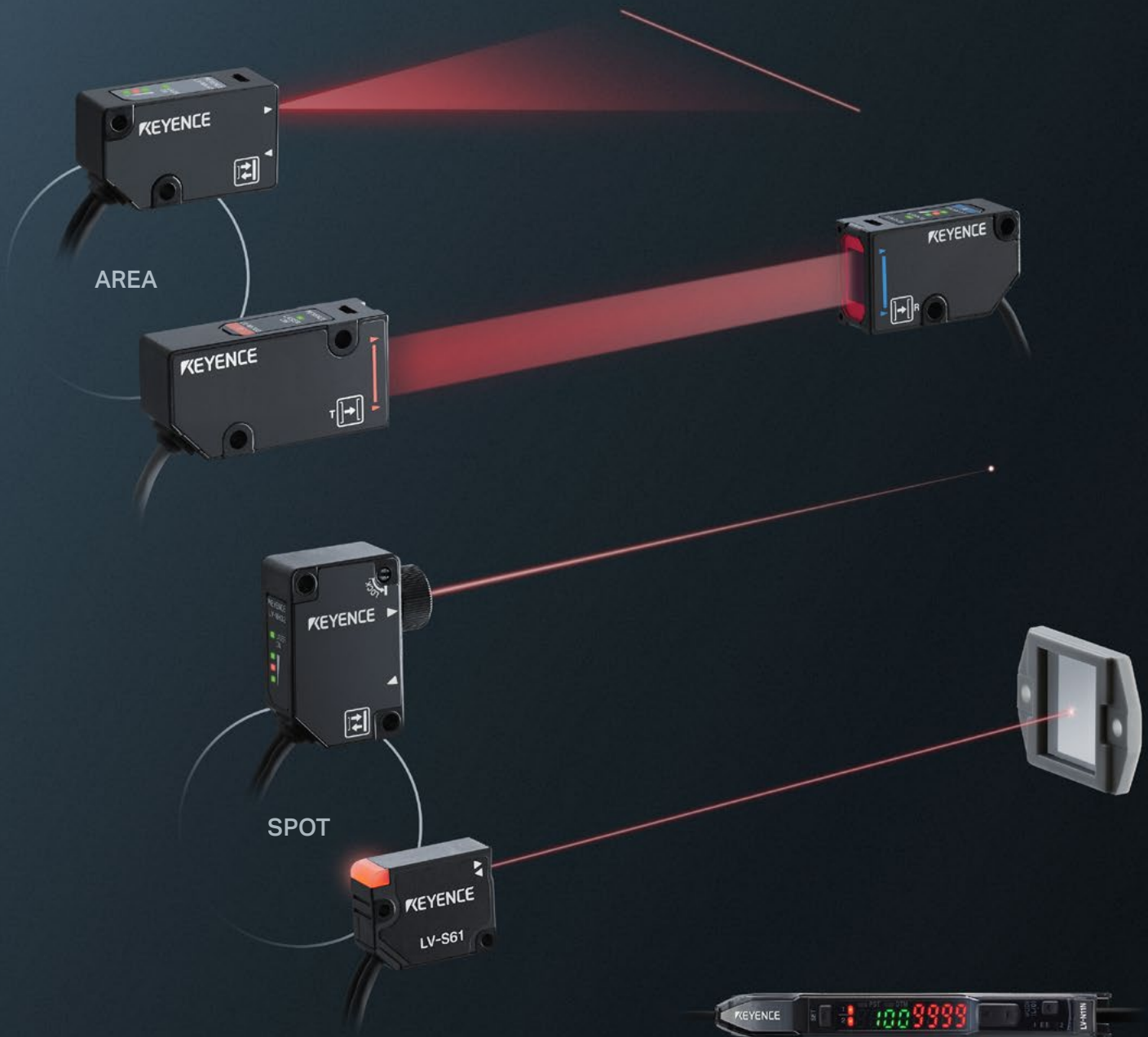


# KEYENCE

## Multi-Purpose Digital Laser Sensor

**NEW** LV-N Series



Wide range of head variations

LV-N Series

# Visible beam

- Laser light source for a clearly visible beam spot
- Easy to see detection position and simple installation
- Class 1 laser in all heads

# Various beam types

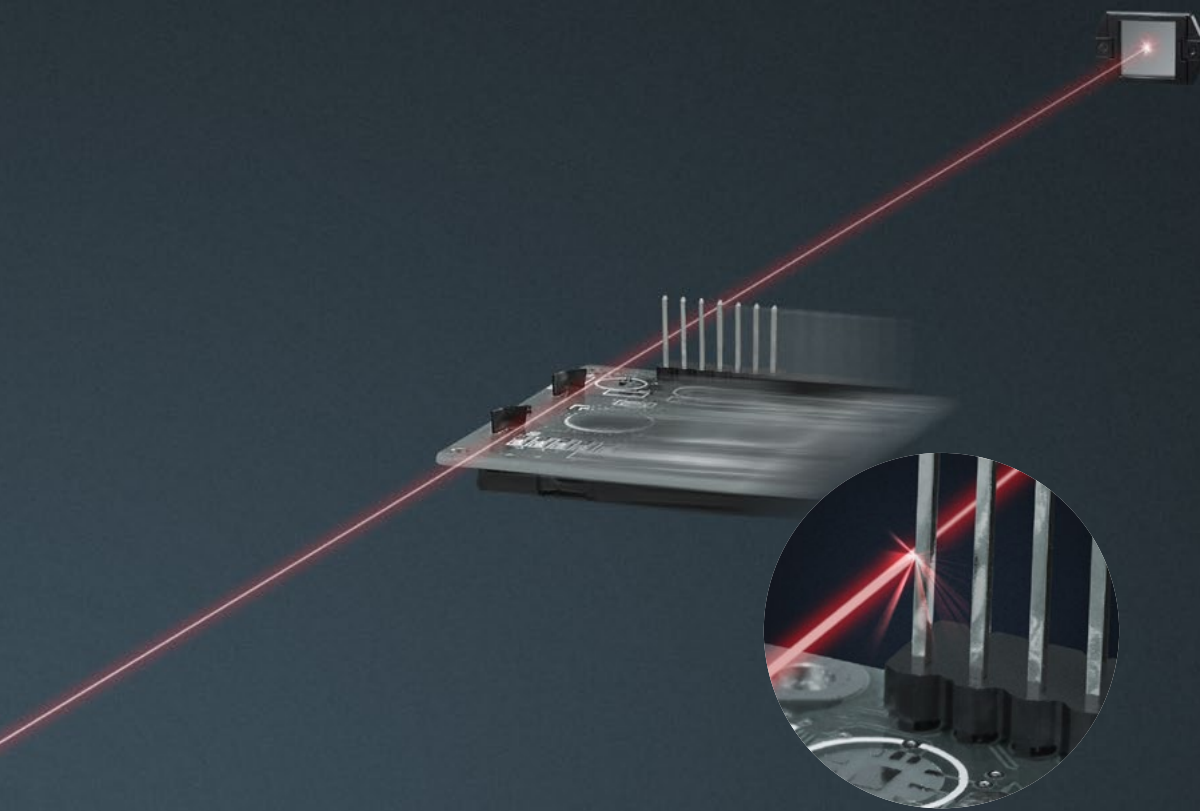
- Small beam spot types with no spot spreading
- Area types for wide-area detection
- Can be chosen for various targets and installation conditions

# Long range detection

- Long range detection is possible with the use of a laser
- Detecting distances of up to 50 m (with the LV-NH67 + OP-42198)

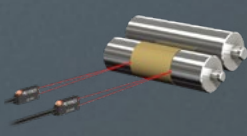
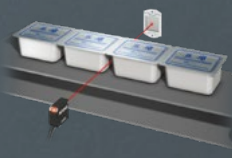
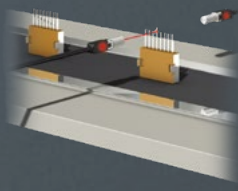
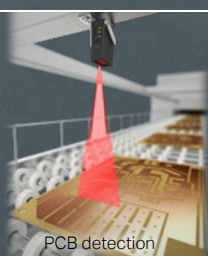
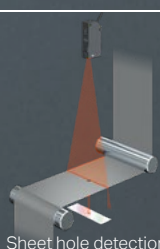



Retro-reflective model (Spot type)  
**LV-NH62**






## Wide range of head variations for various applications

Number of heads	Diffuse-reflective models	Retro-reflective models	Thrubeam models
Spot type	5	3	2
Area type	2	4	3




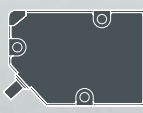


Detection examples	Diffuse-reflective models	Retro-reflective models	Thrubeam models
Spot type	 <p>Meander detection</p>	 <p>Container passage detection</p>	 <p>Pin counting</p>
Area type	 <p>PCB detection</p>	 <p>Sheet hole detection</p>	 <p>Dropped item counting</p>



# Features/Specification Comparison

## Spot type

Head type	Detecting distance / Spot diameter		Features	
<b>Diffuse-reflective models</b>				
	0	500	1000	(Unit: mm)
Adjustable beam spot LV-NH32		Approx. $\phi 0.8$ mm or less (at a distance of up to 300 mm) <b>1200 mm</b>	Adjustable spot diameter at any distance	
Coaxial structure LV-NH35		Approx. $\phi 2$ mm (at a distance of up to 600 mm) <b>750 mm</b>	Effective through holes and gaps; Minimal spot diameter spreading as distance changes	
Compact LV-S41		Approx. $\phi 1.2$ mm (at a distance of up to 500 mm) <b>600 mm</b>	Compact and space-saving	
Compact, side view LV-S41L		Approx. $\phi 1.2$ mm (at a distance of up to 400 mm) <b>480 mm</b>	Compact and space-saving	
Definite-reflective, ultra-small beam spot LV-NH37		Approx. $\phi 50$ $\mu$ m (at a distance of 70 mm) <b>70 <math>\pm</math> 15 mm</b>	Smallest spot diameter in series at approx. $\phi 50$ $\mu$ m	
<b>Retro-reflective models</b>				
	0	4	8	(Unit: m)
Compact LV-S61		Approx. $\phi 2.5$ mm (at a distance of up to 0.5 m) <b>2.5 m</b>	Ideal for when space is limited	
Standard LV-NH62		Approx. $\phi 1.5$ mm (at a distance of up to 1 m) <b>8 m</b>	Approx. $\phi 1.5$ mm at a distance of up to 1 m; Small beam spot; Detecting distance: 8 m or less	
Long-distance LV-NH67		Approx. 50 $\times$ 15 mm (at a distance of 10 m) <b>50 m*1</b>	Stable long-distance detection with a detecting distance of up to 50 m*1	
*1 Detecting distance when using the OP-42198 reflector (sold separately).				
<b>Thru-beam models</b>				
	0	250	500	(Unit: mm)
Compact, M6 LV-S71		Approx. $\phi 1.2$ mm (Detecting distance: 500 mm) <b>500 mm</b>	No spot spreading at fibreoptic sizes	
Compact, M6 slit (Receiver: $\phi 0.6$ mm) LV-S72		Approx. $\phi 6$ mm (Detecting distance: 500 mm) <b>500 mm</b>	Built-in slit for greater differentiation accuracy	

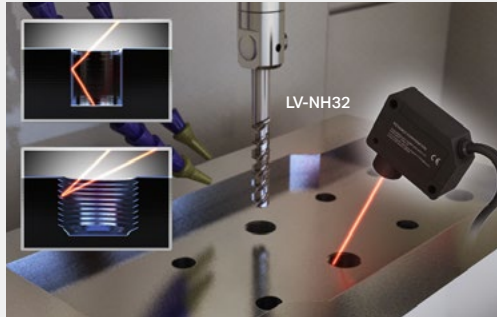
## Area type

Head type	Detecting distance / Area width		Features
<b>Diffuse-reflective models</b>			
	0	500	1000 (Unit: mm)
Long-distance LV-NH42		Area width: Approx. 37 mm (at a distance of 150 mm) <b>1200 mm</b>	Effective for scattered targets
Definite-reflective LV-NH47		Area width: Approx. 21 mm (at a distance of 70 mm) <b>55 to 85 mm</b>	Resistant to background effects and changes in target colour/shape
<b>Retro-reflective models</b>			
	0	10	35 (Unit: m)
Parallel light LV-S62		Area width: Approx. 10 mm*1 (at a distance of up to 500 mm) <b>12 m*1</b>	Excellent transparent object detection capability; Area spot or small beam spot configurable
Long-distance, transparent object detection LV-S63		Area width: Approx. 8 × 12 mm (at a distance of up to 3.5 m) <b>35 m*2</b>	Stable detection of transparent objects even at 35 m
Magnified beam, long-distance area LV-NH64		Area width: Approx. 40 mm (at a distance of 300 mm) <b>1300 mm</b>	Excellent long-distance drop detection and shape differentiation
Magnified beam, wide area LV-NH65		Area width: Approx. 50 mm (at a distance of 100 mm) <b>350 mm</b>	Excellent short-distance drop detection and shape differentiation
*1 With area spot. A detecting distance of 1 m or less is recommended when used for glass detection. *2 A detecting distance of 3.5 m or less is recommended when used for glass detection.			

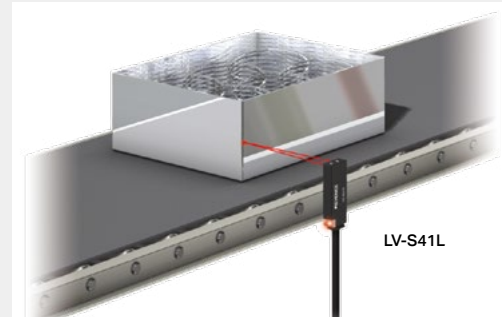
Head type	Detecting distance / Detection width		Features
<b>Thrubeam models</b>			
	0	1000	2000 (Unit: mm)
Detection width: 10 mm LV-NH100		Detection width: 10 mm <b>2000 mm</b>	Detection width: 10 mm; Ideal for height differentiation, meander detection, etc.
Detection width: 30 mm LV-NH300		Detection width: 30 mm <b>2000 mm</b>	Detection width: 30 mm; Excellent wide-area drop detection
Detection width: 10 mm, high-power LV-NH110		Detection width: 10 mm <b>2000 mm</b>	High-power with excellent detection through slits, etc.

# Applications

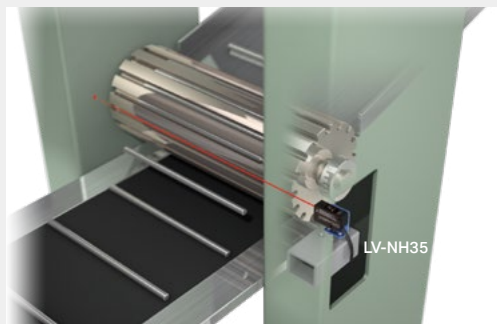
## Spot types



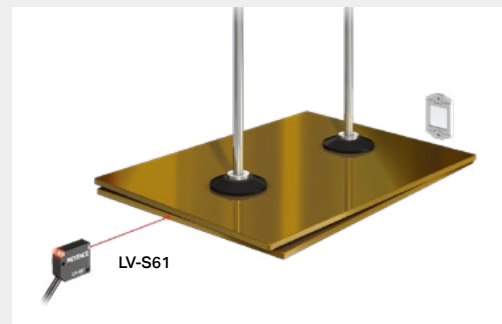
**Diffuse-reflective (Adjustable beam spot)**  
Tap detection



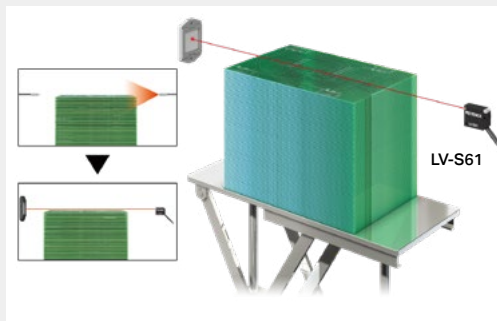
**Diffuse-reflective (Side view)**  
Rack stop position detection



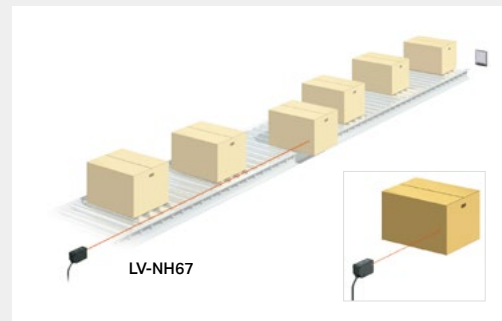
**Diffuse-reflective (Coaxial structure)**  
Detection of targets in grooves



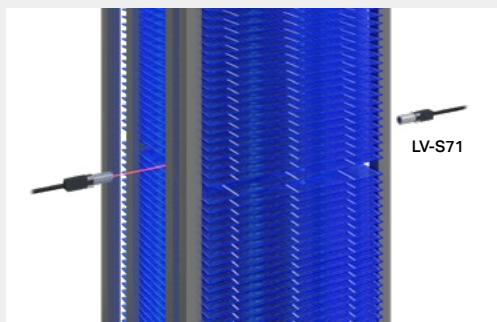
**Retro-reflective (Compact)**  
PCB overlap detection



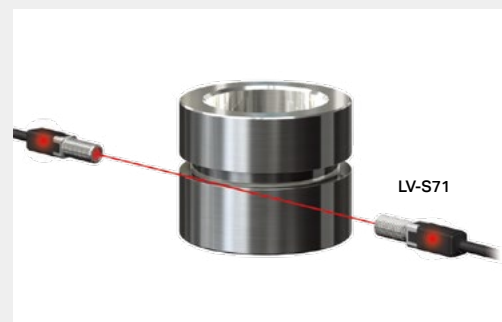
**Retro-reflective (Compact)**  
Multi-layer PCB edge detection



**Retro-reflective (Long-distance)**  
Misalignment detection

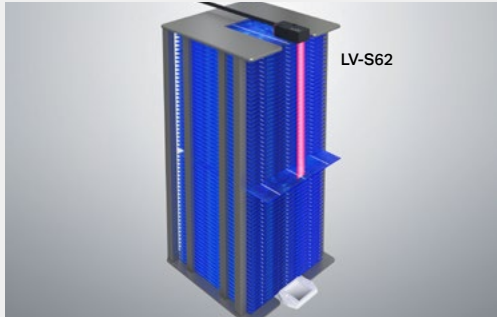


**Thrubeam (Compact, M6)**  
Cassette PCB tilt detection

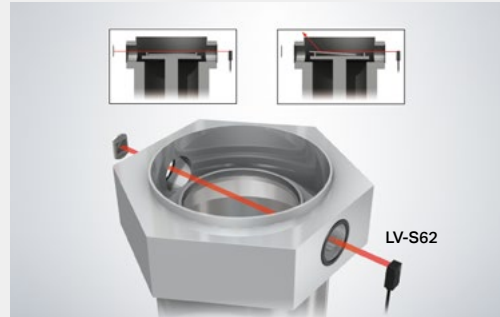


**Thrubeam (Compact, M6)**  
Deburring checking

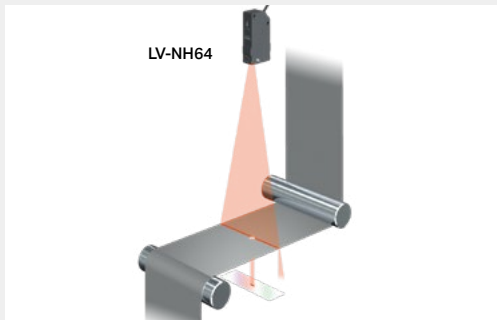
■ Area types



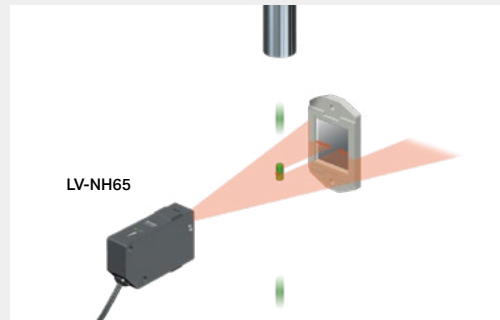
**Retro-reflective (Parallel light)**  
PCB misalignment detection



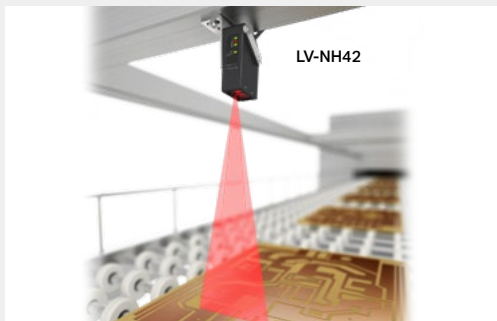
**Retro-reflective (Parallel light)**  
Incorrect wafer chamber seating detection



**Retro-reflective (Long-distance area)**  
Sheet hole detection



**Retro-reflective (Wide area)**  
Drop detection



**Diffuse-reflective (Long-distance)**  
PCB passage detection



**Diffuse-reflective (Definite-reflective)**  
Shaft presence detection



**Thrubeam (Detection width: 30 mm)**  
Dropped target counting



**Thrubeam (High-power)**  
Hopper material detection

# LV-NEO Amplifier



**Cable type**  
LV-N11(N/P)  
LV-N12(N/P)



**M8 connector type**  
LV-N11C(N/P)  
LV-N12C(N/P)



**Zero-line type**  
LV-N10



**Monitor output type**  
LV-N11MN



## Equipped with NEO MEGA Mode

Take advantage of Class 2 or better detecting distances from a Class 1 laser with MEGA mode.

## Same configuration method as the NEO Series (FS-N10/PS-N)

Settings can be configured just as with FS-N10 Series fibre optic sensor amplifiers and PS-N Series photoelectric sensor amplifiers, ensuring familiar usability.

## NEO presets

Switch to a percentage display with the PRESET button for quick identification of changes in received light intensity.

## Interference prevention function (for up to 8 units)

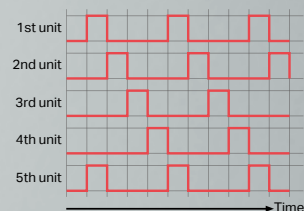
Every year, the size of FA equipment decreases, meanwhile the number of locations where sensors are used increases. This can be problematic when installing multiple sensors in limited space, as light from nearby sensors could be detected. The NEO Series includes a function that prevents interferences from up to 8 other units\* and 4 units during normal operation.

\* When using "DOUBLE" in ULTRA or MEGA mode.

### Example sensor emission cycles

Interference is prevented by automatically shifting the laser emission cycle pattern.

\* The example to the right is for the LV-N11N/N12N in FINE mode (when using "DOUBLE").



## Network Compatibility (NU Series)

Industrial Network Integration is possible with the use of the KEYENCE NU Series. Multiple network options are available.





# Lineup

## Diffuse-reflective models Spot type

Appearance (mm)				
Model (Type)	<b>LV-S41</b> (Compact)	<b>LV-S41L</b> (Compact, side view)	<b>LV-NH32</b> (Adjustable beam spot)	<b>LV-NH35</b> (Coaxial structure)
Detecting distance (mm)	MEGA : 600 ULTRA : 500 SUPER : 400 TURBO : 300 FINE : 200 HSP : 150	MEGA : 480 ULTRA : 400 SUPER : 320 TURBO : 240 FINE : 160 HSP : 120	MEGA : 1200 ULTRA : 1000 SUPER : 750 TURBO : 500 FINE : 250 HSP : 200	MEGA : 750 ULTRA : 600 SUPER : 450 TURBO : 300 FINE : 150 HSP : 100
Spot diameter (mm)	Approx. ø1.2 (Distance: 500 mm or less)	Approx. ø1.2 (Distance: 400 mm or less)	Approx. ø0.8 or less (Distance: 300 mm or less)	Approx. ø2 (Distance: 600 mm or less)
Dimensions	P. 15	P. 15	P. 17	P. 17

## Diffuse-reflective models Spot type

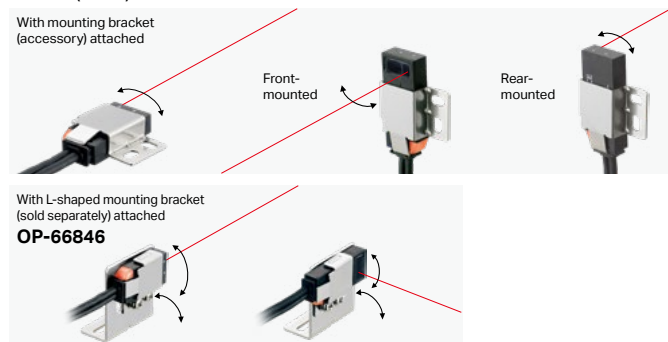
Appearance (mm)	
Model (Type)	<b>LV-NH37</b> (Definite-reflective, ultra-small beam spot)
Detecting distance (mm)	70 ± 15 * Same for all power modes
Spot diameter	Approx. ø50 μm (Distance: 70 mm)
Dimensions	P. 17

## Diffuse-reflective models Area type

Appearance (mm)		
Model (Type)	<b>LV-NH42</b> (Long-distance)	<b>LV-NH47</b> (Definite-reflective)
Detecting distance (mm)	MEGA : 1200 ULTRA : 1000 SUPER : 750 TURBO : 500 FINE : 250 HSP : 200	55 to 85 * Same for all power modes
Area width (mm)	Approx. 37 (Distance: 150 mm)	Approx. 21 (Distance: 70 mm)
Dimensions	P. 17	P. 17

## Mounting brackets (included accessories/sold separately) / Optional accessories

### LV-S41 (S41L)



### LV-NH32



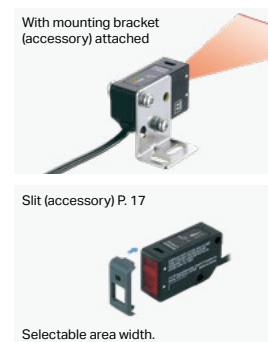
### LV-NH35



### LV-NH37



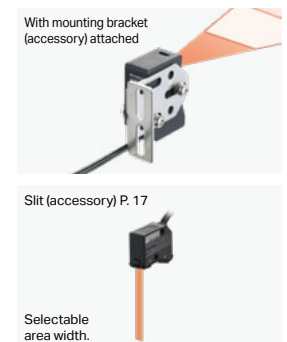
### LV-NH42



### Lens (sold separately) LV-L01



### LV-NH47



### Lens (sold separately) LV-L02



# Lineup

## Retro-reflective models Spot type

Appearance (mm)			
Model (Type)	<b>LV-S61</b> (Compact)	<b>LV-NH62</b> (Standard)	<b>LV-NH67</b> (Long-distance (50 m <sup>2</sup> max.))
Detecting distance (m)	MEGA : 2.5 ULTRA : 2 SUPER : 1.5 TURBO : 1 FINE : 0.75 HSP : 0.5	MEGA : 8 ULTRA : 7 SUPER : 6 TURBO : 5 FINE : 3.5 HSP : 2	MEGA : 30 (50)* <sup>1</sup> ULTRA : 30 (50) SUPER : 30 TURBO : 30 FINE : 22 HSP : 20
Spot diameter (mm)	Approx. $\phi$ 2.5 (Distance: 0.5 m or less)	Approx. $\phi$ 1.5 (Distance: 1 m or less)	Approx. 50 × 15 (Distance: 10 m)
Dimensions	P. 15	P. 17	P. 16

\*1 Detecting distance when using the OP-42198 reflector (sold separately) indicated in parentheses.

## Retro-reflective models Area type

Appearance (mm)				
Model (Type)	<b>LV-S62</b> (Parallel light)	<b>LV-S63</b> (Long-distance, transparent object detection)	<b>LV-NH64</b> (Magnified beam, long-distance area)	<b>LV-NH65</b> (Magnified beam, wide area)
Detecting distance (m)	MEGA : 12 (6)* <sup>1</sup> ULTRA : 10 (5) SUPER : 8 (3.5) TURBO : 5 (2) FINE : 2.5 (0.7)	MEGA : 35* <sup>2</sup> ULTRA : 30 SUPER : 25 TURBO : 15 FINE : 8	MEGA : 800 to 1300 mm (1000 to 1700 mm)* <sup>3</sup> ULTRA : 400 to 1200 mm (600 to 1500 mm) SUPER : 300 to 1000 mm (500 to 1200 mm) TURBO : 200 to 850 mm (300 to 1000 mm) FINE : 150 to 650 mm (200 to 850 mm) HSP : 100 to 500 mm (100 to 700 mm)	MEGA : 180 to 350 mm (300 to 500 mm)* <sup>3</sup> ULTRA : 100 to 200 mm (150 to 350 mm) SUPER : 60 to 180 mm (100 to 300 mm) TURBO : 10 to 150 mm (10 to 250 mm) FINE : 0 to 120 mm (10 to 200 mm) HSP : 0 to 100 mm (0 to 150 mm)
Area width (mm)	With area spot: Approx. 10 mm With small beam spot: Approx. 2 × 2 mm (Distance: 500 mm or less)	Approx. 8 × 12 (Distance: 3.5 m or less)	Approx. 40 (Distance: 300 mm)	Approx. 50 (Distance: 100 mm)
Dimensions	P. 15	P. 15	P. 16	P. 16

\*1 Detecting distance when using area spot indicated without parentheses. Detecting distance when using small beam spot indicated in parentheses. A detecting distance of 1 m or less is recommended when used for glass detection. \*2 A detecting distance of 3.5 m or less is recommended when used for glass detection. \*3 Detecting distance when using the included reflector indicated without parentheses. Detecting distance when using the OP-51428 reflective tape (sold separately) indicated in parentheses.

## Mounting brackets (included accessories/sold separately)

<b>LV-S61</b> With L-shaped mounting bracket (accessory) attached 	<b>LV-NH64</b> With mounting bracket (accessory) attached 	<b>LV-S62*1</b> With L-shaped mounting bracket (sold separately) attached <b>OP-84350</b>  Reverse mounting
<b>LV-NH62</b> With mounting bracket (accessory) attached 	<b>LV-NH65</b> With mounting bracket (accessory) attached 	<b>OP-84349</b> With rear mounting bracket (sold separately) attached  Reverse mounting
<b>LV-S63</b> With mounting bracket (accessory) attached 	<b>LV-NH67</b> With mounting bracket (accessory) attached 	<b>OP-84351</b> With side mounting bracket (sold separately) attached  Reverse mounting

\*1 All mounting brackets can be used for vertical and horizontal optical-axis alignment. Optical-axis alignment is required. Be sure to use a dedicated bracket.

## Reflector

<b>OP-51430</b> [R-6 (grey)] (Included with LV-S61/NH64/NH65)  Dimensions: P. 15	<b>R-6</b> (Included with LV-NH62)  Dimensions: P. 17	<b>R-7</b> (Included with LV-NH62)  Dimensions: P. 17	<b>R-6L</b> (Included with LV-S62)  Dimensions: P. 15
<b>R-9</b> (Included with LV-S63)  Dimensions: P. 16	<b>OP-95388</b> [R-2] (Included with LV-NH67)  Dimensions: P. 16	<b>OP-42198</b> (sold separately) (Used for long-distance detection with the LV-NH67)  Dimensions: P. 16	

## Reflective tape (sold separately)

<b>OP-42197*1,2</b>  Dimensions: P. 17	<b>OP-51428</b> (For LV-NH64/NH65)  Dimensions: P. 17
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\*1 Equivalent to OP-51430 and R-6.

\*2 OP-87123 also available with same capacity as R-6L.

## Thurbeam models Spot type

Appearance (mm)		
Model (Type)	<b>LV-S71</b> (Compact, M6)	<b>LV-S72</b> (Compact, M6 slit (Receiver: ø0.6 mm))
Detecting distance (mm)	500 * Same for all power modes	
Spot diameter (mm)	Approx. ø1.2 (Detecting distance: 500 mm)	Approx. ø6 (Detecting distance: 500 mm)
Dimensions	P. 16	P. 16

## Thurbeam models Area type

Appearance (mm)			
Model (Type)	<b>LV-NH100</b> (Standard)	<b>LV-NH300</b> (Standard)	<b>LV-NH110</b> (High-power)
Detection width (mm)	10	30	10
Detecting distance (mm)	2000 * Same for all power modes		
Area width (mm)	Approx. 12	Approx. 32	Approx. 12
Dimensions	P. 18	P. 18	P. 18

## Mounting brackets (included accessories/sold separately)

### LV-S71/S72

<p>Standard bracket (accessory)</p> <p>(Dimensions: P. 16)</p>	<p>Compact mounting bracket (sold separately) <b>OP-66869</b> Set of 2</p> <p>With optical-axis alignment function Optical axis can be aligned from above. (Dimensions: P. 16)</p>	<p>Side view attachment (sold separately) <b>LV-F1</b> Set of 2</p> <p>With optical-axis alignment function Optical axis can be aligned from above. (Dimensions: P. 16)</p>
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### LV-NH300

<p>With mounting bracket (sold separately) attached</p> <p><b>LV-B301</b> Mounted vertically Set of 2</p> <p>(Dimensions: P. 18)</p>
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<p>With mounting bracket (sold separately) attached</p> <p><b>LV-B302</b> Mounted horizontally Set of 2</p> <p>(Dimensions: P. 18)</p>
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### LV-NH100/NH110

<p>With mounting bracket (sold separately) attached</p> <p><b>LV-B101</b> Mounted vertically Set of 2</p> <p>(Dimensions: P. 18)</p>
--

<p>With mounting bracket (sold separately) attached</p> <p><b>LV-B102</b> Mounted horizontally Set of 2</p> <p>(Dimensions: P. 18)</p>
--

**LV-Sxx (Diffuse-reflective model, Spot type)**

Type	Compact		Compact, side view
Model	<b>LV-S41</b>		<b>LV-S41L</b>
FDA class	Class 1		
JIS (IEC)	Class 1		
Light source	Visible semiconductor laser, Wavelength: 655 nm		
Detecting distance	MEGA	600 mm	480 mm
	ULTRA	500 mm	400 mm
	SUPER	400 mm	320 mm
	TURBO	300 mm	240 mm
	FINE	200 mm	160 mm
	HSP	150 mm	120 mm
Operating ambient temperature	-10 to +50°C (No freezing)		
Material	Case	Glass-reinforced plastic	
	Display	Polycarbonate	
	Lens cover	Norbornene plastic	Acrylic
Weight	Approx. 70 g		
Dimensions	P. 15		

\* Transmitter: Norbornene plastic / Receiver: Polyarylate

**LV-NHxx (Diffuse-reflective model, Area type)**

Type	Long-distance	Definite-reflective
Model	<b>LV-NH42</b>	<b>LV-NH47</b>
FDA class	Class 1	
JIS (IEC)	Class 1	
Light source	Visible semiconductor laser, Wavelength: 660 nm	
Detecting distance	MEGA	1200 mm
	ULTRA	1000 mm
	SUPER	750 mm
	TURBO	500 mm
	FINE	250 mm
	HSP	200 mm
Operating ambient temperature	-10 to +55°C (No freezing)	
Operating ambient humidity	35 to 85% RH (No condensation)	
Material	Case	Glass-reinforced plastic
	Lens cover	Polyarylate
Weight	Approx. 65 g	Approx. 70 g
Dimensions	P. 17	

**LV-NHxx (Retro-reflective model, Spot type)**

Type	Standard	Long-distance
Model	<b>LV-NH62</b>	<b>LV-NH67</b>
FDA class	Class 1	
JIS (IEC)	Class 1	
Light source	Visible semiconductor laser, Wavelength: 660 nm	
Detecting distance	MEGA	8 m
	ULTRA	7 m
	SUPER	6 m
	TURBO	5 m
	FINE	3.5 m
	HSP	2 m
Operating ambient temperature	-10 to +55°C (No freezing)	
Material	Case	Glass-reinforced plastic
	Lens cover	Norbornene plastic
	Reflective mirror	Polycarbonate, Acrylic
Weight	Approx. 65 g	
Dimensions	P. 17	P. 16

\*1 Detecting distance when using the OP-42198 reflector (sold separately) indicated in parentheses.

**LV-NHxx (Diffuse-reflective model, Spot type)**

Type	Coaxial structure	Adjustable beam spot	Definite-reflective, ultra-small beam spot
Model	<b>LV-NH35</b>	<b>LV-NH32</b>	<b>LV-NH37</b>
FDA class	Class 1		
JIS (IEC)	Class 1		
Light source	Visible semiconductor laser, Wavelength: 660 nm		
Detecting distance	MEGA	750 mm	1200 mm
	ULTRA	600 mm	1000 mm
	SUPER	450 mm	750 mm
	TURBO	300 mm	500 mm
	FINE	150 mm	250 mm
	HSP	100 mm	200 mm
Operating ambient temperature	-10 to +55°C (No freezing)		
Operating ambient humidity	35 to 85% RH (No condensation)		
Material	Case	Glass-reinforced plastic	
	Lens cover	Norbornene plastic	Acrylic*1
Weight	Approx. 65 g		
Dimensions	P. 17		

\*1 The LV-NH32/LV-NH37 receiver is made of polyarylate.

**LV-Sxx (Retro-reflective model)**

Type	Compact	Parallel light	Long-distance, transparent object detection
Model	<b>LV-S61</b>	<b>LV-S62</b>	<b>LV-S63</b>
FDA class	Class 1		
JIS (IEC)	Class 1		
Light source	Visible semiconductor laser*1		
Detecting distance*	MEGA	2.5 m	12 m (6 m)
	ULTRA	2 m	10 m (5 m)
	SUPER	1.5 m	8 m (3.5 m)
	TURBO	1 m	5 m (2 m)
	FINE	0.75 m	2.5 m (0.7 m)
	HSP	0.5 m	—
Operating ambient temperature	-10 to +50°C (No freezing)		
Material	Case	Glass-reinforced plastic	
	Lens cover	Acrylic	
Weight	Approx. 70 g	Approx. 65 g	Approx. 110 g
Dimensions	P. 15		

\* Detecting distance when using small beam spot indicated in parentheses.

\*1 [Wavelength] LV-S61: 655 nm, LV-S62/S63: 660 nm

**LV-NHxx (Retro-reflective model, Area type)**

Type	Magnified beam, long-distance area	Magnified beam, wide area
Model	<b>LV-NH64</b>	<b>LV-NH65</b>
FDA class	Class 1	
JIS (IEC)	Class 1	
Light source	Visible semiconductor laser, Wavelength: 660 nm	
Detecting distance	MEGA	800 to 1300 mm (1000 to 1700 mm)*1
	ULTRA	400 to 1200 mm (600 to 1500 mm)*1
	SUPER	300 to 1000 mm (500 to 1200 mm)*1
	TURBO	200 to 850 mm (300 to 1000 mm)*1
	FINE	150 to 650 mm (200 to 850 mm)*1
	HSP	100 to 500 mm (100 to 700 mm)*1
Operating ambient temperature	-10 to +55°C (No freezing)	
Operating ambient humidity	35 to 85% RH (No condensation)	
Material	Case	Glass-reinforced plastic
	Lens cover	Norbornene plastic
Weight	Approx. 70 g	
Dimensions	P. 16	

\*1 Detecting distance when using the included reflector indicated without parentheses. Detecting distance when using the OP-51428 reflective tape (sold separately) indicated in parentheses.

**LV-Sxx (Thru-beam model, Spot type)**

Type	Compact, M6	Compact, M6 slit (Receiver: ø0.6 mm)
Model	<b>LV-S71</b>	<b>LV-S72</b>
FDA class	Class 1	
JIS (IEC)	Class 1	
Light source	Visible semiconductor laser, Wavelength: 655 nm	
Detecting distance	MEGA	500 mm
	ULTRA	
	SUPER	
	TURBO	
	FINE	
	HSP	
Operating ambient temperature	-10 to +50°C (No freezing)	
Material	Case	Metal part: Stainless steel, Plastic part: Polyarylate
	Lens cover	Transmitter: Norbornene plastic Receiver: Polyarylate
Weight	Approx. 70 g	
Dimensions	P. 16	


**LV-F1**

Type	Side view attachment for thru-beam models	
Model	<b>LV-F1</b>	
Applicable heads	LV-S71	LV-S72
Detecting distance	MEGA	250 mm
	ULTRA	
	SUPER	
	TURBO	
	FINE	
	HSP	
Operating ambient temperature	-10 to +50°C (No freezing)	
Material	Metal part: SUS304 Mirror part: Glass	
Vibration resistance	10 to 55 Hz; Double amplitude: 1.5 mm 2 hours in each of the X, Y, and Z directions	
Weight	Approx. 22 g	
Dimensions	P. 16	


**LV-NHxx (Thru-beam model, Area type)**

Type	High-power	Standard
Model	<b>LV-NH110</b>	<b>LV-NH100</b>
Detection width	10 mm	30 mm
FDA class	Class 1	
JIS (IEC)	Class 1	
Light source	Visible semiconductor laser, Wavelength: 660 nm	
Detecting distance	2000 mm	
Operating ambient temperature	-10 to +55°C (No freezing)	
Operating ambient 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
Dimensions	P. 18	


Cable type

Type		Appearance	Model		Control output	External input	Monitor output	Dimensions
			NPN output	PNP output				
Standard	Main unit		LV-N11N	LV-N11P	2	1	0	P. 19
	Expansion unit		LV-N12N	LV-N12P				
Monitor output	Main unit		LV-N11MN	—	1	1	1	

M8 connector type



Type		Appearance	Model		Control output	External input	Monitor output	Dimensions
			NPN output	PNP output				
Standard	Main unit		LV-N11CN	LV-N11CP	1	1	0	P. 19
	Expansion unit		LV-N12CN	LV-N12CP				

Zero-line type

Type	Appearance	Model	Control output	External input	Monitor output	Dimensions
Standard		LV-N10	None*1	0	0	P. 19

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

Optional parts (sold separately)

Type	Appearance	Model	Description
End units (when using expansion units)		OP-26751	Insert the amplifier to secure it when adding main and expansion units. Always use when adding units. (Pack of 2)
M8 connector cable 2 m/10 m		2 m type OP-73864	Used to connect to the LV-N11CN/N11CP/N12CN/N12CP. The amplifier does not come with a connector cable, so purchase it with this option.
		10 m type OP-73865	

Specifications

Type		Dual output		Single 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 output	2 outputs		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 not selectable when the LV-S62/S63 is connected.						
Output selection	LIGHT-ON/DARK-ON (switch-selectable)						
Timer function	Timer OFF/OFF delay/ON delay/One-shot; Variable timer duration (1 ms to 9999 ms); Maximum error against setting value: ±10% or less						
Control output	NPN output	NPN open collector: 30 V; Residual voltage: 1 V or less (with output current of 10 mA or less) / 2 V or less (with output current of 10 to 100 mA) (When used as a solitary unit) 100 mA or less per output; 100 mA or less total of 2 outputs / (When used as an expansion unit) 20 mA or less per output					
	PNP output	PNP open collector: 30 V; Residual voltage: 1.2 V or less (with output current of 10 mA or less) / 2.2 V or less (with output current of 10 to 100 mA) (When used as a solitary unit) 100 mA or less per output; 100 mA or less total of 2 outputs / (When used as an expansion unit) 20 mA or less per output					
Monitor output (LV-N11MN only)	1 to 5 V voltage output; Load resistance: 10 kΩ or more; Repeatability: ±0.5% of F.S.; Response time: 1 ms (HSP/FINE/TURBO), 1.2 ms (SUPER), 1.8 ms (ULTRA), 4.2 ms (MEGA)						
External input time	Input time: 2 ms (ON)/20 ms (OFF) or more*1						
Unit expansion	Up to 17 connectable units (including the main unit); Dual output type is treated as two units						
Protection circuit	Reverse polarity protection, Output overcurrent protection, Output surge protection						
Mutual interference prevention units*4	HIGH SPEED: 0 units; FINE/TURBO/SUPER: 2 units; ULTRA/MEGA: 4 units						
Ratings	Power voltage*5	24 VDC (Operating voltage: 10 to 30 VDC (including 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 or less at 24 V, 56 mA or less at 12 V)*2 Eco on: 710 mW or less (At 30 V; 26 mA or less at 24 V, 48 mA or less at 12 V)*2 Eco full: 550 mW or less (At 30 V; 21 mA or less at 24 V, 40 mA or less at 12 V)				
Environmental resistance	Operating ambient temperature	-20 to +55°C (No freezing)*3					
	Operating ambient humidity	35 to 85% RH (No condensation)					
	Vibration resistance	10 to 55 Hz; Double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions					
	Shock resistance	500 m/s <sup>2</sup> ; 3 times in each of the X, Y, and Z directions					
Material	Case	Main unit and cover: Polycarbonate					
	Cable	PVC					
Case size	32.6 × 9.8 × 78.7 mm (H × W × L)						
Weight		Approx. 75 g	Approx. 65 g	Approx. 20 g	Approx. 20 g	Approx. 20 g	Approx. 75 g

\*1 The input time becomes 25 ms (ON)/25 ms (OFF) when external calibration input is selected.

\*2 Increases by 30 mW (1 mA) for HIGH SPEED mode.

\*3 When expanding the system, the operating ambient temperature will vary according to the conditions below. Mount the expansion units to the DIN rail (mounted on metal plates), and make sure the output current is 20 mA or less per unit. Expansion of 1 to 2 units: -20 to +55°C; Expansion of 3 to 10 units: -20 to +50°C; Expansion of 11 to 16 units: -20 to +45°C; Dual output type treated as two units.

\*4 The number of mutual interference prevention units doubles when set to "DOUBLE".

\*5 Use a power voltage of 20 V or more when connecting 9 or more units.

\*6 Increases by 15% when connected to the LV-NH100/NH110/NH300. Does not include load power consumption. The power consumption when using expansion units becomes the total power consumption of each amplifier unit.

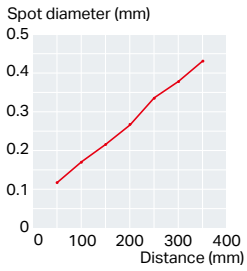
[Example] When using one main unit (LV-N11N) with two expansion units (LV-N12N) with an LV-NH100 connected to each in HIGH SPEED mode: (1.15 × 860 mW × 1) + (1.15 × 860 mW × 2) = 2967 mW max.

\*7 Use with an overcurrent protection device rated at 30 V or more and 1 A or less.

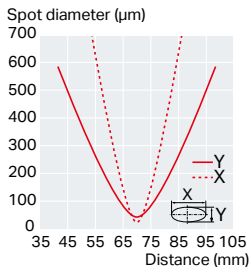
# Characteristics

## Distance and spot diameter (typical example)

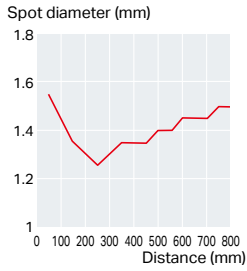
**LV-NH32**



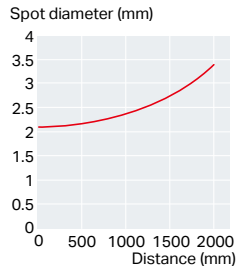
**LV-NH37**



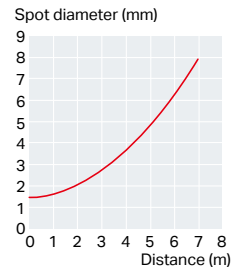
**LV-NH35**



**LV-S61**

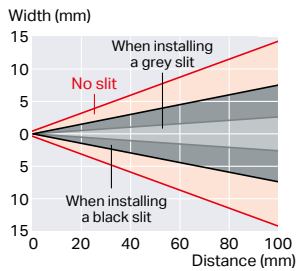


**LV-NH62**

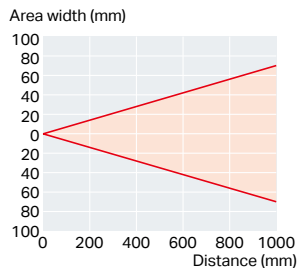


## Detecting distance and area width (typical example)

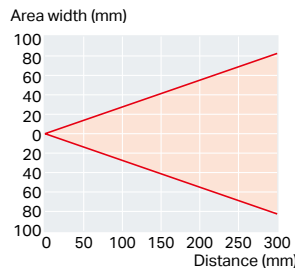
**LV-NH47**



**LV-NH64**

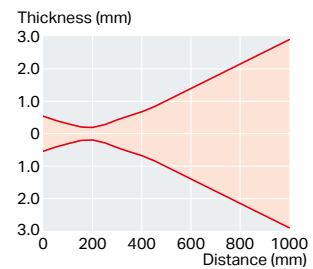
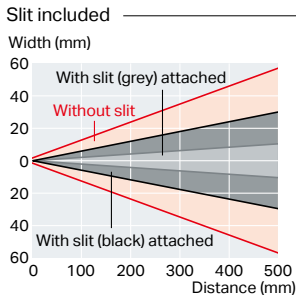


**LV-NH65**

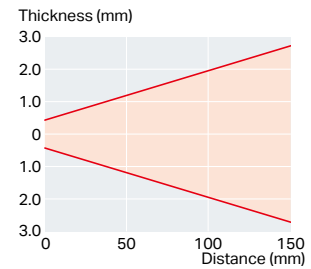
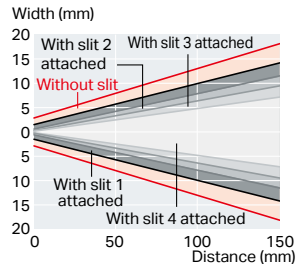


## Detecting distance and area width (typical example)

**LV-NH42**



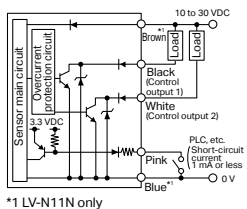
**LV-L01**



## I/O Circuit Diagram

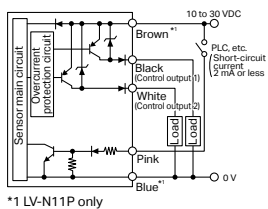
### Cable type

**LV-N11N/N12N**



\*1 LV-N11N only

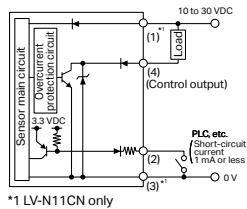
**LV-N11P/N12P**



\*1 LV-N11P only

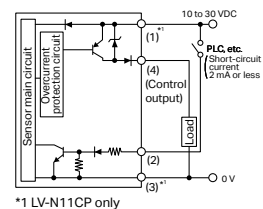
### M8 connector type

**LV-N11CN/N12CN**



\*1 LV-N11CN only

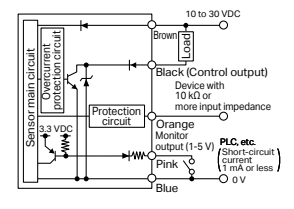
**LV-N11CP/N12CP**



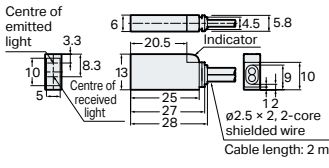
\*1 LV-N11CP only

### Monitor output type

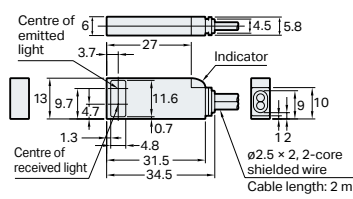
**LV-N11MN**



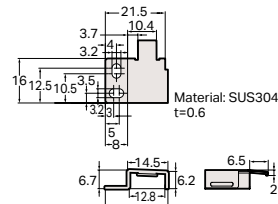
**LV-S41**



**LV-S41L**

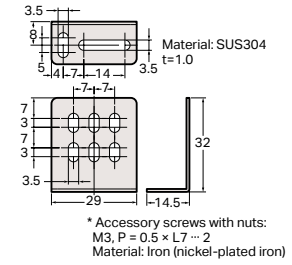


**Mounting bracket (accessory) for LV-S41/S41L**

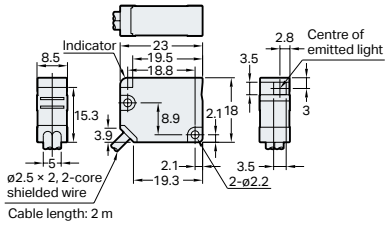


**OP-66846**

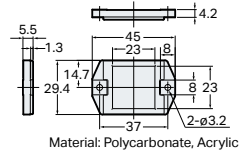
**L-shaped mounting bracket (sold separately) for LV-S41/S41L**



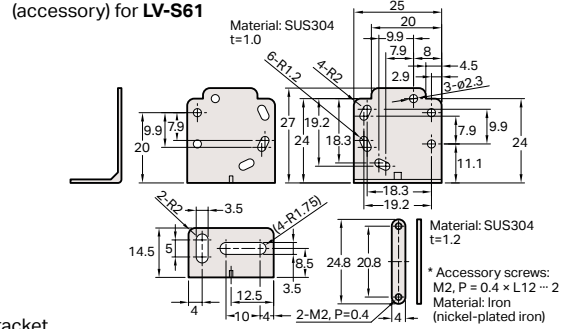
**LV-S61**



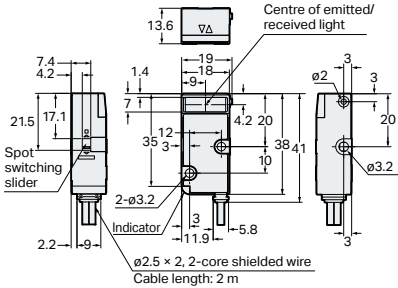
**OP-51430 R-6 (grey) (accessory)**



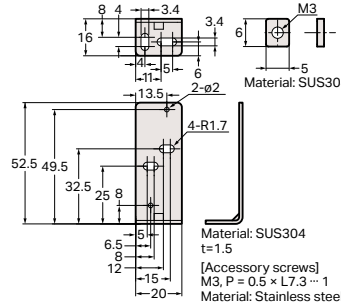
**L-shaped mounting bracket (accessory) for LV-S61**



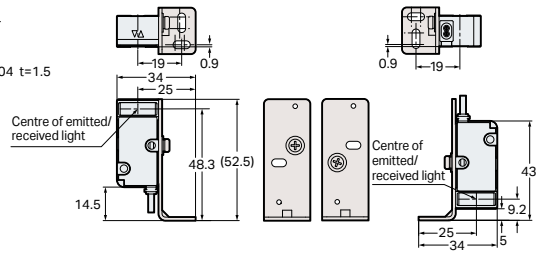
**LV-S62**



**OP-84350 L-shaped mounting bracket (sold separately) for LV-S62**

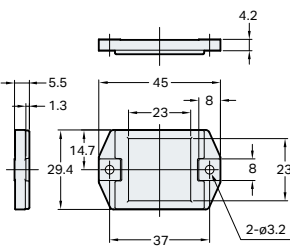


**When attached to mounting bracket**

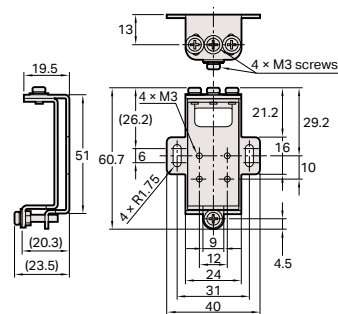


**R-6L**

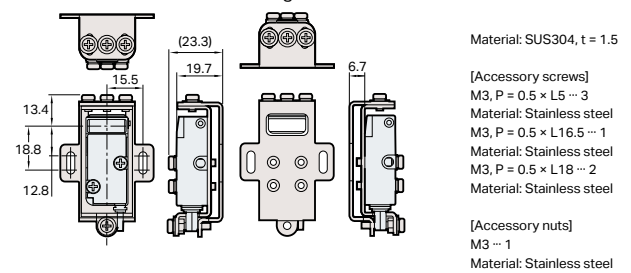
**reflector (included with LV-S62)**



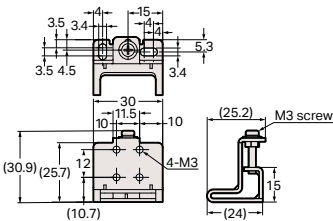
**OP-84349 Rear mounting bracket (sold separately) for LV-S62**



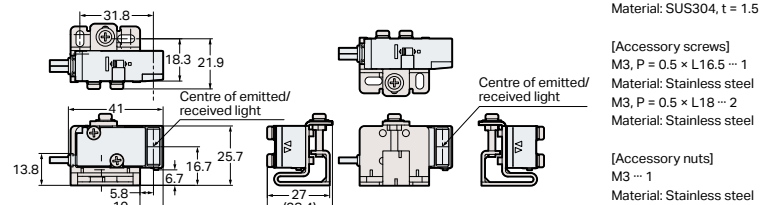
**When attached to mounting bracket**



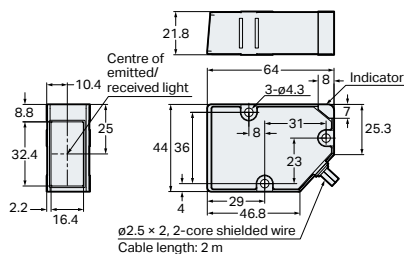
**OP-84351 Side mounting bracket (sold separately) for LV-S62**



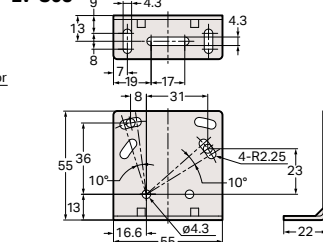
**When attached to mounting bracket**



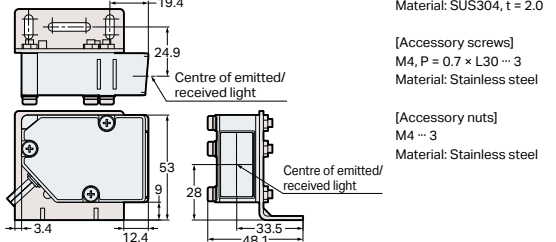
**LV-S63**



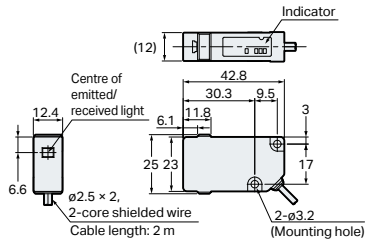
**Rear mounting bracket (accessory) for LV-S63**



**When attached to mounting bracket**

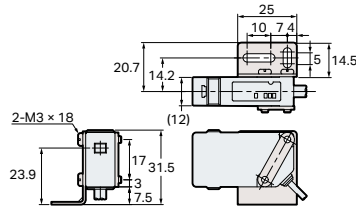


**LV-NH64**

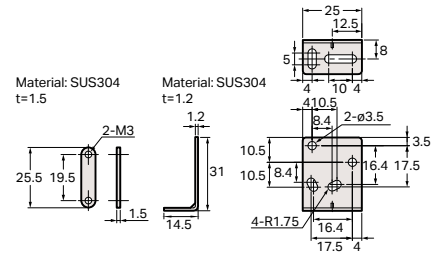


**LV-NH64**

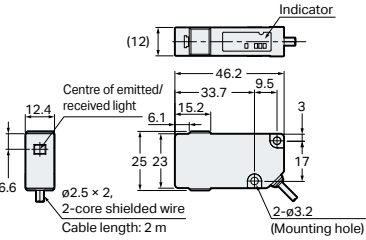
(with mounting bracket attached)



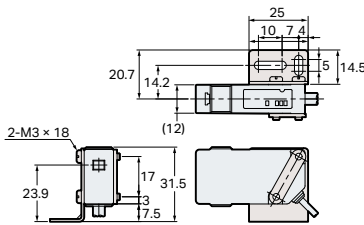
**Mounting bracket (accessory) for LV-NH64/65/67**



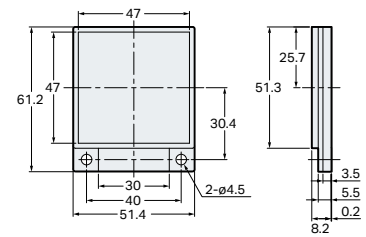
**LV-NH65**



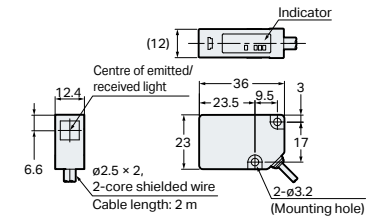
**LV-NH65 (with mounting bracket attached)**



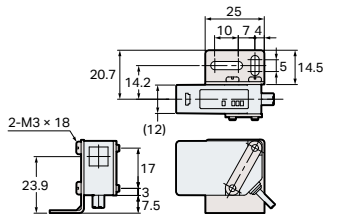
**OP-95388 (R-2) reflector (included with LV-NH67)**



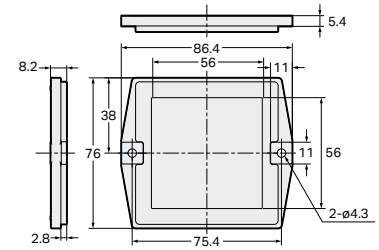
**LV-NH67**



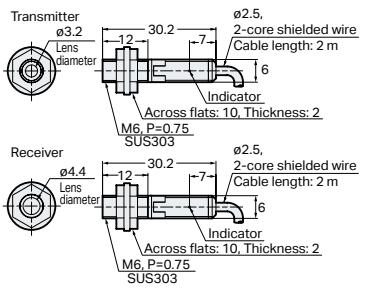
**LV-NH67 (with mounting bracket attached)**



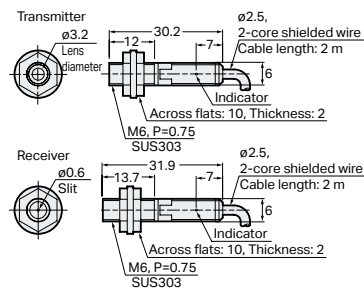
**R-9 reflector (included with LV-S63)**



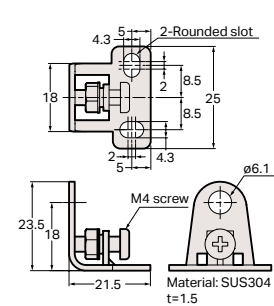
**LV-S71**



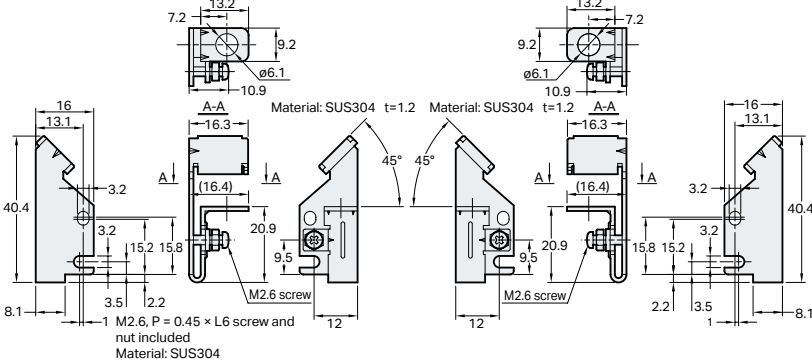
**LV-S72**



**Standard bracket (accessory) for LV-S71/S72**

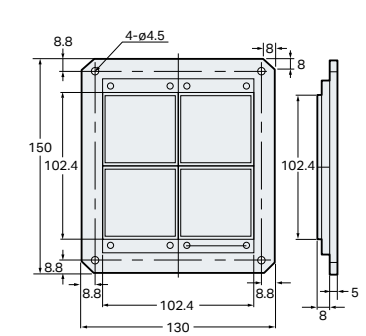


**LV-F1**

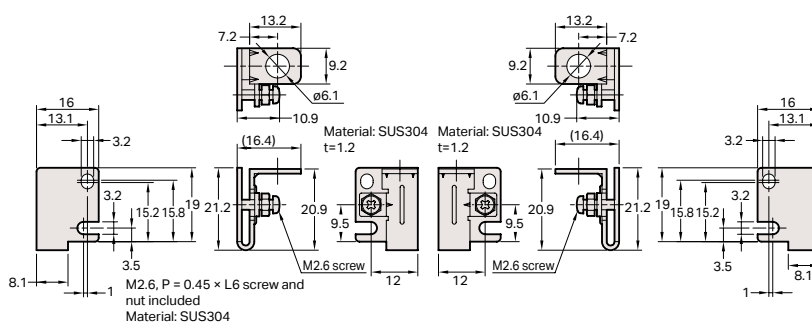


**OP-42198**

Long-distance reflector for LV-NH67

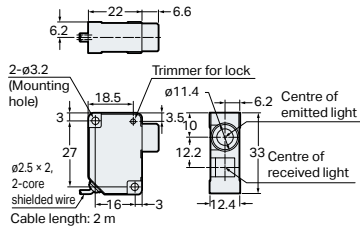


**OP-66869 Compact mounting bracket for thrubeam models (sold separately)**

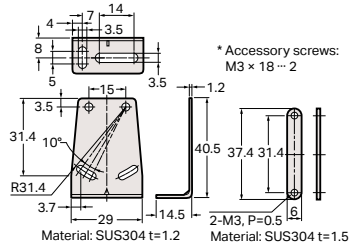




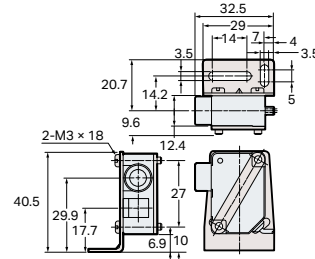
**LV-NH32**



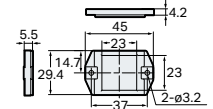
**Mounting bracket (accessory) for LV-NH32**



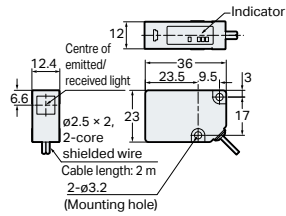
**LV-NH32 (with mounting bracket attached)**



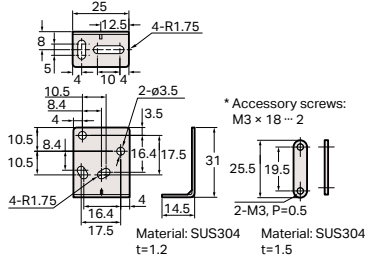
**R-6 reflector (included with LV-NH62)**



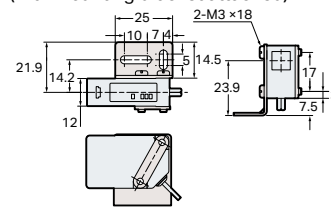
**LV-NH35/NH62**



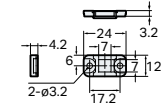
**Mounting bracket (accessory)**



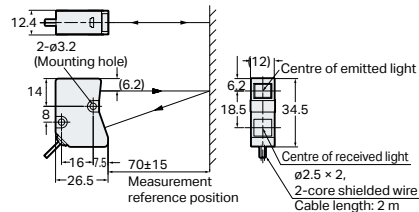
**LV-NH35/NH62 (with mounting bracket attached)**



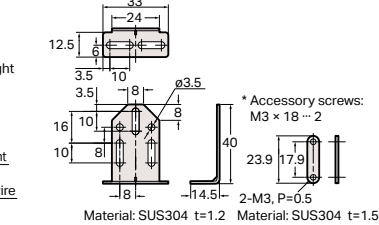
**R-7 reflector (included with LV-NH62)**



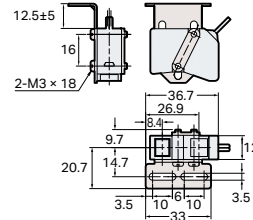
**LV-NH37**



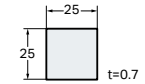
**Mounting bracket (accessory) for LV-NH37**



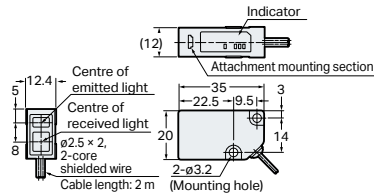
**LV-NH37 (with mounting bracket attached)**



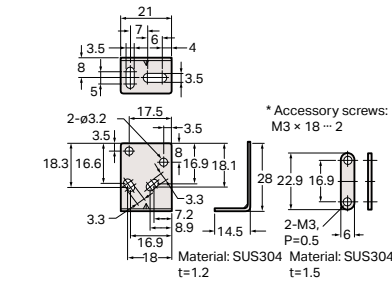
**OP-42197/87123 reflective tape**



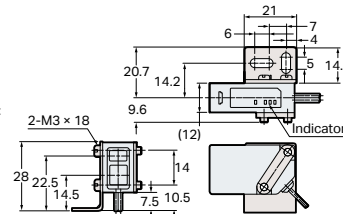
**LV-NH42**



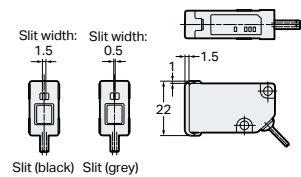
**Mounting bracket (accessory) for LV-NH42**



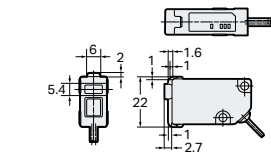
**LV-NH42 (with mounting bracket attached)**



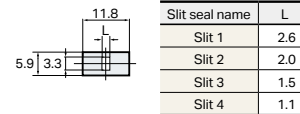
**LV-NH42 with included slit attached**



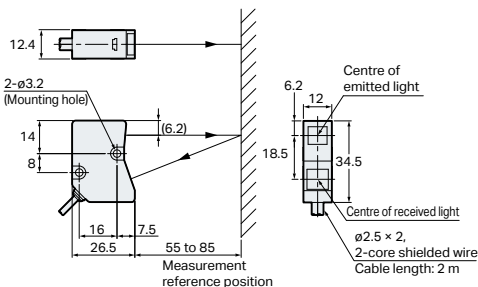
**With LV-L01 attached (LV-NH42)**



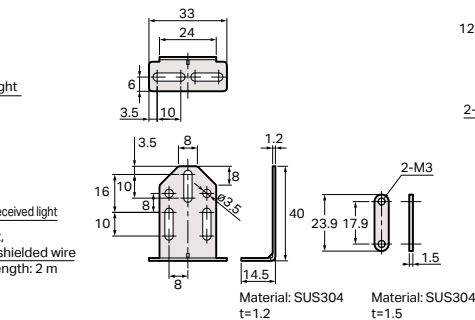
**Slit seal (included with LV-L01)**



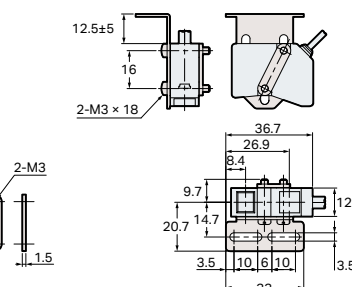
**LV-NH47**



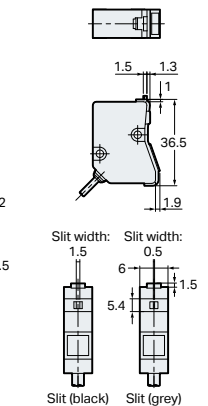
**Mounting bracket (accessory) for LV-NH47**



**LV-NH47 (with mounting bracket attached)**

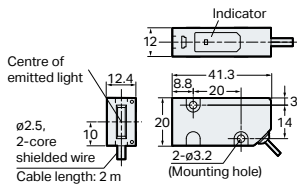


**LV-NH47 with included slit attached**

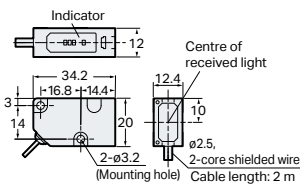


LV-NH100/NH110

Transmitter



Receiver



LV-B101

(Transmitter/receiver mounting bracket set for LV-NH100/NH110)

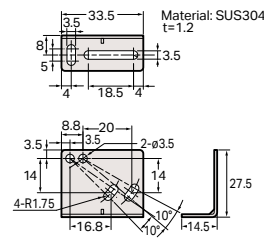


Plate nut for transmitter

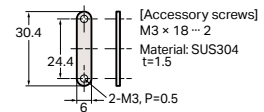
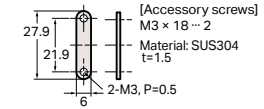
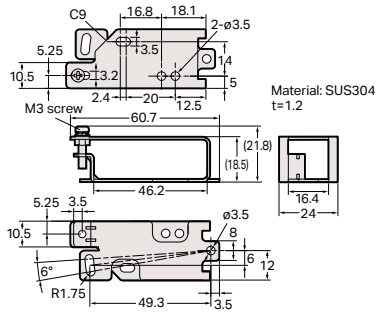


Plate nut for receiver



LV-B102 (Transmitter/receiver mounting bracket set for LV-NH100/NH110)



With LV-NH100/NH110 transmitter attached (inside)



With LV-NH100/NH110 receiver attached (inside)



With LV-NH100/NH110 transmitter attached (outside)



With LV-NH100/NH110 receiver attached (outside)

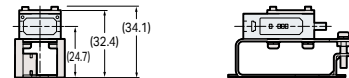


Plate nut for transmitter

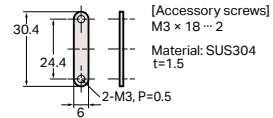
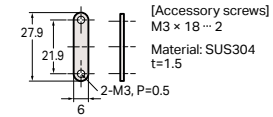
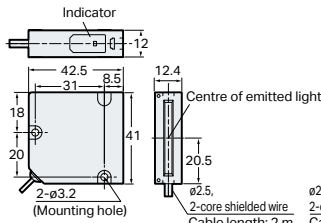


Plate nut for receiver

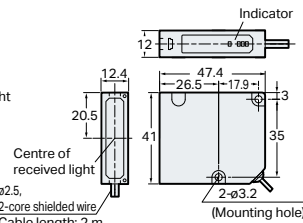


LV-NH300

Transmitter



Receiver



LV-B301 (Transmitter/receiver mounting bracket set for LV-NH300)

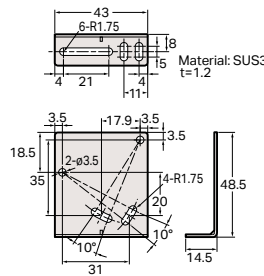


Plate nut for transmitter

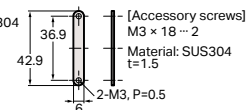
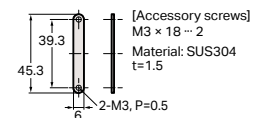
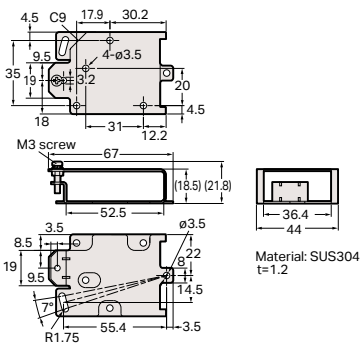


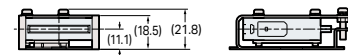
Plate nut for receiver



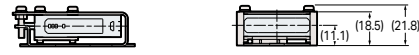
LV-B302 (Transmitter/receiver mounting bracket set for LV-NH300)



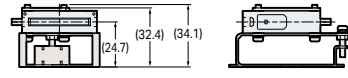
With LV-NH300 transmitter attached (inside)



With LV-NH300 receiver attached (inside)



With LV-NH300 transmitter attached (outside)



With LV-NH300 receiver attached (outside)

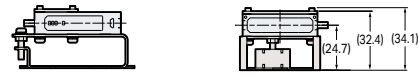


Plate nut for transmitter

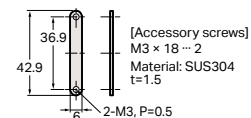
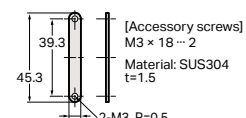
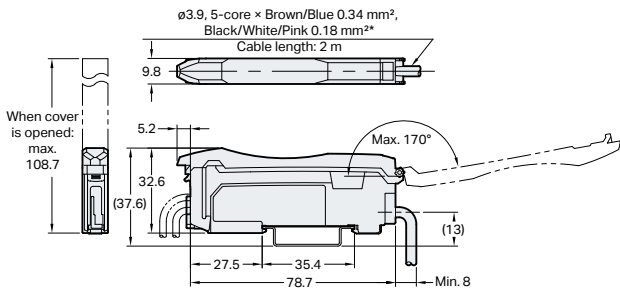


Plate nut for receiver

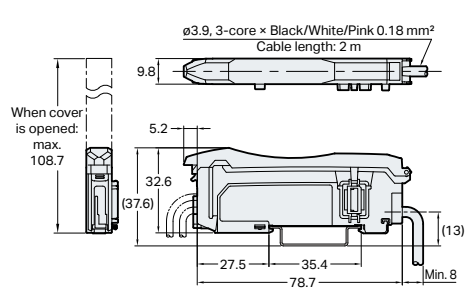


LV-N11N/N11P/N11MN Cable type, Main unit

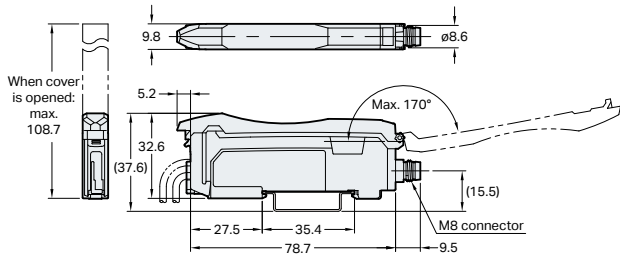


\* LV-N11MN: ø3.9, 5-core x Brown/Blue 0.34 mm², Black/Orange/Pink 0.18 mm²

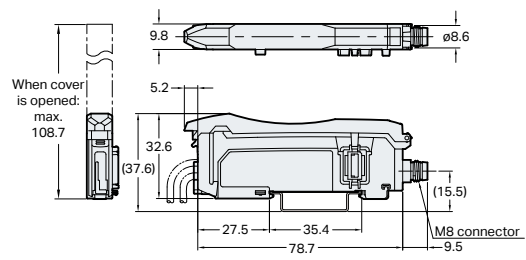
LV-N12N/N12P Cable type, Expansion unit



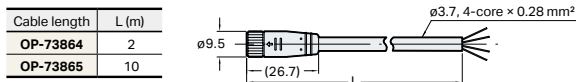
LV-N11CN/N11CP M8 connector type, Main unit



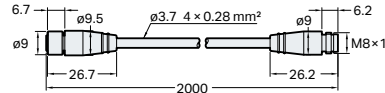
LV-N12CN/N12CP M8 connector type, Expansion unit



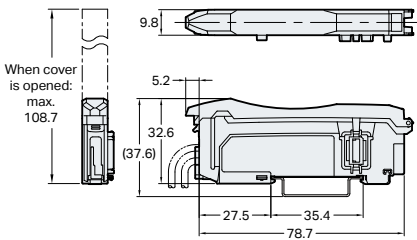
M8 connector cable (OP-73864/73865 sold separately)



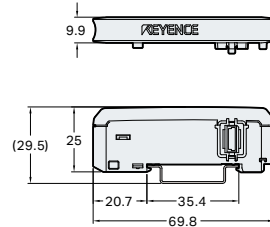
M8 connector extension cable (OP-85498 sold separately)



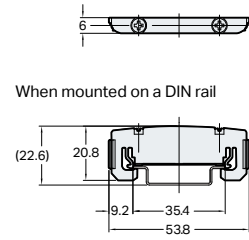
LV-N10 Zero-line type, Expansion unit



OP-87199 Conversion adapter



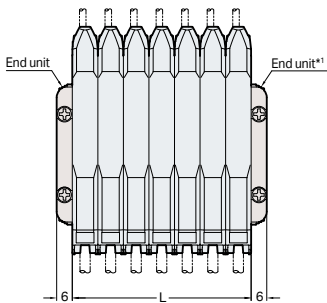
End unit (OP-26751 sold separately)



Material: Polycarbonate

Common for all types

With expansion units

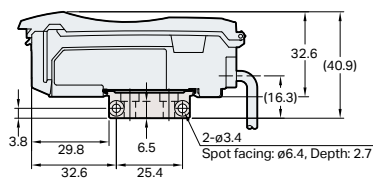


No. of units	L (mm)
1	9.8
2	19.6
3	29.4
4	39.2
5	49.0
6	58.8
7	68.6
8	78.4
9	88.2
10	98.0
11	107.8
12	117.6
13	127.4
14	137.2
15	147.0
16	156.8
17	166.6

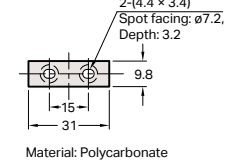
\*1 When using expansion units, be sure to use the end units (optional).

With mounting bracket (OP-73880 sold separately) attached

Cable type

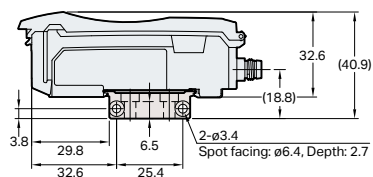


Back of mounting bracket

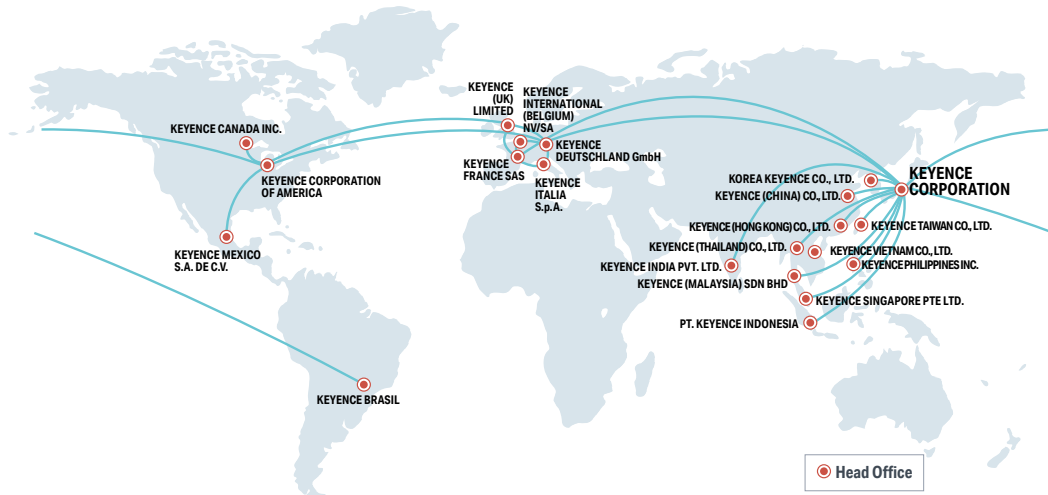


Material: Polycarbonate

M8 connector type



## Global Support



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### Quick solutions regardless of borders Seamless support

KEYENCE offers a large number of sales engineers in various countries to provide customers with the same level of reliable support anywhere in the world. For projects that cross international borders, information discussed in meetings can be shared between reps internationally to enable seamless support for everyone involved.

### Reliable assistance even after installation Direct support

Equipment problems that occur in other countries can be a major concern for engineers. KEYENCE's manufacturer-direct sales system does not involve distributors or other overseas agents, ensuring customers receive reliable assistance from skilled technicians even after the equipment has been installed.

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