OMRON

Digital Fiber Amplifier

E3X-DA-N

Amplifier

- Select from Three Clear Display Methods:
  Digital incident level
  Digital percent level
  LED Bar Display
- Save wiring connector
- Auto Power Control

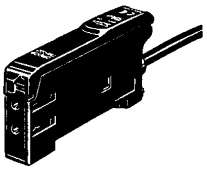
Mobile Console

- Remote tuning and adjustment
- “Copy and paste” function
- “Mode Lock” Function

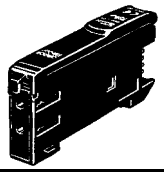
Ordering Information

■ Amplifier Units

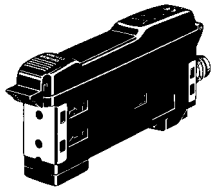
Amplifier Units with Cables

Item	Appearance	Output	Model	
			NPN output	PNP output
Standard models		ON/OFF output	E3X-DA11-N	E3X-DA41-N
Monitor-output models		ON/OFF output Monitor output	E3X-DA21-N	E3X-DA51-N
Mark-detecting models		ON/OFF output	E3X-DAB11-N	---

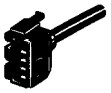
Amplifier Units with Connectors

Item	Appearance	Applicable Connector (Order separately)		Output	Model	
					NPN output	PNP output
Standard models		Master	E3X-CN11	ON/OFF output	E3X-DA6	E3X-DA8
		Slave	E3X-CN12			
Monitor-output models		Master	E3X-CN21	ON/OFF output Monitor output	E3X-DA7	E3X-DA9
		Slave	E3X-CN22			

M8 Connector Type

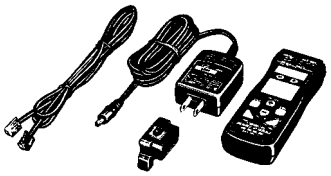
Item	Appearance	Output	Model	
			NPN output	PNP output
Standard models		ON/OFF output	E3X-DA14V	E3X-DA44V

■ Amplifier Unit Connectors (Order Separately)

Item	Appearance	Cable length	No. of conductors	Model
Master Connector		2 m	3	E3X-CN11
			4	E3X-CN21
Slave Connector			1	E3X-CN12
			2	E3X-CN22

Note: Stickers for Connectors are included as accessories.

■ Mobile Console (Order Separately)

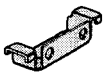
Appearance	Power supply method	Model	Remarks
	Chargeable battery	E3X-MC11	Head, cable, and AC adapter provided as accessories.

■ Accessories (Order Separately)

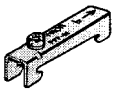
Operating Instructions Sticker

Model	Remarks
E39-Y1	Attach near the sensor.

Mounting Bracket

Appearance	Model	Quantity
	**E39-L143**	1

End Plate

Appearance	Model	Quantity
	**PFP-M**	1

■ Combination for Amplifiers and Connectors

Refer to the following tables when placing an order. Basically Amplifier Units and Connectors are sold separately.

Amplifier Units		
Type	NPN	PNP
Standard models	E3X-DA6	E3X-DA8
Monitor-output models	E3X-DA7	E3X-DA9

+

Applicable Connectors	
Master Connector	Slave Connector
E3X-CN11 (3-wire)	E3X-CN12 (1-wire)
E3X-CN21 (4-wire)	E3X-CN22 (2-wire)

When Using 5 Sets

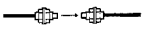
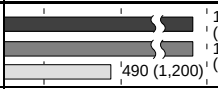
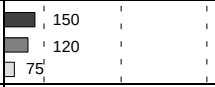
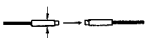
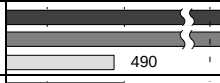
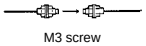
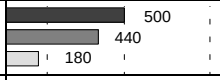
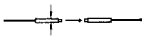
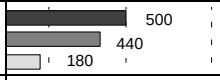
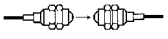
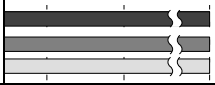
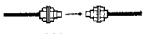
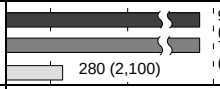
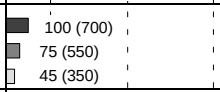
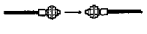
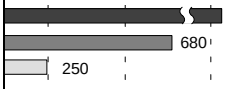
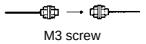
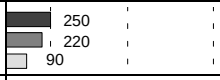
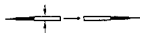
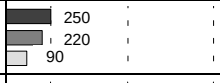
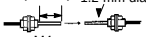
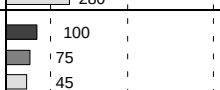
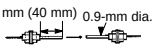
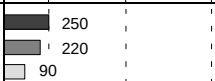
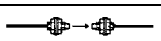
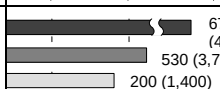
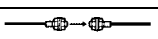
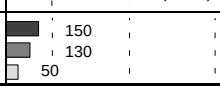
Amplifier Units (5 Units)	+	Master Connector (1), Slave Connector (4)

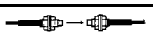
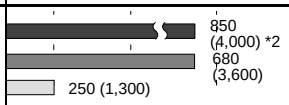
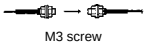
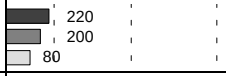
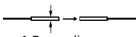
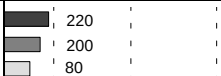
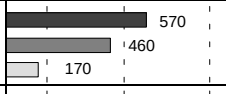
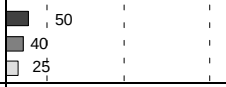
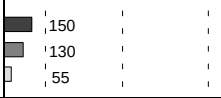
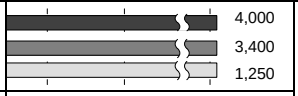
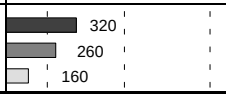
■ Fiber Units

Through-beam

✂ Indicates models that allow free cutting. Models without this mark do not allow free cutting.

: Super-long-distance mode : Standard mode : Super-high-speed mode

Application	Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) (Values in parentheses: when using the E39-F1 Lens Unit)	Standard object *3 (min. sensing object: opaque)	Model	Permissible bending radius
Long distance	M4	 M4 screw	E3X-DA□-N	 1,660 (4,000) 1,330 (3,200) 490 (1,200)	1.4-mm dia. (0.02-mm dia.)	E32-T11L ✂	25 mm
			E3X-DAB11-N	 150 120 75			
	3-mm dia.	 3-mm dia.	E3X-DA□-N	 1,660 1,330 490	1.4-mm dia. (0.01-mm dia.)	E32-T12L ✂	
	M3	 M3 screw	E3X-DA□-N	 500 440 180	0.9-mm dia. (0.01-mm dia.)	E32-T21L ✂	
	2-mm dia.; small diameter	 2-mm dia.	E3X-DA□-N	 500 440 180		E32-T22L ✂	
	M14; with lens; ideal for explosion-proof applications	 M14 screw	E3X-DA□-N	 20,000 *1 20,000 *1 9,800	10-mm dia. (0.01-mm dia.)	E32-T17L ✂	
General-purpose	M4	 M4 screw	E3X-DA□-N	 950 (4,000) *2 760 (4,000) *2 280 (2,100)	1.0-mm dia. (0.01-mm dia.)	E32-TC200 ✂	25 mm
			E3X-DAB11-N	 100 (700) 75 (550) 45 (350)			
	M3; possible to mount the reflective side-view conversion attachment E39-F5	 M3 screw	E3X-DA□-N	 850 680 250		E32-TC200A ✂	
	M3; for detecting minute sensing objects	 M3 screw	E3X-DA□-N	 250 220 90	0.5-mm dia. (0.01-mm dia.)	E32-TC200E ✂	
			E3X-DAB11-N	 25 20 10			
Thin fiber	2-mm dia.; for detecting minute sensing objects	 2-mm dia.	E3X-DA□-N	 250 220 90	0.5-mm dia. (0.01-mm dia.)	E32-T22 ✂	25 mm
	1.2-mm dia.; with sleeve	90 mm (40 mm) 1.2-mm dia.  M4 screw ( ): E32-TC200B4	E3X-DA□-N	 950 760 280	1.0-mm dia. (0.01-mm dia.)	E32-TC200B E32-TC200B4 ✂	
			E3X-DAB11-N	 100 75 45			
	0.9-mm dia.; with sleeve	90 mm (40 mm) 0.9-mm dia.  M3 screw ( ): E32-TC200F4	E3X-DA□-N	 250 220 90	0.5-mm dia. (0.01-mm dia.)	E32-TC200F E32-TC200F4 ✂	
Flexible (resists breaking) (R1)	Possible to bend like electric wires (R1);	 M4 screw	E3X-DA□-N	 670 (4,000)*2 530 (3,700) 200 (1,400)	1-mm dia. (0.01-mm dia.)	E32-T11R ✂	1 mm
		 M3 screw	E3X-DA□-N	 150 130 50	0.5-mm dia. (0.01-mm dia.)	E32-T21R ✂	

Application	Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) (Values in parentheses: when using the E39-F1 Lens Unit)	Standard object *3 (min. sensing object: opaque)	Model	Permissible bending radius
Flexible (resists breaking) (R4);	**Ideal for mounting on moving sections (R4)**	 M4 screw	E3X-DA□-N	 850 (4,000) *2 680 (3,600) 250 (1,300)	1.0-mm dia. (0.01-mm dia.)	**E32-T11**	4 mm
		 M3 screw	E3X-DA□-N	 220 200 80	0.5-mm dia. (0.01-mm dia.)	**E32-T21**	
		 1.5-mm dia.	E3X-DA□-N	 220 200 80		**E32-T22B**	
Side-view	**Long distance; space-saving**	3-mm dia. 	E3X-DA□-N	 570 460 170	1.0-mm dia. (0.01-mm dia.)	**E32-T14L**	25 mm
			E3X-DAB11-N	 50 40 25			
	Suitable for detecting minute sensing objects	1-mm dia. 	E3X-DA□-N	 150 130 55	0.5-mm dia. (0.01-mm dia.)	**E32-T24**	
	Screw-mounting type		E3X-DA□-N	 4,000 3,400 1,250	4.0-mm dia. (0.01-mm dia.)	**E32-T14**	
			E3X-DAB11-N	 320 260 160			

Note: 1. The size of standard sensing object is the same as the fiber core diameter (lens diameter for models with lens).

2. The values of the minimum sensing object for the through-beam models indicate those obtained where the models are set to receive light when the digital incident level exceeds 1,000 (set to digital incident level display).

*1 The E32-T17L allows a longer sensing distance because its optical fiber length is 10 m.

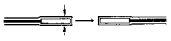
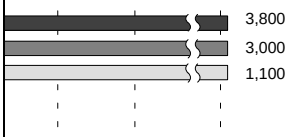
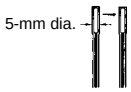
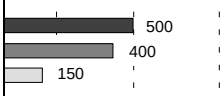
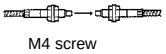
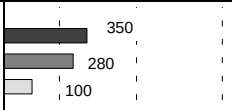
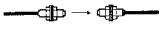
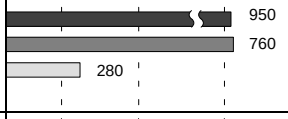
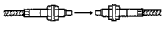
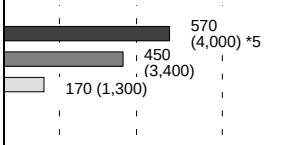
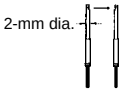
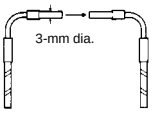
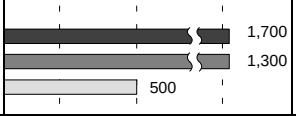
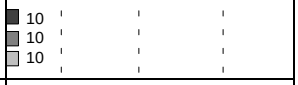
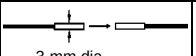
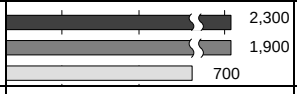
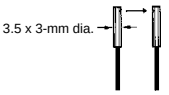
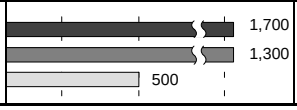
*2 These models allow a longer sensing distance because their optical fiber length is 2 m.

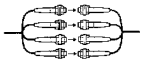
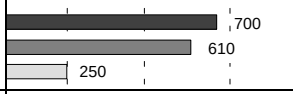
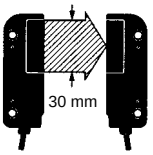
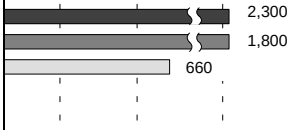
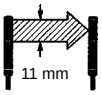
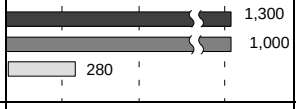
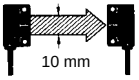
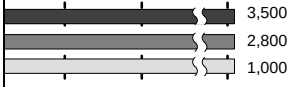
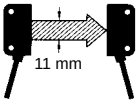
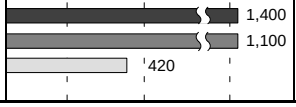
*3 Indicates values for standard mode.

Through-beam/Slot Sensors

Indicates models that allow free cutting. Models without this mark do not allow free cutting.

: Super-long-distance mode : Standard mode : Super-high-speed mode

Application	Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) (Values in parentheses: when using the E39-F1 Lens Unit)	Standard object (min. sensing object *4: opaque)	Model	Permissible bending radius
Chemical-resistant	**Teflon-covered *1; withstands chemicals and harsh environments (operating ambient temperature: –30°C to 70°C)**	 5-mm dia.	E3X-DA□-N	 3,800 3,000 1,100	4.0-mm dia. (0.01-mm dia.)	**E32-T12F**	40 mm
	Teflon covered *1; side-view; withstands chemicals and harsh environments (operating ambient temperature: –30°C to 70°C)	 5-mm dia.	E3X-DA□-N	 500 400 150	3.0-mm dia. (0.01-mm dia.)	**E32-T14F**	
Heat-resistant	**Resists 200°C; flexible (R10); fiber sheath material: Teflon *1 (operating ambient temperature: –40°C to 200°C)**	 M4 screw	E3X-DA□-N	 350 280 100	1.0-mm dia. (0.01-mm dia.)	**E32-T61R**	10 mm
	Resists 150°C *2; fiber sheath material: fluororesin (operating ambient temperature: –40°C to 150°C)	 M4 screw	E3X-DA□-N	 950 760 280	1.5-mm dia. (0.01-mm dia.)	**E32-T51**	35 mm
	Resists 300°C *3, with spiral tube; high mechanical strength; fiber sheath material: stainless steel (operating ambient temperature: –40°C to 300°C)	 M4 screw	E3X-DA□-N	 570 (4,000) *5 450 (3,400) 170 (1,300)	1.0-mm dia. (0.01-mm dia.)	**E32-T61**	25 mm
	Side-view; resists 150°C *2; suitable for detecting minute sensing objects; fiber sheath material: fluororesin (operating ambient temperature: –40°C to 150°C)	 2-mm dia.	E3X-DA□-N	 290 230 80	1.0-mm dia. (0.01-mm dia.)	**E32-T54**	35 mm
	Resists 200°C *3; L-shaped; fiber sheath material: stainless steel	 3-mm dia.	E3X-DA□-N	 1,700 1,300 500	1.7-mm dia. (0.01-mm dia.)	**E32-T84S**	25 mm
Slot	**Suitable for film sheet detection; no optical axis adjustment required; easy to mount**		E3X-DA□-N	 10 10 10	4.0-mm dia. (0.16-mm dia.)	**E32-G14**	25 mm
			E3X-DAB11-N	 10 10 10			
Narrow vision field	**Suitable for detecting wafers;**	 3-mm dia.	E3X-DA□-N	 2,300 1,900 700	1.7-mm dia. (0.01-mm dia.)	**E32-T22S**	10 mm
	Side-view; suitable for detecting wafers	 3.5 x 3-mm dia.	E3X-DA□-N	 1,700 1,300 500	2-mm dia. (0.01-mm dia.)	**E32-T24S**	

Application	Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) (Values in parentheses: when using the E39-F1 Lens Unit)	Standard object (min. sensing object *4: opaque)	Model	Permissible bending radius
Area sensing	**Multi-point detection (4-head)**	 M3 screw	E3X-DA□-N	 700 610 250	2.0-mm dia. (0.01-mm dia.)	**E32-M21**	25 mm
	Detects in a 30-mm area	 30 mm	E3X-DA□-N	 2,300 1,800 660	(0.3-mm dia.) *2	**E32-T16W**	10 mm
	Side-view; suitable for applications with limited spatial depth	 11 mm	E3X-DA□-N	 1,300 1,000 280	(0.2-mm dia.)	**E32-T16J**	
Area sensing	**Suitable for detecting over a 10-mm area; long distance**	 10 mm	E3X-DA□-N	 3,500 2,800 1,000	(0.6-mm dia.)	**E32-T16**	25 mm
	Stable for detecting minute sensing objects in a wide area; degree of protection: IEC60529 IP50	 11 mm	E3X-DA□-N	 1,400 1,100 420	(0.2-mm dia.) *2	**E32-T16P**	10 mm

Note: 1. The size of standard sensing object is the same as the fiber core diameter (lens diameter for models with lens).

2. The values of the minimum sensing object for the through-beam models indicate those obtained where the models are set to receive light when the digital incident level exceeds 1,000 (set to digital incident level display).

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

*2 For continuous operation, use the products within the temperature ranging from –40°C to 130°C.

*3 Indicates the heat-resistant temperature at the fiber tip.

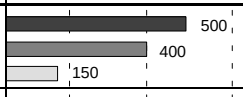
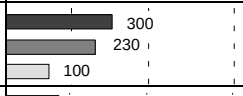
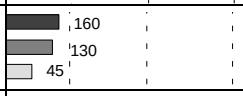
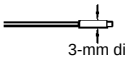
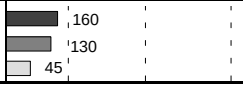
*4 Indicates values for standard mode.

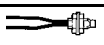
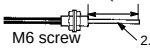
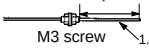
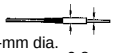
*5 These models allow a longer sensing distance because their optical fiber length is 2 m.

Reflective Sensors

✂ Indicates models that allow free cutting. Models without this mark do not allow free cutting.

: Super-long-distance mode : Standard mode : Super-high-speed mode

Application	Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) *1	Standard object (min. sensing object *2: Gold wire)	Model	Permissible bending radius
Long distance	**M6**	 M6 screw	E3X-DA□-N	 500 400 150	500×500 (0.01-mm dia.)	**E32-D11L**	25 mm
			E3X-DAB11-N	 44 35 22	(0.1-mm dia.)		
	3-mm dia.; small diameter	 3-mm dia.	E3X-DA□-N	 300 230 100	300×300 (0.01-mm dia.)	**E32-D12**	
	M4	 M4 screw	E3X-DA□-N	 160 130 45	200×200 (0.01-mm dia.)	**E32-D21L**	
	3-mm dia.; small diameter	 3-mm dia.	E3X-DA□-N	 160 130 45		**E32-D22L**	

Application	Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) *1	Standard object (min. sensing object *2: Gold wire)	Model	Permissible bending radius
General-purpose	**M6**	 M6 screw	E3X-DA□-N	400 300 100	400×400 (0.01-mm dia.)	**E32-DC200**	25 mm
			E3X-DAB11-N	32 25 16	(0.1-mm dia.)		
	M3; small diameter	M3 screw	E3X-DA□-N	100 80 30	100×100 (0.01-mm dia.)	**E32-DC200E**	
			E3X-DAB11-N	8 6 4	(0.2-mm dia.)		
Thin fiber	**2.5-mm dia.; with sleeve**	90 mm (40 mm)  M6 screw 2.5-mm dia. ( ): E32-DC200B4	E3X-DA□-N	400 300 100	400×400 (0.01-mm dia.)	**E32-DC200B E32-DC200B4**	25 mm
			E3X-DAB11-N	32 25 16	(0.1-mm dia.)		
	1.2-mm dia.; with sleeve	90 mm (40 mm)  M3 screw 1.2-mm dia. ( ): E32-DC200F4	E3X-DA□-N	100 80 30	100×100 (0.01-mm dia.)	**E32-DC200F E32-DC200F4**	
	Minute object detection (0.8-mm dia.)	 3-mm dia. 0.8-mm dia.	E3X-DA□-N	21 16 6	25×25 (0.01-mm dia.)	**E32-D33**	
	Minute object detection (0.5-mm dia.)	0.5-mm dia. 2-mm dia.	E3X-DA□-N	4 3 1		**E32-D331**	
Flexible (R1)	**Possible to bend like electric wires (R1);**	 M6 screw	E3X-DA□-N	220 170 80	300×300 (0.01-mm dia.)	**E32-D11R**	1 mm
		M3 screw	E3X-DA□-N	40 30 10	50×50 (0.01-mm dia.)	**E32-D21R**	
Flexible (resists breaking) (R4)	**Ideal for mounting on moving sections (R4)**	 M6 screw	E3X-DA□-N	220 170 80	300×300 (0.01-mm dia.)	**E32-D11**	4 mm
		M3 screw	E3X-DA□-N	40 30 10	50×50 (0.01-mm dia.)	**E32-D21**	
		M4 screw	E3X-DA□-N	90 70 25	100×100 (0.01-mm dia.)	**E32-D21B**	
		 1.5-mm dia.	E3X-DA□-N	40 30 10	50×50 (0.01-mm dia.)	**E32-D22B**	

Note: 1. The values of the minimum sensing object indicate those obtained at a distance where the smallest object can be sensed with the Reflective Fiber Unit.

2. When set to the maximum sensitivity setting for the internal reflective light, incident light may continue to be received. In such case, use under two-point teaching or without-object teaching.

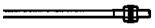
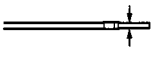
*1 Sensing distance indicates values for white paper.

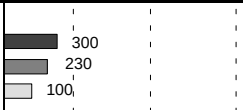
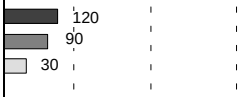
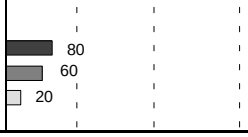
*2 Indicates values for standard mode.

Reflective Sensors, Continued

✂ Indicates models that allow free cutting. Models without this mark do not allow free cutting.

: Super-long-distance mode : Standard mode : Super-high-speed mode

Application	Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) *1	Standard object (min. sensing object *5: Gold wire)	Model	Permissible bending radius
Coaxial	**M6 coaxial; high-precision positioning accuracy**	 M6 screw	E3X-DA□-N	400 300 100	500×500 (0.01-mm dia.)	**E32-CC200** ✂	25 mm
			E3X-DAB11-N	32 25 16	(0.1-mm dia.)		
	3-mm dia. coaxial; high-precision positioning accuracy	 3-mm dia.	E3X-DA□-N	200 150 50	300×300 (0.01-mm dia.)	**E32-D32L** ✂	
	M3 coaxial; high-precision positioning accuracy; possible to mount small-spot lens (E39-F3A-5/F3B/F3C)	M3 screw	E3X-DA□-N	100 75 25	25×25 (0.01-mm dia.)	**E32-C31** ✂	
	M3 coaxial; high-precision positioning accuracy; possible to mount small-spot lens (E39-F3A-5/F3B/F3C)	 M3 screw	E3X-DA□-N	45 35 10	50×50 (0.01-mm dia.)	**E32-C41**	
	2-mm dia. coaxial; high-precision positioning accuracy; possible to mount small-spot (0.1 to 0.6 dia) lens (E39-F3A)	 2-mm dia.	E3X-DA□-N	45 35 10	50×50 (0.01-mm dia.)	**E32-C42**	
	2-mm dia. coaxial; high-precision positioning accuracy; possible to mount small-spot (0.5 to 1 dia) lens (E39-F3A)	 2-mm dia.	E3X-DA□-N	100 75 25	100×100 (0.01-mm dia.)	**E32-D32** ✂	
Side-view	**6-mm dia.; long distance**	6-mm dia. 	E3X-DA□-N	150 110 50	200×200 (0.01-mm dia.)	**E32-D14L** ✂	25 mm
	2-mm dia.; small diameter space-saving	 2-mm dia.	E3X-DA□-N	40 30 10	50×50 (0.01-mm dia.)	**E32-D24** ✂	
Chemical-resistant	**Teflon-covered *3; withstands chemicals and harsh environments (operating ambient temperature: –30°C to 70°C)**	 6-mm dia.	E3X-DA□-N	120 95 45	200×200 (0.01-mm dia.)	**E32-D12F** ✂	40 mm

Application	Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) *1	Standard object (min. sensing object *5: Gold wire)	Model	Permissible bending radius
Heat-resistant	**Resists 150°C *2; fiber sheath material: fluororesin (operating ambient temperature: –40°C to 150°C)**	 M6 screw	E3X-DA□-N		200×200 (0.01-mm dia.)	**E32-D51**	35 mm
	Resists 300°C *4; fiber sheath material: stainless steel (operating ambient temperature: –40°C to 300°C)	 M6 screw	E3X-DA□-N			**E32-D61**	25 mm
	Resists 400°C *4; fiber sheath material: stainless steel (operating ambient temperature: –40°C to 400°C)	 M4 screw 1.25-mm dia.	E3X-DA□-N		100×100 (0.01-mm dia.)	**E32-D73**	

Note: 1. The values of the minimum sensing object indicate those obtained at a distance where the smallest object can be sensed with the Reflective Fiber Unit.

2. When set to the maximum sensitivity setting for the internal reflective light, incident light may continue to be received. In such case, use under two-point teaching or without-object teaching.

*1 Sensing distance indicates values for white paper.

*2 For continuous operation, use the products within the temperature ranging from –40°C to 130°C.

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

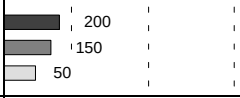
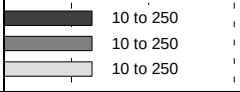
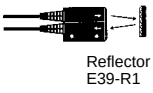
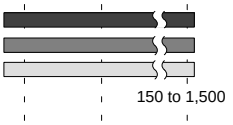
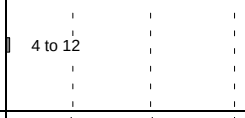
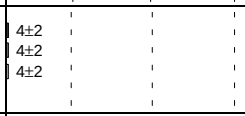
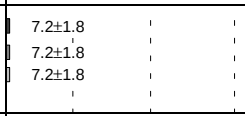
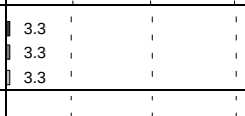
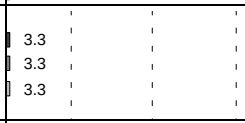
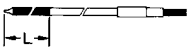
*4 Indicates the heat-resistant temperature at the fiber tip.

*5 Indicates values for standard mode.

Reflective Sensors, Continued

Indicates models that allow free cutting. Models without this mark do not allow free cutting.

: Super-long-distance mode : Standard mode : Super-high-speed mode

Application	Features	Appearance	Applicable Amplifier Unit	Sensing distance (mm) *1	Standard object (min. sensing object *2: Gold wire)	Model	Permissible bending radius
Area sensing	**Side-view; detection over wide areas**		E3X-DA□-N		300×300 (0.01-mm dia.)	**E32-D36P1**	25 mm
Retroreflective	**Transparent object detection**		E3X-DA□-N		35-mm dia. (0.1-mm dia.)	**E32-R21 +E39-R3 (Attachment)**	25 mm
	Transparent object detection (operating ambient temperature: –25°C to 55°C); degree of protection: IEC60529 IP66		E3X-DA□-N		35-mm dia. (0.2-mm dia.)	**E32-R16 +E39-R1 (Attachment)**	
Limited reflective	**Suitable for positioning crystal glass**		E3X-DA□-N		100×100 Soda glass with reflection factor of 7%	**E32-L56E1 E32-L56E2**	35 mm
	Detects wafers and small differences in height; (operating ambient temperature: –40°C to 105°C); degree of protection: IEC60529 IP50		E3X-DA□-N		25×25 (0.01-mm dia.)	**E32-L24L**	10 mm
			E3X-DA□-N			**E32-L25L**	
Limited reflective	**Detects wafers and small differences in height; degree of protection: IEC60529 IP50**		E3X-DA□-N			**E32-L25**	25 mm
			E3X-DA□-N			**E32-L25A**	
Fluid-level detection	**Fluid contact type: unbendable section L 150 mm, 350 mm (two types)**		E3X-DA□-N	---	Pure water at 25°C	**E32-D82F1 E32-D82F2**	40 mm
	Tube-mounting type		E3X-DA□-N	---	Fluid	**E32-L25T**	10 mm

Note: 1. The values of the minimum sensing object indicate those obtained at a distance where the smallest object can be sensed with the Reflective Fiber Unit.

2. When set to the maximum sensitivity setting for the internal reflective light, incident light may continue to be received. In such case, use under two-point teaching or without-object teaching.

*1 Sensing distance indicates values for white paper.

*2 Indicates values for standard mode.

Specifications

■ Ratings/Characteristics

Amplifier Unit

Item		Standard models		Monitor-output models		Mark-detecting models	M8 connector models
Output type	NPN output	E3X-DA11-N	E3X-DA6	E3X-DA21-N	E3X-DA7	E3X-DAB11-N	E3X-DA14V
	PNP output	E3X-DA41-N	E3X-DA8	E3X-DA51-N	E3X-DA9	---	E3X-DA44V
Light source (wavelength)		Red LED (660 nm)				Blue LED (470 nm)	Red LED (660 nm)
Power supply voltage		12 to 24 VDC ± 10%, ripple (p-p) 10% max.					
Power consumption		Normally: 960 mW max. (current consumption: 40 mA max. at power supply voltage of 24 VDC) Eco Mode: 720 mW max. (current consumption: 30 mA max. at power supply voltage of 24 VDC) Digital display not lit: 600 mW max. (current consumption: 25 mA max. at power supply voltage of 24 VDC)					
Control output	ON/OFF output	NPN/PNP (depends on model) open collector; load current: 50 mA max.; residual voltage: 1 V max.; Light ON/Dark ON mode selector				NPN open collector; load current: 50 mA max.; residual voltage: 1 V max.; Light ON/Dark ON mode selector	NPN/PNP (depends on model) open collector; load current: 50 mA max.; residual voltage: 1 V max.; Light ON/Dark ON mode selector
	Monitor output	---		Load 1 to 5 VDC, 10 kΩ min.		---	---
Circuit protection		Reverse polarity, output short-circuit, mutual interference prevention					
Response time		Super-high-speed mode: 0.25 ms for operation and reset respectively Standard mode: 1 ms for operation and reset respectively Super-long-distance mode: 4 ms for operation and reset respectively					
Sensitivity setting		Teaching or manual method					
Functions	Timer function	OFF-delay timer range: 0 to 200 ms (set in 1 ms units); 20 to 200 ms (set in 5 ms units)					
	Automatic power control (APC)	Fiber-optic current digital control				---	Fiber-optic current digital control
	Zero-reset	Display can be reset to zero when required (negative values can be displayed).					
	Initial reset	Settings can be returned to defaults as required.					
	Monitor focus	---		Upper and lower limits can be set as required for every 100 digital values.		---	---
Display		Operation indicator (orange), 7-segment digital incident level display (red), 7-segment digital incident level percentage display (red), threshold and excess gain 2-color indication bar (green and red), 7-segment digital threshold display (red)					
Display timing		Switching between normal/peak-hold/bottom-hold possible					
Display orientation		Switching between normal/reverse possible					
Optical axis adjustment		Optical axis adjustment possible (hyper-flashing function)					
Ambient illumination		Illumination intensity at light-intercepting surface: Incandescent lamp: 10,000 ℓx max.; Sunlight: 20,000 ℓx max.					
Ambient temperature		Operating: Groups of 1 to 3 Amplifiers: –25°C to 55°C Groups of 4 to11 Amplifiers: –25°C to 50°C Groups of 12 to16 Amplifiers: –25°C to 45°C (with no icing or condensation) Storage: –30°C to 70°C (with no icing or condensation)					
Ambient humidity		Operating and storage: 35% to 85% (with no condensation)					
Insulation resistance		20 MΩ min. (at 500 VDC)					
Dielectric strength		1,000 VAC at 50/60 Hz for 1 minute					
Vibration resistance		10 to 55 Hz with a 1.5-mm double amplitude for 2 hrs each in X, Y and Z directions					
Shock resistance		500 m/s^2, for 3 times each in X, Y and Z directions					
Degree of protection		IP50					IP66
Connection method		Pre-wired (standard cable length: 2 m)	Connector	Pre-wired (standard cable length: 2 m)	Connector	Pre-wired (standard cable length: 2 m)	M8 connector
Weight (packed state)		Approx. 100 g	Approx. 55 g	Approx. 100 g	Approx. 55 g	Approx. 100 g	Approx. 100 g
Material	Case	PBT					
	Cover	Polycarbonate					
Accessories		Instruction sheet					

Connectors

Item		E3X-CN11/21/22	E3X-CN12
Rated current		2.5 A	
Rated voltage		50 V	
Contact resistance		20 mΩ max. (20 mVDC max., 100 mA max.) (See note 1.)	
No. of insertions		50 times (See note 2.)	
Material	**Housing**	PBT	
	Contacts	Phosphor bronze/gold-plated nickel	
Weight (packed state)		Approx. 55 g	Approx. 25 g

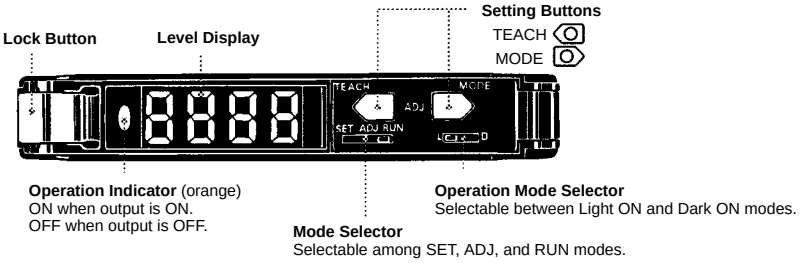
Note: 1. The value for contact resistance is for the contact resistance between the Connector and the Amplifier Unit, and the Connector and other neighboring Connectors. It does include the conductor resistance of the cable.

2. The value for the number of insertions is for insertions into the Amplifier Unit and connecting to neighboring Connectors.

Mobile Console

Item	E3X-MC11
Power supply voltage	Charged with AC adapter
Connection method	Connected via adapter
Weight (packed state)	Approx. 580 g (Console only: 120 g)

Nomenclature



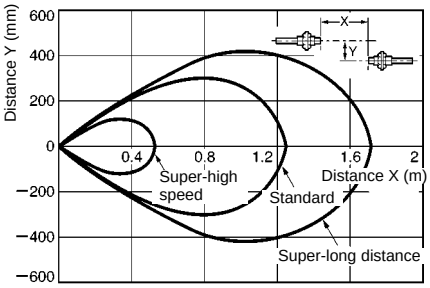
Engineering Data

■ E3X-DA□-N

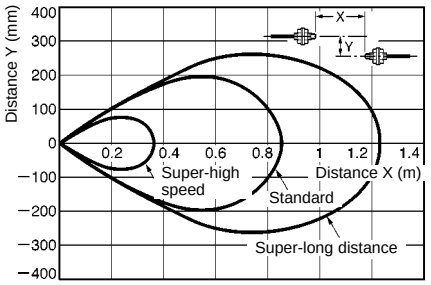
Parallel Operating Range (Typical)

At max. sensitivity. (Use for optical axis adjustment at installation.)

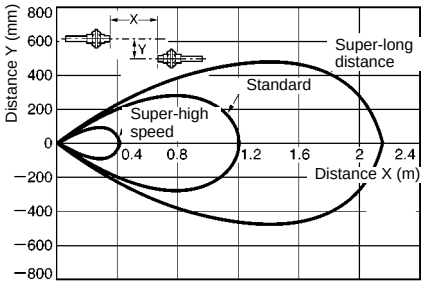
E32-TC200 (Through-beam)



E32-T11R (Through-beam)



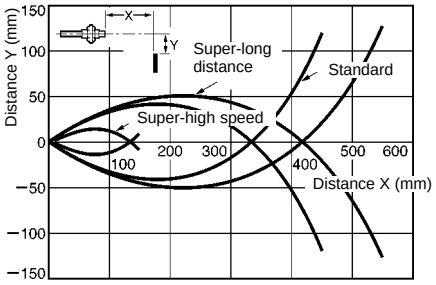
E32-T11 (Through-beam)



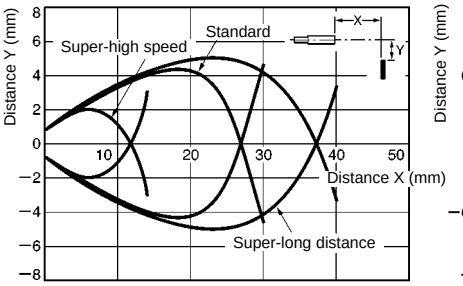
Operating Range (Typical)

With standard sensing object at max. sensitivity. (Use for the positioning of the object and Sensor.)

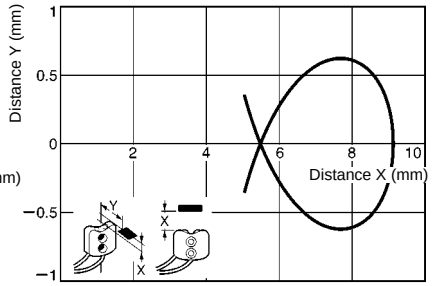
E32-DC200 (Reflective)



E32-D33 (Reflective)



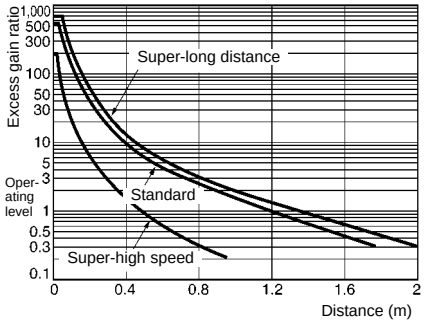
E32-L25L (Convergent Reflective)



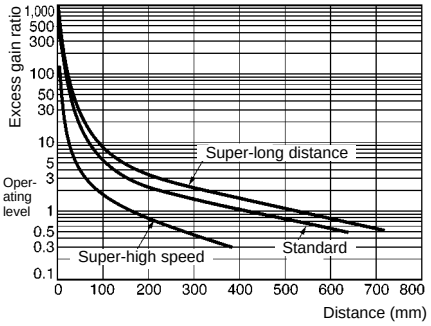
Excess Gain Ratio vs. Distance (Typical)

With standard sensing object. At max. sensitivity.

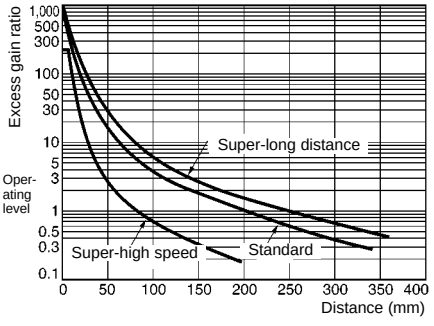
E32-TC200 (Through-beam)



E32-DC200 (Reflective)

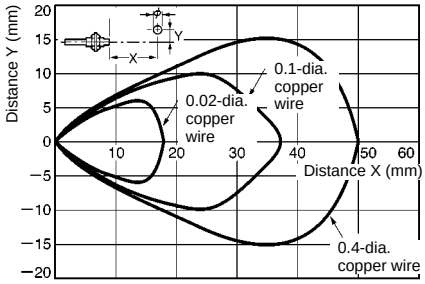


E32-D21L (Reflective)

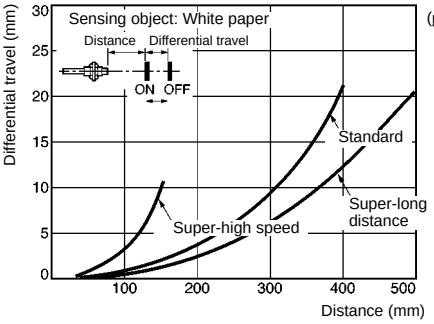


■ E3X-DA□-N

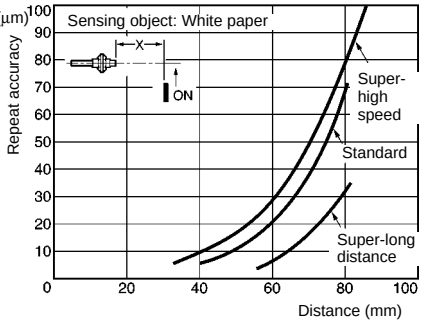
Sensing Distance vs. Operating Range
E32-DC200 (Reflective)



Differential Travel vs. Sensing Distance
E32-D11L (Reflective)

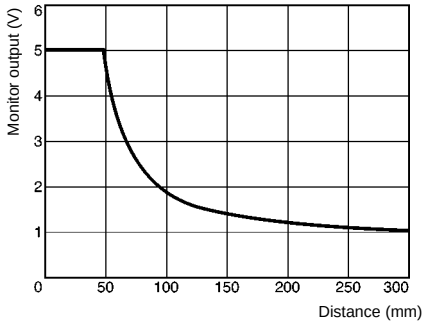


Repeat Accuracy vs. Sensing Distance
E32-DC200 (Reflective)

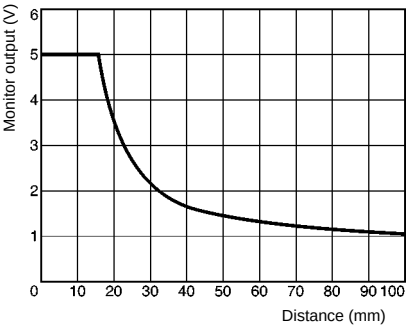


Monitor Output vs. Distance (Standard Mode)

E32-TC200 (Through-beam)



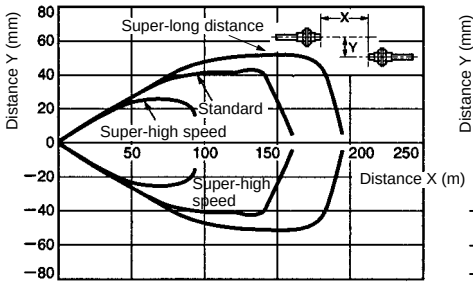
E32-DC200 (Through-beam)



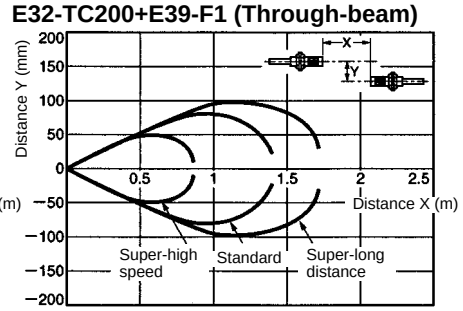
■ E3X-DAB11-N

Parallel Operating Range (Typical)
At max. sensitivity. (Use for optical axis adjustment at installation.)

E32-TC200 (Through-beam)

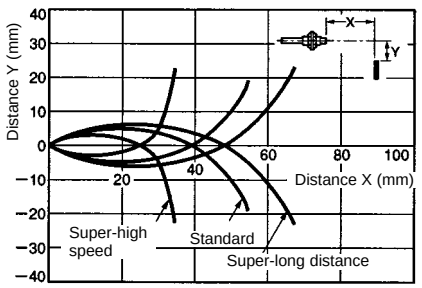


E32-TC200+E39-F1 (Through-beam)

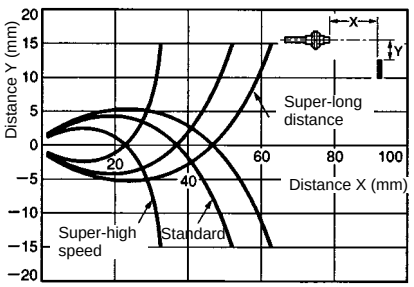


Operating Range (Typical)
With standard sensing object at max. sensitivity. (Use for the positioning of the object and Sensor.)

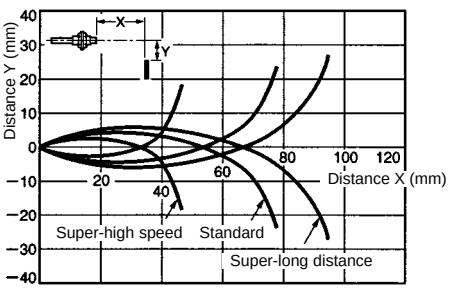
E32-DC200 (Reflective)



E32-CC200 (Reflective)

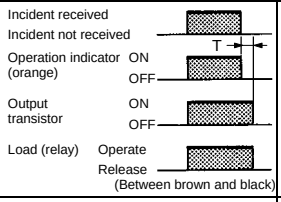
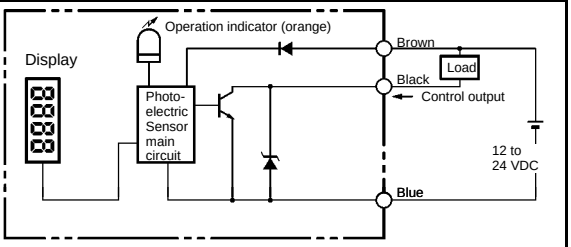
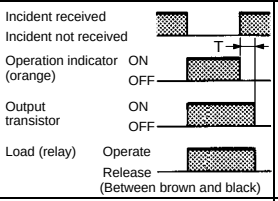
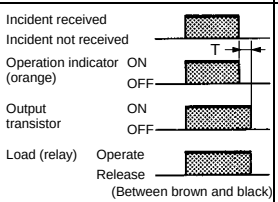
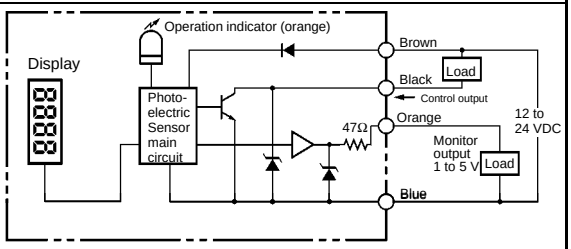
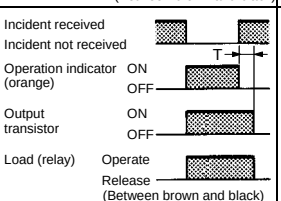
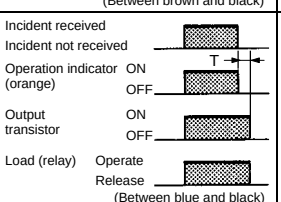
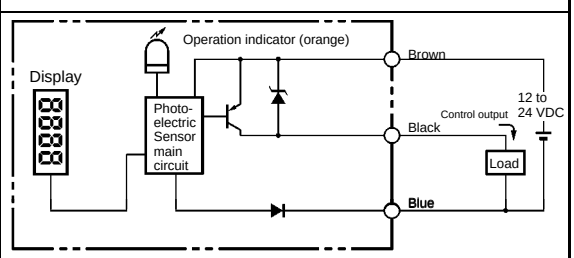
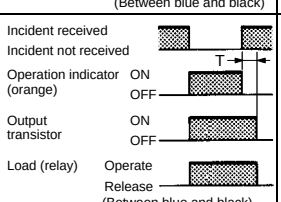
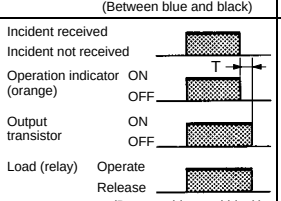
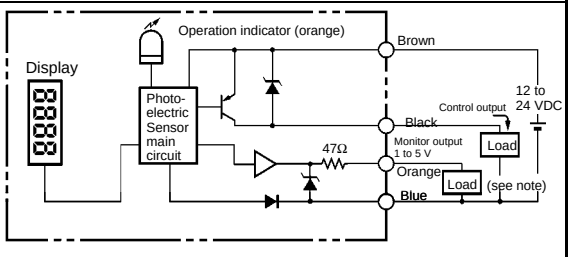
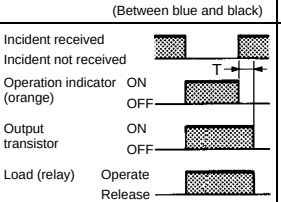


E32-D11L (Convergent Reflective)



Operation

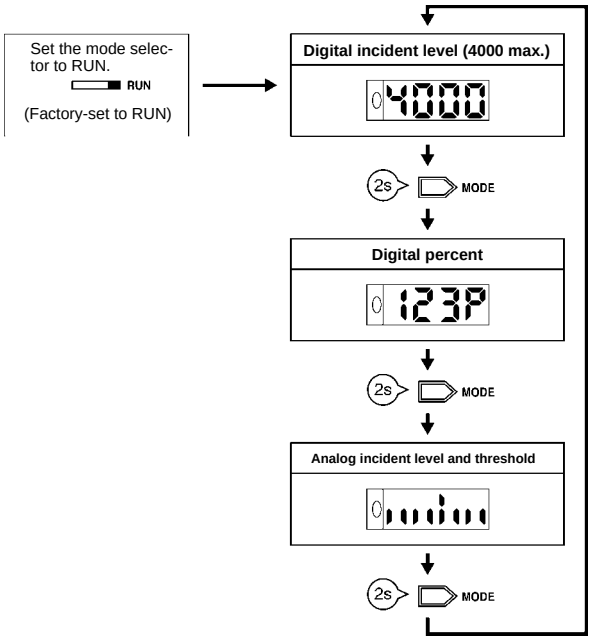
■ Output Circuits

Output	Model	Mode selector	Timing chart	State of output transistor	Output circuit
NPN	E3X-DA11-N E3X-DAB11-N E3X-DA6 E3X-DA14V	LIGHT ON (L/ON)		Light ON	
		DARK ON (D/ON)		Dark ON	
	E3X-DA21-N E3X-DA7	LIGHT ON (L/ON)		Light ON	
		DARK ON (D/ON)		Dark ON	**Note:** Load resistance: 10 kΩ min.
PNP	E3X-DA41-N E3X-DA8 E3X-DA44V	LIGHT ON (L/ON)		Light ON	
		DARK ON (D/ON)		Dark ON	
	E3X-DA51-N E3X-DA9	LIGHT ON (L/ON)		Light ON	
		DARK ON (D/ON)		Dark ON	**Note:** Load resistance: 10 kΩ min.

Operation

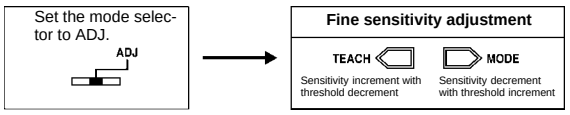
Easy-to-use

Changing the Display (RUN Mode)



Manual Tuning (Fine Sensitivity Adjustment) in ADJ Mode

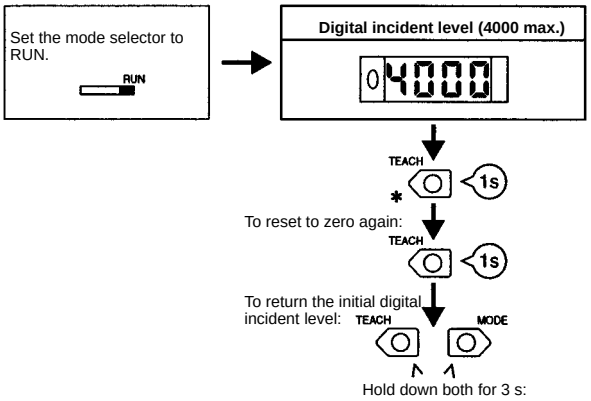
Perform fine sensitivity adjustment after teaching and manual tuning (without using the teaching function) in the way shown below:



The items displayed in ADJ mode vary with the display setting in RUN mode.

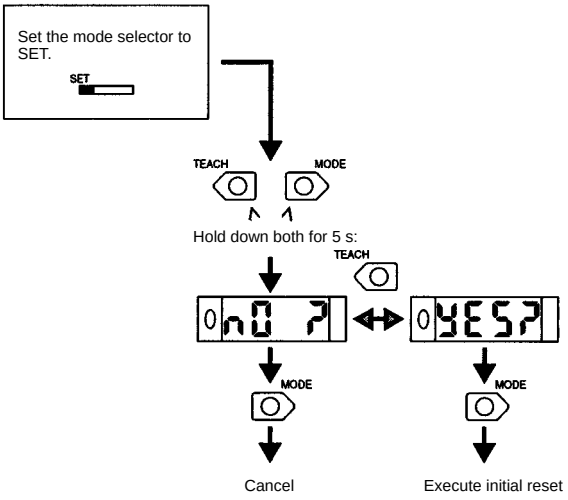
RUN mode		ADJ mode
Digital incident level	→	Digital threshold
Digital percent	→	Digital percent
Analog value	→	Analog value

Zero-reset (RUN Mode)



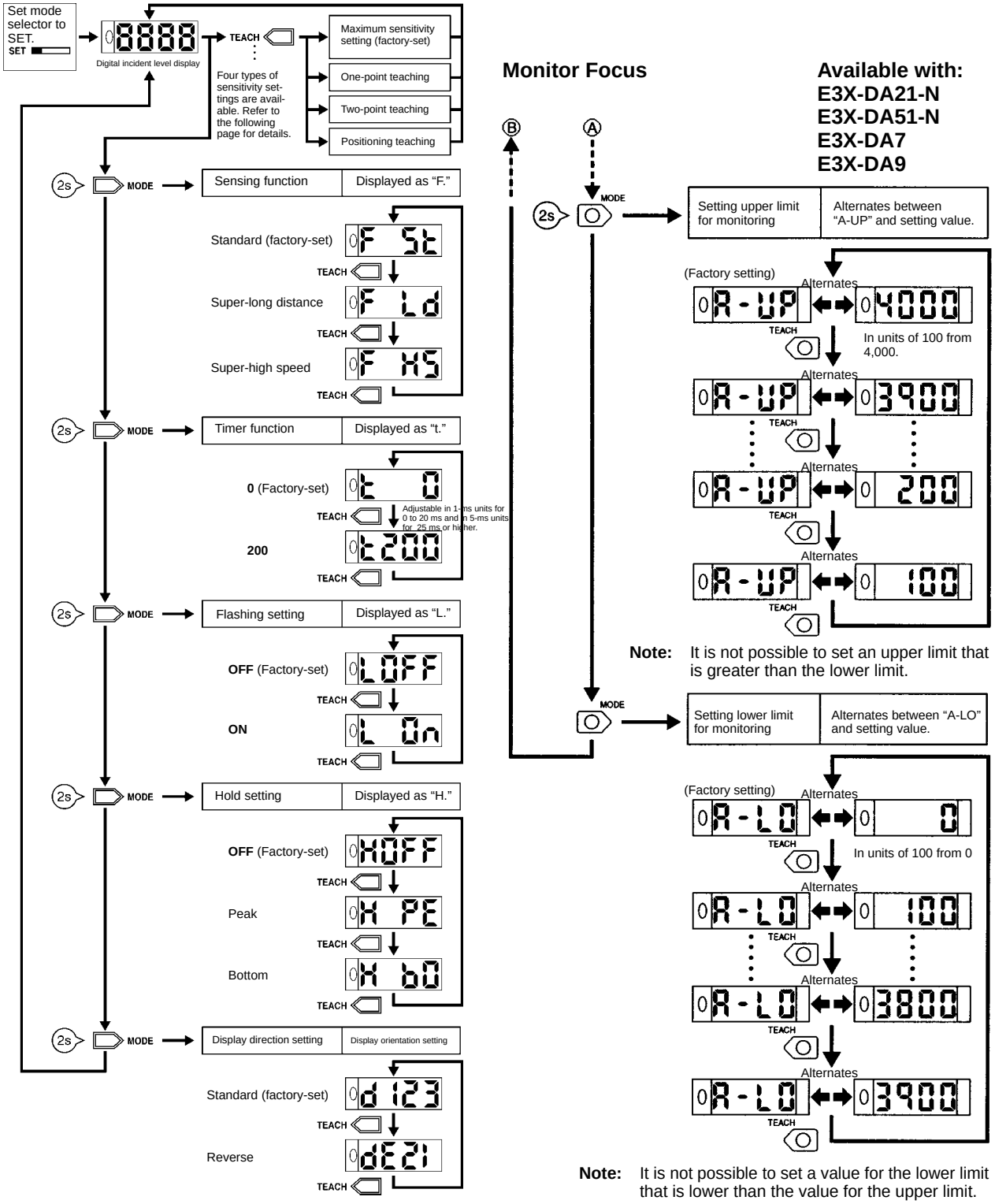
Note: There is no limit on the number of times zero-reset can be used.

Initial Reset (SET Mode)



Easy-to-use

Setting Functions in SET Mode



Monitor Focus

Available with:
E3X-DA21-N
E3X-DA51-N
E3X-DA7
E3X-DA9

Note: It is not possible to set a value for the lower limit that is lower than the value for the upper limit.

■ Teaching (SET Mode)

The four types of teaching given below are available.

Once the setting is made, the Amplifier Unit operates according to the settings. The red level display will flash if a teaching error occurs. In that case, repeat the whole teaching procedure.

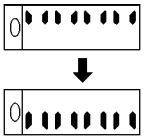
Set the mode selector to SET to start teaching.

Maximum Sensitivity Setting

1. Set the mode selector to SET.

2. Press the TEACH button for 3 seconds min.

3. Teaching is complete when the level display changes from red to green.
   The level display will display the digital incident level later.

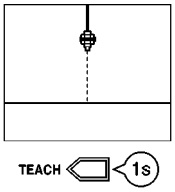


4. Set to RUN mode.

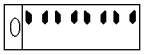
One-point Without-object Teaching

1. Set the mode selector to SET.

2. Press the TEACH button for approximately 1 second.

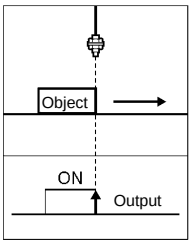


3. Teaching is complete when the red level display is lit.
   The level display will display the digital incident level later.



4. Set to RUN mode.

5. The threshold is automatically set with the object.



Note: If one-point teaching is not available because the difference in level is too fine, try two-point teaching.

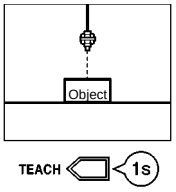
Operation Mode Selector

Operation mode		Operation
Light ON	L ON	L (Factory-set)
Dark ON	D ON	D

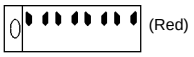
Two-point With/Without-object Teaching

1. Set the mode selector to SET.

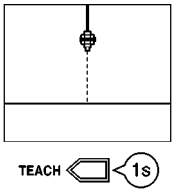
2. Press the TEACH button for approximately 1 second when the object is at the sensing position.



3. The red level display is lit.



4. Press the TEACH button for approximately 1 second with no object.



5. Teaching is complete when the green level display is lit.
   The level display will display the digital incident level later.

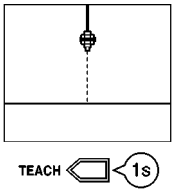
6. Set to RUN mode.

Note: The order of “with-object” and “without-object” setting procedures above can be reversed.

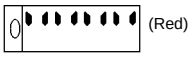
Pin-point Teaching (for Positioning)

1. Set the mode selector to SET.

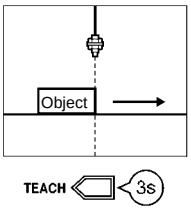
2. Press the TEACH button for approximately 1 second with no object.



3. The red level display is lit.



4. Place the object in the desired position, and press the TEACH button for 3 seconds min.



5. Teaching is complete when the green level display is lit. The level display will display the digital incident level later. (The red level display will flash if a teaching error occurs.)

6. Set to RUN mode.

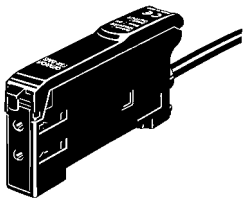
Dimensions

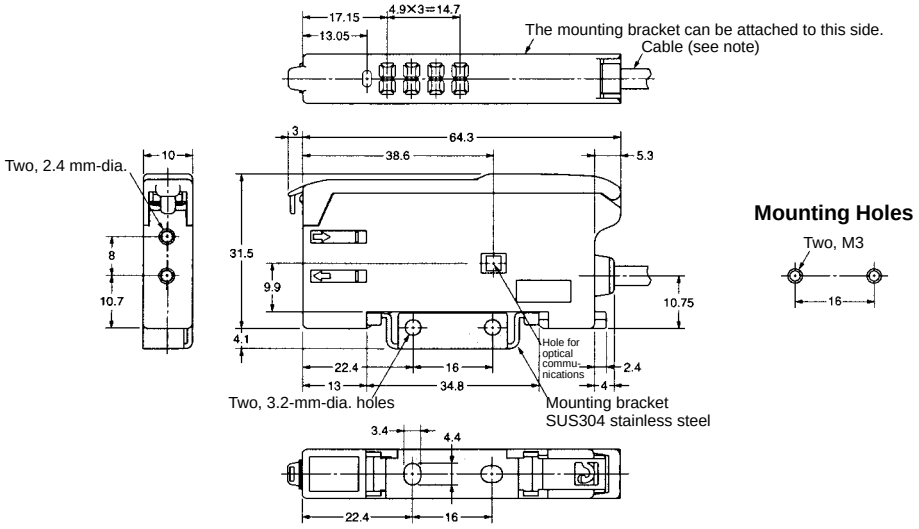
Note: All units are in millimeters unless otherwise indicated.

■ Amplifier Units

Amplifier Units with Cables (with Mounting Bracket Attached)

E3X-DA11-N
E3X-DA21-N
E3X-DAB11-N
E3X-DA41-N
E3X-DA51-N

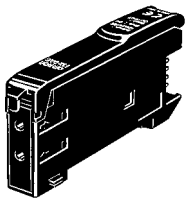


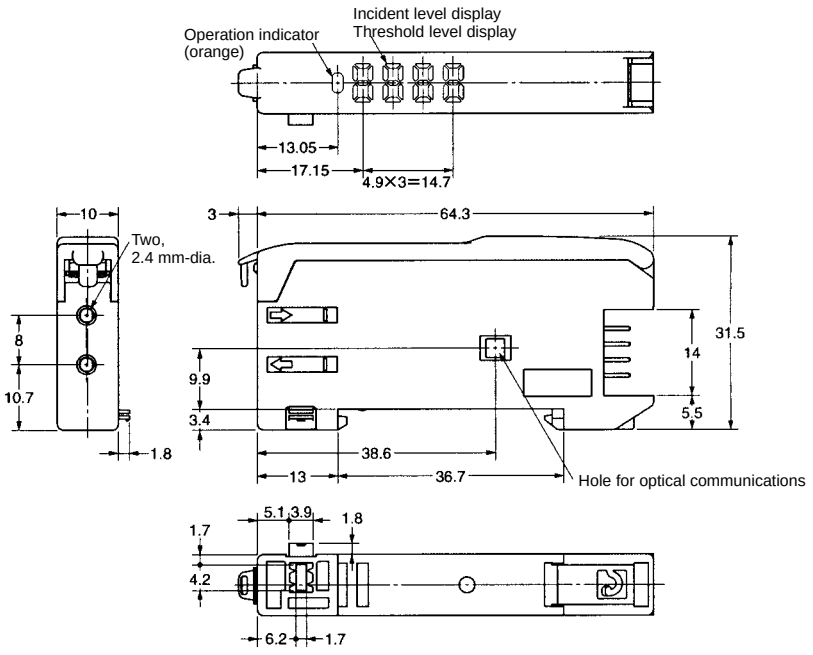


Note: With the E3X-DA11-N/DA41-N/DAB11-N, 4-dia., 3-conductor, vinyl-insulated round cables of cross-sectional area 0.45 mm^2 and insulation diameter 1.1 dia. are used.
With E3X-DA21-N/DA51-N, 4-dia., 4-conductor, vinyl-insulated round cables of cross-sectional area 0.2 mm^2 and insulation diameter 1.1 dia. are used.

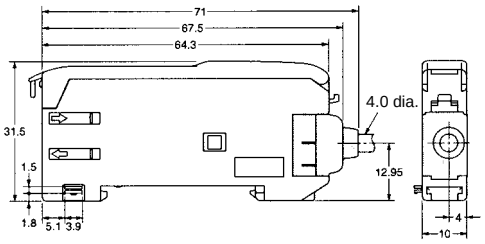
Amplifier Units with Connectors

E3X-DA6
E3X-DA7
E3X-DA8
E3X-DA9

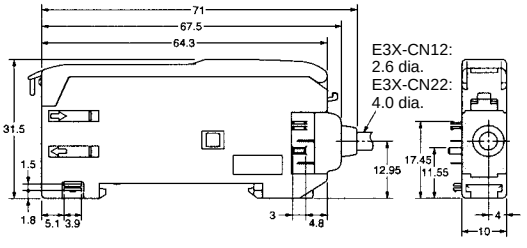




Dimensions with Parent Connector Connected

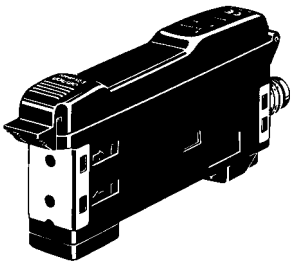


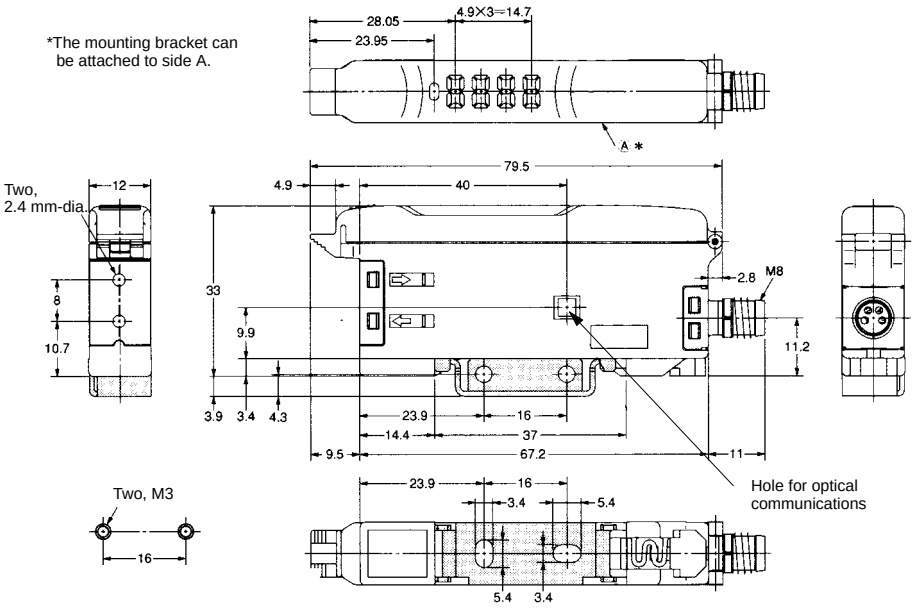
Dimensions with Child Connector Connected



Amplifier Units with M8 Connectors

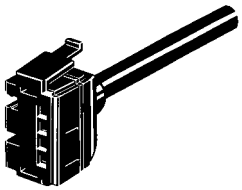
E3X-DA14V
E3X-DA44V

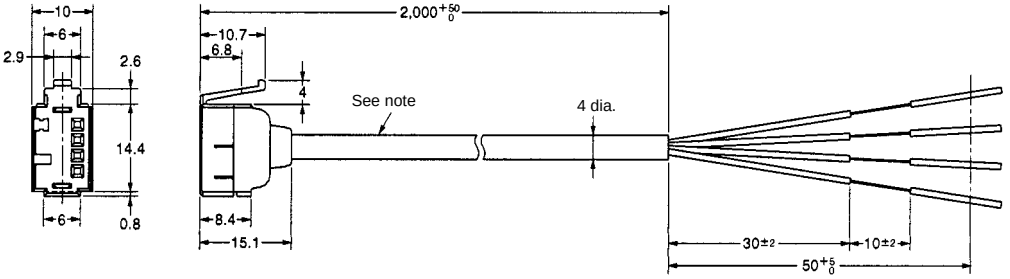




Connectors

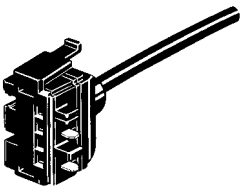
Parent Connectors
E3X-CN11
E3X-CN21

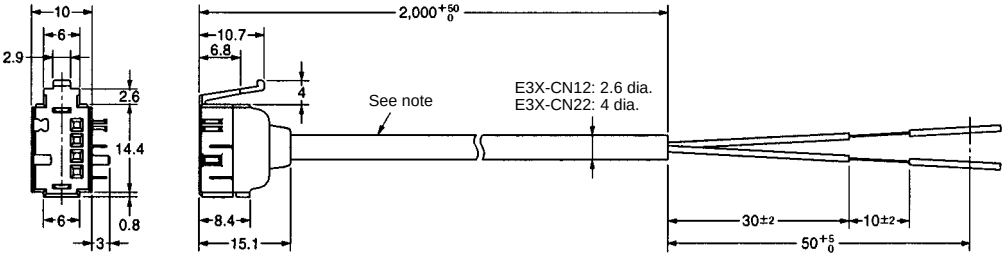




Note: E3X-CN11: 4-dia., 3-conductor, vinyl-insulated round cable of cross-sectional area 0.2 mm^2 and insulation diameter 1.1 dia.
E3X-CN21: 4-dia., 4-conductor, vinyl-insulated round cable of cross-sectional area 0.2 mm^2 and insulation diameter 1.1 dia.

Child Connectors
E3X-CN12
E3X-CN22



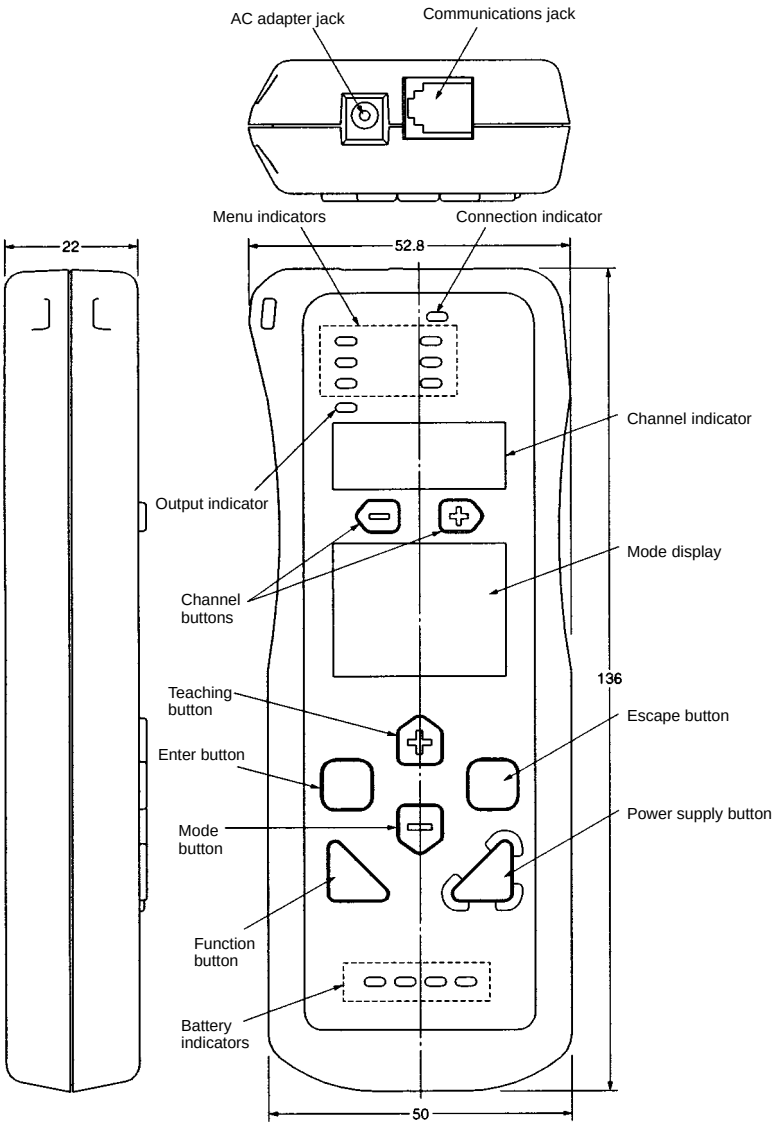


Note: E3X-CN12: 2.6-dia., single-conductor, vinyl-insulated round cable of cross-sectional area 0.2 mm^2 and insulation diameter 1.1 dia.
E3X-CN22: 4-dia., 2-conductor, vinyl-insulated round cable of cross-sectional area 0.2 mm^2 and insulation diameter 1.1 dia.

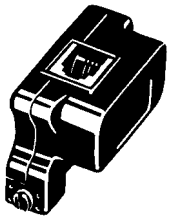
■ Mobile Console

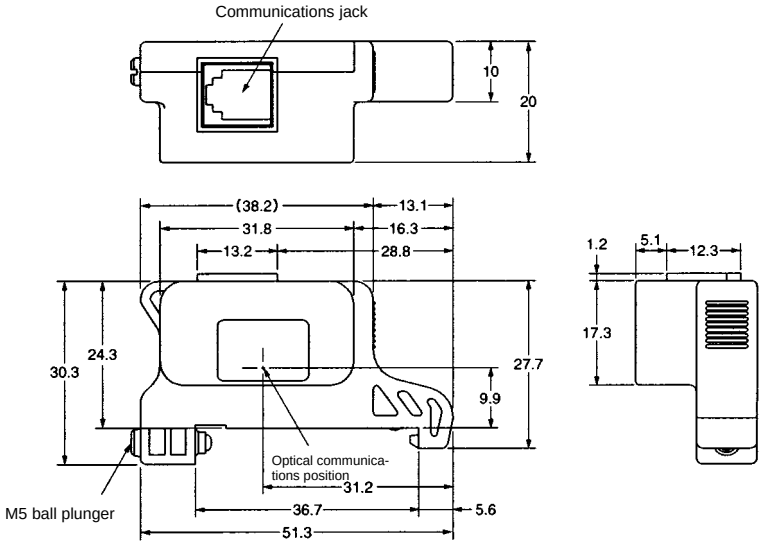
E3X-MC11

Mobile Console



Mobile Console Head

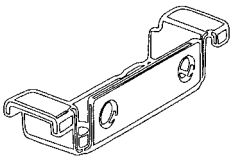


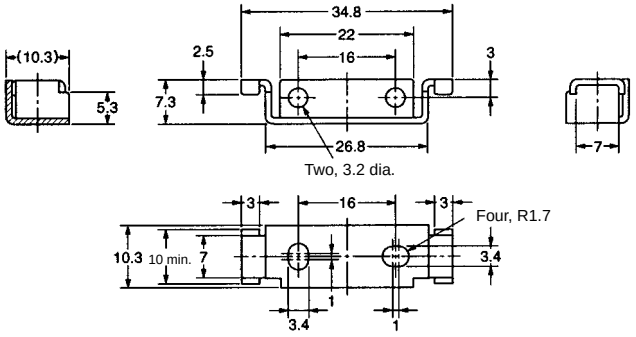


■ Accessories (Order Separately)

Mounting Bracket

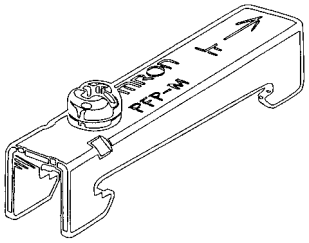
E39-L143

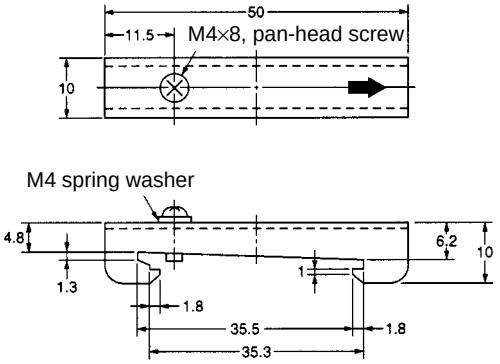




End Plate

PFP-M

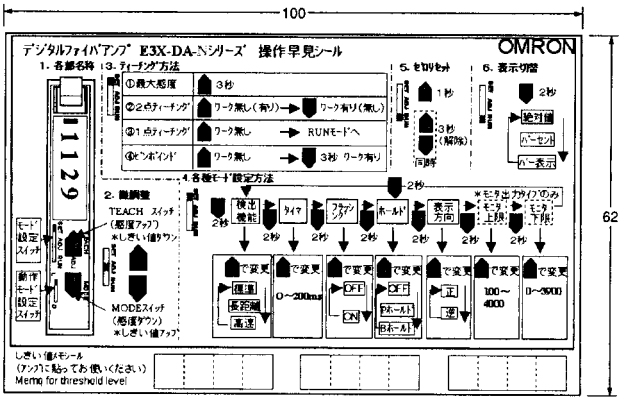




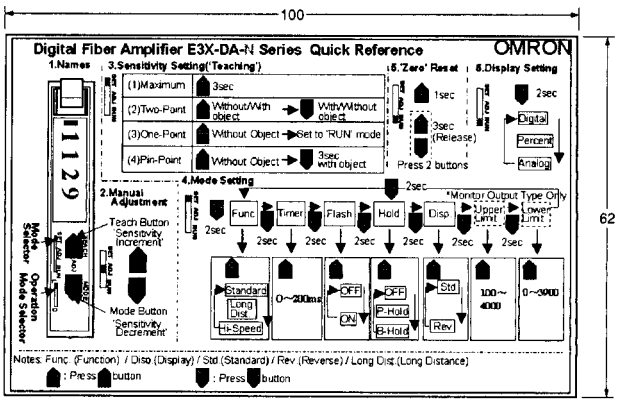
Operating Instructions Sticker
E39-Y1 (1 English and 1 Japanese sticker per set)

Material
Front side: Paper
Reverse side: Adhesive tape

Japanese Sticker



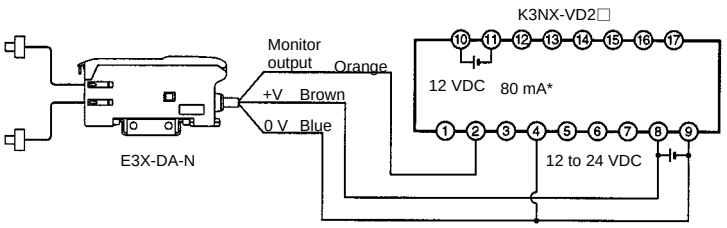
English Sticker



Installation

■ Connection

Connection with K3NX-VD2□ Process Meter



* Use this service power supply for the Sensor with reference to the power consumption of each Sensor.

Note:

1. Various I/O Units are available for the K3NX. Select an appropriate output type depending on the application.
2. For details about the K3NX, refer to the *K3NX Datasheet (N084)* or the *K3NX Operation Manual (N090)*.
3. This wiring is for the K3NX with DC power supply specifications and the Monitor (Analog) Sensor with DC power supply specifications. Check respective power supply specifications before wiring them.

Precautions

Read the following before using the Amplifier Unit and Sensor to ensure safety.

Wiring

General

Do not impose any voltage exceeding the rated voltage on the E3X-DA. Do not impose 100 VAC or more on models that operate with DC. In both cases, the E3X-DA may be damaged.

Do not short-circuit the load connected to the E3X-DA, otherwise the E3X-DA may be damaged.

When supplying power to the E3X-DA, make sure that the polarity of the power is correct, otherwise the E3X-DA may be damaged.

The load must be connected to the E3X-DA in operation, otherwise the E3X-DA may be damaged.

Operating Environment

- Do not use the Amplifier Unit or Sensor in places with flammable or explosive gas.
- Do not use the Amplifier Unit or Sensor underwater.
- Do not disassemble, repair, or modify the Amplifier Unit or Sensor.

■ Amplifier Unit

Installation

Turning Power ON

The Sensor is ready to operate within 100 ms after Sensor is turned ON. If the Sensor and load are connected to power supplies separately, be sure to turn ON the Sensor first.

Power Supply Type

A full or half-wave rectifying power supply without a smoothing circuit cannot be used.

Wiring

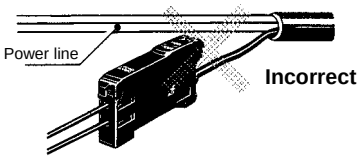
Cable

The cable can be extended, provided that the extension wire applied is at least 0.3 mm^2 thick and the total distance no more than 100 m.

Do not pull the cable with a force exceeding 50N.

Separation from Power or High-tension Lines

Do not wire power lines or high-tension lines alongside the lines of the Amplifier Unit in the same conduit, otherwise the Amplifier Unit may be damaged or malfunction due to induction. Be sure to wire the lines of the Amplifier Unit separated from power lines or high-tension lines or laid in an exclusive, shielded conduit.



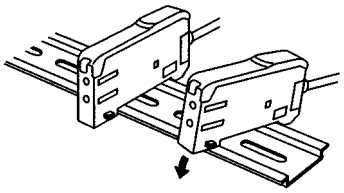
Power Supply

If a standard switching regulator is used as a power supply, the frame ground (FG) terminal and the ground (G) terminal must be grounded, or otherwise the Sensor can malfunction due to influence by the switching noise of the power supply.

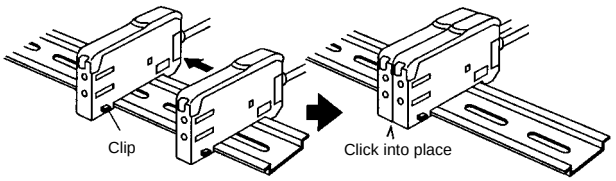
Mounting

Joining Amplifier Units

1. Mount the Amplifier Units one at at time onto the DIN track.



2. Slide the Amplifier Units together, line up the clips, and press the Amplifier Units together until they click into place.



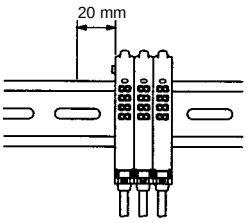
Separating Amplifier Units

Slide Amplifier Units away from each other, and remove from the DIN track one at a time. (Do not attempt to remove Amplifier Units from the DIN track without separating them first.)

Note:
1. The specifications for ambient temperature will vary according to the number of Amplifier Units used together. For details, refer to *Ratings/Characteristics*.
2. Always turn OFF the power supply before joining or separating Amplifier Units.

Mounting the Mobile Console Head

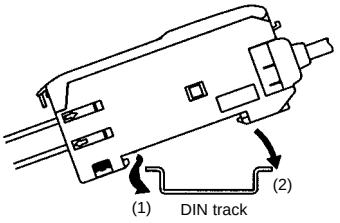
Leave a gap of at least 20 mm between the nearest Amplifier Unit and the Mobile Console head.



Mounting

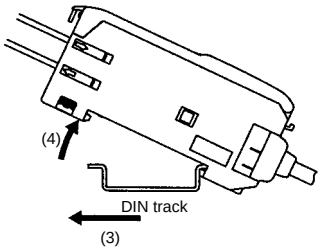
1. Mount the front part on the mounting bracket (attachment) or a DIN track.
2. Press the back part onto the mounting bracket or the DIN track.

Note: Do not mount the back part onto the mounting bracket or the DIN track first and then mount the front part on the mounting bracket or the DIN track, otherwise the mounting strength of the Amplifier Unit may be reduced.

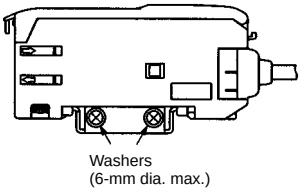


Dismounting

By pressing the Amplifier Unit in direction (3) and lifting the fiber insertion part in direction (4) as shown in the following, the Amplifier Unit can be dismounted with ease.



In the case of side mounting, attach the mounting bracket on the Amplifier Unit first, and secure the Amplifier Unit with M3 screws and washers. The diameter of the washers should be no more than 6 mm.



Adjustment

Mutual Interference Protection Function

There may be some instability in the digital display values due to light from other sensors. If this occurs, increase the sensitivity (i.e., decrease the threshold) to perform stable detection.

EEPROM Writing Error

If the data is not written to the EEPROM correctly due to a power failure during teaching or static-electric noise, repeat the whole teaching procedure.

Optical Communications

Several Amplifier Units can be slid together and used in groups. Do not, however, slide the Amplifier Units or attempt to remove any of the Amplifier Units during operation.

Hysteresis Adjustment

The hysteresis setting can be adjusted using the Mobile Console. Do not, however, set the hysteresis to a value lower than the factory setting. Using a setting less than the factory setting may result in incorrect operation.

Others

Typical Values

Minimum sensing object and characteristic data values are typical values checked on actual products selected at random. None of these values represent a guaranteed rating or performance value.

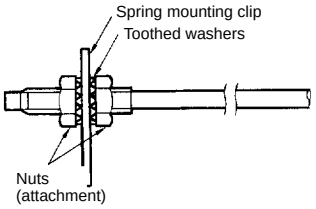
■ Fiber Unit

Mounting

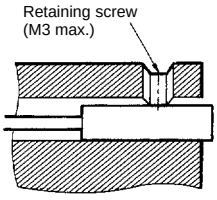
Tightening Force

The tightening force applied to the Fiber Unit should be as follows:

Screw-mounting Model

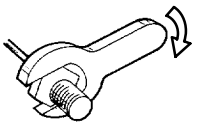


Cylindrical Model



Fiber Units	Clamping torque
M3/M4 screw	0.78 N m max.
M6 screw/ 6-mm dia. column	0.98 N m max.
1.5-mm dia. column	0.2 N m max.
2-mm dia./3-mm dia. column	0.29 N m max.
E32-T12F 5-mm dia. Teflon model	0.78 N m max.
E32-D12F 6-mm dia. Teflon model	
E32-T16	0.49 N m max.
E32-R21	0.59 N m max.
E32-M21	Up to 5 mm to the tip: 0.49 N m max. More than 5 mm from the tip: 0.78 N m max.
E32-L25A	0.78 N m max.
E32-T16P E32-T24S E32-L24L E32-L25L	0.29 N m max.

Use a proper-sized wrench.

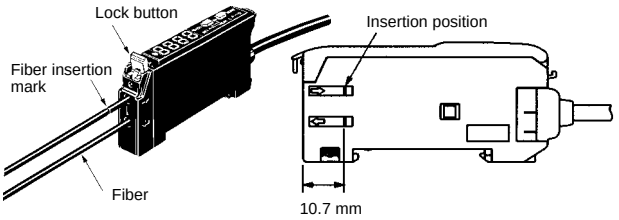


Fiber Connection and Disconnection

The E3X Amplifier Unit has a lock button. Connect or disconnect the fibers to or from the E3X Amplifier Unit using the following procedures:

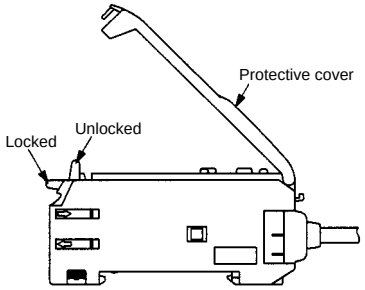
1. Connection

Remove the protective cover, insert the fiber into the Amplifier Unit, and lower the lock button until a click is heard.



2. Disconnection

Remove the protective cover and raise the lock button to pull out the fiber.



Note: Remove the protective cover and raise the lock lever to pull out the fiber. (Before removing the fiber, be sure to confirm that the lock is released so as to maintain the fiber properties.)

3. Precautions for Fiber Connection/Disconnection

Be sure to lock or unlock the lock button within an ambient temperature range between –10°C and 40°C.

Fiber Insertion

Be sure to insert the Fiber Unit into the Amplifier Unit to the position of the insertion mark on the fiber as shown below. The sensing distance may decrease if the fiber is not inserted sufficiently.

Cutting Fiber

Insert a fiber into the Fiber Cutter and determine the length of the fiber to be cut.

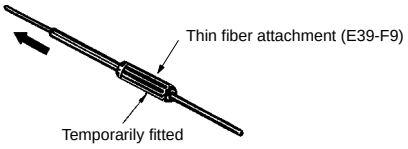
Press down the Fiber Cutter in a single stroke to cut the fiber.

An insertion mark can be placed on the fiber to serve as a reference when inserting the fiber into the Amplifier. Use the following procedure.

The cutting holes cannot be used twice. If the same hole is used twice, the cutting face of the fiber will be rough and the sensing distance will be reduced. Always use an unused hole.

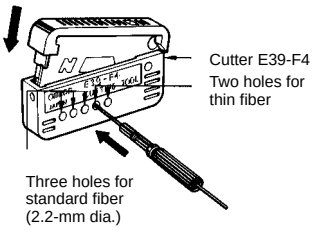
Use either one of the two holes on the right (refer to the following figure) to cut a thin fiber as follows:

1. An attachment is temporarily fitted to a thin fiber before shipment.



2. Secure the attachment after adjusting the position of it in the direction indicated by the arrow.

3. Insert the fiber to be cut into the E39-F4.



4. Finished state (proper cutting state)

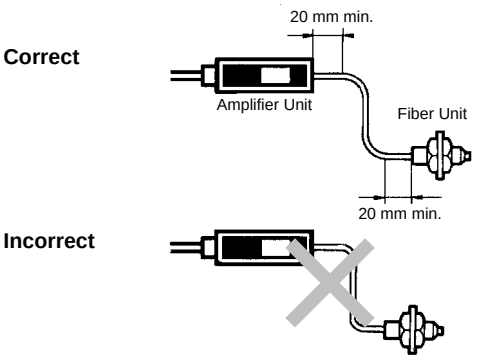
Note: Insert the fiber in the direction indicated by the arrow.

Connection

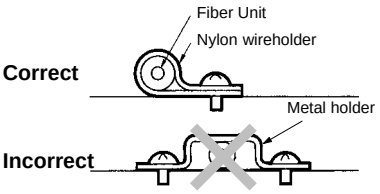
Do not pull or press the Fiber Units. The Fiber Units have a withstand force of 9.8 N or 29.4 N (pay utmost attention because the fibers are thin).

Do not bend the Fiber Unit beyond the permissible bending radius.

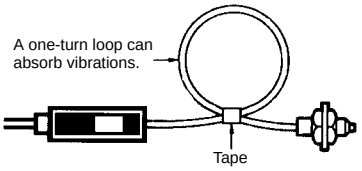
Do not bend the edge of the Fiber Units (excluding the E32-T□R and E32-D□R).



Do not apply excess force on the Fiber Units.



The Fiber Head could be break by excessive vibration. To prevent this, the following is effective:

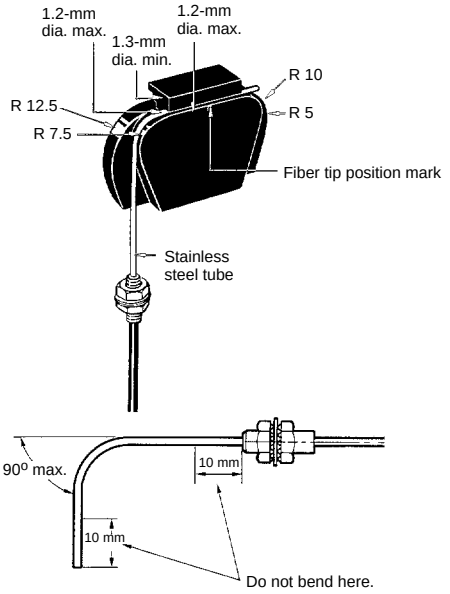


Bending Radius

E39-F11 Sleeve Bender

The bending radius of the stainless steel tube should be as large as possible. The smaller the bending radius becomes, the shorter the sensing distance will be.

Insert the tip of the stainless steel tube to the Sleeve Bender and bend the stainless steel tube slowly along the curve of the Sleeve Bender (refer to the figure).

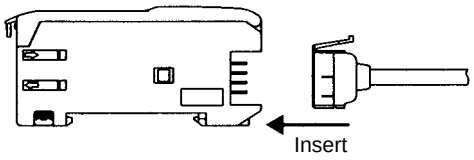


■ Connectors

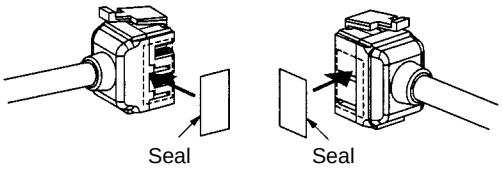
Mounting

Mounting Connectors

1. Insert the Parent or Child Connector into the Amplifier Unit until it clicks into place.



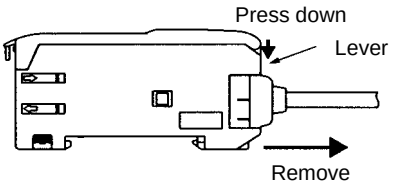
2. Join Amplifier Units together as required after all the Parent and Child Connectors have been inserted.
3. Attach the stickers (provided as accessories) to the sides of Parent and Child Connectors that are not connected to other Connectors.



Note: Attach the stickers to the sides with grooves.

Removing Connectors

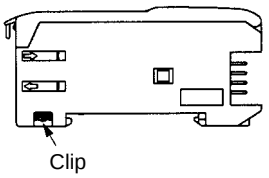
1. Separate the Amplifier Unit(s) for which the Connector is to be removed from the rest of the group by sliding the Amplifier Units as required.
2. After the desired Amplifier Unit(s) has been separated from the group, press down on the lever on the Connector and remove it. (Do not attempt to remove Connectors without separating them from other Amplifier Units first.)



Mounting End Plate

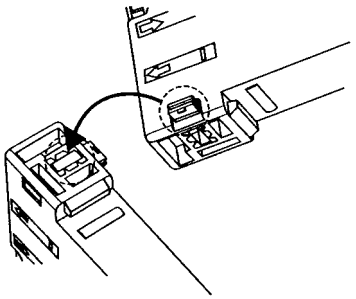
Depending on how it is mounted, an Amplifier Unit may move during operation. In this case, use an End Plate.

Before mounting an End Plate, remove the clip from the parent Amplifier Unit using a nipper or similar tool.

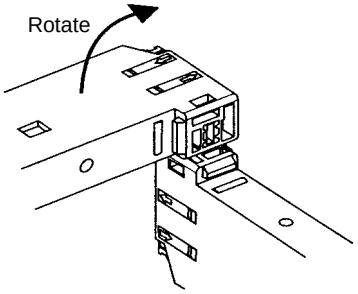


The clip can also be removed using the following mechanism, which is incorporated in the construction of the section underneath the clip.

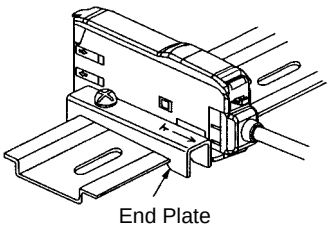
1. Insert the clip to be removed into the slit underneath the clip on another Amplifier Unit.



2. Remove the clip by rotating the Amplifier Unit.



When using the E3X-DA-N with the Mobile Console, mount the End Plate in the way shown below.



Pull Strengths for Connectors (Including Cables)

E3X-CN11, E3X-CN21, E3X-CN22: 30 N max.
E3X-CN12: 12 N max.

■ Reflector

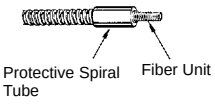
Use of E39-R3 Reflector

Use detergent, etc., to remove any dust or oil from the surfaces where tape is applied. Adhesive tape will not be attached properly if oil or dust remains on the surface.

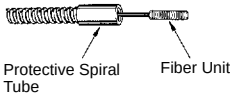
The E39-R3 cannot be used in places where it is exposed to oil or chemicals.

E39-F32□ Protective Spiral Tubes

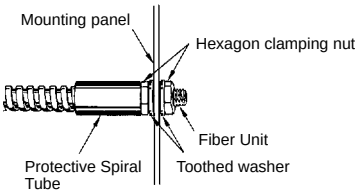
Insert a fiber to the Protective Spiral Tube from the head connector side (screwed) of the tube.



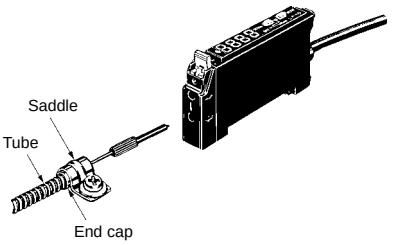
Push the fiber into the Protective Spiral Tube. The tube should be straight so that the fiber is not twisted when inserted. Then turn the end cap of the spiral tube.



Secure the Protective Spiral Tube on a suitable place with the attached nut.

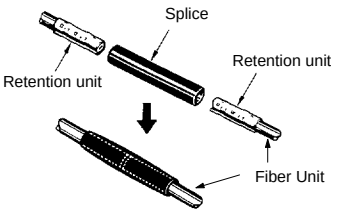


Use the attached saddle to secure the end cap of the Protective Spiral Tube. To secure the Protective Spiral Tube at a position other than the end cap, apply tape to the tube so that the portion becomes thicker in diameter.



E39-F10 Fiber Connector

Mount the Fiber Connector as shown in the following illustrations



Each Fiber Unit should be as close as possible before they are connected.

Sensing distance will be reduced by approximately 25% when fibers are connected.

Only 2.2-mm-dia. fibers can be connected.

The product has been produced at OMRON Ayabe which obtained ISO9001-approval for its quality system and ISO14001-approval for its environmental management system from international certification bodies.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. E313-E1-1 **In the interest of product improvement, specifications are subject to change without notice.**

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Industrial Automation Company

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