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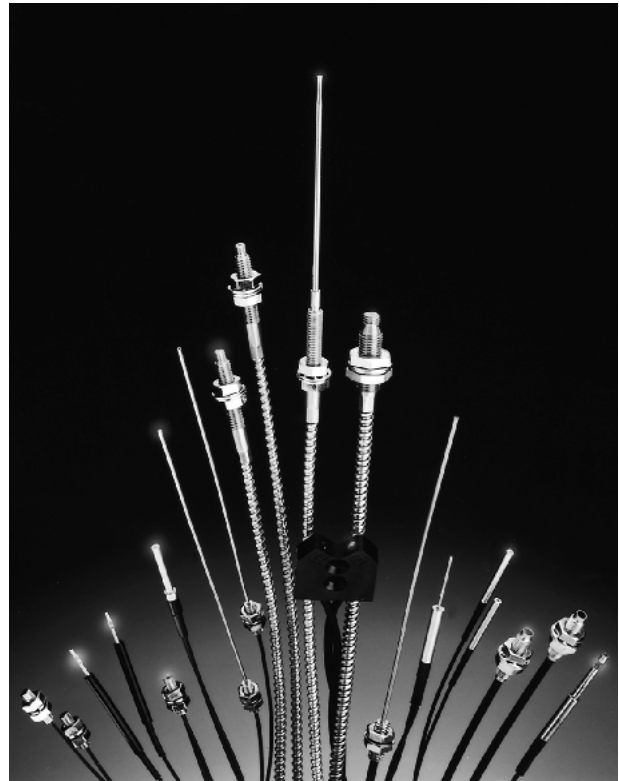
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### Fiber-Optic Sensing Heads Offer a Wide Variety of Unique Solutions for Tough Problems

- Fiber-optic sensors detect small, fast-moving objects in space-confined installations and harsh environments
- For a custom fit in the field, most plastic filament cables can be cut to length
- For detection in hard-to-reach places, sensing heads with bendable stainless steel tubing retain complex shapes
- Coiled and ultra-flexible cables are ideal for flexing and reciprocating machinery such as robots
- Side-view sensing heads or accessories save space in right-angle detection
- Convergent beam sensing heads allow accurate positioning and background suppression even for shiny objects
- Narrow detection zone of concentric beam sensing heads helps eliminate background objects and gives consistent sensing, regardless of object direction
- Highly flexible fibers with minimum 1-mm bending radius allows cable to conform to machine contours
- Most fiber cables offer IP67 protection and temperature ratings of  $-40^{\circ}\text{C}$  to  $70^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  to  $158^{\circ}\text{F}$ )



## ■ FIBER-OPTIC CABLE AND AMPLIFIER COMPATIBILITY


Fiber cables	DIN-rail mounting amplifiers							Block style amplifiers			
Part number	E3X-A	E3X-DAN	E3X-F	E3X-H, -NH	E3X-NM	E3X-NT, -NV	E3X- NVG,-VG	E3MC- MY	E3XA- CC4A	E3JU-XR E3JU-X	E3A2-X E3S-X3
<b>Through-beam, General Purpose Type</b>											
E32-T11	OK	OK	OK	OK	OK	OK	OK	--	--	OK (-XR)	--
E32-T11L	OK	OK	OK	OK	OK	OK	OK	OK	--	--	--
E32-T11R	OK	OK	--	OK	OK	OK	--	--	--	--	--
E32-T12L	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
E32-T17L	OK	OK	OK	OK	OK	OK	OK	OK	--	--	--
E32-T21	OK	OK	OK	OK	OK	OK	OK	--	--	OK (-XR)	--
E32-T21L	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
E32-T21R	OK	OK	--	OK	OK	OK	--	--	--	--	--
E32-T22	OK	OK	OK	OK	OK	OK	OK	--	--	OK (-XR)	--
E32-T22L	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
E32-TC50	OK	--	OK	OK (-H)	--	--	OK (-VG)	--	--	--	--
E32-TC200	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK (-XR)	OK
E32-TC200A	OK	OK	OK	OK	OK	OK	OK	--	OK	--	OK
E32-TC200C	OK	--	OK	OK	OK	OK	OK	--	--	--	OK
E32-TC200E	OK	OK	OK	OK	OK	OK	OK	--	OK	-	OK
E32-TC500	OK	--	OK	OK (-H)	--	--	OK (-VG)	--	--	--	--
E32-TC1000	OK	--	OK	OK (-H)	--	--	OK (-VG)	--	--	--	--
<b>Through-beam, Armored Type</b>											
E32-UTAT13F	OK	--	--	--	--	--	--	--	--	OK (-XR)	--
E32-UTAT16F	OK	--	--	--	--	--	--	--	--	OK (-XR)	--
E32-UTBT13F	--	--	--	--	--	--	--	--	--	OK (-X)	--
E32-UTBT16F	--	--	--	--	--	--	--	--	--	OK (-X)	--
<b>Through-beam, Probe Type</b>											
E32-T33-1	OK	--	OK	OK (-H)	--	--	OK (-VG)	--	--	--	--
E32-TC200B	OK	OK	OK	OK	OK	OK	OK	--	OK	--	OK
E32-TC200B4	OK	OK	OK	OK	OK	OK	OK	--	OK	--	--
E32-TC200D	OK	--	OK	OK	--	--	OK (-VG)	--	--	--	OK
E32-TC200D4	OK	--	OK	OK	--	--	OK (-VG)	--	--	--	--
E32-TC200F	OK	OK	OK	OK	OK	OK	OK	--	OK	--	OK
E32-TC200F4	OK	OK	OK	OK	OK	OK	OK	--	OK	--	--
<b>Through-beam, Side Sensing Type</b>											
E32-T14	OK	OK	OK	OK	OK	OK	OK	--	OK	--	--
E32-T14L	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
E32-T16	OK	OK	OK	OK	OK	OK	OK	OK	OK	--	--
E32-T16P	OK	OK	--	OK (-NH)	OK	OK	--	--	OK	--	--
E32-T24	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
<b>Through-beam, High Temperature Type</b>											
E32-T51	OK	OK	OK	OK	OK	OK	OK	--	--	OK (-XR)	--
E32-T61	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
<b>Through-beam, Special Purpose Type</b>											
E32-G14	OK	OK	OK	OK	OK	OK	OK	--	OK	--	--
E32-M21	OK	OK	OK	OK	OK	OK	OK	--	OK	--	--
E32-T12F	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
E32-T22S	--	OK	--	OK	OK	OK	--	--	--	--	--
E32-T24S	--	OK	--	OK	OK	OK	--	--	--	--	--
E32-T84S	--	OK	--	OK (-NH)	OK	OK	--	--	--	--	--

Fiber cables	DIN-rail mounting amplifiers							Block style amplifiers			
Part number	E3X-A	E3X-DAN	E3X-F	E3X-H, -NH	E3X-NM	E3X-NT, -NV	E3X- NVG,-VG	E3MC- MY	E3XA- CC4A	E3JU-XR E3JU-X	E3A2-X E3S-X3
<b>Diffuse, General Purpose Type</b>											
E32-CC200	OK	OK	OK	OK	OK	OK	OK	OK	OK	--	OK
E32-D11	OK	OK	OK	OK	OK	OK	OK	--	--	OK (-XR)	--
E32-D11L	OK	OK	OK	OK	OK	OK	OK	OK	--	--	--
E32-D11R	OK	OK	--	OK (-NH)	OK	OK	OK	--	--	--	--
E32-D21	OK	OK	OK	OK	OK	OK	OK	--	--	OK (-XR)	--
E32-D21L	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
E32-D21R	OK	OK	--	OK (-NH)	OK	OK	--	--	--	--	--
E32-D22L	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
E32-D32	OK	OK	OK	OK	OK	OK	OK	--	--	OK (-XR)	--
E32-D32L	OK	OK	OK	OK	OK	OK	OK	OK	--	--	--
E32-DC50	OK	--	OK	OK (-H)	--	--	OK (-VG)	--	--	--	--
E32-DC200	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK (-XR)	OK
E32-DC200C	OK	--	OK	OK	OK	OK	OK	--	--	--	OK
E32-DC200E	OK	OK	OK	OK	OK	OK	OK	--	OK	--	OK
E32-DC500	OK	--	OK	OK (-H)	--	--	OK (-VG)	--	--	--	--
E32-DC1000	OK	--	OK	OK (-H)	--	--	OK (-VG)	--	--	--	--
<b>Diffuse, Armored Type</b>											
E32-UDAT13F	OK	--	--	--	--	--	--	--	--	OK (-XR)	--
E32-UDAT16F	OK	--	--	--	--	--	--	--	--	OK (-XR)	--
E32-UDBT13F	--	--	--	--	--	--	--	--	--	OK (-X)	--
E32-UDBT16F	--	--	--	--	--	--	--	--	--	OK (-X)	--
<b>Diffuse, Probe Type</b>											
E32-D33	OK	OK	OK	OK	OK	OK	--	--	OK	--	--
E32-DC200B	OK	OK	OK	OK	OK	OK	OK	--	OK	--	OK
E32-DC200B4	OK	OK	OK	OK	OK	OK	OK	--	--	--	OK
E32-DC200D	OK	--	OK	OK	--	--	OK (-VG)	--	--	--	OK
E32-DC200D4	OK	--	OK	OK	--	--	OK (-VG)	--	--	--	--
E32-DC200F	OK	OK	OK	OK	OK	OK	OK	--	OK	--	OK
E32-DC200F4	OK	OK	OK	OK	OK	OK	OK	--	OK	--	OK
E32-DC9G	OK	--	OK	OK	--	--	OK (-VG)	--	OK	--	--
E32-DC9G4	OK	--	OK	OK	--	--	OK (-VG)	--	--	--	--
<b>Diffuse, Side Sensing Type</b>											
E32-D14L	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
E32-D24	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
<b>Diffuse, High Temperature Type</b>											
E32-D51	OK	OK	OK	OK	OK	OK	OK	--	--	OK (-XR)	--
E32-D61	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
E32-D73	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
<b>Diffuse, Convergent and Special Purpose Types</b>											
E32-D12F	OK	OK	OK	OK	OK	OK	OK	--	--	--	--
E32-L24L	OK	OK	OK	OK	OK	OK	--	--	--	--	--
E32-L25	OK	OK	OK	OK	OK	OK	--	--	--	--	--
E32-L25A	OK	OK	OK	OK	OK	OK	--	--	--	--	--
E32-L25L	OK	OK	OK	OK	OK	OK	--	--	--	--	--
<b>Retroreflective Type</b>											
E32-R16	OK	OK	OK	OK	OK	OK	--	--	--	--	--
E32-R21	OK	OK	OK	OK	OK	OK	--	--	OK	--	--

## 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)

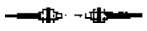

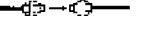

NHB . . . . E3X-NHB (High-precision, blue LED, auto-tuning amp)

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.	<b>E32-T11</b> 
			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.	<b>E32-T11L</b> 
			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)

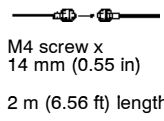

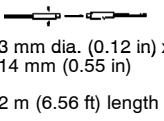

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-T11R</b> 
			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.	<b>E32-T12L</b> 
			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)

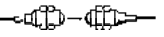

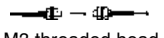

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-T17L</b> 
			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.	<b>E32-T21</b> 
			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)

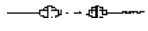

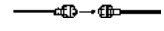

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-T21L</b> 
			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.	<b>E32-T21R</b> 
			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)



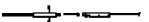

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-T22</b> 
			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.	<b>E32-T22L</b> 
			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)

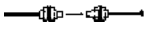

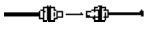

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-TC50</b> 
			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.	<b>E32-TC200</b> 
			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)

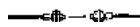

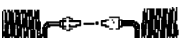

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-TC200A</b> 
			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.	<b>E32-TC200C</b> 
			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)



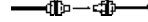

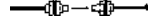

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-TC200E</b> 
			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.	<b>E32-TC500</b> 
			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.	<b>E32-TC1000</b> 
			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)

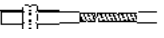
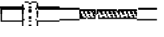
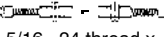
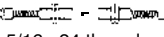
NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-UTAT1-3F</b>
			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.	<b>E32-UTAT1-6F</b>
			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.	<b>E32-UTBT1-3F</b>
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.	<b>E32-UTBT1-6F</b>

## ■ 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)

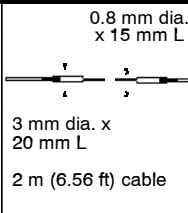

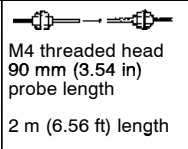

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-T33-1</b> 
			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.	<b>E32-TC200B</b> 
			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)

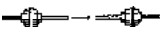

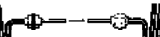

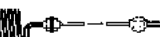

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-TC200B4</b> 
			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.	<b>E32-TC200D</b> 
			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.	<b>E32-TC200D4</b> 
			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.	<b>E32-TC200F</b> 
			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.	<b>E32-TC200F4</b> 
			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.	<b>E32-T14</b> 
			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.	<b>E32-T14L</b> 
			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)

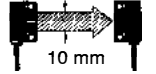

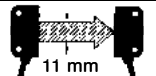

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.*	<b>E32-T16</b> 
			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.*	<b>E32-T16P</b> 
			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)

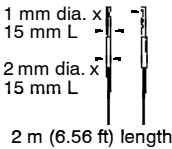

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-T24</b> 
			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)

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)

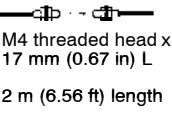

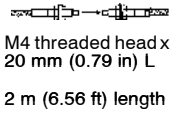
NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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
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.	<b>E32-T51</b> 
			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.	<b>E32-T61</b>
			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)

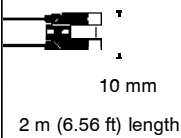

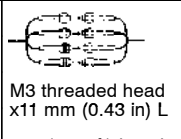
NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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	 <p>10 mm 2 m (6.56 ft) length</p>	A	10 mm	0.5 mm dia.	<b>E32-G14</b> 
			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	 <p>M3 threaded head x11 mm (0.43 in) L 2 m (6.56 ft) length</p>	A	150 mm	0.3 mm dia.	<b>E32-M21</b>
			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)

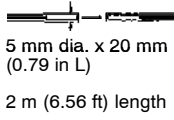

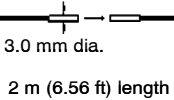

NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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.	<b>E32-T12F</b> 
			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	<b>E32-T22S</b> 
			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)

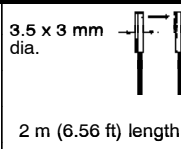


NH . . . . . E3X-NH (High-precision, auto-tuning amplifier)

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	<b>E32-T24S</b> 
			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	<b>E32-T84S</b>
			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.	<b>E32-CC200</b> 
			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, <b>ultra flexible cable</b> ; 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.	<b>E32-D11</b> 
			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.	<b>E32-D11L</b> 
			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.	<b>E32-D11R</b> 
			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.	<b>E32-D21</b> 
			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.	<b>E32-D21L</b> 
			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.