E3NC

CSM_E3NC_DS_E_2_1

Ideal for Applications That Cannot Be Handled with Fiber Sensors or Photoelectric Sensors

- A wide variety of easy-to-use Laser Photoelectric Sensor Heads.
 - Coaxial Retro-reflective Models (E3NC-LH03).
 - Long-distance, variable spot, Diffuse-reflective Models (E3NC-LH02)
 - Small-spot (0.1 mm dia.), Limited-reflective Models (E3NC-LH01).
 - CMOS Reflective Models (E3NC-SH series).
- Smart Tuning to achieve stable detection with easy setup.
- White on black display characters for high visibility.
- Robot cables for reliable operation in harsh environments.



Refer to the Safety Precautions on page 14.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Features

Retro-reflective Models: E3NC-LH03

- Maximum sensing distance of 8 m.
- Stable detection of many types of workpieces.
- Stable detection of highly transparent films.

8 m

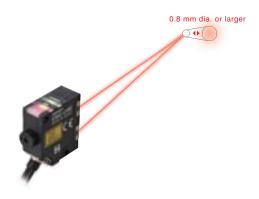
CMOS Laser, Reflective Models: E3NC-SH250H/SH250/SH100

- Stable detection even for different workpiece colors and materials.
- Stable detection for inclined Head installation and different workpiece shapes.



Diffuse-reflective Models: E3NC-LH02

- Long-distance detection at up to 1.2 m.
- Spot can be adjusted to the workpiece or application.



Amplifier Units

- Same shape as Fiber Amplifier Units plus easy operation.
- Smart Tuning with one button.



Ordering Information

Sensor Heads: E3NC-L Compact Laser Sensor Series (Dimensions → page 17)

Sensing method	Appearance	Beam shape	Sensir	ıg distan	се	Laser class	Cable length	Model				
Coaxial Retro- reflective with		Spot			1 8 m *		2 m	E3NC-LH03 2M				
MSR function		Эрог) <u></u>	0 111		5 m	E3NC-LH03 5M				
Diffuse-	夏	1		.,	1	Variable spot	Variable spot	Variable spot 1.2 m		Class 1	2 m	E3NC-LH02 2M
reflective		variable spo	variable spo	Valid	variable spot				variable spot	Variable spot		1.2 m
Limited-		Const	70+1	5 mm			2 m	E3NC-LH01 2M				
reflective	议	Spot	/0±1	5 111111			5 m	E3NC-LH01 5M				

^{*} These values apply when an E39-R21, E39-R22, E39-RS10, or E39-RS11 Reflector is used. A Reflector is not included. Purchase a Reflector separately to match the intended use of the Sensor.

Note: Only an E3NC-LA□□ Amplifier Unit can be connected.

Amplifier Units: E3NC-L Compact Laser Sensor Series (Dimensions → page 19)

Connecting method	Annogranco	Appearance Inputs/outputs		odel
Connecting method	Appearance	inputs/outputs	NPN output	PNP output
Pre-wired (2 m)		2 outputs + 1 input	E3NC-LA21 2M	E3NC-LA51 2M
Wire-saving Connector		1 output + 1 input	E3NC-LA7	E3NC-LA9
M8 Connector		1 output + 1 input	E3NC-LA24	E3NC-LA54
Connector for Sensor Communications Unit *			E3NC-LA0	

 $^{^{\}star}\,$ A Sensor Communications Unit is required if you want to use the Amplifier Unit on a network. Note: Only an E3NC-LH Sensor Head can be connected.

Sensor Heads: E3NC-S Ultra-compact CMOS Laser Sensor Series (Dimensions → page 18)

Sensing method	Appearance	Beam shape	Measurement range	Laser class	Cable length	Model
			35 to 250 mm	Class 2	2 m	E3NC-SH250H 2M
Distance-settable		Spot	35 to 250 mm		2 m	E3NC-SH250 2M
			35 to 100 mm	Class 1	2 m	E3NC-SH100 2M

Note: Only an E3NC-SA□□ Amplifier Unit can be connected.

Amplifier Units: E3NC-S Ultra-compact CMOS Laser Sensor Series (Dimensions → page 19)

Connecting method	Appearance Inputs/outputs		M	odel
Connecting method	Appearance	inputs/outputs	NPN output	PNP output
Pre-wired (2 m)		2 outputs + 1 input	E3NC-SA21 2M	E3NC-SA51 2M
Wire-saving Connector		1 output + 1 input	E3NC-SA7	E3NC-SA9
M8 Connector	-	1 output + 1 input	E3NC-SA24	E3NC-SA54
Connector for Sensor Communications Unit *			E3NC-SA0	

^{*} A Sensor Communications Unit is required if you want to use the Amplifier Unit on a network. **Note:** Only an E3NC-SH□□ or E3NC-SH□□H Sensor Head can be connected.

Accessories (Sold Separately) Sensor Head Accessories

Reflectors for Retro-reflective Sensors (Dimensions → page 21)

A Reflector is not provided with the Sensor Head. It must be ordered separately as required.

Applicable Sensor Head	Appearance	Model	Quantity
		E39-R21	
E3NC-LH03		E39-R22	4
E3NC-LHU3		E39-RS10	1
		E39-RS11	

Lens Attachments for Sensor Heads (Dimensions → page 21)

A Lens Attachment is not provided with the Sensor Head. It must be ordered separately as required.

Applicable Sensor Head	Appearance	Model	Quantity
E3NC-LH03		E39-P51	
E3NC-LH02		E39-P52	1
Note: You can com	bine the Lens Atta		pplicable

Sensor Head to create a line beam.

Sensor Head Mounting Brackets (Dimensions → page 22)

A Mounting Bracket is not provided with the Sensor Head. It must be ordered separately as required.

Applicable Sensor Head	Appearance	Model	Quantity	Contents
E3NC-LH03	(· · · ·	E39-L190		
E3NC-LH02		E39-L185		
E3NC-LH01		E39-L186	1	Mounting Bracket: 1 Nut plate: 1 Phillips screws (M3×18): 2
E3NC-SH250H E3NC-SH250		E39-L187		
E3NC-SH100		E39-L188		

Amplifier Unit Accessories

Wire-saving Connectors (Required for models for Wire-saving Connectors.) (Dimensions → page 26)
Connectors are not provided with the Amplifier Unit and must be ordered separately. *Protective stickers are provided.

Туре	Appearance	Cable length	No. of conductors	Model
Master Connector	*	2 m	4	E3X-CN21
Slave Connector	*	2 111	2	E3X-CN22

Sensor I/O Connectors (Required for models for M8 Connectors.) (Dimensions → page 26)

Connectors are not provided with the Amplifier Unit and must be ordered separately.

Size	Cable	Appearance		Cable	type	Model
		Straight		2 m		XS3F-M421-402-A
MO	Ctondord coblo			5 m	4	XS3F-M421-405-A
M8	Standard cable	L-shaped		2 m	4-wire	XS3F-M422-402-A
	L Shaped		5 m		XS3F-M422-405-A	

Note: For details, refer to XS3 which can be accessed from your OMRON website.

Amplifier Unit Mounting Bracket (Dimensions → page 27)
A Mounting Bracket is not provided with the Amplifier Unit. It must be ordered separately as required.

Appearance	Model	Quantity
	E39-L143	1

Note: For details, refer to Mounting Brackets on E39-L/E39-S/E39-R which can be accessed from your OMRON website.

DIN Track (Dimensions → page 27)

A DIN Track is not provided with the Amplifier Unit. It must be ordered separately as required.

Appearance	Туре	Model	Quantity
	Shallow type, total length: 1 m	PFP-100N	
	Shallow type, total length: 0.5m	PFP-50N	1
	Deep type, total length: 1 m	PFP-100N2	

End Plate (Dimensions → page 27)

Two End Plates are provided with the Sensor Communications Unit. End Plates are not provided with the Amplifier Unit. They must be ordered separately as required.

Appearance	Model	Quantity
3	PFP-M	1

Related Products

Sensor Communications Units

Туре	Appearance	Model
Sensor Communications Unit for EtherCAT		E3NW-ECT
Sensor Communications Unit for CompoNet *1		E3NW-CRT
Sensor Communications Unit for CC-Link *1		E3NW-CCL
Distributed Sensor Unit *2		E3NW-DS

*1. Refer to your OMRON website for details.

EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germa-

CompoNet is a registered trademark of the ODVA. CC-Link is a registered trademark of Mitsubishi Electric Corporation. The trademark is managed by the CC-Link Partner Association.

The Distributed Sensor Unit can be connected to any of the Sensor Communications Units.

Ratings and Specifications

Compact Laser Sensors: E3NC-L

Sensor Heads

Sensing method		ng method		ro-reflective R function	Diffuse-	reflective	Limited- reflective	
Item		Model	E3NC-LH03	E3NC-LH03+ E39-P51	E3NC-LH02	E3NC-LH02+ E39-P52	E3NC-LH01	
Light source	(wavelength)	'1	Visible semiconductor laser diode (660 nm), 1.35 mW (average output: 315 μ W) (JIS Class 1, IEC/EN Class 1, and FDA Class 1)					
	Giga-power (GIGA)	mode	8 m		1,200 mm	1,000 mm		
Sensing	Standard mo	ode (Stnd)	6 m	0.5	750 mm	600 mm	70±15 mm	
distance*2	High-speed	mode (HS)	3.5 m	- 0.5 m	250 mm	200 mm	70±15 mm	
	Super-high-s mode (SHS)	speed	2 m		200 mm	150 mm		
Beam shape			Spot	Line	Spot	Line	Spot	
Beam size*3			Approx. 2 mm dia. at 1 m	Line length: Approx. 25 mm at 250 mm Line length: Approx. 50 mm at 500 mm	Approx. 0.8 mm dia. at 300 mm	Line length: Approx. 45 mm at 500 mm Line length: Approx. 100 mm at 1,000 mm	Approx. 0.1 mm dia. at 70 mm	
Differential d	istance*4		-		10% of sensing dist	tance max.		
Indicators			OUT indicator (orange) and STABILITY indicator (green)					
Ambient illun	nination (Rece	eiver side)	Incandescent lamp: Sunlight: 20,000 lx r					
Ambient temperature range			Operating: -10 to 55°C; Storage: -25 to 70°C (with no icing or condensation)					
Ambient hum	idity range		Operating and stora	ge: 35% to 85% (with	n no condensation)			
Insulation res	sistance		20 MΩ min. (at 500 VDC)					
Dielectric str	ength		1,000 VAC at 50/60 Hz for 1 min					
Vibration res	istance (destr	uction)	10 to 55 Hz with a 1.5-mm double amplitude or 100 m/s² for 2 hours each in X, Y, and Z directions					
Shock resista	ance (destruc	tion)	500 m/s² for 3 times each in X, Y, and Z directions					
Degree of pro	otection		IEC IP67*5		IEC IP65 (E3NC-LH locked.)*5	102: Applies only whe	n adjuster is	
Connecting r	nethod		Pre-wired connector (standard length: 2 m)					
	Camacii	Case	Polybutylene terephthalate (PBT)					
	Sensor Head	Lens	Methacrylic resin (P	MMA)				
Materials		Cable	Vinyl chloride (PVC))				
	Lens	Case		ABS		ABS		
	Attachment	Lens		Methacrylic resin (PMMA)		Methacrylic resin (PMMA)		
	Models with	2-m cable	Approx. 120 g/appro	ox. 70 g	Approx. 115 g/appr	ox. 65 g		
Weight (packed state/Sensor	Models with	5-m cable	Approx. 180 g/appro	ox. 130 g	Approx. 175 g/appr	ox. 125 g		
Head only)	Lens Attachn	nent		Approx. 25 g/ approx. 2 g		Approx. 25 g/ approx. 2 g		
Accessories			Instruction Manual					

^{*1.} These Sensors excluding the E3NC-LH03 are classified as Class 1 laser devices under IEC 60825-1 and the regulations of Laser Notice No. 50 for FDA certification. CDRH (Center for Devices and Radiological Health) registration has been completed. (Accession Number: 1220690)
Application to the CDRH (Center for Devices and Radiological Health) is scheduled for the E3NC-LH03.
The values were measured using the OMRON standard sensing object (white paper) for the E3NC-LH01, E3NC-LH02, and E3NC-LH02 + E39-P52.

*4. Measured at the rated sensing distance.

The values for the E3NC-LH03, and E3NC-LH03 + E39-P51 apply when an E39-R21, E39-R22, E39-RS10, or E39-RS11 Reflector is used. Other Reflectors are

 $^{^{\}star}3$. Defined at the 1/e² (13.5%) of the central intensity at the measurement distance. Measurement may be influenced if there is light leakage outside the defined region and the surroundings of the target object have a high reflectance in comparison to the target object.

The E39-P5 contains a packing to prevent entry of foreign matter. The degree of protection between the E3NC-LH and E39-P5 is not specified.

Amplifier Units

		Туре		Standard models		Model for Sensor Communications Unit	
		NPN output	E3NC-LA21	E3NC-LA7	E3NC-LA24		
		PNP output	E3NC-LA51	E3NC-LA9	E3NC-LA54	E3NC-LA0	
Item		Connecting method	Pre-wired	Wire-saving Connector	M8 Connector	Connector for Sensor Communications Unit	
Inputs/	Outputs		2 outputs	1 output		*1	
outputs	External inputs	3	1 input	<u> </u>		1	
Power supply	voltage		10 to 30 VDC, including 1	0% ripple (p-p)		Supplied from the connector through the communications units	
Power consu	mption *2			of 24 VDC / max. (Current consumptions: 1,200 mW max. (Current c		.)	
			Load power supply voltag Load current: Groups of 1 Amplifier Units: 20 mA ma	e: 30 VDC max., open-colle to 3 Amplifier Units: 100 mA ax.	ctor output A max., Groups of 4 to 30		
Control outpu	ıts*3		Residual voltage: At load current of less At load current of 10 to	than 10 mA: 1 V max. o 100 mA: 2 V max.			
			OFF current: 0.1 mA max.				
External inputs			Refer to *4.				
Indicators			7-segment displays (Sub digital display: green, Main digital display: white) Display direction: Switchable between normal and reversed. OUT indicator (orange), L/D indicator (orange), ST indicator (blue), DPC indicator (green), and OUT selection indicator (orange, only on models with 2 outputs)				
Protection circuits		Power supply reverse polarity protection, output short-circuit protection, and output reverse polarity protection			Power supply reverse polarity protection and output short-circuit protection		
	Super-high-spe	eed mode (SHS)*5	Operate or reset: 80 μs				
Response	High-speed mo	ode (HS)	Operate or reset: 250 μs				
time	Standard mode	e (Stnd)	Operate or reset: 1 ms				
	Giga-power mo	ode (GIGA)	Operate or reset: 16 ms				
Sensitivity ad	justment			ing, full auto tuning, position to +99%)), or manual adjus		vity tuning, power tuning, or	
No. of Units	Super-high-spe	eed mode (SHS)*5	0				
for mutual	High-speed mo	ode (HS)	2				
interference prevention	Standard mode	e (Stnd)	2				
	Giga-power mo	ode (GIGA)	4				
	Dynamic powe	r control (DPC)	Provided				
	Timer		Select from timer disabled	d, OFF-delay, ON-delay, one	e-shot, or ON-delay + OF	F-delay timer: 1 to 9,999 ms	
	Zero reset		Negative values can be d	isplayed. (Threshold value is	s shifted.)		
	Resetting setti	ngs*6	Select from initial reset (factory defaults) or user reset (saved settings).				
	Eco mode		Select from OFF (digital of	lisplays lit) or ECO (digital di	splays not lit).		
	Bank switching	9	Select from banks 1 to 4.				
Functions	Power tuning		Select from ON or OFF.				
	Output 1		Select from Normal Detec	tion Mode or Area Detection	n Mode.		
	Output 2		Select from normal detection mode, alarm output mode, or error output mode.			Select from normal detection mode, alarm output mode, or error output mode.	
	External input		Select from input OFF, tu switching.	ning, power tuning, laser OF	F, zero reset, or bank		
	Hysteresis wid		Select from standard setti				

^{*1.} Two sensor outputs are allocated in the programmable logic controller PLC I/O table. PLC operation via Communications Unit enables reading detected values and changing settings.

Normal mode: 1,650 mW max. (Current consumption: 55 mA max. at 30 VDC, 115 mA max. at 10 VDC)

^{*4.} The following details apply to the input.

		Contact input (relay or switch)	Non-contact input (transistor)	Input time*4-1
NP	PN		ON: 1.5 V max. (Sourcing current: 1 mA max.) OFF: Vcc – 1.5 V to Vcc (Leakage current: 0.1 mA max.)	ON: 9 ms min.
PN	IP		ON: Vcc - 1.5 V to Vcc (Sinking current: 3 mA max.) OFF: 1.5 V max. (Leakage current: 0.1 mA max.)	OFF: 20 ms min.

At Power Supply Voltage of 10 to 30 VDC.

Power saving eco mode: 1,350 mW max. (Current consumption: 45 mA max. at 30 VDC, 80 mA max. at 10 VDC)
The total for both outputs of a model with 2 outputs is 100 mA max. (Residual voltage: Load current of less than 10 mA: 1 V max., Load current of 10 to 100 mA: *3. 2 V max.).

^{*4-1.}Input time is 25 ms (ON)/(OFF) only when (in tUnE) or (in PtUn) input is selected.

The mutual interference prevention function is disabled if the detection mode is set to super-high-speed mode.

The bank is not reset by the user reset function or saved by the user save function.

	Туре		Standard models			
	NPN output	E3NC-LA21	E3NC-LA7	E3NC-LA24	E3NC-LA0	
	PNP output	E3NC-LA51	E3NC-LA9	E3NC-LA54	ESINC-LAU	
Item	Connecting method	Pre-wired	Wire-saving Connector	M8 Connector	Connector for Sensor Communications Unit	
Maximum connectable l	Jnits	30				
Ambient temperature range		Operating: Groups of 1 or 2 Amplifier U Groups of 3 to 10 Amplifier U Groups of 11 to 16 Amplifier Groups of 17 to 30 Amplifier Storage: –30 to 70°C (with n	Operating: Groups of 1 or 2 Amplifier Units: 0 to 55°C, Groups of 3 to 10 Amplifier Units: 0 to 50°C, Groups of 11 to 16 Amplifier Units: 0 to 45°C, Groups of 17 to 30 Amplifier Units: 0 to 40°C, Storage: -30 to 70°C (with no icing or condensation)			
Ambient humidity range		Operating and storage: 35% to 85% (with no condensation)				
Insulation resistance		20 MΩ (at 500 VDC)				
Dielectric strength		1,000 VAC at 50/60 Hz for 1 min				
Vibration resistance (de	struction)	10 to 55 Hz with a 1.5-mm d				
Shock resistance (destruction)		500 m/s² for 3 times each in X, Y, and Z directions			150m/s² for 3 times each in X, Y, and Z directions	
Weight (packed state/Amplifier Unit only)		Approx. 115 g/approx. 75 g	Approx. 60 g/approx. 20 g	Approx. 65 g/approx. 25 g		
	Case	Polycarbonate (PC)				
Materials	Cover	Polycarbonate (PC)				
	Cable	Vinyl chloride (PVC)				
Accessories		Instruction Manual				

Accessories

Reflectors

Item Model	E39-R21	E39-R22	E39-RS10	E39-RS11	
Ambient temperature	Operating: -10 to 55°C; S	Operating: -10 to 55°C; Storage: -25 to 70°C (with no icing or condensation)			
Ambient humidity	Operating/storage: 35% t	Operating/storage: 35% to 85% (with no condensation)			
Vibration resistance (destruction)	10 to 55 Hz with a 1.5-mi	10 to 55 Hz with a 1.5-mm double amplitude or 100 m/s² for 2 hours each in X, Y, and Z directions			
Shock resistance (destruction)	500 m/s ² 3 times each in X, Y, and Z directions				
Degree of protection	IEC IP67 (E39-R21 and E39-R22 only)				
Materials	Reflective surface: Metha Back surface: Polybutyle		Methacrylic resin (PMMA	N)	
Weight (packed state/Reflector only)	Approx. 30 g/approx. 5 g	Approx. 35 g/approx. 10 g	Approx. 26 g/approx. 1 g	Approx. 30 g/approx. 5 g	
Accessories	Instruction manual				

Ultra-compact CMOS Laser Sensor: E3NC-S

Sensor Heads

	Sensing method	Distance-settable				
Item	Model	E3NC-SH250H	E3NC-SH250	E3NC-SH100		
Light source (wavelength)*1		Visible semiconductor laser diode (660 nm), 1 mW (average output: 220 μ W) (JIS Class 2, IEC/EN Class 2, and FDA Class 2)				
Measureme	nt range	35 to 250 mm (display value: 350 to 2,500)		35 to 100 mm (display value: 350 to 1,000)		
Standard de	etected level difference	35 to 180mm: 9 mm 180 to 250 mm: 25 mm		35 to 50 mm: 1.5 mm 50 to 100 mm: 3 mm		
Beam size*3	3	Approx. 1 mm dia. at 250 mm		Approx. 0.5 mm dia. at 100 mm		
Indicators		OUT indicator (orange), STABILITY indicator (green), and ST indicator (blue)				
Ambient illu (Receiver si		Incandescent lamp: 4,000 lx max., Sunlight: 8,000 lx max.	Incandescent lamp: 2,000 lx max., Sunlight: 4,000 lx max.	Incandescent lamp: 4,000 lx max., Sunlight: 8,000 lx max.		
Ambient ter	nperature range	Operating: -10 to 50°C; Storage: -25 to 70°C (with no icing or condensation)				
Ambient hu	midity range	Operating and storage: 35% to 85	5% (with no condensation)			
Insulation re	esistance	20 MΩ min. (at 500 VDC)				
Dielectric st	rength	1,000 VAC at 50/60 Hz for 1 min				
Vibration re	sistance (destruction)	10 to 55 Hz with a 1.5-mm double	amplitude for 2 hours each in X, Y	/, and Z directions		
Shock resis	tance (destruction)	500 m/s ² 3 times each in X, Y, and	d Z directions			
Degree of p	rotection	EC IP67				
Connecting	method	Pre-wired connector (Standard cable length: 2 m)				
	Case	Polybutylene terephthalate (PBT)				
Materials	Lens	Methacrylic resin (PMMA)				
	Cable	Vinyl chloride (PVC)				
Weight (pac only)	ked state/Sensor Head	Approx. 125 g/approx. 75 g				
Accessories	S	Instruction Manual, laser warning	label (E3NC-SH250H only)			

*2. The values were measured at the center of the sensing distance using OMRON's standard sensing object (white ceramic).

Also, when detecting a workpiece that is smaller than the beam size, a correct value may not be obtained.

Note: Incorrect detection may occur outside the measurement range if the object has a high reflection factor.

*1. These Sensors are classified as Class 1 laser devices under IEC 60825-1 and the regulations of Laser Notice No. 50 for FDA certification. CDRH (Center for Devices and Radiological Health) registration has been completed. (Accession Number: 1220691)

Beam size: Defined at the 1/e² (13.5 %) of the central intensity at the measurement center distance.

Measurement may be influenced if there is light leakage outside the defined region and the surroundings of the target object have a high reflectance in comparison to the target object.

Amplifier Units

Power supply vo Power consump Control outputs External inputs Indicators Protection circuit Response time G	ption *2	NPN output PNP output Connecting method	Power saving eco mode Load power supply voltage	of 24 VDC W max. (Current consumption e: 1,680 mW max. (Current co ge: 30 VDC max., open-collec to 3 Amplifier Units: 100 mA ax.	onsumption: 70 mA max.) tor output	E3NC-SA0 Connector for Sensor Communications Unit *1 Supplied from the connector through the communications units	
Inputs/outputs Power supply vo Power consump Control outputs External inputs Indicators Protection circuit Response time Gi	External inputs roltage ption *2	Connecting method	Pre-wired 2 outputs 1 input 10 to 30 VDC, including 1 At Power Supply Voltage Normal mode: 1,920 ml Power saving eco mode Load power supply voltage Load current: Groups of 1 Amplifier Units: 20 mA ma Residual voltage: At load current of less	Wire-saving Connector 1 output 1 output 1 over incomple (p-p) of 24 VDC W max. (Current consumption e: 1,680 mW max. (Current consumption of 3 Amplifier Units: 100 mA ax.	M8 Connector 1: 80 mA max.) 1: nsumption: 70 mA max.) 1: tor output	Connector for Sensor Communications Unit	
Inputs/ Original Power supply volume Power consump Control outputs External inputs Indicators Protection circuits Response time Gi	External inputs roltage ption *2		2 outputs 1 input 10 to 30 VDC, including 1 At Power Supply Voltage Normal mode: 1,920 m Power saving eco mode Load power supply voltage Load current: Groups of 1 Amplifier Units: 20 mA ma Residual voltage: At load current of less	1 output 0% ripple (p-p) of 24 VDC W max. (Current consumptions: 1,680 mW max. (Current collecto 3 Amplifier Units: 100 mA ax.	ı: 80 mA max.) onsumption: 70 mA max.) tor output	Communications Unit *1 Supplied from the connector through the communications units	
Power supply vo Power consump Control outputs External inputs Indicators Protection circuit Response time Gi	External inputs roltage ption *2	5	1 input 10 to 30 VDC, including 1 At Power Supply Voltage Normal mode: 1,920 my Power saving eco mode Load power supply voltage Load current: Groups of 1 Amplifier Units: 20 mA ma Residual voltage: At load current of less	of 24 VDC W max. (Current consumption e: 1,680 mW max. (Current co ge: 30 VDC max., open-collec to 3 Amplifier Units: 100 mA	onsumption: 70 mA max.) tor output	Supplied from the connector through the communications units	
Power supply vo Power consump Control outputs External inputs Indicators Protection circui Response time Gi	ption *2	S	10 to 30 VDC, including 1 At Power Supply Voltage Normal mode: 1,920 ml Power saving eco mode Load power supply voltage Load current: Groups of 1 Amplifier Units: 20 mA ma Residual voltage: At load current of less	of 24 VDC W max. (Current consumption e: 1,680 mW max. (Current co ge: 30 VDC max., open-collec to 3 Amplifier Units: 100 mA ax.	onsumption: 70 mA max.) tor output	Supplied from the connector through the communications units	
Power consump Control outputs External inputs Indicators Protection circui Response Hitme Si	ption *2		At Power Supply Voltage Normal mode: 1,920 m Power saving eco mode Load power supply voltage Load current: Groups of 1 Amplifier Units: 20 mA ma Residual voltage: At load current of less	of 24 VDC W max. (Current consumption e: 1,680 mW max. (Current co ge: 30 VDC max., open-collec to 3 Amplifier Units: 100 mA ax.	onsumption: 70 mA max.) tor output	through the communications units	
External inputs Indicators Protection circui Response time Si Gi	s *3		Normal mode: 1,920 m\ Power saving eco mode Load power supply voltag Load current: Groups of 1 Amplifier Units: 20 mA ma Residual voltage: At load current of less	W max. (Current consumption e: 1,680 mW max. (Current concepts 30 VDC max., open-collect to 3 Amplifier Units: 100 mA ax.	onsumption: 70 mA max.) tor output)	
External inputs Indicators Protection circui Response time Si Gi			Load current: Groups of I Amplifier Units: 20 mA ma Residual voltage: At load current of less	to 3 Amplifier Units: 100 mA ax.	tor output max., Groups of 4 to 30		
External inputs Indicators Protection circui Response time G			At load current of less	" 10 11"			
Protection circui Response time Si	i			tnan 10 mA: 1 V max. o 100 mA: 2 V max.			
Protection circui Response time Si			OFF current: 0.1 mA max.				
Protection circui Response time Si Gi			Refer to *4.				
Response time SI			Display direction: Switcha	digital display: green, Main di able between normal and reve /D indicator (orange), ST indic models with 2 outputs)	ersed.	or (green), and OUT selection	
Response time Si	Protection circuits		Power supply reverse polarity protection, output short-circuit protection, and output reverse polarity protection			Power supply reverse polarity protection and output short-circuit protection	
time Si	Super-high-speed mode (SHS) *5 High-speed mode (HS)		Operate or reset: 1.5 ms				
G			Operate or reset: 5 ms				
	Standard mode	e (Stnd)	Operate or reset: 10 ms				
	Giga-power m	ode (GIGA)	Operate or reset: 50 ms				
Sensitivity adjus	ıstment			uning, 1-point tuning, tuning w nout workpiece), or manual ac		t area tuning, 1-point area	
	Super-high-sp	eed mode (SHS) *5	0				
ioi iiiataai	High-speed mo	ode (HS)	2				
interference St	Standard mode	e (Stnd)	2				
	Giga-power m	ode (GIGA)	2				
Ti	Гimer		Select from timer disable	d, OFF-delay, ON-delay, one-	shot, or ON-delay + OFF	delay timer: 1 to 9,999 ms	
Zo	Zero reset		Negative values can be displayed. (Threshold value is shifted.)				
R	Resetting setti	ngs *6	Select from initial reset (factory defaults) or user reset (saved settings).				
E	Eco mode		Select from OFF (digital displays lit) or ECO (digital displays not lit).				
В	Bank switchin	g	Select from banks 1 to 4.				
0	Output 1		Select from Normal detec	tion mode, Area detection mo	ode, or hold mode.		
Functions	Output 2		Select from Normal detection mode or Error output mode.	-		Select from Normal detection mode or Error output mode.	
E	External input		Select from input OFF, tu	ning, laser OFF, zero reset, o	r bank switching.		
K	External input		Select from ON or OFF.			•	
В	Keep function	uppression*8	Select from ON or OFF.				
Hy		th.	Select from standard sett	ing or user setting.			

Two sensor outputs are allocated in the programmable logic controller PLC I/O table. PLC operation via Communications Unit enables reading detected values and changing settings.

Normal mode: 2,250 mW max. (Current consumption: 75 mA max. at 30 VDC, 145 mA max. at 10 VDC)

	Contact input (relay or switch)	Non-contact input (transistor)	Input time*4-1
NPN	ON: Shorted to 0 V (Sourcing current: 1 mA max.). OFF: Open or shorted to Vcc.	ON: 1.5 V max. (Sourcing current: 1 mA max.) OFF: Vcc – 1.5 V to Vcc (Leakage current: 0.1 mA max.)	ON: 9 ms min.
PNP	ON: Shorted to Vcc (Sinking current: 3 mA max.). OFF: Open or shorted to 0 V.	ON: Vcc - 1.5 V to Vcc (Sinking current: 3 mA max.) OFF: 1.5 V max. (Leakage current: 0.1 mA max.)	OFF: 20 ms min.

At Power Supply Voltage of 10 to 30 VDC.

Power saving eco mode: 1,950 mW max. (Current consumption: 65 mA max. at 30 VDC, 125 mA max. at 10 VDC)
The total for both outputs of a model with 2 outputs is 100 mA max. (Residual voltage: Load current of less than 10 mA: 1 V max., Load current of 10 to 100 mA: *3. 2 V max.). The following details apply to the input.

^{*4-1.}Input time is 25 ms (ON)/(OFF) only when (in tUnE) input is selected.
*5. The mutual interference prevention function is disabled if the detection mode is set to super-high-speed mode.
*6. The bank is not reset by the user reset function or saved by the user save function.

The output for a measurement error is set. ON: The value of the output from before the measurement error is retained. OFF: The output is turned OFF when a measurement error occurs.

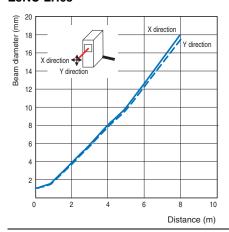
^{*8.} Only the sensing object is detected when tuning.

	Туре		Standard models		Model for Sensor Communications Unit	
	NPN output	E3NC-SA21	E3NC-SA7	E3NC-SA24	E3NC-SA0	
	PNP output	E3NC-SA51	E3NC-SA9	E3NC-SA54	ESINC-SAU	
Item	Connecting method	Pre-wired	Wire-saving Connector	M8 Connector	Connector for Sensor Communications Unit	
Maximum connectable	Units	30				
Ambient temperature range		Operating: Groups of 1 or 2 Amplifier U Groups of 3 to 10 Amplifier I Groups of 11 to 16 Amplifier Groups of 17 to 30 Amplifier Storage: -30 to 70°C (with	Operating: Groups of 1 or 2 Amplifier Units: 0 to 55°C, Groups of 3 to 10 Amplifier Units: 0 to 50°C, Groups of 11 to 16 Amplifier Units: 0 to 45°C, Groups of 17 to 30 Amplifier Units: 0 to 40°C Storage: -30 to 70°C (with no icing or condensation)			
Ambient humidity range	9	Operating and storage: 35% to 85% (with no condensation)				
Insulation resistance		20 MΩ (at 500 VDC)				
Dielectric strength		1,000 VAC at 50/60 Hz for 1	000 VAC at 50/60 Hz for 1 min			
Vibration resistance (de	estruction)	10 to 55 Hz with a 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions				
Shock resistance (destruction)		500 m/s² for 3 times each in X, Y, and Z directions			150 m/s 2 for 3 times each in X, Y, and Z directions	
Weight (packed state/Amplifier Unit only)		Approx. 115 g/approx. 75 g	Approx. 60 g/approx. 20 g	Approx. 65 g/approx. 25 g		
	Case	Polycarbonate (PC)				
Materials	Cover	Polycarbonate (PC)				
	Cable	Vinyl chloride (PVC)				
Accessories	•	Instruction Manual				

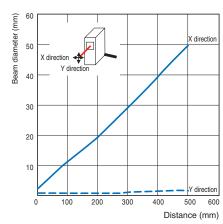
Engineering Data (Reference Value)

Beam Diameter Vs. Distance

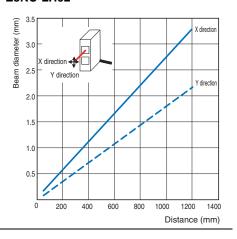
Retro-reflective Model E3NC-LH03



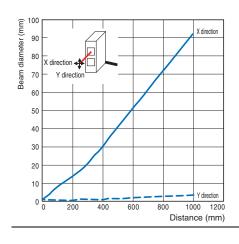
Retro-reflective Model E3NC-LH03 + E39-P51



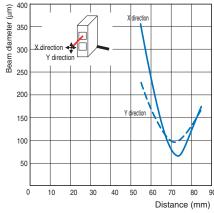
Diffuse-reflective Model E3NC-LH02



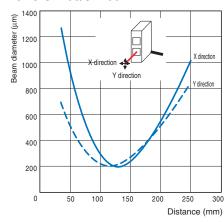
Diffuse-reflective Model E3NC-LH02 + E39-P52



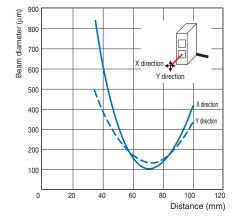
Limited-reflective Model E3NC-LH01



Distance-settable Model E3NC-SH250/SH250H



Distance-settable Model E3NC-SH100

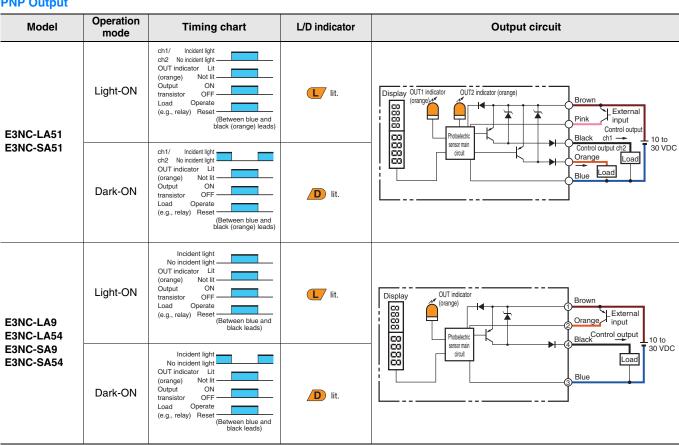


I/O Circuit Diagrams

NPN Output

Model	Operation mode	Timing chart	L/D indicator	Output circuit
E3NC-LA21	Light-ON	ch1/ Incident light ch2 No incident light OUT indicator Lit (orange) Not lit Output ON transistor OFF Load Operate (e.g., relay) Reset (Between brown and black (orange) leads)	L lit.	Display OUTI indicator OUT2 indicator (orange) Brown Control output Load Orange ch1 10 to
E3NC-SA21	Dark-ON	ch1/ Incident light ch2 No incident light OUT indicator Lit (orange) Not lit Output ON transistor OFF Load Operate (e.g., relay) Reset (Between brown and black (orange) leads)	D lit.	sessor main drout Pink ch2 External Blue input
E3NC-LA7 E3NC-LA24 E3NC-SA7 E3NC-SA24	Light-ON	Incident light No incident light OUT indicator Lit (orange) Not lit Output ON transistor OFF Load Operate (e.g., relay) Reset (Between brown and black leads)	L lit.	Display OUT indicator (orange) Brown Black Load Control output 10 to
	Dark-ON	Incident light No incident light OUT indicator Lit (orange) Not lit Output ON transistor OFF Load Operate (e.g., relay) Reset (Between brown and black leads)	D lit.	Photoeledic sersor man divisit and a sersor ma

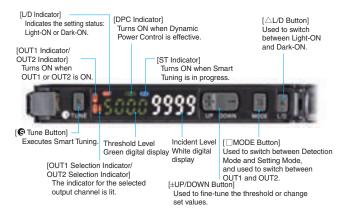
PNP Output



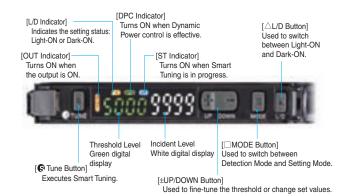
Nomenclature

Compact Laser Sensors

E3NC-LA21/LA51/LA0

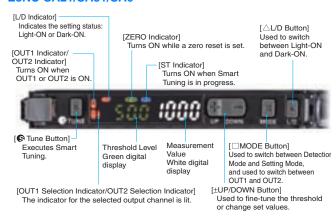


E3NC-LA7/LA9/LA24/LA54

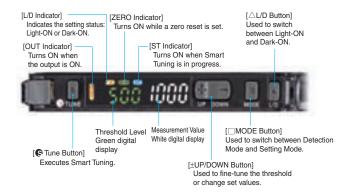


Ultra-compact CMOS Laser Sensors

E3NC-SA21/SA51/SA0

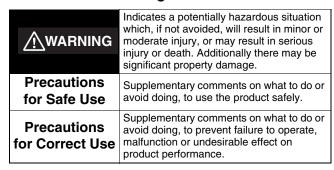


E3NC-SA7/SA9/SA24/SA54



Safety Precautions

To ensure safe operation, be sure to read and follow the Instruction Manual provided with the Sensor. Indication and Meaning for Safe Use



Sensor Heads

Laser Safety

Various safety standards regarding laser devices are stipulated in Japan and abroad. When this Sensor Head is used in Japan and when it is assembled in Japan but exported to a foreign country, the safety standards are classified into three cases.

1. When Using the Sensor Head in Japan

JIS C6802 stipulates the safety measures that must be observed by the user for each type of laser equipment.

E3NC-LH□□ Sensor Heads: Class 1 E3NC-SH□□ Sensor Heads: Class 1 E3NC-SH□□H Sensor Heads: Class 2



Do not expose your eyes to the laser beam either directly or indirectly (i.e., after reflection from a mirror or shiny surface). The laser beam has a high power density and exposure may result in loss of sight.



Do not disassemble the Sensor Head. Doing so may cause the laser beam to leak, resulting in a risk of visual impairment.



 The following laser warning label and laser description labels are attached to the sides of the Sensor Heads.

E3NC-LH03





E3NC-LH01 /E3NC-LH02



SS1 SER DDUCT

E3NC-SH□□



E3NC-SH□□H





Certification Label

2. Using in the USA

When using devices in which the Sensor Head is installed in the USA, the devices are subject to FDA (Food and Drug Administration) laser regulations of the USA.

E3NC-LH03:

These Sensor Heads are classified as Class 1 laser devices under IEC/EN 60825-1 and the regulations of Laser Notice No. 50 for this certification. Application to the CDRH (Center for Devices and Radiological Health) is scheduled.

E3NC-LH01, E3NC-LH02:

These Sensor Heads are classified as Class 1 laser devices under IEC/EN 60825-1 and the regulations of Laser Notice No. 50 for this certification. CDRH (Center for Devices and Radiological Health) registration has been completed. (Accession Number: 1220690)

E3NC-SH \square , E3NC-SH \square H:

These Sensor Heads are classified as Class 1 or Class 2 laser devices under IEC/EN 60825-1 and the regulations of Laser Notice No. 50 for this certification. CDRH (Center for Devices and Radiological Health) registration has been completed. (Accession Number: 1220691)

For countries other than Japan
Replace the warning label with the corresponding
English label (supplied with SH
H).



3. Using in Europe

E3NC-LH□□, E3NC-SH□□:

These Sensor Heads are classified in Class 1 under EN 60825-1. E3NC-SH□□H:

These Sensor Heads are classified in Class 2 under EN 60825-1.

Precautions for Safe Use

The following precautions must be observed to ensure safe operation of the Sensor Head.

- 1. Installation Environment
- Do not use the Sensor Head in an environment where explosive or flammable gas is present.
- To secure the safety of operation and maintenance, do not install the Sensor Head close to high-voltage devices or power devices.
- 2. Power Supply and Wiring
- Always use an E3NC-LA□□, E3NC-LA0, E3NC-SA□□ or E3NC-SA0 Amplifier Unit. If a different Amplifier Unit is used, damage or fire may occur.
- If you short the cable, reconnect it as specified. If the connections are not correct, damage or fire may occur.
- High-voltage lines and power lines must be wired separately from the Sensor Head. Wiring them together or placing them in the same duct may cause induction, resulting in malfunction or damage.
- Always turn OFF the power supply before connecting or disconnecting the connectors.
- 3. Installation
- Use screws for installation and tighten the screws securely, but do not exceed the specified tightening torque.
 Specified torque (M3): 0.5 N·m
- 4. Others
- Never disassemble (including removing labels), repair, modify, deform by pressure, or incinerate the Sensor Head. Do not turn the adjuster on the E3NC-LH02 with a force that is greater than 40 mN·m. Damage or fire may occur.
- Dispose of the Sensor Head as industrial waste.
- If you notice any abnormalities, immediately stop using the Sensor Head, turn OFF the power supply, and contact your OMRON representative.

Precautions for Correct Use

Observe the following precautions to prevent failure to operate, malfunctions, or undesirable effects on Sensor Head performance.

1. Installation Environment

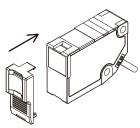
Do not install the Sensor Head in locations subject to the following conditions:

- · Ambient temperatures outside of the rated range
- · Condensation caused by rapid changes in temperature
- Relative humidity that is not between 35% and 85%
- · Corrosive or flammable gas
- · Dust, salt, or iron particles
- Direct vibration or shock
- Strong external light interference (such as other laser beams or electric arc-welding machines)
- · Direct sunlight or near heaters
- Water, oil, or chemical fumes or spray
- · Strong magnetic or electric fields
- 2. Warming Up
- The circuits will be unstable just after the power supply is turned ON, so measurement values may fluctuate gradually.
- For accurate measurements, allow the product to stand for at least 10 minutes after turning ON the power supply before use. (E3NC-S Series)

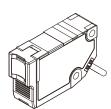
- 3. Maintenance and Inspection
- Always turn OFF the power supply before adjusting or connecting/ disconnecting the Sensor Head.
- Do not use thinner, benzene, acetone, or kerosene to clean the Sensor Head.
- If large dust particles or dirt adheres to the filter on the front of the Sensor Head, use a blower brush (such as one used to clean camera lenses) to blow it off. Do not blow the dust particles or dirt with your mouth. To remove dust particles or dirt, wipe it off gently with a soft cloth (such as one for cleaning lenses) moistened with a small amount of alcohol. Do not wipe it off with excessive force. Scratches on the filter may cause errors.
- 4. Sensing Object
- The Sensor Head cannot accurately measure objects with the following materials and shapes: Transparent objects (with the E3NC-LH03, objects that are extremely transparent), objects with an extremely low reflection ratio, objects smaller than the spot diameter, objects with a large curvature, excessively inclined objects, etc. Also, for long-distance detection, the Sensor may falsely operate if a white object approaches near the Sensor Head (E3NC-LH03).
- 5. The degree of protection is IP67, but do not use the Sensor Head in water, rain, or outdoors. (E3NC-S Series)
- 6. A ferrite core is attached to the Sensor Head end of the cable connected to the E3NC-LH03 5M. Do not remove the ferrite core or change its position. Also, do not bend the cable within 12 mm of each end of the ferrite core. Doing so may damage the cable.

Attaching a Lens Attachment (E39-P51 or E39-P52)

 Check the widths of the slots in the Sensor and the widths of the tabs on the Lens Attachment and attach the Lens Attachment as shown below. (The Lens Attachment must be in the correct orientation, so the widths of the tabs on the Lens Attachment are different on the top and bottom.)



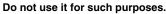
2. After you attach the Lens Attachment, make sure that the tabs are completely engaged in the slots in the Sensor.



Amplifier Units

♠ WARNING

This Amplifier Unit is not designed or rated for ensuring safety of persons either directly or indirectly.



Do not use the Amplifier Unit with voltage in excess of the rated voltage.

Excess voltage may result in malfunction or fire.



Never use the Amplifier Unit with an AC power supply. Otherwise, explosion may result.



Precautions for Safe Use

The following precautions must be observed to ensure safe operation of the Amplifier Unit. Doing so may cause damage or fire.

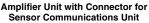
- 1. Do not install the Amplifier Unit in the following locations.
- · Locations subject to direct sunlight
- · Locations subject to condensation due to high humidity
- · Locations subject to corrosive gas
- · Locations subject to vibration or mechanical shocks exceeding the rated values
- · Locations subject to exposure to water, oil, chemicals
- · Locations subject to steam
- Locations subjected to strong magnetic field or electric field
- 2. Do not use the Amplifier Unit in environments subject to flammable or explosive gases.
- 3. Do not use the Amplifier Unit in any atmosphere or environment that exceeds the ratings.
- 4. To secure the safety of operation and maintenance, do not install the Amplifier Unit close to high-voltage devices or power devices.
- 5. High-voltage lines and power lines must be wired separately from the Amplifier Unit. Wiring them together or placing them in the same duct may cause induction, resulting in malfunction or damage.
- 6. Do not apply any load exceeding the ratings. Otherwise, damage or fire may result.
- Do not short the load. Otherwise, damage or fire may result.
- 8. Do not use the Amplifier Unit if the case is damaged.
- 9. Burn injury may occur. The Amplifier Unit surface temperature rises depending on application conditions, such as the ambient temperature and the power supply voltage. Use caution when operating or cleaning the Amplifier Unit.
- 10. When setting the sensor, be sure to check safety such as by stopping the equipment.
- .Be sure to turn off the power supply before connecting or disconnecting wires.
- 12.Do not attempt to disassemble, repair, or modify the Amplifier Unit in anv wav.
- 13. When disposing of the Amplifier Unit, treat it as industrial waste.

Precautions for Correct Use

- 1. Connect the load correctly.
- Do not miswire such as the polarity of the power supply.
- 3. Be sure to mount the unit to the DIN track until it clicks.
- 4. When using the Amplifier Units with Wire-saving Connectors, attach the protective stickers (provided with E3X-CN-series Connectors) on the unused power pins to prevent electrical shock and short circuiting.

Attach the protective cap when using a model with a connector for a Sensor Communications Unit.

Amplifier Unit with Wiresaving Connector







- connecting terminals 5. Use an extension cable with a minimum thickness of 0.3 $\,\mathrm{mm^2}$ and less than 100 m long.
- Do not apply the forces on the cord exceeding the following limits: Pull: 40 N; torque: 0.1 N·m; pressure: 20 N; bending: 29.4 N
- 7. Do not apply excessive force (9.8 N max.) such as tension, compression or torsion to the connector of the Sensor Head that is fixed to the Amplifier Unit.
- Always keep the protective cover in place when using the Amplifier Unit. Not doing so may cause malfunction.
- 9. It may take time until the received light intensity and measured value become stable immediately after the power is turned on depending on use environment.
- 10. The product is ready to operate 200 ms after the power supply is turned ON.
- 11. The Mobile Console E3X-MC11, E3X-MC11-SV2 and E3X-MC11-S cannot be connected.
- 12. The mutual interference prevention function does not work when in combination with E3C/E2C/E3X.
- 13.If the unit receives excessive sensor light, the mutual interference prevention function may not work properly, resulting in malfunction of the unit. In such case, increase the threshold.
- 14.Standard models (E3NC-□A21/51/7/9)

The Sensor Communications Unit E3X-DRT21-S, E3X-CRT, E3X-ECT and E3NW cannot be connected.

Model for Sensor Communications Unit (E3NC-□A0)

The Sensor Communications Unit E3NW can be connected.

E3X-DRT21-S, E3X-CRT, E3X-ECT cannot be connected. 15. If you notice an abnormal condition such as a strange odor, extreme heating of the unit, or smoke immediately stop using the

product, turn off the power, and consult your dealer. 16.Do not use thinner, benzene, acetone, and lamp oil for cleaning.

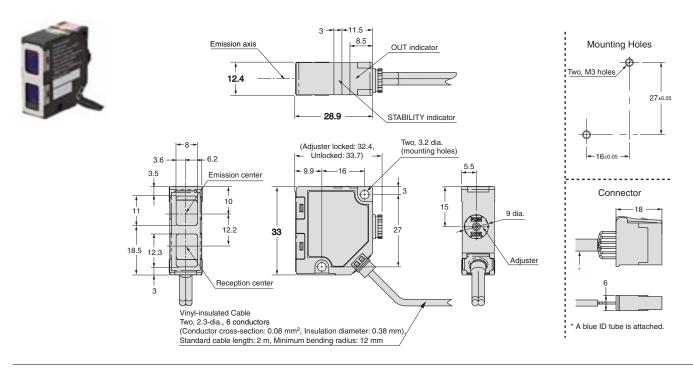
Dimensions

Sensor Heads

Retro-reflective Model E3NC-LH03 Mounting Holes OUT indicator 12.4 12 Two, M3 holes STABILITY indicator 9.5±0.1 Emission and -10-Two, 3.2 dia. reception axis (mounting holes) 6.2 Connector **-**9.5 -⊢ 1.2 Ferrite core*1 reception center Vinyl-insulated Cable A ferrite core is attached to the Sensor Head end of the cable attached to the *2 A blue ID tube is attached. Two, 2.3-dia., 6 conductors (Conductor cross-section: 0.08 mm², Insulation diameter: 0.38 mm), Standard cable length: 2 m, Minimum bending radius: 12 mm E3NC-LH03 5M.

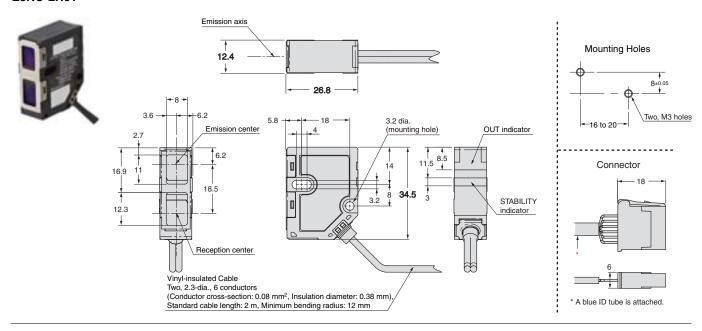
Diffuse-reflective Model

E3NC-LH02



Limited-reflective Model

E3NC-LH01



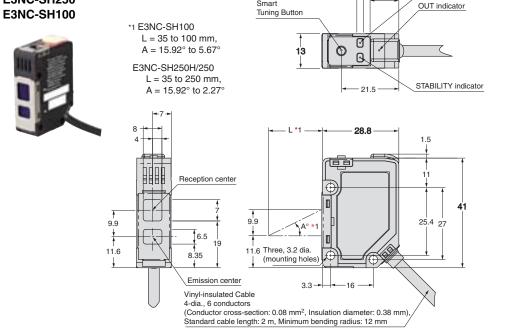
- 13.5 *-*

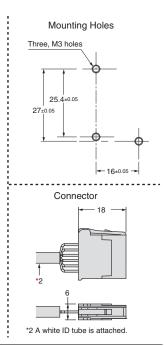
10.5

ST indicator

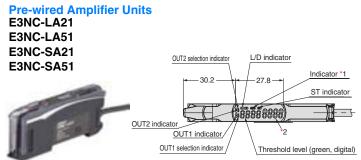
Distance-settable Models







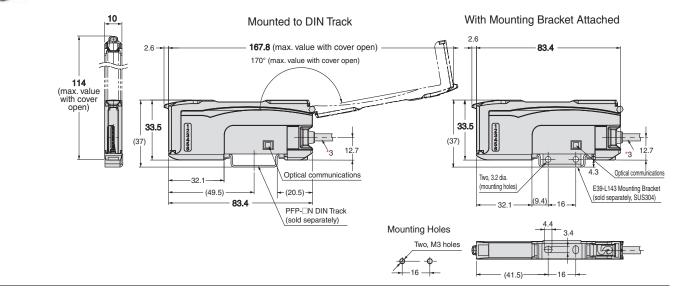
Amplifier Units



- *1. The indicators are as follows:
- E3NC-LA21 E3NC-LA51 DPC indicator E3NC-SA21 ZERO indicator E3NC-SA51
- *2. The display is as follows:

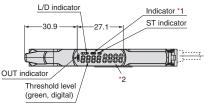
	Incident level (white, digital)
E3NC-SA21 E3NC-SA51	Measurement value (white, digital)

Round vinyl-insulated cable, 4 dia., 5 conductors (Conductor cross-section: 0.2 mm², Insulation diameter: 0.9 mm), Standard cable length: 2 m, Minimum bending radius: 12 mm



Amplifier Units with Wire-saving Connectors





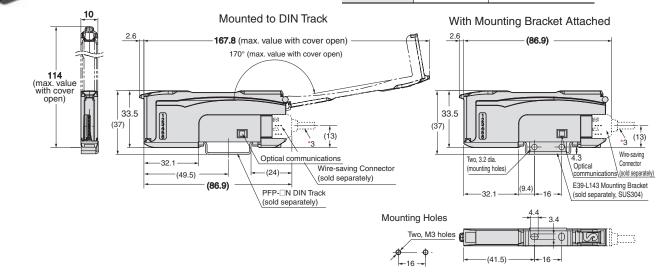
*1. The indicators are as follows: *2. The display is as follows:

E3NC-LA7 E3NC-LA9	DPC indicator
E3NC-SA7 E3NC-SA9	ZERO indicator
ESINC-SA9	indicator

Incident level (white, digital)
Measurement value (white, digital)

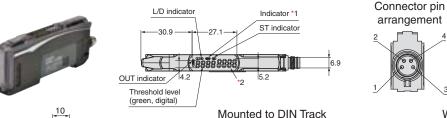
*3. Cable Specifications

Model	Outer diameter	No. of conductors
E3X-CN22	4.0	2
E3X-CN21	4.0	4



Amplifier Units with M8 Connectors

E3NC-LA24 E3NC-LA54 E3NC-SA24 E3NC-SA54



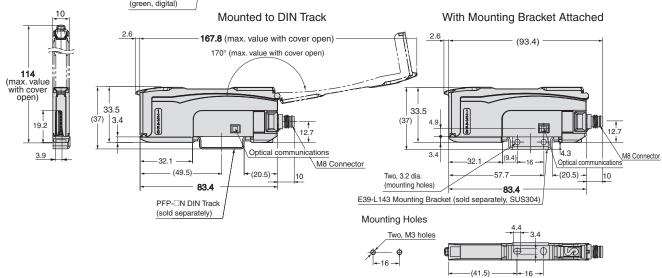
*1. The indicators are as follows:

E3NC-LA24 DPC
E3NC-LA54 indicator

E3NC-SA24 ZERO
E3NC-SA54 indicator

*2. The display is as follows:

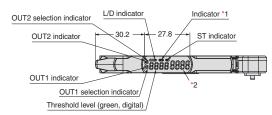
Z. The display is as follows.		
E3NC-LA24	Incident level (white,	
E3NC-LA54	digital)	
E3NC-SA24	Measurement value	
E3NC-SA54	(white, digital)	



Amplifier Units with Connectors for Sensor Communications Unit

E3NC-SA0

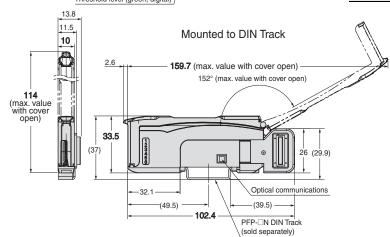




*1. The indicators are as follows:	
E3NC-LA0	DPC indicator
E3NC-SA0	ZERO
LONG OAG	indicator

*2. The display is as follows

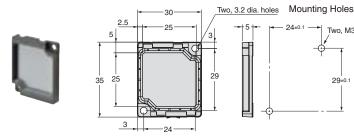
L. The diopidy is do tollows.	
E3NC-LA0	Incident level (white, digital)
E3NC-SA0	Measurement value (white, digital)



Accessories (Sold Separately)

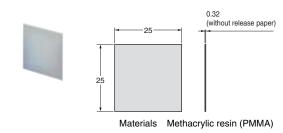
Reflectors for Retro-reflective Sensors

E39-R21

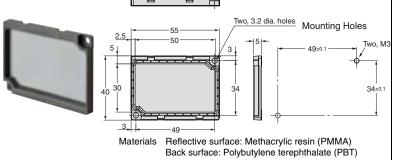


Materials Reflective surface: Methacrylic resin (PMMA)
Back surface: Polybutylene terephthalate (PBT)

E39-RS10



E39-R22

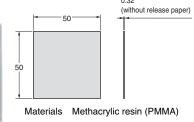


E39-RS11

Dies

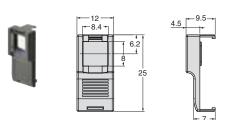
Two, M3

34±0.1



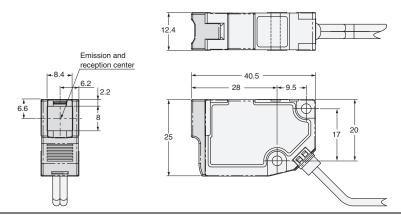
Lens Attachment

E39-P51

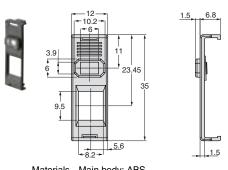


Materials Main body: ABS Lens: Methacrylic resin (PMMA)

With E39-P51 Lens Attachment Attached

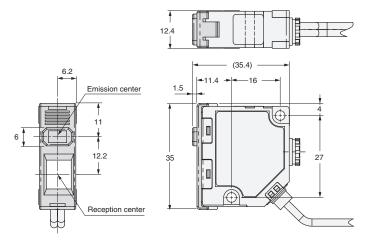


E39-P52



Materials Main body: ABS
Lens: Methacrylic resin (PMMA)

With E39-P52 Lens Attachment Attached



Sensor Head Mounting Brackets

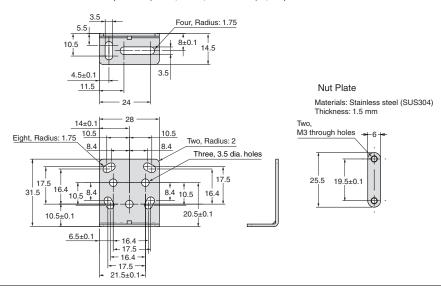
E39-L190

Mounting Bracket

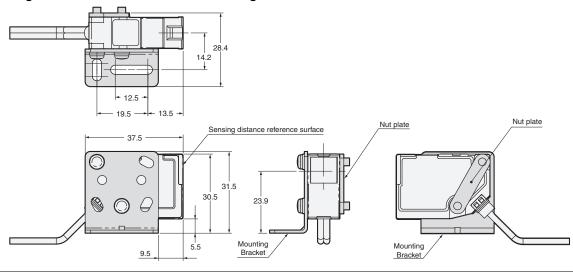
Materials: Stainless steel (SUS304) Thickness: 1.2 mm

Accessories: Phillips screws (M3×18, P = 0.5, stainless steel): 2, Nut plate: 1

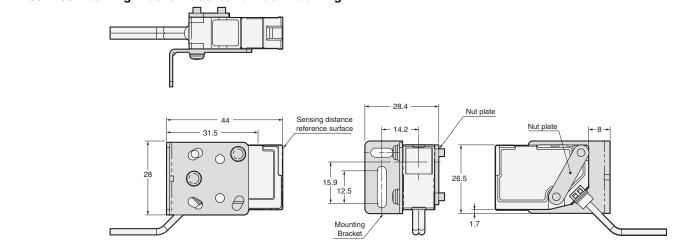




With E39-L190 Mounting Bracket Attached for Bottom Mounting



With E39-L190 Mounting Bracket Attached for Back Mounting

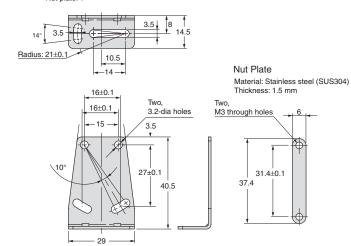


E39-L185

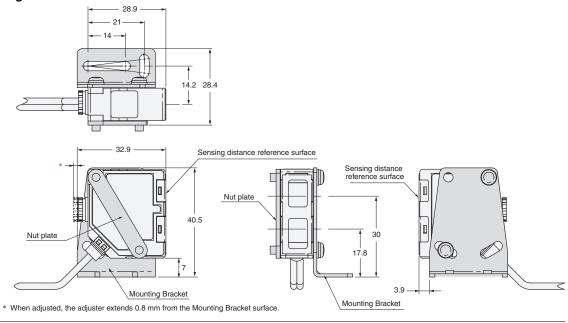


Mounting Bracket Material: Stainless steel (SUS304) Thickness: 1.2 mm

Accessories: Phillips screws (M3x18, P = 0.5, stainless steel): 2 Nut plate: 1



With E39-L185 Mounting Bracket Attached



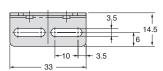
E39-L186

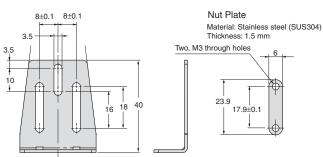


Mounting Bracket

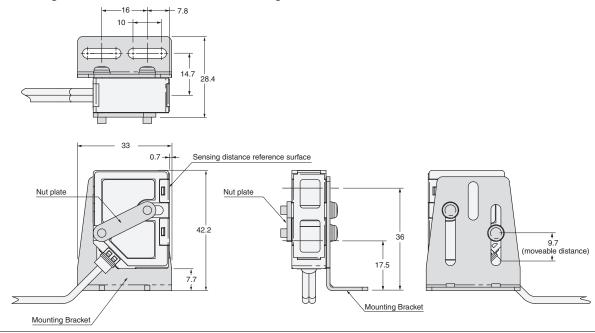
Material: Stainless steel (SUS304)

Thickness: 1.2 mm
Accessories: Phillips screws (M3x18, P = 0.5, stainless steel): 2 Nut plate: 1

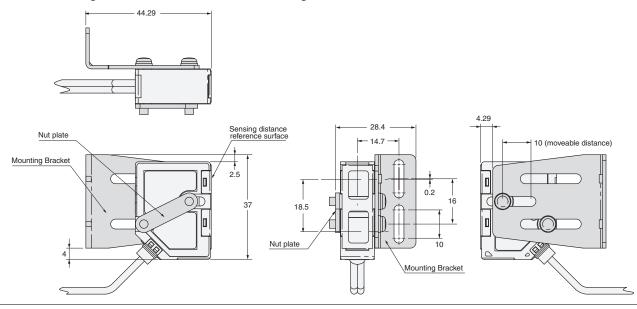




With E39-L186 Mounting Bracket Attached for Bottom Mounting



With E39-L186 Mounting Bracket Attached for Back Mounting







Material: Stainless steel (SUS304)
Thickness: 1.2 mm
Accessories: Phillips screws (M3x18, P = 0.5, stainless steel): 2
Nut Plate:

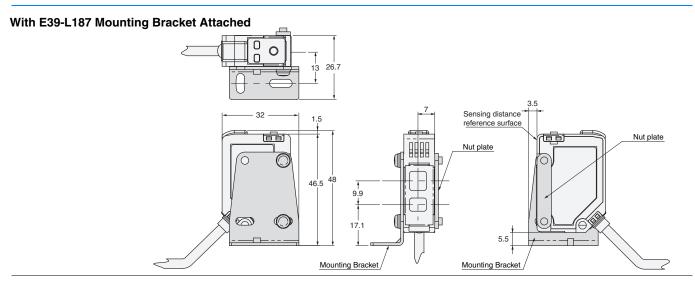
Nut Plate
Material: Stainless steel (SUS304)
Thickness: 1.5 mm
6
4.5

Two, 3.2 dia. holes

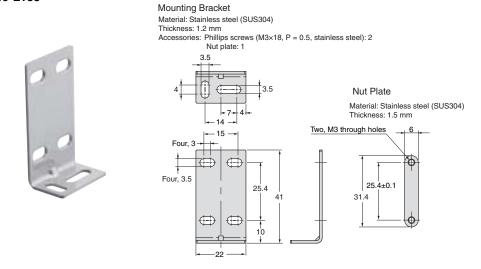
Two, M3 through holes

Two, M3 through holes

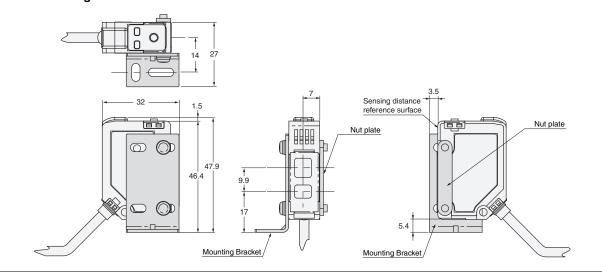
Mounting Bracket



E39-L188



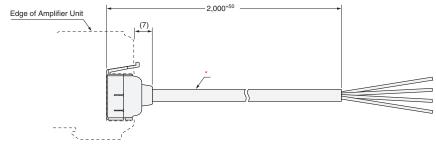
With E39-L188 Mounting Bracket Attached



Wire-saving Connectors

Master Connector E3X-CN21

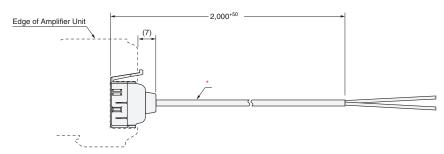




*4-dia. cable with 4 conductors, Standard cable length: 2 m (Conductor cross-section: 0.2 mm² (AWG24), Insulation diameter: 1.1 mm)

Slave Connector E3X-CN22





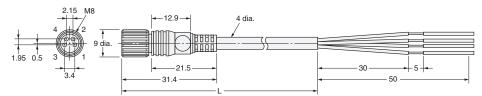
*4-dia. cable with 2 conductors, Standard cable length: 2 m (Conductor cross-section: 0.2 mm² (AWG24), Insulation diameter: 1.1 mm)

Sensor I/O Connectors

Straight

XS3F-M421-40□-A

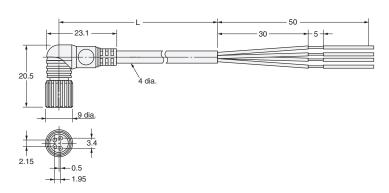




L-shaped

XS3F-M422-40□-A



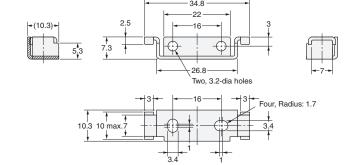


Amplifier Unit Mounting Bracket E39-L143





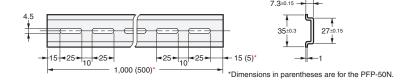
Material: Stainless steel (SUS304)





DIN Track PFP-100N PFP-50N

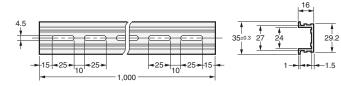




Material: Aluminum

PFP-100N2



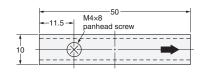


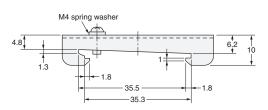
Material: Aluminum

End Plate

PFP-M







Materials: Iron, zinc plating

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