KEYENCE

NEW Self-Contained
Full-Spectrum Sensor
LR-W Series

CE cULus

IO-Link

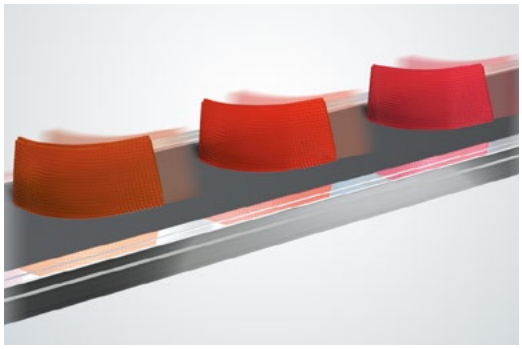
FULL-SPECTRUM SENSOR

Stable Detection of
Changes in Appearance

LR-W SERIES

PRESENCE AND ABSENCE

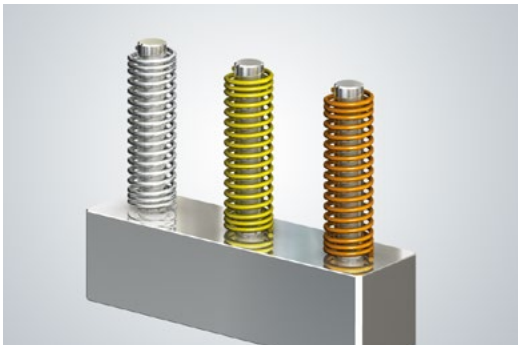
Part detection in a mold or die



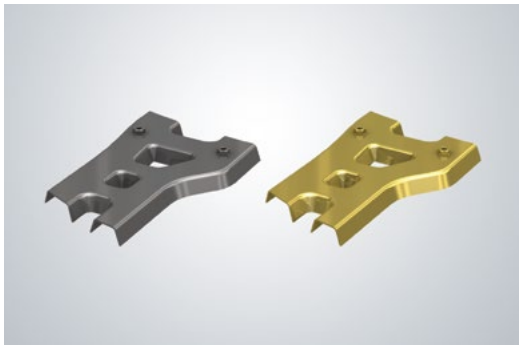
Rounded target detection on a moving conveyor

WHAT IS A FULL-SPECTRUM SENSOR?

A Full-Spectrum sensor features unmatched detecting capabilities that allow it to complete the simplest to the most complex applications with ease. The LR-W Series is one such sensor that can truly handle the Full-Spectrum of applications.



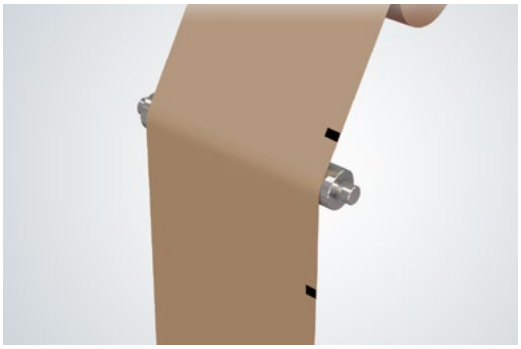
Product differentiation based on appearance



Product treatment/coating verification

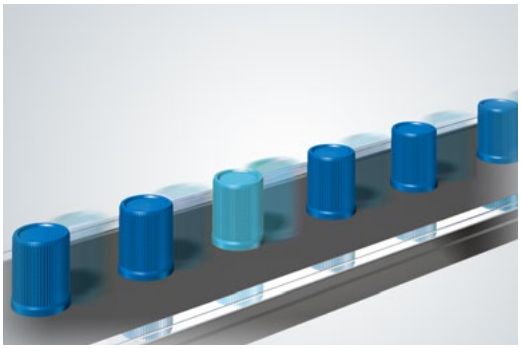
PRODUCT DIFFERENTIATION

REGISTRATION MARKS



Registration mark detection on film

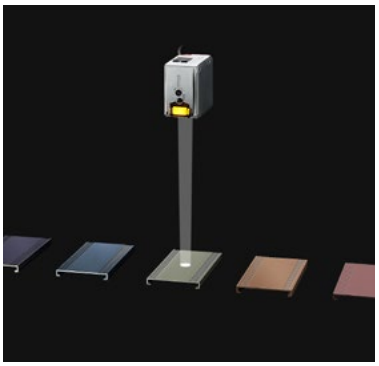
Registration mark detection on a rounded surface



Confirming proper color shade

Differentiating very similar colors

COLOR VERIFICATION



UNMATCHED DETECTION CAPABILITIES

- Superior Full-Spectrum Detecting Capabilities
- 500 mm 19.69" Range with Adjustable Beam Spot
- Automatic Light Power Control for Stable Detection

EASE-OF-USE

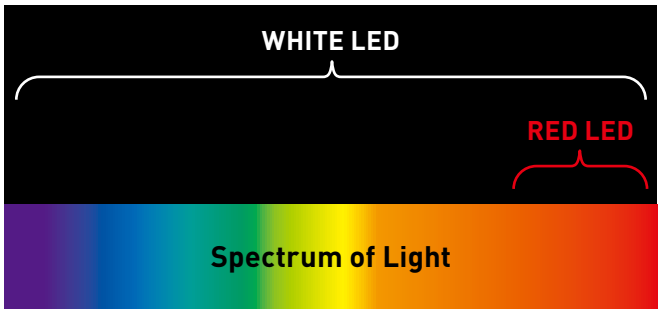
- One Touch Calibration
- User-Friendly Display
- Easy Integration Into Any Setup

DURABILITY

- Robust Metal Housing
- Water Resistant
- Dustproof

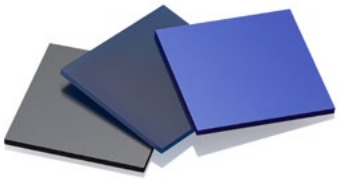
UNMATCHED DETECTING CAPABILITIES

Full-Spectrum Detection



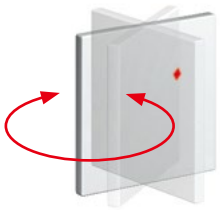
Unlike conventional sensors which only use a Red LED, the LR-W utilizes a White LED and the full color spectrum. By doing this, the LR-W can reliably and stably differentiate a much wider range of targets.

Examples of targets the LR-W can stably detect



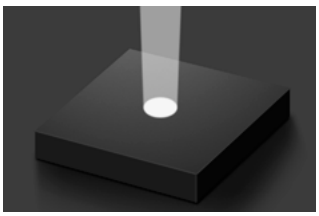
Targets with Slight Color Changes

Metal Targets

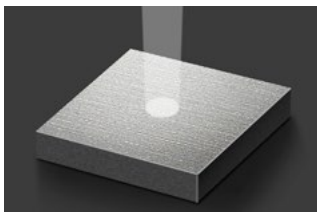


Tilted Targets

High Power White LED and Automatic Power Control



Detecting Dark Targets



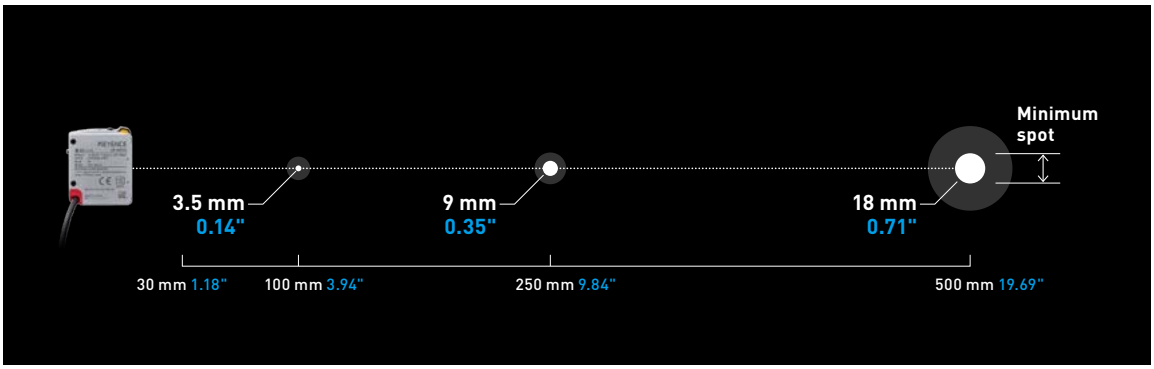
Detecting Glossy Targets

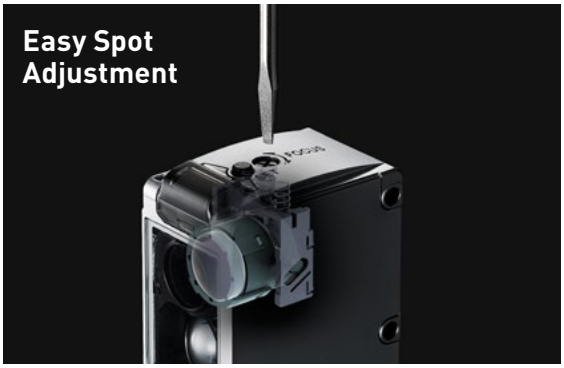
×500,000 High Dynamic Range

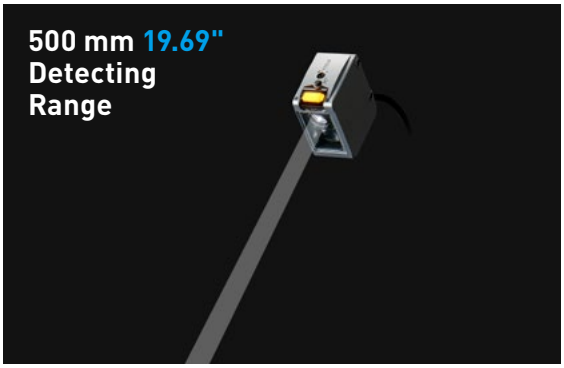
By utilizing a High Powered White LED, the LR-W ensures detection of dark targets. For glossy targets, the LR-W features an Automatic Power Control function that optimizes the sensor's power and sensitivity to ensure stable detection.

*10 ms or slower response time is required for Automatic Power Control

Superior Detecting Distance with Adjustable Spot

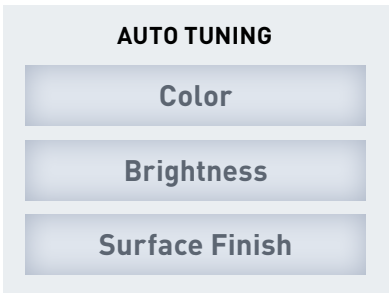


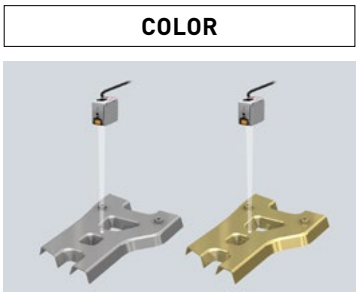


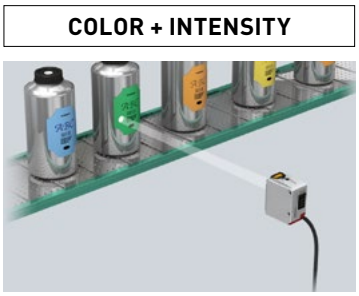


With an impressive 500 mm 19.69" range, the LR-W is able to solve applications that were once considered out of reach. The LR-W also features an easy to adjust spot that can be widened or focused to provide the best detection based on the target. These two features combine to make the LR-W a truly all-purpose solution.

Auto Tuning Ensures Best Detection Method







By using the Auto Tuning function, the LR-W accounts for a target's color, brightness, and surface finish to determine which detection method is best suited for the given application. This helps to ensure stable detection regardless of target variations.

EASE-OF-USE

Simplified Calibration

The LR-W can easily perform three different types of calibration. Users can choose from One-Point (1-P), Two Point (2-P), and Master Calibration.

Product Differentiation

1-P Calibration

One simple press is all that is needed to stably match a specific product.

Registration Mark Detection

AUTO TUNING 2-P Calibration

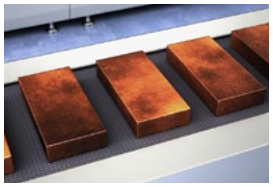
Detect difficult registration marks with a simple Two-Point (2-P) Calibration.

Varying Color Detection

Master Calibration

Innovative tuning option to set clear thresholds for target variation.

Color variances within products



Products fluttering on conveyor belts

Master Calibration/ Master Addition Calibration

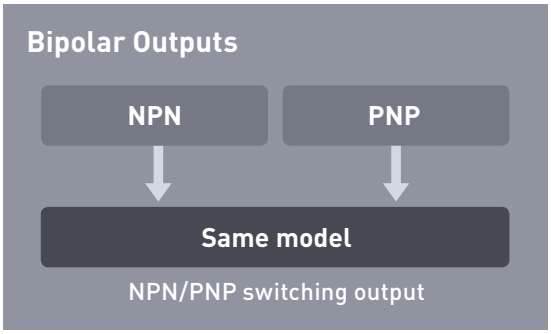
Color inconsistencies, vibration, worn surfaces, and tilting or angling of targets can all lead to unstable detection. Master Calibration allows user's to teach the sensor these variations in advance. Master Addition Calibration enables conditions to be easily added as they arise.

Intuitive Display and Indicators

The LR-W features a highly visible 7-segment display that provides constant feedback, as well as indicators to show detection mode and stability.

The highly visible indicator is bright and can clearly be seen from long distances.

Seamless Integration



The LR-W has selectable NPN or PNP outputs in the same unit, making it easy to standardize on different machine types.

The LR-W Series offers a standard M12 4-pin quick disconnect option for easy wiring.

The LR-W features a standard mounting pitch of 25.4 mm 1.00", allowing it to easily mount on existing brackets.

If flexible mounting is required, an adjustable mounting bracket is also available.

DURABILITY

High Environmental Resistance

The LR-W Series meets the requirements of IP65 and IP67 for areas requiring washdown.

These IP Ratings also allow the LR-W to perform in dusty or dirty environments.

Robust Housing

The diecast metal housing can withstand impact from products, tools, or workers.

Secure mounting is achieved with internal metal threads that are highly resistant to damage from over torquing.

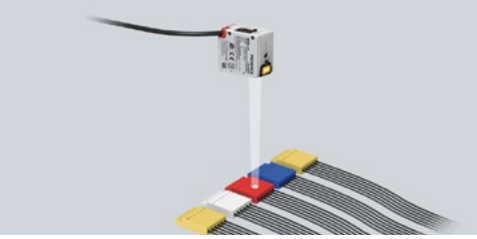
MU-N Series

Multi-Sensor Controller

Coming soon

The LR-W Series can be connected to the MU-N to allow for increased functionality.

Various Output Options



Selectable I/O	1 Output (16 banks)
	Parallel 4 Outputs (2 banks)
	Binary 15 Outputs (No bank)
Analog	4 to 20 mA or 0 to 10 V

The MU-N Series controller offers customizable I/O. This includes both control outputs and a voltage/current analog output.

Rich OLED Display

Value at ON

Peak during ON

The combination of an OLED and 7-Segment Display allow users to quickly view data in real time. The MU-N also has the ability to display live graphs for easy machine monitoring.

Network Compatibility

EtherNet/IP™

CC-Link V2

DeviceNet™

Enable copying and writing of data via wide varieties of communication protocols.

By pairing the MU-N Series with the KEYENCE NU Series, users can transmit data over a standard industrial network. Compatible networks include EtherNet/IP™, CC-Link, and DeviceNet™.

Settings Back-Up Function

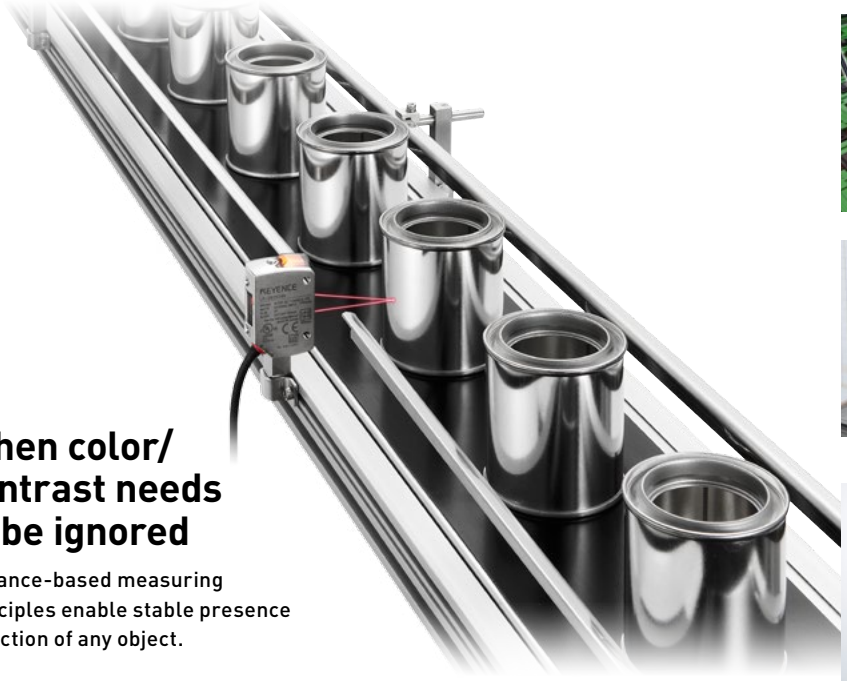
Backs up setting information

Copies the setting to a new sensor

Sensor Replacement

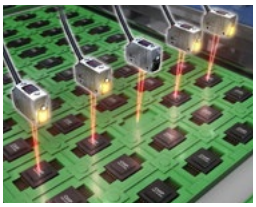
The Settings Back-Up Function allows users to save sensor settings on the MU-N and quickly transfer them to new sensors that are attached.

Related Products

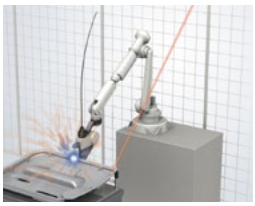


When color/ contrast needs to be ignored

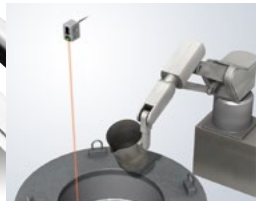
Distance-based measuring principles enable stable presence detection of any object.



LR-Z Series
Part presence regardless of varying colors



LR-T Series
Welding cell target detection



LR-T Series
Metal level detection

CMOS Laser Sensors
LR-Z

Detecting Distance [25 to 250 mm 0.98" to 9.84"]

- **Best in class detecting ability**
- **Transparent object detection**
- **Stainless steel body with IP69K rating**

TOF Laser Sensors
LR-T

Detecting Distance [0.06 to 5 m 0.20' to 16.40']

- **Max. 5 m 16.40' detecting distance**
- **Custom IC for superior detecting capabilities**
- **Metal body with IP65/IP67 enclosure rating**

Lineup

Type	Detecting distance	Min. spot diameter	Light source	Model	Weight
 Cable (2 m 6.56')	30 to 500 mm 1.18" to 19.69"	Adjustable spot • Approx. ø3.5 mm ø0.14" (at detecting distance of 100 mm 3.94") • Approx. ø9 mm ø0.35" (at detecting distance of 250 mm 9.84") • Approx. ø18 mm ø0.71" (at detecting distance of 500 mm 19.69")	White LED	**LR-W500**	Approx. 170 g
 M12 connector (Cable sold separately)				**LR-W500C**	Approx. 110 g

Mounting bracket

Type	Model	Material/weight
 Standard mounting bracket for LR-W Series (M3 screw × 2 supplied)	**OP-88021***1	SUS304 Approx. 110 g
 Adjustable bracket for LR-W Series (M3 screw × 2 supplied)	**OP-88023**	Zinc nickel plating, etc. Approx. 110 g
 Adjustable bracket locking screw (105 mm 4.13")	**OP-88024**	Iron nickel plating Approx. 140 g

*1 The 4-pin M12 connector type may not be mounted in the orientation shown in the picture (connector downward). Confirm the dimensions and surroundings carefully.

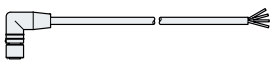
Attachment

Type	Model	Material/weight
 Luster canceling attachment	**LR-WA1***1*2	SUS304, PMMA, etc. Approx. 5 g

*1 When using LR-WA1, detecting range may decrease on targets with low reflectance. Perform sufficient checks in the actual installation environment.

*2 When using the LR-WA1, the enclosure rating (IP65/IP67) is not met.

Cable

Appearance	Cable material	Sensor side	Cable end	Length (m)	Model	Weight
	Cable: PVC (Polyvinyl chloride)	M12 4-pin straight	Loose wires	2 6.56'	**OP-75721**	Approx. 60 g
				5 16.40'	**OP-87272**	Approx. 65 g
				10 32.81'	**OP-85502**	Approx. 230 g
	Cable: PUR (Polyurethane)			2 6.56'	**OP-87636**	Approx. 75 g
				10 32.81'	**OP-87637**	Approx. 330 g
	Cable: PVC (Polyvinyl chloride)	M12 4-pin L-shape		2 6.56'	**OP-75722**	Approx. 65 g
				5 16.40'	**OP-87273**	Approx. 130 g
				10 32.81'	**OP-87274**	Approx. 235 g
	Cable: PUR (Polyurethane)			2 6.56'	**OP-87640**	Approx. 75 g
				10 32.81'	**OP-87641**	Approx. 330 g

Controller Coming soon

Type	Control output	External input	Analog output	Model	Weight
 Main unit	4 standard outputs max. (15 outputs available using binary logic)	5 inputs max. (three of the five inputs can be switched to control outputs)	1 output max. (control output/external input selectable)	**MU-N11**	Approx. 70 g
 Expansion unit			—	**MU-N12**	Approx. 70 g

Power supply cable for MU-N Series Coming soon

Cable is not included with the controller. Please purchase it separately.

Appearance	Applicable unit	Cable material	Cable end	Controller side	Length (m)	Model	Weight
	Main unit	PVC (Polyvinyl chloride)	8-core loose wires	Connector	2 6.56'	**MU-CB8**	Approx. 150 g
			4-core loose wires			**MU-CB4**	Approx. 120 g
	Expansion unit		6-core loose wires			**MU-CB6**	Approx. 130 g
			2-core loose wires			**MU-CB2**	Approx. 100 g
	Main unit		M12 4-pin straight		0.3 0.98'	**MU-CC4**	Approx. 30 g

Sensor-to-controller cable (for 4-pin M12 connector type) Coming soon

Appearance	Cable material	Sensor side	Controller side	Length (m)	Model	Weight
	PVC (Polyvinyl chloride)	M12 4-pin straight	Connector	2 6.56'	**OP-88025**	Approx. 75 g
				10 32.81'	**OP-88026**[*1]	Approx. 280 g
		M12 4-pin L-shape		2 6.56'	**OP-88027**	Approx. 75 g
				10 32.81'	**OP-88028**[*1]	Approx. 280 g

*1 The 10 m 32.81' cable includes one spare connector for the controller side.

Connector set for sensor-to-controller connection Coming soon

This set is required when the sensor cable end is loose wire or when the sensor-to-controller cable is cut.

Appearance	Type	Applicable model	Model	Weight
	For PVC (Polyvinyl chloride) cable	LR-W500 OP-75721/87272/85502 OP-75722/87273/87274	**OP-88029**	Approx. 3 g
	For PUR (Polyurethane) cable	OP-87636/87637 OP-87640/87641	**OP-88030**	Approx. 3 g

Controller mounting options

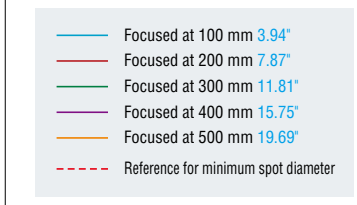
Appearance	Type	Description	Model	Weight
	Mounting adapter (for main unit)	Allows the main unit to be mounted without a DIN rail.	**OP-76877**	Approx. 11 g
	End unit (for expansion)	Used to secure the main and expansion units to DIN rail from both ends. End units must be used when an expansion unit is connected. (2 pieces included)	**OP-26751**	Approx. 15 g

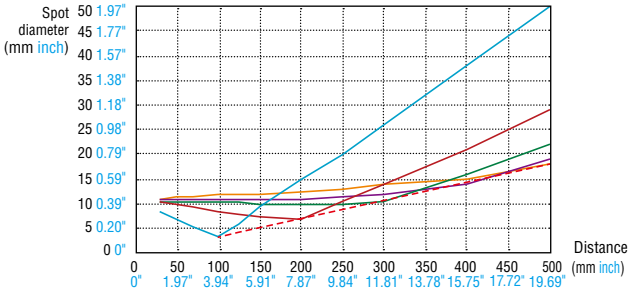
Sensor specifications

Model		LR-W500 2 m 6.56' cable type	LR-W500C M12 connector 4-pin type
Detecting distance		30 to 500 mm 1.18" to 19.69"	
Min. spot diameter		Adjustable spot Approx. ø3.5 mm at 100 mm ø0.14" at 3.94" Approx. ø9 mm at 250 mm ø0.35" at 9.84" Approx. ø18 mm at 500 mm ø0.71" at 19.69"	
Response time*1		200 µs/1 ms/10 ms/100 ms/500 ms selectable	
Light source		White LED	
Mutual interference reduction function		Up to 2 units with alternate frequencies set	
Timer		OFF/ON delay/OFF delay/One-shot	
Power supply	Power voltage	10 to 30 VDC, including 10% ripple (P-P), Class 2 or LPS	
	Current consumption*2	65 mA or less (without load) at 24 VDC; 120 mA or less (without load) at 12 VDC	
I/O*3	Control output	NPN open collector/PNP open collector selectable 30 VDC or less, 50 mA or less, remaining voltage: 2 V or less N.O./N.C. selectable	
	External input	Tuning/laser emission stop selectable Short circuit current: 1 mA or less for NPN/2 mA or less for PNP For the applied voltage, see the wiring diagrams in the instruction manual. For the input times, see the time charts in the instruction manual.	
Protection circuit		Protection against reverse power connection, power supply surge, output overcurrent, output surge, and reverse output connection	
Environmental resistance	Enclosure rating	IP65/IP67 (IEC60529)	
	Ambient light	Incandescent lamp: 10000 lux or less, Sunlight: 20000 lux or less	
	Ambient temperature	-20 to +50°C -4 to 122°F (no freezing)	
	Ambient humidity	35 to 85%RH (no condensation)	
	Shock resistance	1000 m/s² in X, Y, Z axis directions respectively 6 times	
	Vibration resistance	10 to 55 Hz Double amplitude 1.5 mm 0.06" in the X, Y, Z axis directions respectively, 2 hours	
Material		Case: Zinc die cast (Nickel chrome plating), Indicator cover: PPSU, Buttons: PES Lens cover and display: PMMA (scratch-resistant coating), Cable bushing: PBT Cable (2 m 6.56' cable type only): PVC, Spot adjustment dial: Iron (triiron tetraoxide coated) Connector ring (4-pin M12 connector type only): PMP, Connector socket (4-pin M12 connector type only): PEI	
Weight		Approx. 170 g (including cable)	Approx. 110 g

*1 When alternate frequencies are set, the response time increases by approximately 20%. *2 195 mA or less (at 10 V, with load)
*3 IO-Link: Specification v.1.1/COM2 (38.4 kbps) is supported. The setup file can be downloaded from KEYENCE website (http://www.keyence.com).
If you are using the product in an environment in which you cannot download files over the Internet, contact your nearest KEYENCE office.

Reference data of distance vs. spot diameter (Typical)

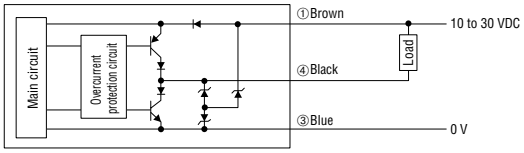




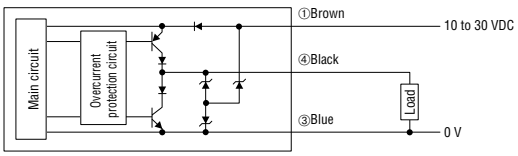
I/O circuit Diagrams

Control output circuit

When NPN is selected

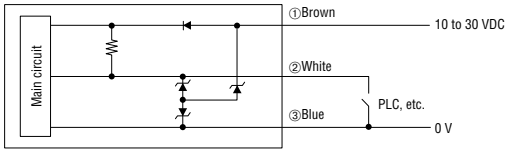


When PNP is selected

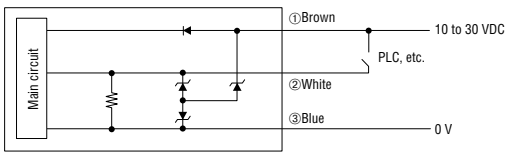


Input circuit

When NPN is selected



When PNP is selected



M12 Connector pin layout

Controller specifications Coming soon

Model		MU-N11 Main unit	MU-N12 Expansion unit
Response time		Single output: 300 µs/1.1 ms/11 ms/100 ms/500 ms selectable Multiple output: 2 ms/3 ms/11 ms/100 ms/500 ms selectable	
Mutual interference reduction function		Up to 2 units with alternate frequencies set	
Timer		OFF/OFF delay/ON delay/One-shot	
Power supply	Power voltage	24 VDC, ripple (P-P) 10% or less, Class 2 or LPS	
	Current consumption	135 mA or less (without load)*1	120 mA or less (without load)*2
I/O	Control output	4 outputs max. NPN open collector/PNP open collector selectable 24 VDC or less, main unit: 50 mA or less*3, expansion unit: 20 mA or less Remaining voltage: 2 V or less N.O./N.C. selectable	
	External input	5 inputs max. (three of the five inputs can be switched to control outputs) Short circuit current: 1 mA or less for NPN/2 mA or less for PNP For the applied voltage, see the wiring diagrams in the instruction manual.	
	Analog output	1 output max. (control output/external input selectable) Current output/voltage output selectable Current output: 4 to 20 mA Maximum load resistance: 450 Ω Voltage output: 0 to 10 V External load resistance: 5 kΩ or more	—
Protection circuit		Protection against reverse power connection, power supply surge, output overcurrent, output surge, and reverse output connection	
Unit expansion		Up to 4 units per main unit*4	
Environmental resistance	Ambient temperature	-20 to +50°C -4 to 122°F (no freezing)	
	Ambient humidity	35 to 85%RH (no condensation)	
	Shock resistance	1000 m/s² in X, Y, Z axis directions respectively 6 times	
	Vibration resistance	10 to 55Hz Double amplitude 1.5 mm 0.06" in the X, Y, Z axis directions respectively, 2 hours	
Material		Case and dust cover: Polycarbonate, Button: Polyacetal, Display panel: Acrylic	
Weight		Approx. 70 g	

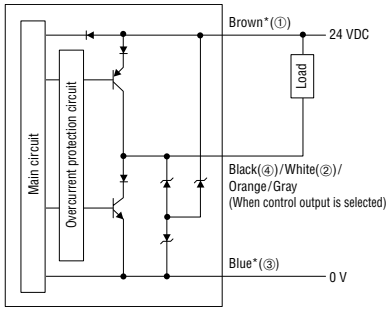
*1 335 mA or less (when 4 outputs are used, with load) *2 200 mA or less (when 4 outputs are used, with load) *3 20 mA or less when an expansion unit is connected.

*4 Contact KEYENCE in cases of expansion using models other than the sensor amplifiers supporting N-bus (generic name for KEYENCE's simplified wiring system) including the MU-N Series and the NU Series communication unit.

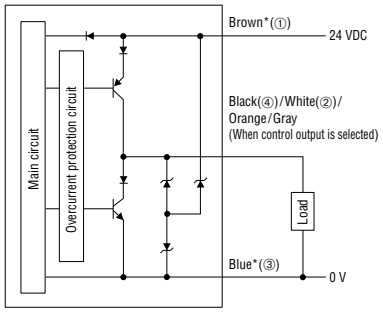
I/O circuit diagrams

Control output circuit

When NPN is selected

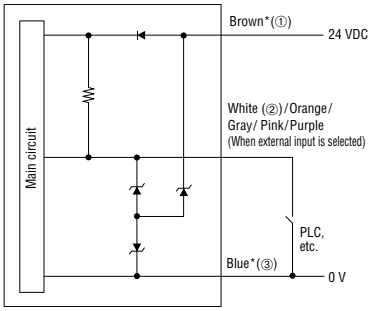


When PNP is selected

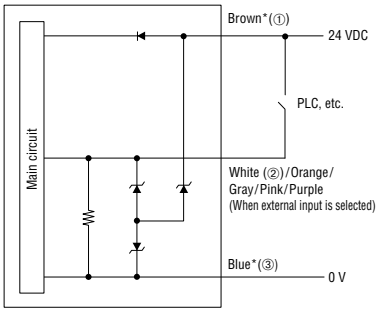


Input circuit

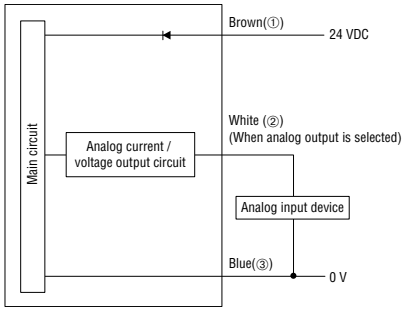
When NPN is selected



When PNP is selected



Analog output circuit *



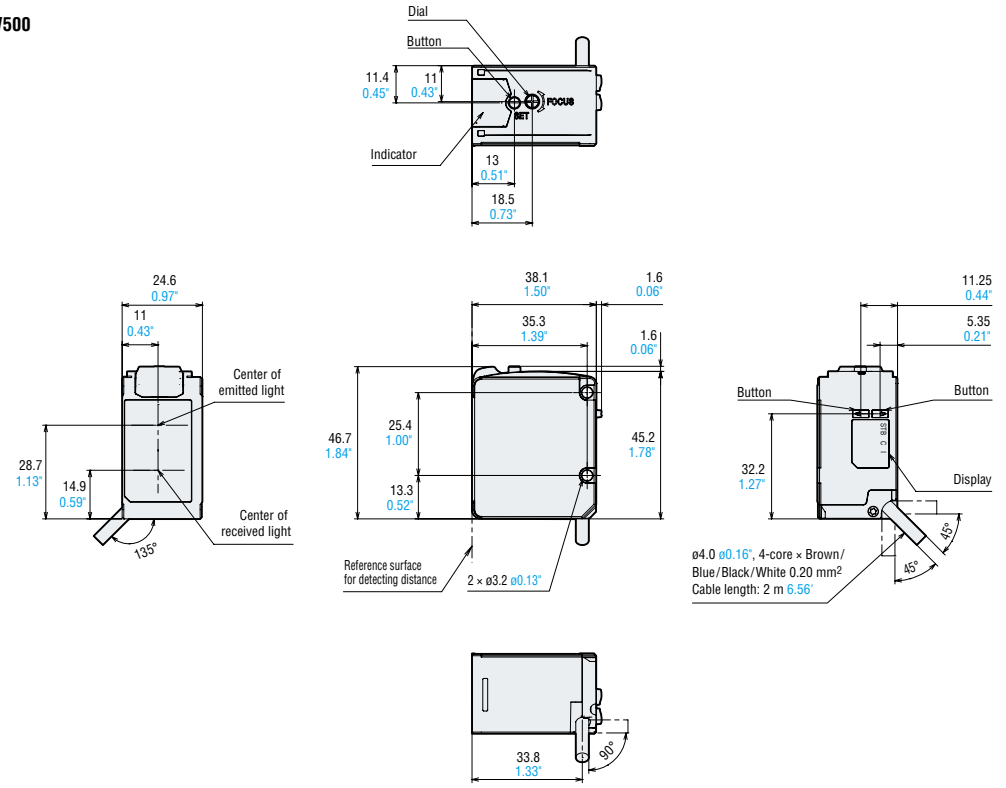
Pin layout when the M12 connector (4-pin) cable is used

* MU-N11 only

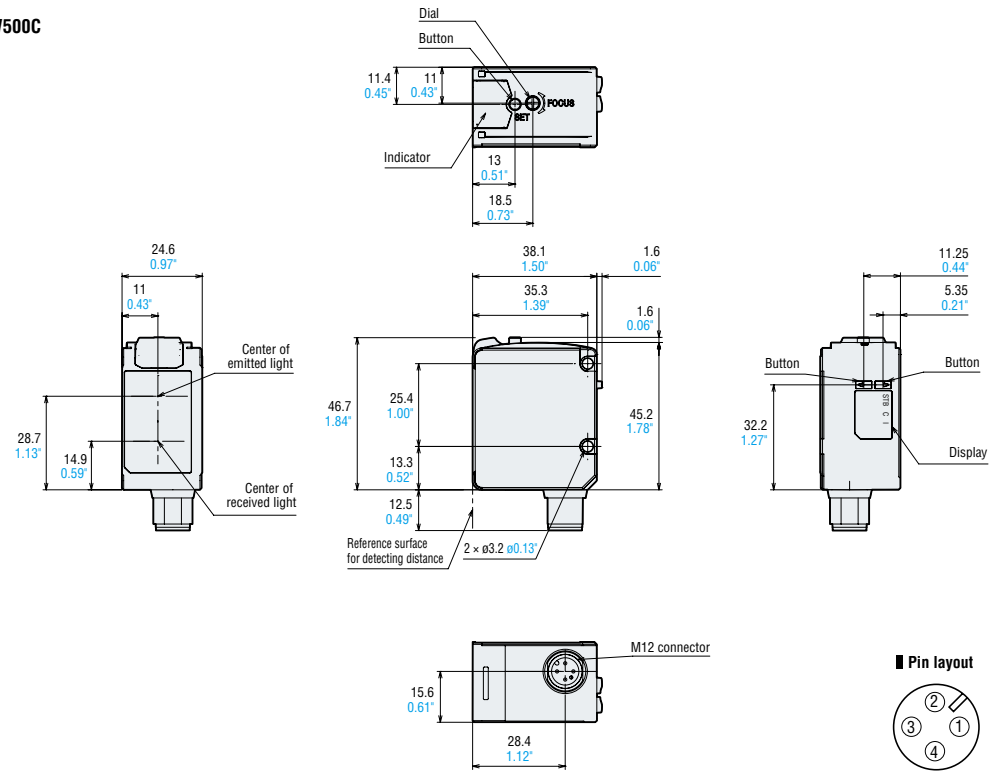
Dimensions

Unit: mm inch

LR-W500



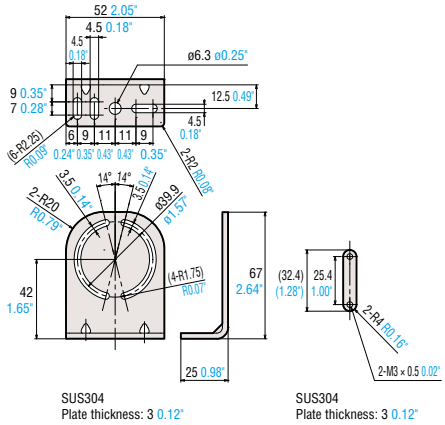
LR-W500C



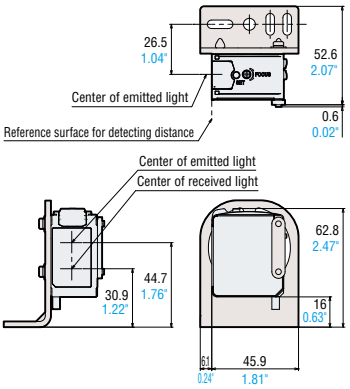
Pin layout

Dimensions

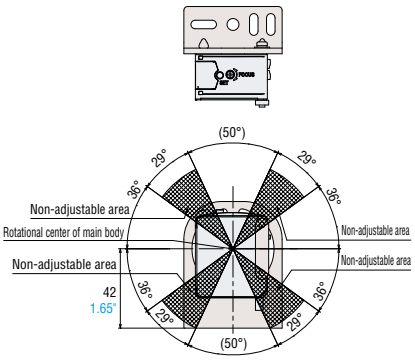
OP-88021



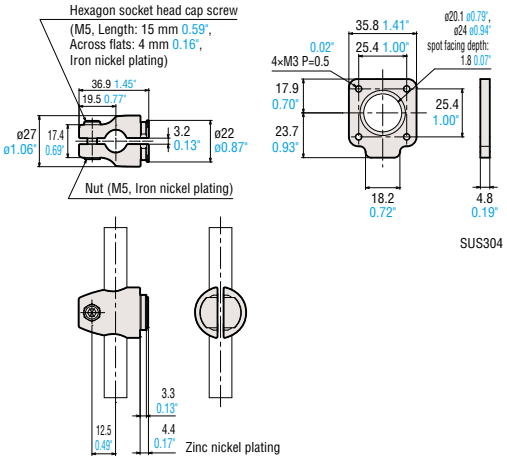
OP-88021 + LR-W500



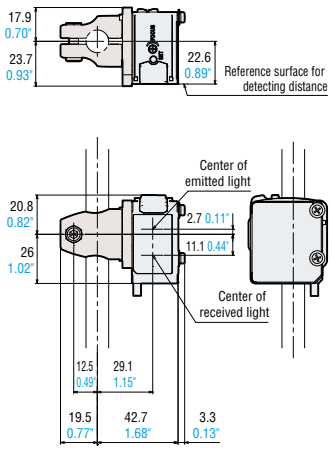
Angle non-adjustable area when **OP-88021** is used



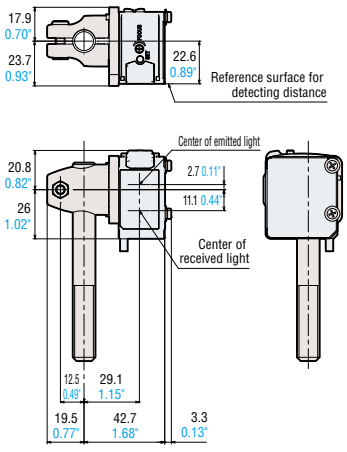
OP-88023



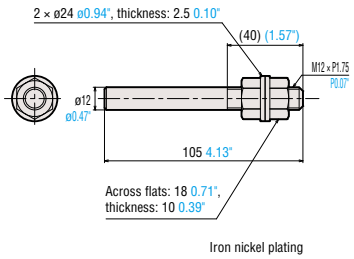
OP-88023 + LR-W500



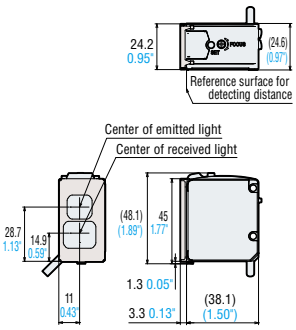
OP-88023 + OP-88024 + LR-W500



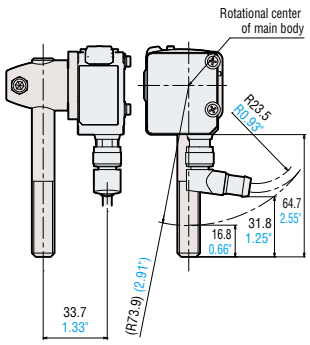
OP-88024



LR-WA1 + LR-W500

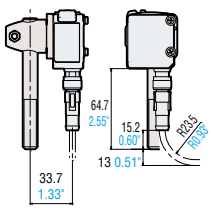


When **OP-88023** + **OP-88024** + **LR-W500C** + L-shape type M12 connector are used



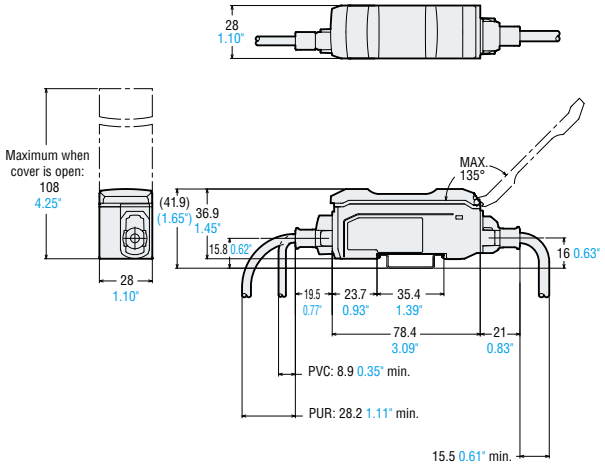
Warning for when an M12 connector type is used

When mounting the unit as shown in the figure below (connector downward), carefully check the surroundings for any objects that might interfere with the connector cable.

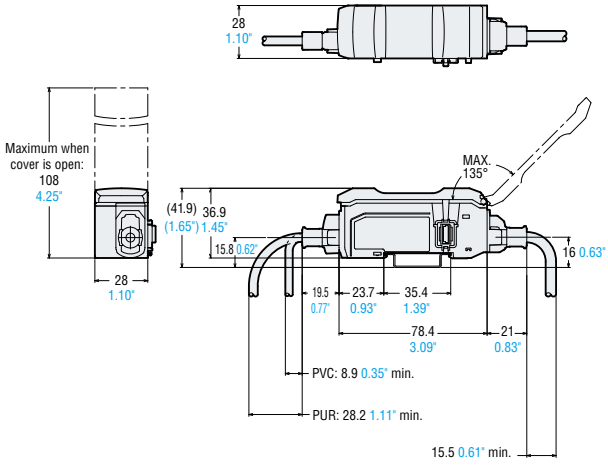


Unit: mm inch

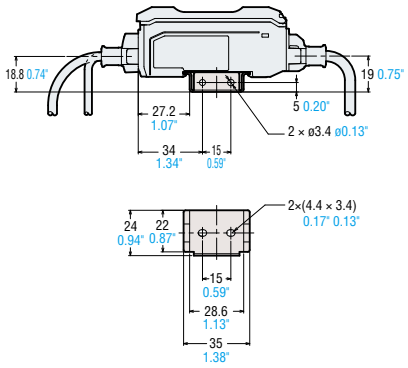
MU-N11 (Main unit) Coming soon



MU-N12 (Expansion unit) Coming soon

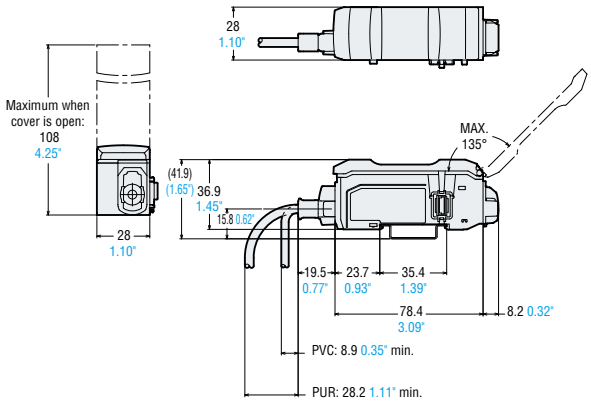


When mounting adapter is attached (**OP-76877**, optional, sold separately)

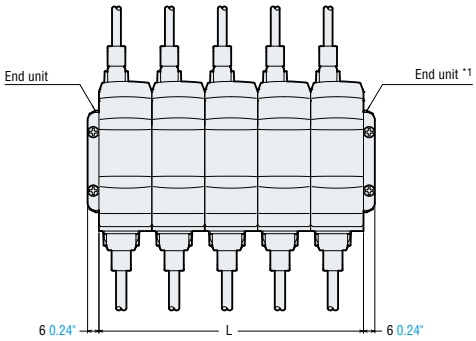


Back of mounting adapter

When the communication unit is connected without using a power supply cable



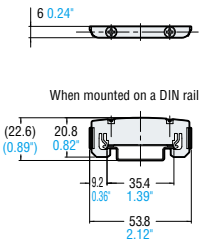
When expansion units are connected



*1 End units must be used when an expansion unit is connected. (Optional)

No. of expansion units	L
1	28 1.10"
2	56 2.20"
3	84 3.31"
4	112 4.41"
5	140 5.51"

End unit (**OP-26751**, optional, sold separately)

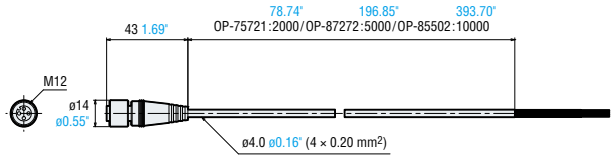


Dimensions

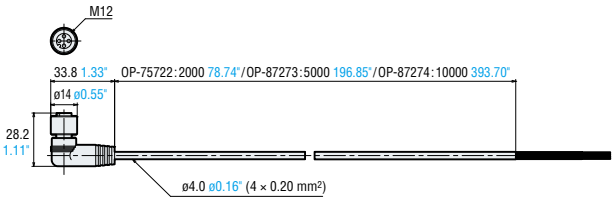
Unit: mm inch

M12 connector cable for sensor

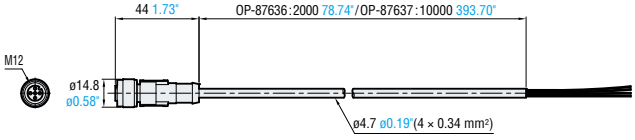
OP-75721/87272/85502



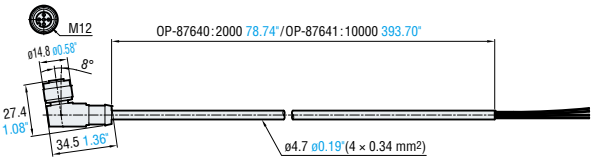
OP-75722/87273/87274



OP-87636/87637



OP-87640/87641

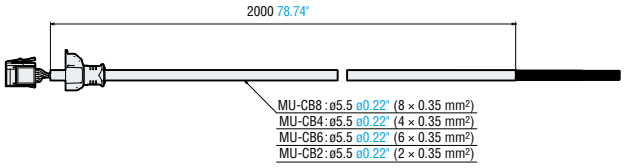


Pin layout

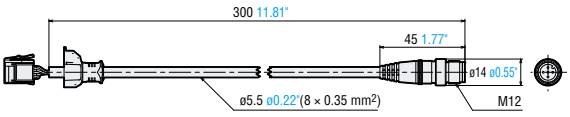
No.	Color
①	Brown
②	White
③	Blue
④	Black

Power supply cable for MU-N

MU-CB8/CB4/CB6/CB2 Coming soon



MU-CC4 Coming soon

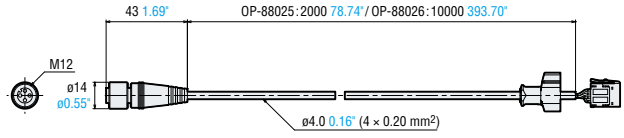


No.	Color
①	Brown
②	White
③	Blue
④	Black

M12 Connector pin layout

Sensor-to-controller cable (4-pin M12 connector type)

OP-88025/88026 Coming soon

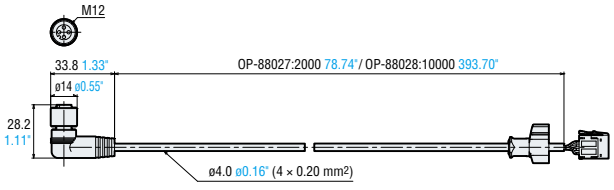


X
M12 Connector pin layout

X	Y	Color
①	①	Brown
②	②	White
③	③	Blue
④	④	Black

Y
Connector pin

OP-88027/88028 Coming soon



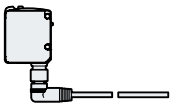
X
M12 Connector pin layout

X	Y	Color
①	①	Brown
②	②	White
③	③	Blue
④	④	Black

Y
M12 Connector pin layout

Warning for when an L-shape type M12 connector is used

When the L-shape type M12 connector is used, the cable is fixed in the direction shown in the right figure. The connector base cannot be rotated.



CAD DATA DOWNLOAD
www.keyence.com/CADG

Network communication unit NU Series

Open field network unit

Type	Appearance	Network	Model	Dimensions
Communication unit		CC-Link	**NU-CL1**	[→P. 23]
		DeviceNet	**NU-DN1**	
		EtherNet/IP™	**NU-EP1**	
e-CON Input unit		—	**NU-EN8N**	

Options

Model	Type
OP-79426	Version 1.10 supported CC-Link dedicated cable 20 m 65.62'
OP-79427	Version 1.10 supported CC-Link dedicated cable 100 m 328.08'
OP-51504	STP (Shielded twisted-pair) cable 0.2 m 0.66'
OP-51505	STP (Shielded twisted-pair) cable 0.5 m 1.64'
OP-51506	STP (Shielded twisted-pair) cable 1 m 3.28'
OP-51507	STP (Shielded twisted-pair) cable 3 m 9.84'
OP-51508	STP (Shielded twisted-pair) cable 5 m 16.40'
OP-51509	STP (Shielded twisted-pair) cable 10 m 32.81'
OP-84338*1	e-CON connector (2 pieces included)

*1 Use a cable with sheath outer diameter of 1.15 to 1.35 mm 0.05" to 0.05" and wire range of 0.1 to 0.5 mm^2.
To connect a device using a cable other than as specified above, prepare an e-CON connector that conforms with its wire diameter.

CC-Link communication unit NU-CL1

Model		NU-CL1
CC-Link specifications	Supported version	Version 2.00/version 1.10 (selectable)
	No. of occupied stations	Version 2.00: 3 stations; Version 1.10: 1/2/3/4 stations (selectable)
	Station type	Remote device station
	Transmission rate	156 kbps/625 kbps/2.5 Mbps/5 Mbps/10 Mbps
	Station No. setting	1 to 64
Sensor connection specifications	Connectable sensor	N-bus supporting sensor amplifier*1
	Number of connectable sensors	16 units max.*2
	Power supply	Supplied from this unit via the simplified wiring connector
	Allowable passing current	1200 mA or less total*3
Power voltage		24 VDC±10%, ripple (p-p) 10% or less
Power consumption		1400 mW or less (55 mA or less at 24 V)*4
Weight (including connector)		Approx. 80 g
Accessories		Instruction manual, CC-Link connector, power supply connector, electrical termination, end unit × 2

*1 N-bus is the name of KEYENCE's simplified wiring system for sensor amplifiers. *2 Varies depending on the sensor amplifier to be connected.
*3 This is the current value that can be supplied to this product or the sensor amplifier/unit connected to this product. *4 Excluding the current supplied to the connected sensor amplifier.

DeviceNet communication unit NU-DN1

Model		NU-DN1		
DeviceNet specifications	Supported functions	I/O communication (Poll), Explicit message communication		
	Address setting	0 to 63 (PGM supported)		
	Communication speed (automatic selection)	500 kbps	250 kbps	125 kbps
	Maximum cable length	100 m 328.08' (thick cable)	250 m 820.21' (thick cable)	500 m 1640.42' (thick cable)
		100 m 328.08' (thin cable)	100 m 328.08' (thin cable)	100 m 328.08' (thin cable)
Sensor connection specifications	Connectable sensor	N-bus sensor amplifier*1		
	Number of connectable sensors	16 units max.*2		
	Power supply	Supplied from the DeviceNet communication power supply via this unit.		
	Allowable passing current	1200 mA or less total*3		
Power voltage		11 to 25 VDC		
Power consumption		1480 mW or less (60 mA or less at 24 V, 106 mA or less at 12 V)*4		
Weight (including connector)		Approx. 65 g		
Accessories		Instruction manual, DeviceNet connector, end unit × 2		

*1 N-bus is the name of KEYENCE's simplified wiring system for sensor amplifiers. *2 Varies depending on the sensor amplifier to be connected.
*3 This is the current value that can be supplied to this product or the sensor amplifier/unit connected to this product. *4 Excluding the current supplied to the connected sensor amplifier.

EtherNet/IP™ compatible communication unit NU-EP1

Model		NU-EP1
Ethernet specifications	Compliant standards	IEEE802.3 (10BASE-T) IEEE802.3u (100BASE-TX) IEEE802.3af (Power over Ethernet, Class3)
	Transmission rate	10 Mbps (10BASE-T) 100 Mbps (100BASE-TX)
	Transmission media	STP or Category3 or higher UTP (10BASE-T)*1 STP or Category5 or higher UTP (100BASE-TX)
	Maximum cable length	100 m 328.08' (between this unit and Ethernet switch)
	Maximum number of connectable hubs*2	4 (10BASE-T) 2 (100BASE-TX)
EtherNet/IP™ specifications	Supported functions	Cyclic communication Message communication (Explicit message communication) supporting UCMM and Class 3
	Number of connections	64
	RP I (communication cycle)	0.5 to 10000 ms (Unit: 0.5 ms)
	Tolerable communication bandwidth for cyclic communication	6000 pps
	Conformance test	Version A7 supported
Sensor connection specifications	Connectable sensor	N-bus sensor amplifier*3
	Number of connectable sensors	16 units max.*4
	Power supply	Supplied from this unit via the sensor amplifier connector
	Allowable passing current*5	1200 mA or less total
	PoE power supply*6	Supplied voltage: 24 V±10%, supplied current: 360 mA or less*7
Power voltage		24 VDC±10%, ripple (p-p) 10% or less (when the power supply connector is used) 48 VDC (57 VDC max.) (when PoE power supply is used)
Power consumption		1500 mW or less (60 mA or less at 24 V)*8
Weight (including connector)		Approx. 80 g
Accessories		Instruction manual, power supply connector, end unit × 2

* The following KEYENCE PoE power supply units cannot be connected: [DT-100A] [DT-500] [NE-V08]
*1 Use an STP cable or a Category5 or higher UTP cable for the connection using PoE power supply function.
*2 When a switch is used, there is no limit to the number of connectable units.
*3 N-bus is the name of KEYENCE's simplified wiring system for sensor amplifiers.
*4 Varies depending on the sensor amplifier to be connected.
*5 This is the current value that can be supplied to this unit or the sensor amplifier connected to this unit.
*6 This is the power that can be supplied to the sensor amplifier when the PoE power supply function is used.
*7 Varies depending on the ambient temperature. (-20 to +45°C -4 to 113°F : 360 mA or less, +45 to +50°C 113 to 122°F: 260 mA or less, +50 to +55°C 122 to 131°F: 140 mA or less)
*8 Excluding the current supplied to the connected sensor amplifier.

e-CON input unit for communication units NU-EN8N

Model		NU-EN8N
Connectable communication unit		NU-CL1, NU-DN1, NU-EP1, NU-EC1
Number of connectable units		2 units max. (No. of ID numbers to be occupied: 8)*1
I/O	Connector	e-CON connector (4-pin)
	Number of inputs	8
	Supply voltage	Supplied from communication unit
	Supply current	520 mA or less (8 inputs in total)
	Input signal	NPN open collector output, Contact output*2
	Input response time	20 µs or less
	Internal input voltage	8 VDC (reference input current: 3.1 mA)
	Input resistance	2.4 kΩ
Power voltage		12 to 24 VDC, ripple (p-p) 10% or less*3
Weight (including tag)		Approx. 55 g
Accessories		Instruction manual, tag, index sticker

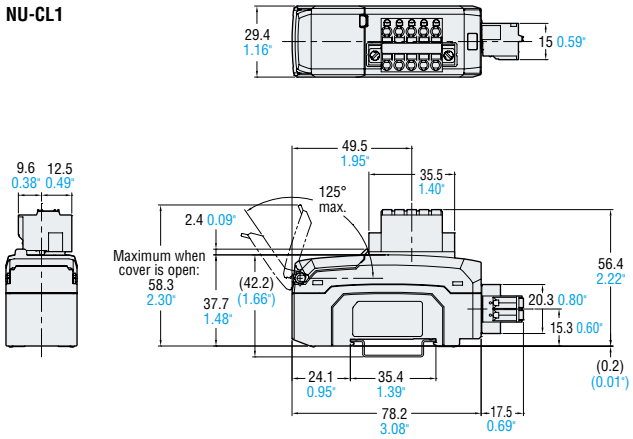
*1 When connecting this unit to a communication unit, connect it last after the sensor amplifiers. Sensor amplifiers connected after this unit will not be recognized by the communication unit.
*2 Two-wire type sensors and switches cannot be used. Use three-wire type devices.
*3 This unit receives power supply from the connected communication unit.

Network communication unit NU Series

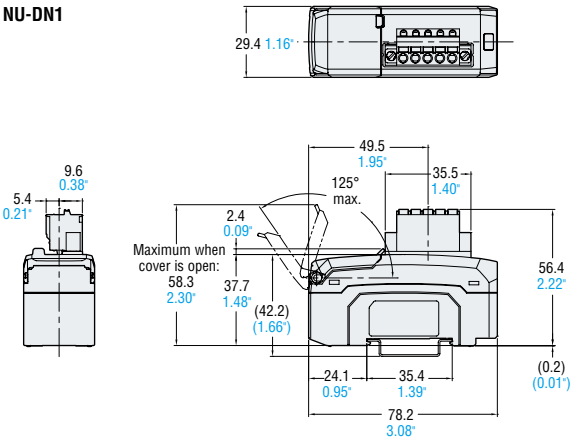
Dimensions

Unit: mm inch

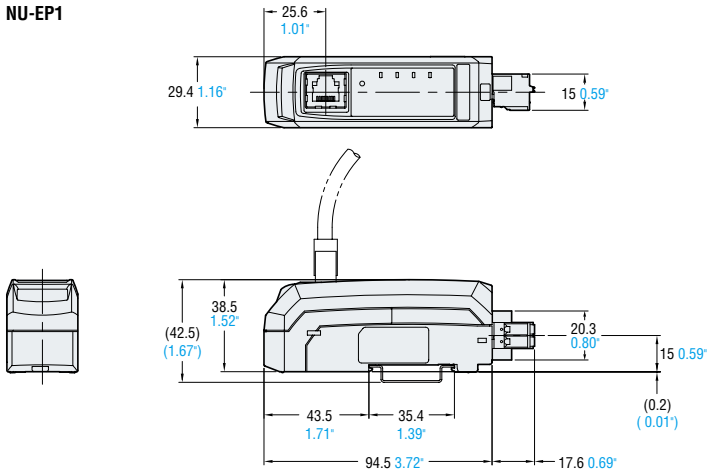
NU-CL1



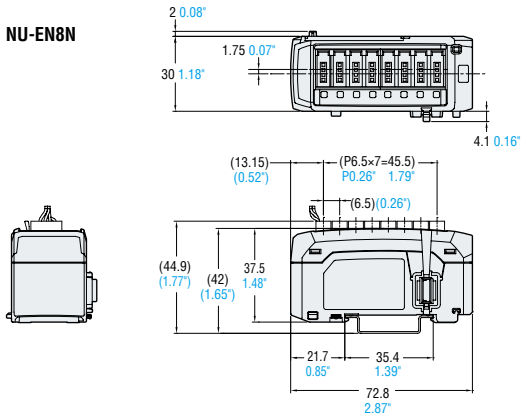
NU-DN1



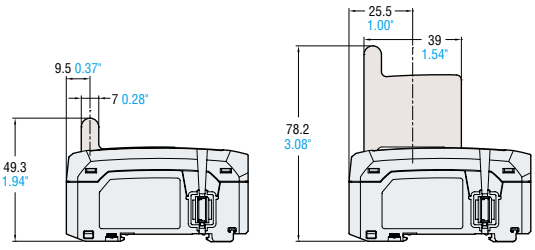
NU-EP1



NU-EN8N



When a tag is attached (supply of NU-EN8N)



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