm bending radius; 1 mm ID fiber	 6 mm dia. 2 m (6.56 ft) length	A	50 mm	0.03 mm dia.	E32-D12F 
			DAN-HS	45 mm	-----	
			DAN-LD	120 mm	-----	
			DAN-SM	95 mm	0.01 mm dia.	
			F	20 mm	0.5 mm dia.	
			H	50 mm	0.03 mm dia.	
			NH	50 mm	0.012 mm dia.	
			NHB	10 mm	0.012 mm dia.	
			NM	50 mm	0.03 mm dia.	
			NT	55 mm	0.012 mm dia.	
			NV	55 mm	0.012 mm dia.	
			NVG	4 mm	0.5 mm dia.	
			VG	4 mm	0.5 mm dia.	
Wafer detection, height differences	Convergent beam suppresses background objects; long distance, side view. Operating ambient temperature: -40°C to 105°C (-40°F to 221°F); 10 mm bending radius	 2 m (6.56 ft) length	A	4 ± 2 mm	0.015 mm dia.	E32-L24L 
			DAN-HS	4 ± 2 mm	-----	
			DAN-LD	4 ± 2 mm	-----	
			DAN-SM	4 ± 2 mm	0.01 mm dia.	
			F	4 ± 2 mm	0.015 mm dia.	
			H	4 ± 2 mm	Contact Omron	
			NH	4 ± 2 mm	0.012 mm dia.	
			NHB	NA	NA	
			NM	4 ± 2 mm	0.015 mm dia.	
			NT	4 ± 2 mm	0.012 mm dia.	
			NV	4 ± 2 mm	0.012 mm dia.	
			NVG	NA	NA	
			VG	NA	NA	

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ DIFFUSE, CONVERGENT TYPES (CONT.)

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)







NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
Wafer detection, height differences	Convergent beam suppresses back- ground objects; cable exits the side; 25 mm bending radius	 2 m (6.56 ft) length	A	3.3 mm	0.03 mm dia.	E32-L25 
			DAN-HS	3.3 mm	-----	
			DAN-LD	3.3 mm	-----	
			DAN-SM	3.3 mm	0.01 mm dia.	
			F	3.3 mm	0.5 mm dia.	
			H	3.3 mm	0.015 mm dia.	
			NH	3.3 mm	0.012 mm dia.	
			NHB	NA	NA	
			NM	3.3 mm	0.015 mm dia.	
			NT	3.3 mm	0.012 mm dia.	
			NV	3.3 mm	0.012 mm dia.	
			NVG	NA	NA	
Wafer detection, height differences	Convergent beam suppresses back- ground objects; cable exits the bottom; 25 mm bending radius	 2 m (6.56 ft) length	A	3.3 mm	0.03 mm dia.	E32-L25A 
			DAN-HS	3.3 mm	-----	
			DAN-LD	3.3 mm	-----	
			DAN-SM	3.3 mm	0.01 mm dia.	
			F	3.3 mm	0.5 mm dia.	
			H	3.3 mm	0.015 mm dia.	
			NH	3.3 mm	0.012 mm dia.	
			NHB	NA	NA	
			NM	3.3 mm	0.015 mm dia.	
			NT	3.3 mm	0.012 mm dia.	
			NV	3.3 mm	0.012 mm dia.	
			NVG	NA	NA	
Wafer detection, height differences	Long distance con- vergent beam type suppresses back- ground objects; cable exits the side; 10 mm bending radius	 2 m (6.56 ft) length	A	7.2 ± 1.8 mm	0.015 mm dia.	E32-L25L 
			DAN-HS	7.2 ± 1.8 mm	-----	
			DAN-LD	7.2 ± 1.8 mm	-----	
			DAN-SM	7.2 ± 1.8 mm	0.01 mm dia.	
			F	7.2 ± 1.8 mm	0.015 mm dia.	
			H	7.2 ± 1.8 mm	0.015 mm dia.	
			NH	7.2 ± 1.8 mm	0.012 mm dia.	
			NHB	NA	NA	
			NM	7.2 ± 1.8 mm	0.015 mm dia.	
			NT	7.2 ± 1.8 mm	0.012 mm dia.	
			NV	7.2 ± 1.8 mm	0.012 mm dia.	
			NVG	NA	NA	
VG	NA	NA				

Note: Sensing distance is based on sensing a white paper that has 90% reflectivity.

■ RETROREFLECTIVE TYPE

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:

Legend:

A E3X-A (General purpose amplifier)

DAN-HS E3X-DAN (Digital amplifier- high speed mode)

DAN-LD E3X-DAN (Digital amplifier- long distance mode)

DAN-SM E3X-DAN (Digital amplifier- standard distance mode)

F E3X-F (High performance amplifier- high speed)

H E3X-H11 (High gain amplifier)

NM E3X-NM (4 channel auto-tuning amplifier)

NT E3X-NT (Auto-tuning amplifier: general purpose)

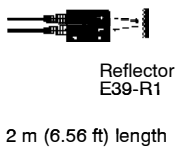

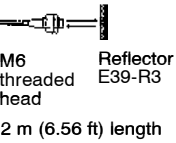

NH E3X-NH (High-precision, auto-tuning amplifier)

NHB E3X-NHB (High-precision, blue LED, auto-tuning amp)

NV E3X-NV21 (Water-resistant, red light source amplifier)

NVG E3X-NVG21 (Water-resistant, green light source amp)

VG E3X-VG (Mark sensing amplifier)

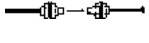

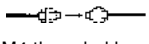

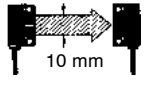

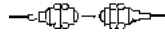

Application	Features	Appearance	Type	Detection distance (see note)	Min. detectable object (gold wire)	Part number
Detects shiny, transpar- ent and opaque objects (polarized)	Block style sensing head detects objects over a long range; 25 mm bending radius	 Reflector E39-R1 2 m (6.56 ft) length	A	150 to 1,500 mm	0.6 mm dia.	E32-R16 +  E39-R1
			DAN-HS	150 to 1,500 mm	-----	
			DAN-LD	150 to 1,500 mm	-----	
			DAN-SM	150 to 1,500 mm	0.2 mm dia.	
			F	50 to 700 mm	0.6 mm dia.	
			H	150 to 1,500 mm	0.6 mm dia.	
			NH	150 to 1,500 mm	0.5 mm dia.	
			NHB	NA	NA	
			NM	150 to 1,500 mm	1.9 mm dia.	
			NT	150 to 1,500 mm	0.5 mm dia.	
			NV	150 to 1,500 mm	0.5 mm dia.	
			NVG	NA	NA	
			VG	NA	NA	
Detect transpar- ent objects (polarized)	Compact threaded sensing head is easy to install; 25 mm bending radius.	 M6 threaded head Reflector E39-R3 2 m (6.56 ft) length	A	10 to 250 mm	0.3 mm dia.	E32-R21 +  E39-R3
			DAN-HS	10 to 250 mm	-----	
			DAN-LD	10 to 250 mm	-----	
			DAN-SM	10 to 250 mm	0.1 mm dia.	
			F	20 to 230 mm	0.5 mm dia.	
			H	10 to 250 mm	0.3 mm dia.	
			NH	10 to 250 mm	0.3 mm dia.	
			NHB	NA	NA	
			NM	25 to 250 mm	0.6 mm dia.	
			NT	25 to 250 mm	0.3 mm dia.	
			NV	25 to 250 mm	0.3 mm dia.	
			NVG	NA	NA	
			VG	NA	NA	

■ BLOCK STYLE FIBER-OPTIC AMPLIFIERS

The following tables show the detection distance for selected fiber-optic cables in combination with Omron block style amplifiers. These amplifiers offer specialized capabilities to solve particular application problems.



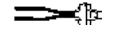

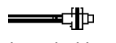

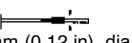

■ E3MC-(M)Y RGB COLOR SENSOR

Through-beam Fiber-optic Cables

Application	Features	Appearance	Detection distance (see note)	Part number
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head x 14 mm (0.55 in) L 2 m (6.56 ft) length	30 mm	E32-TC200 
Long distance	Compact M4, head, 1 mm ID fiber; 25 mm bending radius; 1.4 mm ID fiber	 M4 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	60 mm	E32-T11L 
Area sensing	10 mm wide beam, long sensing distance; 25 mm bending radius; 1 mm ID fiber	 10 mm 2 m (6.56 ft) length	200 mm	E32-T16 
Long distance	M14 with magnifying lens extends sensing distance; ideal for explosion-proof applications; 25 mm bending radius; 1 mm ID fiber	 M14 threaded head x 23 mm (0.91 in) L 10 m (32.8 ft) length	1,100 mm	E32-T17L 

Note: The E3MC-(M)Y discriminates red, blue, and yellow films at the above distances.

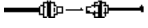

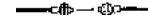

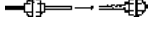



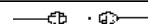

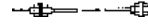

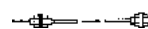





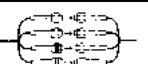

Diffuse Fiber-optic Cables

Application	Features	Appearance	Detection distance (see note)	Part number
High precision positioning	Concentric beam: emitter in the center and a ring of 16 receivers in the 2.5 mm dia. tip; 25 mm bending radius; 1 mm ID fiber; coaxial diffuse	 M6 threaded head x 20 mm (0.79 in) L 2 m (6.56 ft) length	5 mm	E32-CC200 
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 14 mm (0.55 in) L 2 m (6.56 ft) length	5 mm	E32-DC200 
Long distance	Compact threaded sensing head; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 17 mm (0.67 in) L 2 m (6.56 ft) length	5 mm	E32-D11L 
Precise positioning	Concentric beam: light source in the center with a ring of 16 receivers in 3 mm dia. tip; 25 mm bending radius; coaxial diffuse	 3 mm (0.12 in) dia. x 15 mm (0.59 in) L 2 m (6.56 ft) length	4.5 mm	E32-D32L 

Note: The E3MC-(M)Y discriminates eleven colors at the above distances. For a typical example, nine colors are discriminated at a sensing distance of 12 mm.

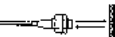

■ E3XA-CC4A ANALOG FIBER-OPTIC AMPLIFIER

Through-beam Fiber-optic Cables















Application	Features	Appearance	Detection distance	Min. detectable object	Part number
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head x 14 mm (0.55 in) L 2 m (6.56 ft) length	80 mm (600 mm*)	0.2 mm dia.	E32-TC200 
General purpose	M3; possible to mount the reflective side-view conversion attachment (E39-F5); 25 mm bending radius; 1 mm ID fiber	 M3 threaded head x 12.5 mm (0.49 in) L 2 m (6.56 ft) length	80 mm	0.2 mm dia.	E32-TC200A 
Thin probe	Probe for space-confined sensing areas; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head 90 mm (3.54 in) probe length 2 m (6.56 ft) length	80 mm	0.2 mm dia.	E32-TC200B 
Thin probe	Probe for space-confined sensing areas; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head 40 mm (1.57 in) probe length 2 m (6.56 ft) length	80 mm	0.2 mm dia.	E32-TC200B4 
General purpose	M3; suitable for detecting minute objects; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	20 mm	0.1 mm dia.	E32-TC200E 
Bendable probe	Sensing head with 90 mm probe; 25 mm bending radius	 M3 threaded head 90 mm (3.54 in) length probe 2 m (6.56 ft) length	20 mm	0.1 mm dia.	E32-TC200F 
Bendable probe	Sensing head with 90 mm probe; 25 mm bending radius	 M3 threaded head 40 mm (1.57 in) length probe 2 m (6.56 ft) length	20 mm	0.1 mm dia.	E32-TC200F4 
Long distance	Built-in lens provides long sensing distance; each sensing head has two 3.2 mm screw mounting holes; 25 mm bending radius; 1 mm ID fiber	 2 m (6.56 ft) length	90 mm	0.8 mm dia.	E32-T14 
Mark/edge detection	Ideal for mark sensing or belt alignment; no optical axis adjustment required; easy to mount; 1 mm ID fiber	 10 mm 2 m (6.56 ft) length	10 mm	0.8 mm dia.	E32-G14 
Area sensing	Multiple heads allow shape recognition; 0.5 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	100 mm	0.3 mm dia.	E32-M21 

Note: *Value in parentheses represents the sensing distance of the fiber when the E39-F1 lens is attached to its tip.

Retroreflective Fiber-optic Cables with E3XA-CC4A Amplifier

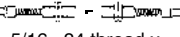
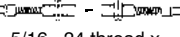
Application	Features	Appearance	Detection distance	Min. detectable object	Part number
Detect transparent and shiny objects	Compact threaded sensing head is easy to install.	 M6 threaded head Reflector E39-R3 2 m (6.56 ft) length	30 to 200 mm	0.3 mm dia.	E32-R21 + E39-R3 

Diffuse Fiber-optic Cables with E3XA-CC4A Amplifier

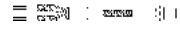
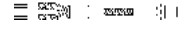
Application	Features	Appearance	Detection distance	Min. detectable object	Part number
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 14 mm (0.55 in) L 2 m (6.56 ft) length	30 mm	0.03 mm dia.	E32-DC200 
General purpose	M3; possible to mount the reflective side-view conversion attachment (E39-F5); 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 20 mm (0.79 in) L 2 m (6.56 ft) length	30 mm	0.03 mm dia.	E32-CC200 
Thin probe	Probe for space-confined sensing areas; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head 90 mm (3.54 in) probe length 2 m (6.56 ft) length	30 mm	0.03 mm dia.	E32-DC200B 
Thin probe	Probe for space-confined sensing areas; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head 40 mm (1.57 in) probe length 2 m (6.56 ft) length	30 mm	0.03 mm dia.	E32-DC200B4 
General purpose	M3; suitable for detecting minute objects; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	7 mm	0.03 mm dia.	E32-DC200E 
Thin probe	Sensing head with 90 mm probe; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head 90 mm (3.54 in) length probe 2 m (6.56 ft) length	7 mm	0.03 mm dia.	E32-DC200F 
Thin probe	Sensing head with 40 mm probe; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head 40 mm (1.57 in) length probe 2 m (6.56 ft) length	7 mm	0.03 mm dia.	E32-DC200F4 

■ E3JU-X LIMIT SWITCH STYLE (IR LED)

Armored Through-beam Fiber-optic Cables

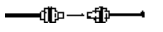

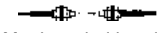

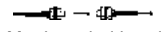

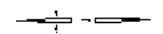

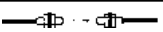


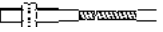
Application	Features	Appearance	Detection distance	Min. detectable object	Part number
General purpose	Can withstand temperatures to 200°C (392°F)	 5/16- 24 thread x 38.1 mm (1.5 in) L 0.91 m (3 ft) length	400 mm	0.25 mm dia.	E32-UTBT1-3F
General purpose	Can withstand temperatures to 200°C (392°F)	 5/16- 24 thread x 38.1 mm (1.5 in) L 1.83 m (6 ft) length	400 mm	0.25 mm dia.	E32-UTBT1-6F

Armored Diffuse Fiber-optic Cables













Application	Features	Appearance	Detection distance	Min. detectable object (gold wire)	Part number
General purpose	Can withstand temperatures to 200°C (392°F)	 5/16 - 24 thread x 38.1 mm (1.5 in) L 0.91 m (3 ft) length	90 mm	0.05 mm dia.	E32-UDBT1-3F
General purpose	Can withstand temperatures to 200°C (392°F)	 5/16 - 24 thread x 38.1 mm (1.5 in) L 1.83 m (6 ft) length	80 mm	0.05 mm dia.	E32-UDBT1-6F

■ E3JU-XR LIMIT SWITCH STYLE (RED LED)

Through-beam Fiber-optic Cables

Application	Features	Appearance	Detection distance	Min. detectable object	Part number
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head x 14 mm (0.55 in) L 2 m (6.56 ft) length	200 mm	0.2 mm dia.	E32-TC200 
Flexible, resists breaking	Ideal for mounting on moving section; 4 mm bending radius; 1.5 mm ID fiber	 M4 threaded head x 11.7 mm (0.46 in) L 2 m (6.56 ft) length	135 mm	0.5 mm dia.	E32-T11 
	Compact M3 head ideal for mounting on moving sections; 4 mm bending radius; 0.5 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	39 mm	0.2 mm dia.	E32-T21 
Minute objects	2 mm dia. head fits in space- confined areas; 25 mm bending radius; 0.5 mm ID fiber	 2 mm dia. (0.8 in) x 22 mm (0.87 in) 2 m (6.56 ft) length	50 mm	0.2 mm dia.	E32-T22 
Heat resistant	Resists 150°C; fiber sheath material: fluororesin. Operating ambient temperature: -40°C to 150°C (-40°F to 302°F); 35 mm bending radius; 1.5 mm ID fiber	 M4 threaded head x 17 mm (0.67 in) L 2 m (6.56 ft) length	150 mm	1.0 mm dia.	E32-T51 
General purpose	Armored glass fiber-optic cable can withstand tempera- tures to 200°C (392°F)	 5/16-24 thread x 38.1 mm (1.5 in) L 0.91 m (3 ft) length	200 mm	0.2 mm dia.	E32-UTAT1-3F
General purpose	Armored glass fiber-optic cable can withstand tempera- tures to 200°C (392°F)	 5/16-24 thread x 38.1 mm (1.5 in) L 1.83 m (6 ft) length	170 mm	0.2 mm dia.	E32-UTAT1-6F

Diffuse Fiber-optic Cables with E3JU-XR Amplifiers

Application	Features	Appearance	Detection distance	Min. detectable object	Part number
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 14 mm (0.55 in) L 2 m (6.56 ft) length	75 mm	0.015 mm dia.	E32-DC200 
General purpose	Compact threaded head; 4 mm bending radius; 0.25 mm ID fiber	 M6 threaded head x 17 mm (0.67 in) L 2 m (6.56 ft) length	45 mm	0.03 mm dia.	E32-D11 
General purpose	Compact threaded head; 4 mm bending radius; 0.25 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	7 mm	0.03 mm dia.	E32-D21 
General purpose	Compact threaded head; 25 mm bending radius; 0.25 mm ID fiber; coaxial	 2 mm (0.08 in) dia. x 15 mm (0.59 in) tip; 29 mm (1.14 in) L overall 2 m (6.56 ft) length	18 mm	0.03 mm dia.	E32-D32 
Heat resistant	Resists 150°C; fiber sheath material: fluororesin. Operating ambient temperature: -40°C to 150°C (-40°F to 302°F); 35 mm bending radius; 1.5 mm ID fiber	 M6 threaded head 2 m (6.56 ft) length	60 mm	0.03 mm dia.	E32-D51 
General purpose	Armored glass fiber-optic cable can withstand temperatures to 150°C (302°F)	 5/16-24 thread x 38.1 mm (1.5 in) L 0.91 m (3 ft) length	80 mm	0.03 mm dia.	E32-UDAT1-3F
General purpose	Armored glass fiber-optic cable can withstand temperatures to 150°C (302°F)	 5/16-24 thread x 38.1 mm (1.5 in) L 1.83 m (6 ft) length	65 mm	0.03 mm dia.	E32-UDAT1-6F

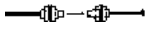

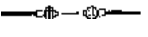

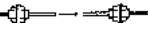

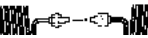



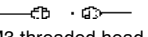

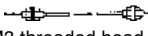

■ E3A2-X AND E3S-X3 BLOCK STYLE AMPLIFIERS

The table specifies the sensing characteristics of each fiber when used with the following amplifiers:















A2X: E3A2-X Slim Amplifier with Plug-in Output

SX3: E3S-X3 Rugged Metal Body DC Amplifier

Through-beam Fiber-optic Cables

Application	Features	Appearance	Type	Detection distance	Min. detectable object (opaque)	Part number
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head x 14 mm (0.55 in) L 2 m (6.56 ft) length	A2X	120 mm	1.0 mm dia.	E32-TC200 
			SX3			
General purpose	M3; possible to mount the reflective side view conversion attachment (E39-F5); 25 mm bending radius; 1 mm ID fiber	 M3 threaded head x 7 mm (0.28 in) L 2 m (6.56 ft) length	A2X	120 mm	1.0 mm dia.	E32-TC200A 
			SX3			
Thin probe	Probe for space-confined sensing areas; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head 90 mm (3.54 in) probe length 2 m (6.56 ft) length	A2X	120 mm	1.0 mm dia.	E32-TC200B 
			SX3			
General purpose	Coiled cable ideal for moving parts; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head x 11 mm (0.43 in) L 56.5 cm (1.85 ft) L; 2 m (6.56 ft) extended	A2X	100 mm	1.0 mm dia.	E32-TC200C 
			SX3			
Thin probe	Sensing head with 90 mm probe; spiral coiled cable with-stands repeated stretching from reciprocating machine parts; 25 mm bending radius; 1 mm ID fiber	 M4 threaded head 90 mm (3.54 in) probe length 56.6 cm (1.85 ft); 2 m (6.56 ft) extended	A2X	100 mm	1.0 mm dia.	E32-TC200D 
			SX3			
General purpose	Thin fiber with small easy-to-mount head.; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	A2X	35 mm	0.5 mm dia.	E32-TC200E 
			SX3			
Thin probe	Sensing head with 90 mm probe; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head 90 mm (3.54 in) length probe 2 m (6.56 ft) length	A2X	35 mm	0.5 mm dia.	E32-TC200F 
			SX3			

Diffuse Fiber-optic Cables for E3A2-X and E3S-X3 Amplifiers

Application	Features	Appearance	Type	Detection distance	Standard object (see note)	Part number
High accuracy positioning	Concentric beam: emitter in the center and a ring of 16 receivers in the 2.5 mm dia. tip; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 20 mm (0.79 in) L 2 m (6.56 ft) length	A2X	50 mm	30 x 30 mm	E32-CC200 
			SX3			
General purpose	Compact threaded head; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 14 mm (0.55 in) L 2 m (6.56 ft) length	A2X	50 mm	30 x 30 mm	E32-DC200 
			SX3			
Thin probe	Probe for space-confined sensing areas; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head 90 mm (3.54 in) probe length 2 m (6.56 ft) length	A2X	50 mm	30 x 30 mm	E32-DC200B 
			SX3			
General purpose	Coiled cable ideal for moving parts; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head x 17 mm (0.67 in) L 64 cm (2.1 ft) L coiled; 2 m (6.56 ft) extended.	A2X	15 mm	30 x 30 mm	E32-DC200C 
			SX3			
Thin probe	Sensing head with 90 mm probe; spiral coiled cable with-stands repeated stretching from reciprocating machine parts; 25 mm bending radius; 1 mm ID fiber	 M6 threaded head 90 mm (3.54 in) probe length 64 cm (2.1 ft) L coiled; 2 m (6.56 ft) extended	A2X	15 mm	30 x 30 mm	E32-DC200D 
			SX3			
General purpose	Thin fiber with small easy-to-mount head.; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head x 11 mm (0.43 in) L 2 m (6.56 ft) length	A2X	12 mm	15 x 15 mm	E32-DC200E 
			SX3			
Thin probe	Sensing head with 90 mm probe; 25 mm bending radius; 0.5 mm ID fiber	 M3 threaded head 90 mm (3.54 in) length probe 2 m (6.56 ft) length	A2X	12 mm	15 x 15 mm	E32-DC200F 
			SX3			

Note: A standard object for the diffuse fiber-optic cables is a Kodak 90% reflectance white card.

Specifications

■ THROUGH-BEAM FIBER-OPTIC CABLES

Part number	Operating ambient temperature	Operating relative humidity	Permissible bending radius	Core material	Sheath material	Enclosure rating
E32-T11	-40°C to 70°C (-40°F to 158°F) with no icing	35% to 85% with no condensation	4 mm min.	PMMA	Vinyl chloride	IEC IP67
E32-T11L			25 mm min.		Black polyethylene	
E32-T11R			1 mm min.		Copolymer vinyl chloride	
E32-T12L			25 mm min.		Black polyethylene	
E32-T17L			25 mm min.		Black polyethylene	
E32-T21			4 mm min.		Vinyl chloride	
E32-T21L			25 mm min.		Black polyethylene	
E32-T21R			1 mm min.		Copolymer vinyl chloride	
E32-T22			25 mm min.		Black polyethylene	
E32-T22L			25 mm min.		Black polyethylene	
E32-TC50 E32-TC200			25 mm min.		Black polyethylene	
E32-TC200A			25 mm min.		Black polyethylene	
E32-TC200C			25 mm min.		Black polyethylene	
E32-TC200E			25 mm min.		Black polyethylene	
E32-TC500 E32-TC1000			25 mm min.		Black polyethylene	
E32-UTAT1-3F E32-UTAT1-6F			-40°C to 150°C (-40°F to 302°F) with no icing			
E32-UTBT1-3F E32-UTBT1-6F	-40°C to 200°C (-40°F to 392°F) with no icing		25 mm min.	Glass	SUS 303 head, SUS 304 sheath	
E32-T33-1	-40°C to 70°C (-40°F to 158°F) with no icing		25 mm min.	PMMA	Black polyethylene, stainless steel head	
E32-TC200B E32-TC200B4		25 mm min.	Black polyethylene			
E32-TC200D E32-TC200D4		25 mm min.	Black polyethylene			
E32-TC200F E32-TC200F4		25 mm min.	Black polyethylene			
E32-T14		25 mm min.	Black polyethylene			
E32-T14L		25 mm min.	Black polyethylene			
E32-T16		25 mm min.	Black polyethylene			
E32-T16P		10 mm min.	Vinyl chloride		IEC IP50	
E32-T24		25 mm min.	Black polyethylene		IEC IP67	
E32-T51*		-40°C to 150°C (-40°F to 302°F) with no icing			35 mm min.	PMMA
E32-T61	-40°C to 300°C (-40°F to 572°F) with no icing		25 mm min.	Glass	304 stainless steel	
E32-G14	-40°C to 70°C (-40°F to 158°F) with no icing		25 mm min.	PMMA	Black polyethylene	
E32-M21		25 mm min.	Black polyethylene			
E32-T12F	-30°C to 70°C (-22°F to 158°F) with no icing		40 mm min.		Teflon®-covered black polyethylene	

*When used continuously between -40°C and 130°C (-40°F and 266°F)

Teflon is a registered trademark of the Dupont Company and the Mitsui Dupont Chemical Company for their fluoride resin.

■ THROUGH-BEAM FIBER-OPTIC CABLES (CONTINUED)

Part number	Operating ambient temperature	Operating relative humidity	Permissible bending radius**	Core material	Sheath material	Enclosure rating
E32-T22S*	-40°C to 70°C (-40°F to 158°F) with no icing	35% to 85% with no condensation	10 mm min.	PMMA	Copolymer vinyl chloride	IEC IP67
E32-T24S*			25 mm min.	Glass	304 stainless steel	
E32-T84S*	-40°C to 200°C (-40°F to 392°F) with no icing					

*13 mm dia. beam size at a distance of 200 mm

**Average at 30% of sensing distance

■ DIFFUSE FIBER-OPTIC CABLES*

Part number	Operating ambient temperature	Operating relative humidity	Permissible bending radius	Core material	Sheath material	Enclosure rating		
E32-CC200	-40°C to 70°C (-40°F to 158°F) with no icing	35% to 85% with no condensation	25 mm min.	PMMA	Black polyethylene	IEC IP67		
E32-D11			4 mm min.		Vinyl chloride			
E32-D11L			25 mm min.		Black polyethylene			
E32-D11R			1 mm min.		Copolymer vinyl chloride			
E32-D21			4 mm min.		Vinyl chloride			
E32-D21L			25 mm min.		Black polyethylene			
E32-D21R			1 mm min.		Black polyethylene			
E32-D22L			25 mm min.		Black polyethylene			
E32-D32								
E32-D32L								
E32-DC50, E32-DC200								
E32-DC200C								
E32-DC200E								
E32-DC500, E32-DC1000								
E32-UDAT1-3F, E32-UDAT1-6F			-40°C to 150°C (-40°F to 302°F) with no icing				25 mm min.	Glass
E32-UDBT1-3F, E32-UDBT1-6F	-40°C to 200°C (-40°F to 392°F) with no icing		25 mm min.	Glass	SUS 303 head, SUS 304 sheath			
E32-D33	-40°C to 70°C (-40°F to 158°F) with no icing		25 mm min.	PMMA	Black polyethylene			
E32-DC200B, E32-DC200B4								
E32-DC200D, E32-DC200D4								
E32-DC200F, E32-DC200F4								
E32-DC9G, E32-DC9G4			12.5 mm min.		Stainless steel			
E32-D14L			25 mm min.		Black polyethylene			
E32-D24			25 mm min.		Black polyethylene			
E32-D51**	-40°C to 150°C (-40°F to 302°F) with no icing		35 mm min.		Fluoride resin			

*Differential travel is 20% of max. detection distance. With E3X-H11 amplifier, this is adjustable between 0% and 20%.

**When used continuously between -40°C and 130°C (-40°F and 266°F)

■ DIFFUSE FIBER-OPTIC CABLES (CONTINUED)*

Part number	Operating ambient temperature	Operating relative humidity	Permissible bending radius	Core material	Sheath material	Enclosure rating
E32-D61	-40°C to 300°C (-40°F to 572°F) with no icing	35% to 85% with no condensation	25 mm min.	Glass	304 stainless steel	IEC IP67
E32-D73	-40°C to 400°C (-40°F to 752°F) with no icing		25 mm min.	Glass	304 stainless steel	IEC IP67
E32-D12F	-30°C to 70°C (-22°F to 158°F) with no icing	35% to 85% with no condensation	40 mm min.	PMMA	Teflon [®] -covered black polyethylene	IEC IP67
E32-L24L**	-40°C to 105°C (-40°F to 221°F) with no icing		10 mm min. (average 10% decrease in sensing distance)	PMMA	Reinforced polyethylene	IEC IP50
E32-L25	-40°C to 70°C (-40°F to 158°F) with no icing		25 mm min.	PMMA	Black polyethylene	IEC IP50
E32-L25A			25 mm min.	PMMA	Black polyethylene	IEC IP50
E32-L25L**	-40°C to 105°C (-40°F to 221°F) with no icing		10 mm min. (average 10% decrease in sensing distance)	PMMA	Reinforced polyethylene	IEC IP50

*Differential travel is 20% of max. detection distance. With E3X-H11 amplifier, this is adjustable between 0% and 20%.

**Beam size is 2 mm dia.

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■ POLARIZED RETROREFLECTIVE FIBER-OPTIC CABLES

Part number	Operating ambient temperature	Operating relative humidity	Permissible bending radius	Core material	Sheath material	Enclosure rating
E32-R16 with E39-R1 reflector	-25°C to 55°C (-13°F to 131°F) with no icing	35% to 85%	25 mm min.	PMMA	Black polyethylene	IEC IP66
E32-R21 with E39-R3 reflector	-40°C to 70°C (-40°F to 158°F) with no icing					IEC IP67