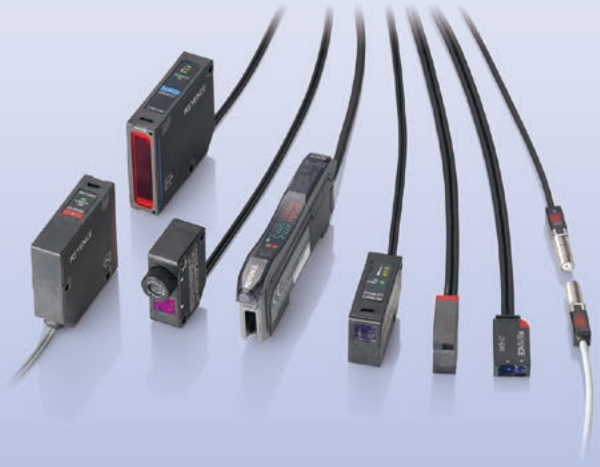
Digital Laser Sensors
LV-N Series



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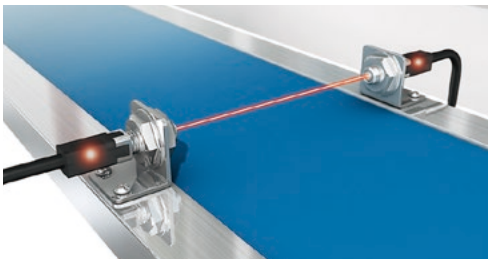
The LV-N Series is part of the NEO family of sensors

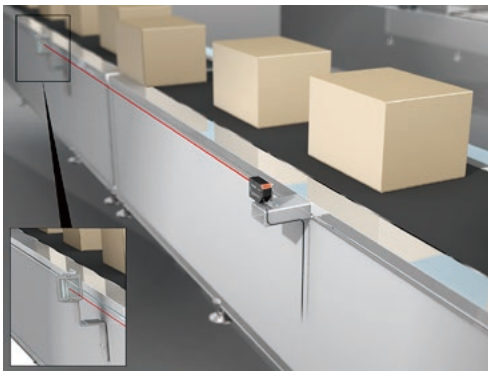
The NEO family contains many common features, including MEGA power mode, automatic maintenance, and preset calibration.

The visible beam of the laser helps to ensure simple alignment and easy installation



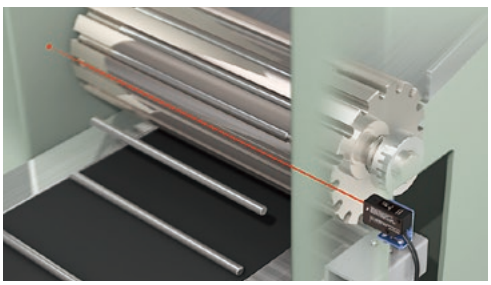
Model: **LV-S71**

Long range detection is possible with the use of a laser, eliminating installation restrictions



Model: **LV-S61**

Because the beam remains unchanged, lasers can easily detect through small gaps



Model: **LV-NH35**

Communication unit support

Current values can be monitored and settings can be read and written over a network.

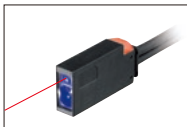
CC-Link
DeviceNet
EtherNet/IP
EtherCAT

* EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Lineup

Reflective ▲ P.153

Spot type



LV-S41

Small size

Enables long distance, small spot detection with an ultra-small footprint.

LV-S41L

Small size, Side view

Space-saving, side view sensor head provides a long distance small spot.

LV-NH32

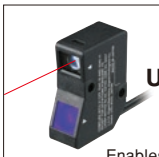
Adjustable beam spot

Up to 1.2 m 3.9' detecting distance. Freely adjust the size and shape of the beam spot for precision and versatility.

LV-NH35

Coaxial structure

Provides effective detection through a small hole or narrow gap.



LV-NH37

Ultra-small beam spot ø50 µm ø1.97 Mil

Enables extremely minute target detection with background cancellation.

LV-S31

Small size, Adjustable range

Dual photodiode allows adjustable distance-based detection while reducing background influence.

Area type

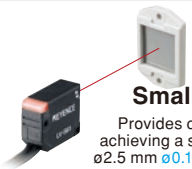
LV-NH42

Long distance

Reliably detects targets with holes or position variation.

Retro-reflective ▲ P.154

Spot type



LV-S61

Small beam spot

Provides compact size while achieving a small beam spot of ø2.5 mm ø0.1" for up to 500 mm 19.69" distance.

LV-NH62

Standard

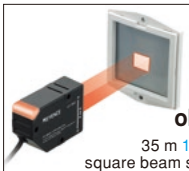
Achieves a small beam spot of ø1.5 mm ø0.06" over a 1 m 3.3' range with the capability to detect up to 8 m 26.2'.

Area type

LV-S62

Area beam

Excellent transparent target detection with the ability to switch between a small spot or area beam.



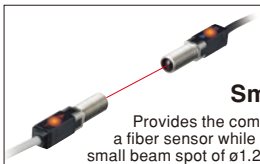
LV-S63

Long-distance transparent object detection

35 m 114.8' detection with a square beam spot to provide stable detection of transparent objects.

Thrubeam ▲ P.155

Spot type



LV-S71

Small: M6

Provides the compact size of a fiber sensor while achieving a small beam spot of ø1.2 mm ø0.05" at a distance of 500 mm 19.69".

LV-S72

Small: M6 (with slit)

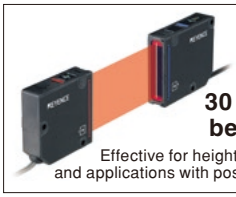
Built-in ø6 mm ø0.24" slit filter allows for high accuracy detection.

Area type

LV-NH100

10 mm 0.39" beam width

Effective for height differentiation and applications with position variation.



LV-NH300

30 mm 1.18" beam width

Effective for height differentiation and applications with position variation.

LV-NH110

High power 10 mm 0.39" beam width

High power enables accurate detection of low light transmission targets.

Amplifier part ▲ P.156

Cable Type

M8 connector Type

Zero line Type

Monitor output Type

LV-N Digital Laser Sensors

LV-neo FUNCTION

NEO Preset

Simply press the PRESET button to change the light intensity display to “100” or “0” to complete the sensitivity settings.

NEO MEGA

MEGA Mode provides Class 2 equivalent light intensity while maintaining Class 1 laser safety.

Built-in application modes (see below)

DATUM function

Even if dirt or debris causes the displayed light intensity to decrease, the DATUM function automatically detects the change and restores the display to its original state, thus maintaining stable operation.

Open field network compatibility

Connect an NU Series model for open field network compatibility.

Reduced wiring

No need to wire to a terminal block when using the NU Series.

Interference prevention function

Pause function

Sleep function

Monitor Output Type (LV-N11MN)

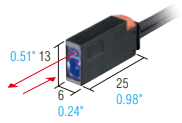
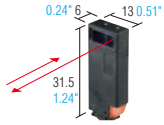
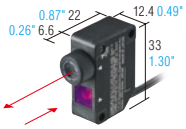
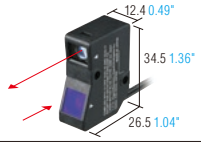
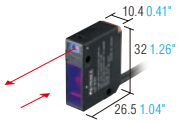
Built-in application modes enable easy selection of desired functions

Laser sensors are designed for general use, but requirements for target detection often demand more. Therefore, customers often seek additional setting options.
The following modes are built into the NEO Series. Simply select the intended use. There is no need for complicated setting operations.

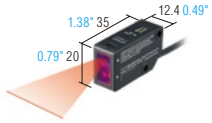
	Drop detection mode	Targets dropped through the beam are detected by the falling intensity level.
	Percentage tuning mode	The set value is tuned and maintained to -5% of the current value.
	Reflective model background cancellation mode	Sets the background as 0 with no target present when using a reflective model.
	Maximum intensity mode	Sets the sensor to MEGA mode with the extended 5-digit display activated.
	Area detection mode	Set a high and low value for zone detection.
	Zero datum mode	Sets the condition of no target present as 0 to allow simple detection of transparent objects or height changes.

Reflective model

Spot type

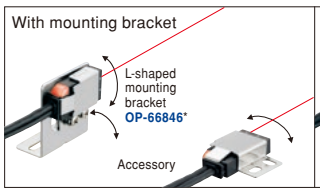
Type	Appearance (mm inch)	Detecting distance (mm inch)	Spot diameter (mm inch)	Model
Small size		MEGA : 600 23.62" ULTRA : 500 19.69" SUPER : 400 15.75" TURBO : 300 11.81" FINE : 200 7.87" HSP : 150 5.91"	Approx. ø1.2 ø0.05" (Up to 500 mm 19.69" distance)	LV-S41
Small size, Side view		MEGA : 480 18.9" ULTRA : 400 15.75" SUPER : 320 12.6" TURBO : 240 9.45" FINE : 160 6.30" HSP : 120 4.72"	Approx. ø1.2 ø0.05" (Up to 400 mm 15.75" distance)	LV-S41L
Adjustable beam spot		MEGA : 1200 47.24" ULTRA : 1000 39.37" SUPER : 750 29.53" TURBO : 500 19.69" FINE : 250 9.84" HSP : 200 7.87"	Approx. ø0.8 ø0.03" max. (Up to 300 mm 11.81" distance)	LV-NH32
Coaxial structure		MEGA : 750 29.53" ULTRA : 600 23.62" SUPER : 450 17.72" TURBO : 300 11.81" FINE : 150 5.91" HSP : 100 3.94"	Approx. ø2 ø0.08" (Up to 600 mm 23.62" distance)	LV-NH35
Ultra-small beam spot		70±15 2.76"±0.59" (Common for all power modes)	Approx. ø50 µm ø1.97 Mil (At 70 mm 2.76" distance)	LV-NH37
Small size, Adjustable range		Adjustment range: 50 to 200 1.97" to 7.87" (Range in which the reference distance can be adjusted)	Approx. ø2 ø0.08" (Up to 200 mm 7.87" distance)	LV-S31

Area type

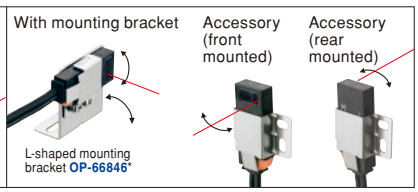
Type	Appearance (mm inch)	Detecting distance (mm inch)	Area width (mm inch)	Model
Long distance		MEGA : 1200 47.24" ULTRA : 1000 39.37" SUPER : 750 29.53" TURBO : 500 19.69" FINE : 250 9.84" HSP : 200 7.87"	Approx. 48×0.4 1.89" × 0.02" (At 200 mm 7.87" distance)	LV-NH42

Accessories/Options

LV-S41



LV-S41L



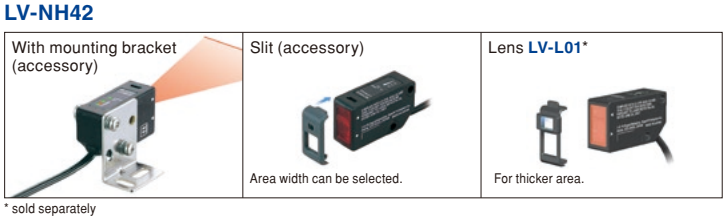
LV-NH32

LV-NH35

LV-NH37

LV-S31

LV-NH42

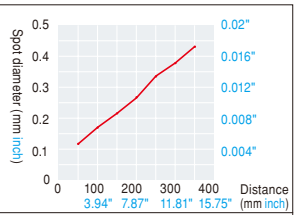


* sold separately

Reflective model characteristics

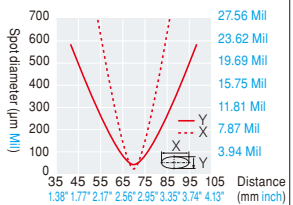
LV-NH32

Characteristics of detecting distance and minimum spot diameter (typical example)



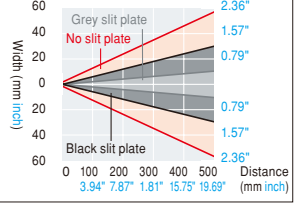
LV-NH37

Characteristics of setting distance and spot diameter (typical example)



LV-NH42

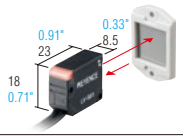
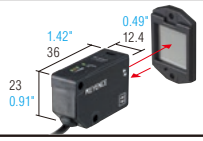
Characteristics of detecting distance and area width (typical example)



LV-N Digital Laser Sensors

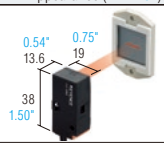
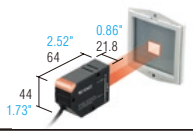
Retro-reflective Type

Spot type

Type	Appearance (mm inch)	Detecting distance (m feet)	Spot diameter (mm inch)	Model
Small beam spot		MEGA : 2.5 8.2' ULTRA : 2 6.6' SUPER : 1.5 4.9' TURBO : 1 3.3' FINE : 0.75 2.5' HSP : 0.5 1.6'	Approx. ø2.5 ø0.10" (Up to 0.5 m 1.6' distance)	LV-S61
Standard		MEGA : 8 26.2' ULTRA : 7 23' SUPER : 6 19.7' TURBO : 5 16.4' FINE : 3.5 11.5' HSP : 2 6.6'	Approx. ø1.5 ø0.06" (Up to 1 m 3.3' distance)	LV-NH62

All models support the P.R.O. function.The polarizing filter reduces/eliminates the effects of direct reflected light from a mirrored-surface workpiece.

Area type

Type	Appearance (mm inch)	Detecting distance (m feet)	Area width (mm inch)	Model
Wide area		MEGA : 12(6) 39.4'(19.7')*1 ULTRA : 10(5) 32.8'(16.4') SUPER : 8(3.5) 26.2'(11.5') TURBO : 5(2) 16.4'(6.6') FINE : 2.5(0.7) 8.2'(2.3')	Area spot: Approx. 10×2 mm 0.39"×0.08" Small beam spot: Approx. 2×2 mm 0.08"×0.08" (Up to 500 mm 19.69" distance)	LV-S62
Long-distance transparent object detection		MEGA : 35 114.8'*2 ULTRA : 30 98.4' SUPER : 25 82' TURBO : 15 49.2' FINE : 8 26.2'	Approx. 8×12 mm 0.31"×0.47" (Up to 3.5 m 11.5' distance)	LV-S63

All models support the P.R.O. function.The polarizing filter reduces/eliminates the effects of direct reflected light from a mirrored-surface workpiece.
*1 Numbers not enclosed in parentheses are the detecting distances for the area spot type. Numbers enclosed in parentheses are the detecting distances for the small beam spot type. When being used for glass detection, we recommend that the detecting distance is set to 1 m or less.
*2 When being used for glass detection, we recommend that the detecting distance is set to 3.5 m or less.

Mounting bracket (accessories/options)

LV-S61

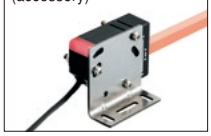
With mounting bracket (accessory)

LV-NH62

With mounting bracket (accessory)

LV-S63

With mounting bracket (accessory)



* sold separately

LV-S62

Using the optional mounting brackets allows you to adjust the optical axis right, left, up, or down.

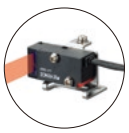
When installing the L-shaped mounting bracket **OP-84350***

Inverse direction mounting

When installing the rear mounting bracket **OP-84349***

Inverse direction mounting

When installing the side mounting bracket **OP-84351***

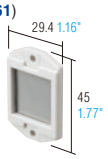


Inverse direction mounting

Be sure to use the dedicated mounting brackets because optical axis adjustment is required.

Reflectors

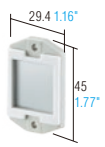
OP-51430 (R-6 Gray) (Included with **LV-S61**)



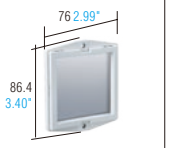
R-6 (Included with **LV-NH62**)

R-7 (Included with **LV-NH62**)

R-6L

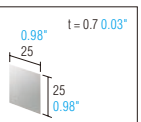


R-9



Reflective tape (sold separately)

OP-42197

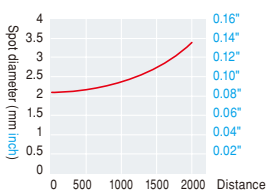


(The detecting distance remains unchanged even if the reflective tape is used.)

Characteristics

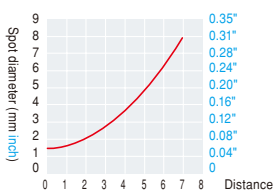
LV-S61

Characteristics of detecting distance and spot diameter (typical example)



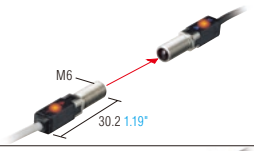
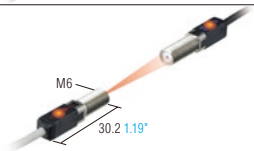
LV-NH62

Characteristics of detecting distance and spot diameter (typical example)

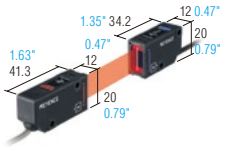
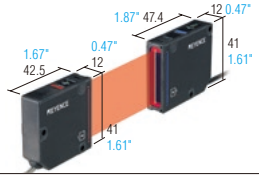
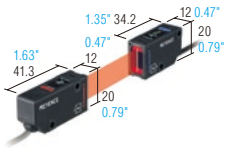


Thrubeam Type

Spot type

Type	Appearance (mm inch)	Detecting distance (mm inch)	Spot diameter (mm inch)	Model
Small beam spot		500 19.69" (Common for all power modes.)	Approx. ø1.2 ø0.05" (Detecting distance: 500 mm 19.69")	LV-S71
Position detection		500 19.69" (Common for all power modes.)	Approx. ø6 ø0.24" (Detecting distance: 500 mm 19.69")	LV-S72

Area type

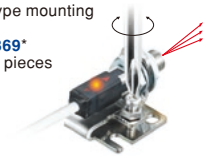
Type	Detecting width (mm)	Appearance (mm inch)	Detecting distance (mm inch)	Area width (mm inch)	Model
Standard	10		2000 78.74" (Common for all power modes.)	Approx. 12 0.47"	LV-NH100
	30			Approx. 32 1.26"	LV-NH300
High power	10			Approx. 12 0.47"	LV-NH110

Mounting bracket (accessories/options)

LV-S71/S72

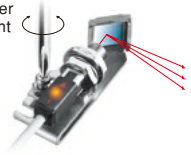
Standard mounting bracket (accessory)

Small type mounting bracket
OP-66869*
Set of 2 pieces



With optical-axis alignment function. Optical-axis can be aligned from the upper direction.

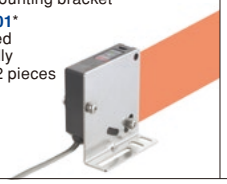
Side viewer attachment
LV-F1*
Set of 2 pieces



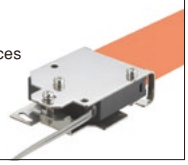
With optical-axis alignment function. Optical-axis can be aligned from the upper direction.

LV-NH300

With mounting bracket
LV-B301*
Mounted vertically
Set of 2 pieces

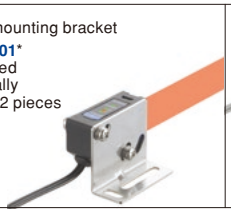


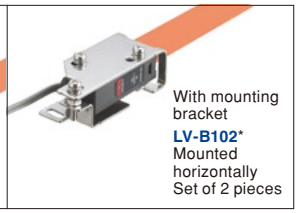
With mounting bracket
LV-B302*
Mounted horizontally
Set of 2 pieces



LV-NH100/NH110

With mounting bracket
LV-B101*
Mounted vertically
Set of 2 pieces





With mounting bracket
LV-B102*
Mounted horizontally
Set of 2 pieces

* sold separately

LV-N Digital Laser Sensors

Amplifier

Cable type

Type		Appearance	Model		Control outputs	External input	Monitor output
			NPN output	PNP output			
Standard	Main unit	 	**LV-N11N**	**LV-N11P**	2	1	0
	Expansion unit		**LV-N12N**	**LV-N12P**			
Monitor output	Main unit		**LV-N11MN**	—	1	1	1

M8 connector type

Type		Appearance	Model		Control outputs	External input	Monitor output
			NPN output	PNP output			
Standard	Main unit	 	**LV-N11CN**	**LV-N11CP**	1	1	0
	Expansion unit		**LV-N12CN**	**LV-N12CP**			

Zero line type

Type		Appearance	Model	Control outputs	External input	Monitor output
Standard	Expansion unit		**LV-N10**	None*1	0	0

*1 Counted as one output when added to an NU Series communication unit.

Specifications

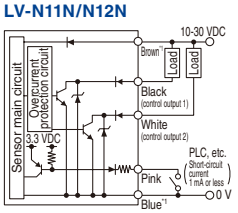
Type		2 output		1 output		Zero line	Monitor output
Cable/connector		Cable		M8 connector		—	Cable
Main/Expansion unit		Main unit	Expansion unit	Main unit	Expansion unit	Expansion unit	Main unit
Model	NPN	**LV-N11N**	**LV-N12N**	**LV-N11CN**	**LV-N12CN**	**LV-N10**	**LV-N11MN**
	PNP	**LV-N11P**	**LV-N12P**	**LV-N11CP**	**LV-N12CP**		—
I/O	Control outputs	2 output		1 output		None	1 output
	External input	1 input		1 input		None	1 input
	Monitor output	None					1 output
Response time		80 µs (HIGH SPEED)/250 µs (FINE)/500 µs (TURBO)/1 ms (SUPER)/4 ms (ULTRA)/16 ms (MEGA) * 80 µs cannot be selected when the **LV-S31/S62/S63** is connected					
Output selection		LIGHT-ON/DARK-ON					
Timer function		Timer OFF/OFF-delay timer/ON-delay timer/One-shot timer, Timer duration selectable: 1 ms to 9,999 ms, Maximum error against the setting value: ±10% max.					
Control outputs	NPN output	NPN open collector 30 V, Residual voltage 1 V or less (Output current: 10 mA or less) / 2 V or less (Output current: 10 to 100 mA)(Stand-alone) 1 output max: 100 mA or less, 2 output total: 100 mA or less (Multiple connections) 1 output max: 20 mA or less					
	PNP output	PNP open collector 30 V, Residual voltage 1.2 V or less (Output current: 10 mA or less) / 2.2 V or less (Output current: 10 to 100 mA)(Stand-alone) 1 output max: 100 mA or less, 2 output total: 100 mA or less (Multiple connections) 1 output max: 20 mA or less					
Monitor output (**LV-N11MN** only)		1 to 5 V voltage output; load resistance 10 kΩ or more; repeat precision ±0.5% of F.S.; response time: 1 ms (HIGH SPEED, FINE, TURBO), 1.2 ms (SUPER), 1.8 ms (ULTRA), 4.2 ms (MEGA)					
External input		Input time 2 ms (ON)/20 ms (OFF) or more*1					
Expansion units		Up to 16 units (Up to 17 units including 1 main unit can be connected in total.) Note: Two-output model should be counted as two units.					
Protection circuit		Reverse polarity protection, Over-current protection, Surge absorber					
Number of interference prevention units*4		Connected to other than **LV-S31**: 0 for HIGH SPEED; 2 for FINE/TURBO/SUPER; 4 for ULTRA/MEGA, Connected to **LV-S31**: 2 for FINE; 4 for TURBO/SUPER/ULTRA/MEGA					
Rating	Power voltage*5	24 VDC (operating voltage 10-30 VDC (with ripple)), ripple (P-P) 10% or less, Class 2 or LPS*7					
	Power consumption*6 NPN	Normal: 830 mW or less (at 30 V. 30 mA at 24 V, 56 mA or less at 12 V)*2 Eco on mode: 710 mW or less (at 30 V. 26 mA at 24 V, 48 mA or less at 12 V)*2 Eco Full mode: 550 mW or less (at 30 V. 21 mA at 24 V, 40 mA or less at 12 V)					
	Power consumption*6 PNP	Normal: 950 mW or less (at 30 V. 33 mA at 24 V, 60 mA or less at 12 V)*2 Eco on mode: 815 mW or less (at 30 V. 29 mA at 24 V, 52 mA or less at 12 V)*2 Eco Full mode: 650 mW or less (at 30 V. 24 mA at 24 V, 40 mA or less at 12 V)				—	
Environmental resistance	Ambient temperature	-20 to +55°C (-4 to +131°F) (No freezing)*3					
	Relative humidity	35 to 85% RH (No condensation)					
	Vibration resistance	10 to 55 Hz, double amplitude: 1.5 mm 0.06", 2 hours each in the X, Y and Z axis					
	Shock resistance	500 m/s² 3 times for each of X,Y and Z axis					
Material	Case	Main unit and cover material: Polycarbonate					
	Cable	PVC					
Case size		H 32.6 mm 1.28" × W 9.8 mm 0.39" × L 78.7 mm 3.1"					
Weight		Approx. 75 g	Approx. 65 g	Approx. 20 g	Approx. 20 g	Approx. 20 g	Approx. 75 g

*1 Input time is 25 ms (ON)/25 ms (OFF) when external calibration time is selected. *2 Increases 30 mW (1 mA) for HIGH SPEED mode.
*3 If more than one unit is used together, the ambient temperature in which the sensor should operate varies with following the conditions. One or two additional units connected: -20°C to +55°C (-4°F to + 131°F); 3 to 10 additional units connected: -20°C to +50°C (-4°F to + 122°F); 11 to 16 additional units connected: -20°C to +45°C (-4°F to + 113°F). When using 2-outputs, one unit is counted as two units. These values are valid when the amplifiers are mounted to a DIN rail and the output current is 20mA or less per amplifier.
*4 These numbers double when "DOUBLE" is selected. *5 To connect more than 9 units, the power voltage must be 20 V or more.
*6 It increases by 15% when connected to the **LV-NH100/NH110/NH300**. It does not include the power consumption of the load. Power consumption when expansion units are connected is the total power consumption of each amplifier unit. Example: When one main unit (**LV-N11N**) is connected to 2 expansion units (**LV-N12N**) and they are used with **LV-NH100** heads in HIGH SPEED mode. (1.15 × 860 mW × 1) + (1.15 × 860 mW x 2) = 2967 mW max.
*7 Use with the over current protection device which is rated 30 V or more and not more than 1 A.

I/O Circuit Diagram

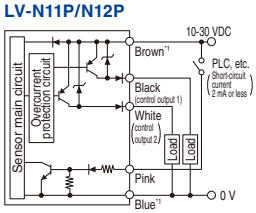
Cable type

LV-N11N/N12N



*1 **LV-N11N** only

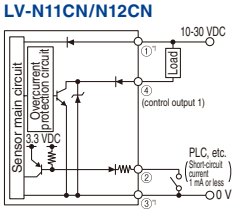
LV-N11P/N12P



*1 **LV-N11P** only

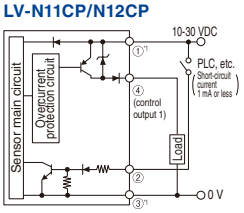
M8 connector type

LV-N11CN/N12CN



*1 **LV-N11CN** only

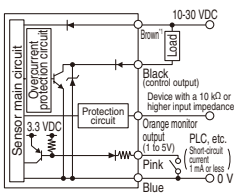
LV-N11CP/N12CP



*1 **LV-N11CP** only

Monitor output type

LV-N11MN



Sensor head specifications

LV-Sxx (Spot Reflective)

Type		Small	Small side view	Adjustable distance definite reflective
Model		**LV-S41**	**LV-S41L**	**LV-S31**
FDA (CDRH) Part 1040.10		Class 1 Laser Product*		
IEC 60825-1		Class 1 Laser Product		
Light source		Visible red semiconductor laser, Wavelength: 655 nm		
Detecting distance	MEGA	600 mm 23.62"	480 mm 18.9"	50 to 200 mm (1.97" to 7.87") (Adjustment range)
	ULTRA	500 mm 19.69"	400 mm 15.75"	
	SUPER	400 mm 15.75"	320 mm 12.6"	
	TURBO	300 mm 11.81"	240 mm 9.45"	
	FINE	200 mm 7.87"	160 mm 6.3"	
	HSP	150 mm 5.91"	120 mm 4.72"	
Ambient temperature		-10 to +50°C (14 to122°F) (No freezing)		0 to +50°C (32 to 122°F) (No freezing)
Material	Case	Glass reinforced plastic		
	Display	Polycarbonate		
	Lens cover	Norbornene plastic	Acrylic	Norbornene plastic*1
Weight		Approx. 70 g		Approx. 75 g

*1 Transmitter lens: Norbornene plastic/Receiver lens cover: Polyarylate

LV-NHxx (Spot Reflective)

Type		Straight-beam coaxial	Adjustable beam spot	Ultra-small beam spot
Model		**LV-NH35**	**LV-NH32**	**LV-NH37**
FDA (CDRH) Part 1040.10		Class 1 Laser Product*		
IEC 60825-1		Class 1 Laser Product		
Light source		Visible red semiconductor laser, Wavelength: 660 nm		
Detecting distance	MEGA	750 mm 29.53"	1200 mm 47.24"	70±15 mm 2.76"±0.59"
	ULTRA	600 mm 23.62"	1000 mm 39.37"	
	SUPER	450 mm 17.72"	750 mm 29.53"	
	TURBO	300 mm 11.81"	500 mm 19.69"	
	FINE	150 mm 5.91"	250 mm 9.84"	
	HSP	100 mm 3.94"	200 mm 7.87"	
Ambient temperature		-10 to +55°C (14 to 131°F) (No freezing)		
Relative humidity		35 to 85% RH (No condensation)		
Material	Case	Glass reinforced plastic		
	Lens cover	Norbornene plastic	Acrylic*1	Glass*1
Weight		Approx. 65 g		

*1 The **LV-NH32** and the **LV-NH37** receivers are polyarylate.

LV-NHxx (Area Beam Reflective)

Type		Long-distance area
Model		**LV-NH42**
FDA (CDRH) Part 1040.10		Class 1 Laser Product*
IEC 60825-1		Class 1 Laser Product
Light source		Visible red semiconductor laser, Wavelength: 660 nm
Detecting distance	MEGA	1200 mm 47.24"
	ULTRA	1000 mm 39.37"
	SUPER	750 mm 29.53"
	TURBO	500 mm 19.69"
	FINE	250 mm 9.84"
	HSP	200 mm 7.87"
Ambient temperature		-10 to +55 °C (14 to 131°F) (No freezing)
Relative humidity		35 to 85% RH (No condensation)
Material	Case	Glass reinforced plastic
	Lens cover	Polyarylate
Weight		Approx. 65 g

LV-Sxx (Retro-reflective)

Type		Small spot	Parallel light area	Long-distance transparent object
Model		**LV-S61**	**LV-S62**	**LV-S63**
FDA (CDRH) Part 1040.10		Class 1 Laser Product*		
IEC 60825-1		Class 1 Laser Product		
Light source		Visible red semiconductor laser*2		
Detecting distance*1	MEGA	2.5 m 8.2'	12 m (6 m) 39.4' (19.7')	35 m 114.8'
	ULTRA	2 m 6.6'	10 m (5 m) 32.8' (16.4')	30 m 98.4'
	SUPER	1.5 m 4.9'	8 m (3.5 m) 26.2' (11.5')	25 m 82'
	TURBO	1 m 3.3'	5 m (2 m) 16.4' (6.6')	15 m 49.2'
	FINE	0.75 m 2.5'	2.5 m (0.7 m) 8.2' (2.3')	8 m 26.2'
	HSP	0.5 m 1.6'	—	—
Ambient temperature		-10 to +50°C (14 to 122°F) (No freezing)		
Material	Case	Glass reinforced plastic		
	Lens cover	Acrylic		
	Reflective mirror	Polycarbonate, acrylic		
Weight		Approx. 70 g	Approx. 65 g	Approx. 110 g

*1 Numbers enclosed in parentheses are the detecting distance for small beam spot.
*2 Wavelength: **LV-S61**: 655 nm **LV-S62/S63**: 660 nm

LV-NHxx (Spot Retro-Reflective)

Type		Small spot
Model		**LV-NH62**
FDA (CDRH) Part 1040.10		Class 1 Laser Product*
IEC 60825-1		Class 1 Laser Product
Light source		Visible red semiconductor laser, Wavelength: 660 nm
Detecting distance	MEGA	8 m 26.2'
	ULTRA	7 m 23'
	SUPER	6 m 19.7'
	TURBO	5 m 16.4'
	FINE	3.5 m 11.5'
	HSP	2 m 6.6'
Ambient temperature		-10 to +55°C (14 to 131°F) (No freezing)
Material	Case	Glass reinforced plastic
	Lens cover	Norbornene plastic
	Reflective mirror	Polycarbonate, acrylic
Weight		Approx. 65 g

LV-Sxx (Spot Thrubeam)

Type		Small standard	Small (with slit)
Model		**LV-S71**	**LV-S72**
FDA (CDRH) Part 1040.10		Class 1 Laser Product*	
IEC 60825-1		Class 1 Laser Product	
Light source		Visible red semiconductor laser, Wavelength: 655 nm	
Detecting distance	MEGA, ULTRA, SUPER, TURBO, FINE, HSP	500 mm 19.69"	
Ambient temperature		-10 to +50°C (14 to 122°F) (No freezing)	
Material	Case	Metal part: Stainless steel, Plastic part: Polyarylate	
	Lens cover	Transmitter: Norbornene plastic Receiver: Polyarylate	Transmitter: Norbornene plastic Receiver: Glass
Weight		Approx. 70 g	

LV-F1

Type		Side-view attachment for thrubeam	
Model		**LV-F1**	
Applicable head		**LV-S71**	**LV-S72**
Detecting distance	MEGA, ULTRA, SUPER, TURBO, FINE, HSP	250 mm 9.84"	400 mm 15.75"
Ambient temperature		-10 to +50°C (14 to 122°F) (No freezing)	
Material		Metal part: SUS304 Mirror part: Glass	
Vibration resistance		10 to 55 Hz, double amplitude: 1.5 mm 0.06" 2 hours in each of X, Y and Z axis directions	
Weight		Approx. 22 g	

LV-NHxx (Area Thrubeam)

Type		Area thrubeam		
		High power	High performance	
Model		**LV-NH110**	**LV-NH100**	**LV-NH300**
Detecting area		10 mm 0.39"		30 mm 1.18"
FDA (CDRH) Part 1040.10		Class 1 Laser Product*		
IEC 60825-1		Class 1 Laser Product		
Light source		Visible red semiconductor laser, Wavelength: 660 nm		
Detecting distance		2000 mm 78.74" (Common among all power modes)		
Ambient temperature		-10 to +55°C (14 to 131°F) (No freezing)		
Relative humidity		35 to 85% RH (No condensation)		
Material	Case	Glass reinforced plastic		
	Lens cover	Transmitter: Glass, Receiver: Polyarylate		
Weight		Approx. 75 g		Approx. 95 g

* The laser classification for FDA (CDRH) is implemented based on IEC 60825-1 in accordance with the requirements of Laser Notice No.50.

LV-L01 Specifications (lens attachment for LV-NH42) (Unit: mm inch)

Name		LV-L01	slit 1 is mounted	slit 2 is mounted	slit 3 is mounted	slit 4 is mounted
Detecting distance	MEGA	960 37.8"	840 33.07"	720 28.35"	600 23.62"	480 18.9"
	ULTRA	800 31.5"	700 27.56"	600 23.62"	500 19.69"	400 15.75"
	SUPER	600 23.62"	525 20.67"	450 17.72"	375 14.76"	300 11.81"
	TURBO	400 15.75"	350 13.78"	300 11.81"	250 9.84"	200 7.87"
	FINE	200 7.87"	175 6.89"	150 5.91"	125 4.92"	100 3.94"
	HSP	160 6.3"	140 5.51"	120 4.72"	100 3.94"	80 3.15"
Area thickness	50 mm 1.97"	2.6 0.1"				
	100 mm 3.94"	4.0 0.16"				
	150 mm 5.91"	5.5 0.22"				
Area width	50 mm 1.97"	15.0 0.59"	11.5 0.45"	9.5 0.37"	7.5 0.3"	5.5 0.22"
	100 mm 3.94"	26.0 1.02"	20.0 0.79"	17.0 0.67"	13.0 0.51"	10.0 0.39"
	150 mm 5.91"	37.0 1.46"	29.0 1.14"	24.0 0.94"	19.0 0.75"	14.0 0.55"
Case material		Polyacetal (main body) Arton (lens)				
Weight		Approx. 1 g				

Example of "width × thickness" of area in LV-L01 detecting distance (Unit: mm inch)

Distance	LV-NH42	LV-NH42 + black slit	LV-NH42 + gray slit	LV-L01	L01 + slit 1	L01 + slit 2	L01 + slit 3	L01 + slit 4
100 3.94"	26×0.6 1.02"×0.02"	13×0.6 0.51"×0.02"	5×0.6 0.2"×0.02"	27×4 1.06"×0.16"	20×4 0.79"×0.16"	17×4 0.67"×0.16"	13×4 0.51"×0.16"	10×4 0.39"×0.16"
200 7.87"	48×0.4 1.89"×0.02"	25×0.4 0.98"×0.02"	9×0.4 0.35"×0.02"	49×7 1.93"×0.28"	38×7 1.5"×0.28"	32×7 1.26"×0.28"	25×7 0.98"×0.28"	19×7 0.74"×0.28"
300 11.81"	70×0.8 2.76"×0.03"	36×0.8 1.42"×0.03"	13×0.8 0.51"×0.03"	72×10 2.83"×0.39"	56×10 2.2"×0.39"	47×10 1.85"×0.39"	36×10 1.42"×0.39"	27×10 1.06"×0.39"
400 15.75"	92×1.34 3.62"×0.05"	48×1.34 1.89"×0.05"	17×1.34 0.67"×0.05"	94×13 3.7"×0.51"	73×13 2.87"×0.51"	61×13 2.4"×0.51"	48×13 1.89"×0.51"	36×13 1.42"×0.51"

LV-N Digital Laser Sensors

<Considerations when using the NEO Series>

To replace the LV Series with the LV-N Series

When you replace your **LV-Hxx** sensor head with the LV-N Series, be aware of the following:
(1) The LV-N Series sensor heads must be used with the LV-N Series amplifiers.
(2) If the desired LV sensor head is not available with the LV-N Series, you must use the LV-H Series amplifier.

Type	LV Series sensor head	LV-N Series sensor head	Remarks
Diffuse-reflective	**LV-H32**	**LV-NH32**	—
	LV-H35	**LV-NH35**	
	LV-H35F	—	Use **LV-21A(P)/22A(P)** for an amplifier.
	LV-H37	**LV-NH37**	—
	LV-H41	—	Use **LV-11A** for an amplifier.
	LV-H42	**LV-NH42**	—
	LV-H47	—	**Use LV-21A(P)/22A(P)** for an amplifier.
Retro-reflective Type	**LV-H62**	**LV-NH62**	—
	LV-H62F	—	Use **LV-21A(P)/22A(P)** for an amplifier.
	LV-H64		
	LV-H65		
	LV-H67		
Thrubeam type	**LV-H100**	**LV-NH100**	—
	LV-H110	**LV-NH110**	
	LV-H300	**LV-NH300**	

* All sensor head **LV-Sxx** can be used with the LV-N Series amplifiers.

Number of connectable amplifiers

When expanding the LV-N, FS-N, or PS-N Series, up to 16 expansion units and 1 main unit can be connected. Therefore up to 17 total units can be connected together. However, be aware that the number of connectable units is dependent upon the number of control outputs for each amplifier.

Series	Model	Number of control outputs
LV-N	**LV-N11N (P)/N12N (P)**	2
	Others	1
FS-N	**FS-N13x/N14x**	2
	Others	1
PS-N	All models	1

Number of mutual interference prevention units

When the NEO Series main and expansion units are connected, the mutual interference prevention function enables the following number of units to closely operate without interference with respect to each power mode.

Power mode		HSP	FINE	TURBO	SUPER	ULTRA	MEGA
LV-N10	Normal	0	2	2*2	2*2	4	4
	DOUBLE*1	0	4	4*2	4*2	8	8
FS-N10	Normal	0	4	8	8	8	8
	DOUBLE*1	0	8	16	16	16	16
PS-N10	Normal	—		4	4	4	4
	DOUBLE*1			8	8	8	8

(When the LV-N, FS-N, and PS-N are mixed in a system, the number of mutual interference prevention units is determined by the Series with the fewest number of units.)
*1 Can be switched to DOUBLE mode by the amplifier mode setting. When DOUBLE mode is used, all connected amplifiers must be in DOUBLE mode.
*2 The number of units is 4 in normal mode and 8 in DOUBLE mode when connected to the **LV-S31**.

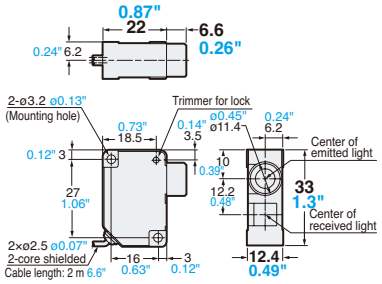
New Products
Fiberoptic Sensors
Photoelectric Sensors
Proximity Sensors
Safety Equipment
Flow/ Pressure/ Temperature
Measurement Sensors
Controls
Static Eliminators
Vision Systems
Marking Equipment
Code Readers
Handheld Mobile Computers
Microscopes
Projector/ 3D Measurement Systems

Dimensions

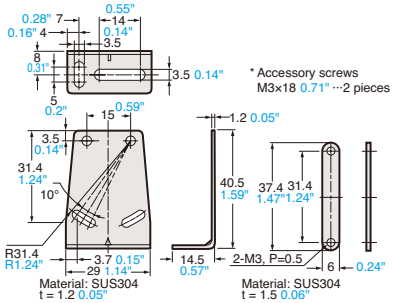
Unit: mm inch

LV-NH Series, Reflective/Retro-Reflective

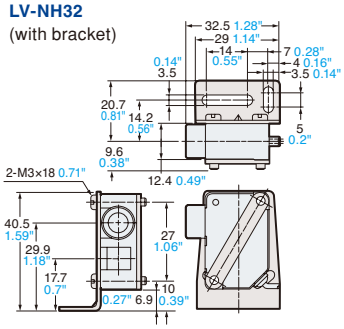
LV-NH32



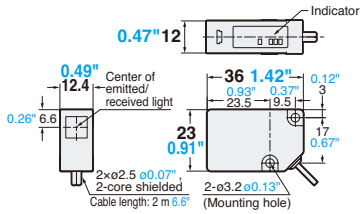
Mounting bracket for the **LV-NH32** (accessory)



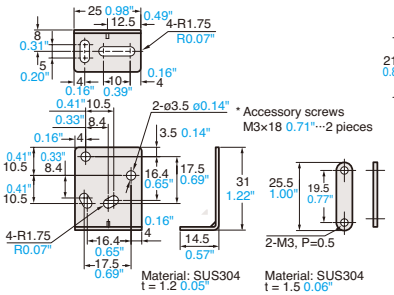
LV-NH32 (with bracket)



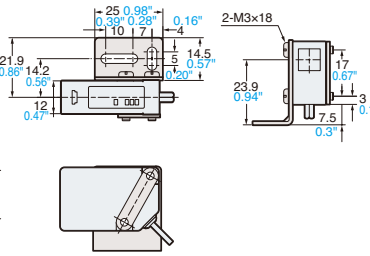
LV-NH35/NH62



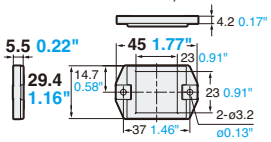
Mounting bracket (accessory)



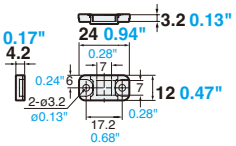
LV-NH35/NH62 (with bracket)



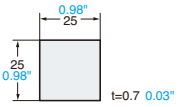
Reflector **R-6**
(Included with **LV-NH62**)



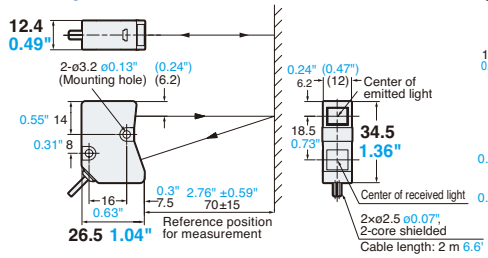
Reflector **R-7**
(Included with **LV-NH62**)



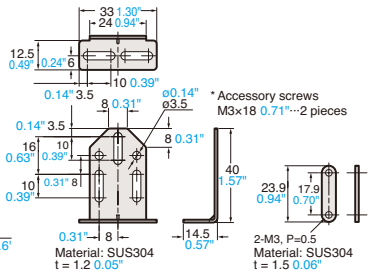
Reflective tape
OP-42197



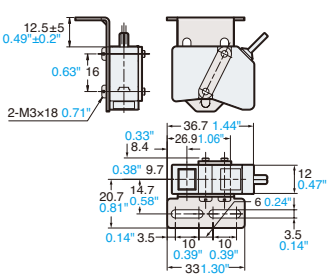
LV-NH37



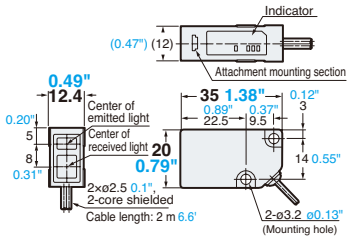
Mounting bracket for the **LV-NH37** (accessory)



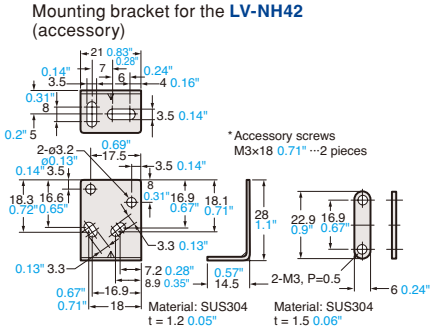
LV-NH37 (with bracket)



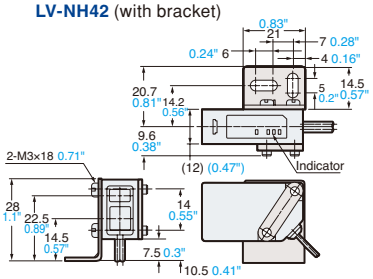
LV-NH42



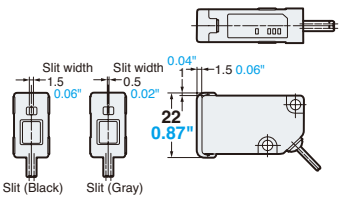
Mounting bracket for the **LV-NH42** (accessory)



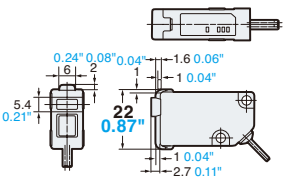
LV-NH42 (with bracket)



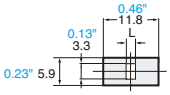
When a slit included with **LV-NH42** is attached



When **LV-L01** is attached (**LV-NH42**)



Slit seal (Included with the **LV-L01**)

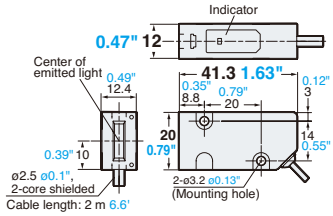


Slit sticker name	L
slit 1	2.6 0.10"
slit 2	2.0 0.08"
slit 3	1.5 0.06"
slit 4	1.1 0.04"

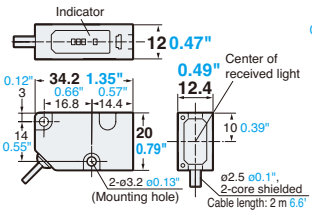
LV-N Digital Laser Sensors

LV-NH100/NH110

Transmitter



Receiver



LV-B101 (bracket, transmitter, and receiver set for the LV-NH100/NH110)

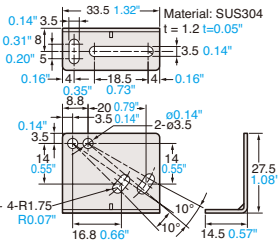


Plate nut for the transmitter

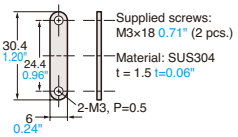
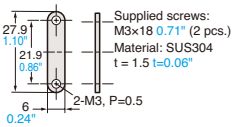
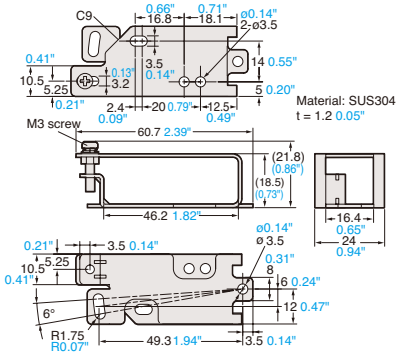


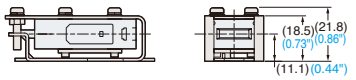
Plate nut for the receiver



LV-B102 (bracket, transmitter, and receiver set for LV-NH100/NH110)

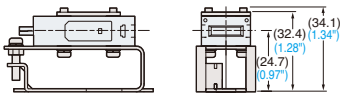


When the LV-NH100/NH110 transmitter is attached (inside)



When the LV-NH100/NH110 receiver is attached (inside)

When the LV-NH100/NH110 transmitter is attached (outside)



When the LV-NH100/NH110 receiver is attached (outside)

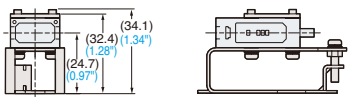


Plate nut for the transmitter

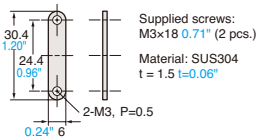
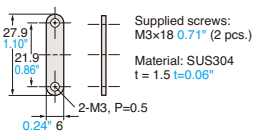
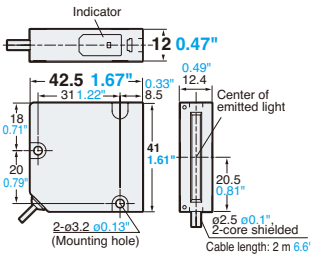


Plate nut for the receiver

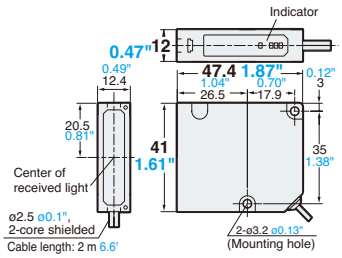


LV-NH300

Transmitter



Receiver



LV-B301 (bracket, transmitter, and receiver set for LV-NH300)

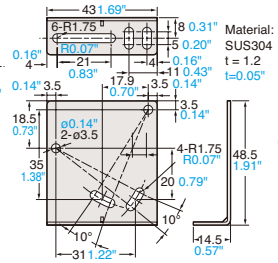


Plate nut for the transmitter

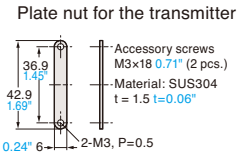
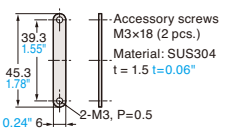
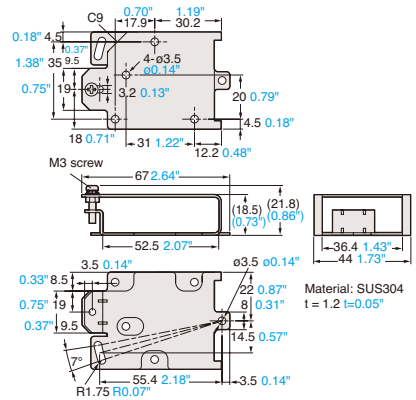


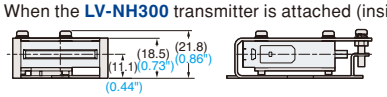
Plate nut for the receiver



LV-B302 (bracket, transmitter, and receiver set for LV-NH300)

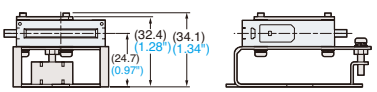


When the LV-NH300 transmitter is attached (inside)



When the LV-NH300 receiver is attached (inside)

When the LV-NH300 transmitter is attached (outside)



When the LV-NH300 receiver is attached (outside)

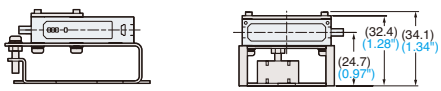


Plate nut for the transmitter

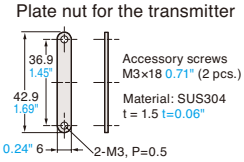
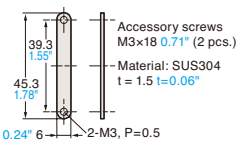
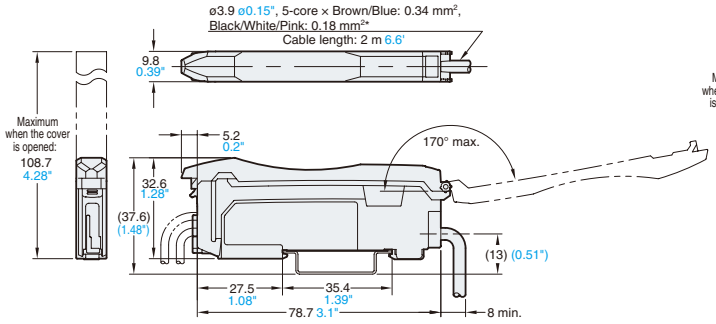


Plate nut for the receiver

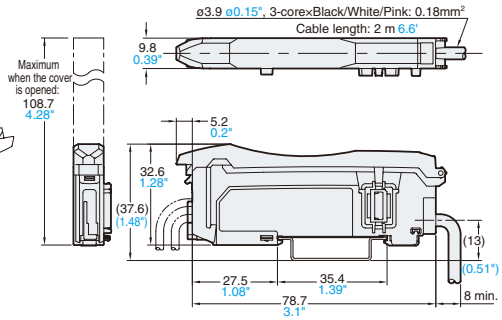


LV-N11N/N11P/N11MN Cable type, Main unit

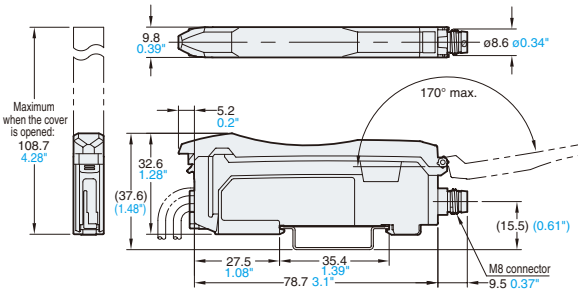


* **LV-N11MN:** ø3.9 ø0.15", 5-core × Brown/Blue: 0.34 mm², Black/Orange/Pink: 0.18 mm²

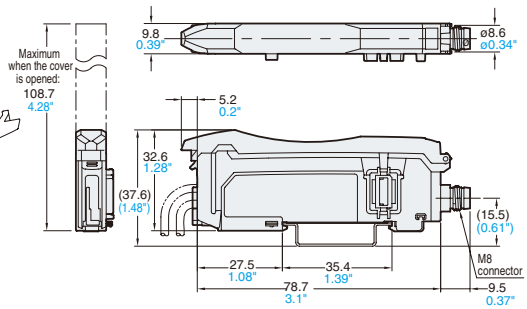
LV-N12N/N12P Cable type, Expansion unit



LV-N11CN/N11CP M8 connector type, Main unit

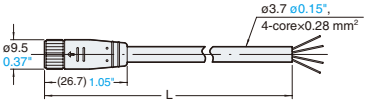


LV-N12CN/N12CP M8 connector type, Expansion unit

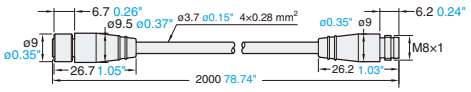


M8 connector cable (**OP-73864/73865** sold separately)

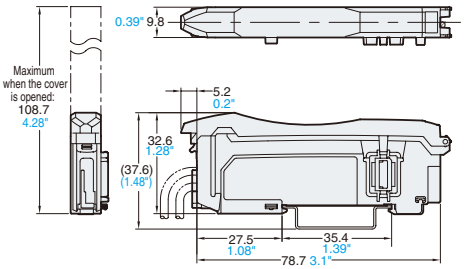
Cable length	L (m feet)
OP-73864	2 6.6'
OP-73865	10 32.8'



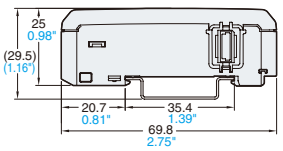
M8 connector junction cable (**OP-85498** sold separately)



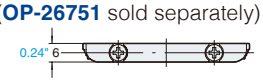
LV-N10 Zero line type, Expansion unit



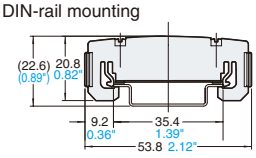
OP-87199 Conversion adaptor



When the end unit is attached (**OP-26751** sold separately)

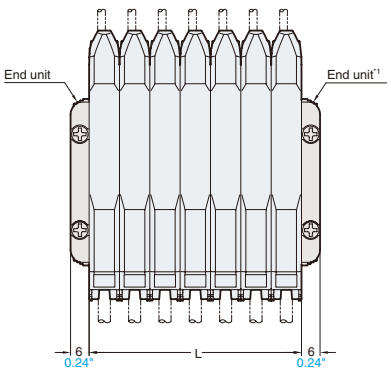


DIN-rail mounting



Material: Polycarbonate

Common for all types When several units are connected:

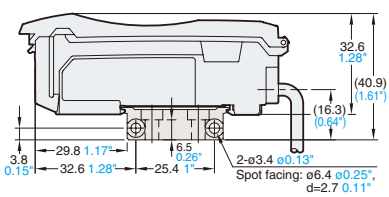


No. of units	L (mm inch)
1	9.8 0.39"
2	19.6 0.77"
3	29.4 1.16"
4	39.2 1.54"
5	49.0 1.93"
6	58.8 2.31"
7	68.6 2.7"
8	78.4 3.09"
9	88.2 3.47"
10	98.0 3.86"
11	107.8 4.24"
12	117.6 4.63"
13	127.4 5.02"
14	137.2 5.4"
15	147.0 5.79"
16	156.8 6.17"
17	166.6 6.56"

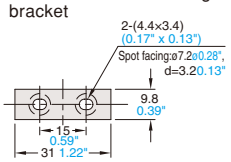
*1 End units must be used when several units are connected.(**OP-26751**)

When the mounting bracket is attached (**OP-73880** sold separately)

Cable type



Reverse side of mounting bracket



Material: Polycarbonate

M8 connector type