

Rugged, Reliable, Repeatable Laser Measurement Simplified

KEYENCE BRINGS YOU AN ECONOMICAL ANALOG LASER SENSOR



Intelligent Sensor
I-SERIES





NEW

**CMOS Analog Laser Sensor
IA Series**

In-Line, General-Purpose Analog Laser Sensor with Excellent Cost & Performance

Intelligent Sensor
I-SERIES

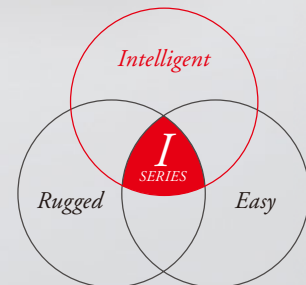


WHAT IS THE I-SERIES?

A range of laser displacement sensors which are highly accurate, yet rugged and easy to use, with functions refined for use in the field, as well as excellent cost performance.

Intelligent Sensor
I-SERIES

**Low-cost
High
Performance**



High-Accuracy Measurement

SUPPORTS A VARIETY OF WORKPIECES

[Measurement with higher stability]

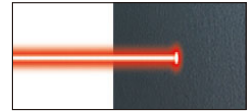
The IA Series automatically controls and optimizes laser power according to the reflectance of the target. As a result, stable measurement is possible for almost any target from black rubber to shiny metal surfaces.

Reduced power



When the workpiece is bright

Increased power



When the workpiece is dark

Rugged Head Structure

USE IN ALMOST ANY ENVIRONMENT

[Die cast metal used for IP67/optical base]

The head structure was redesigned to give the sensor the smallest body in its class and make it rugged enough to withstand almost any environment. In addition, the optical base is made of die cast SUS304 for added strength and protection.



Easy Installation

CAN BE INSTALLED ALMOST ANYWHERE

[Smallest body in its class]

The IA Series makes use of a unique aspherical lens to achieve the smallest head housing in its class. Head dimensions are 36 mm × 48.5 mm × 22.6 mm* 1.42" × 1.91" × 0.89" and the head weight is just 50 g* (not including cable). Minimizing the installation space required and reducing the weight make it ideal for mounting on moving parts.

*IA-030

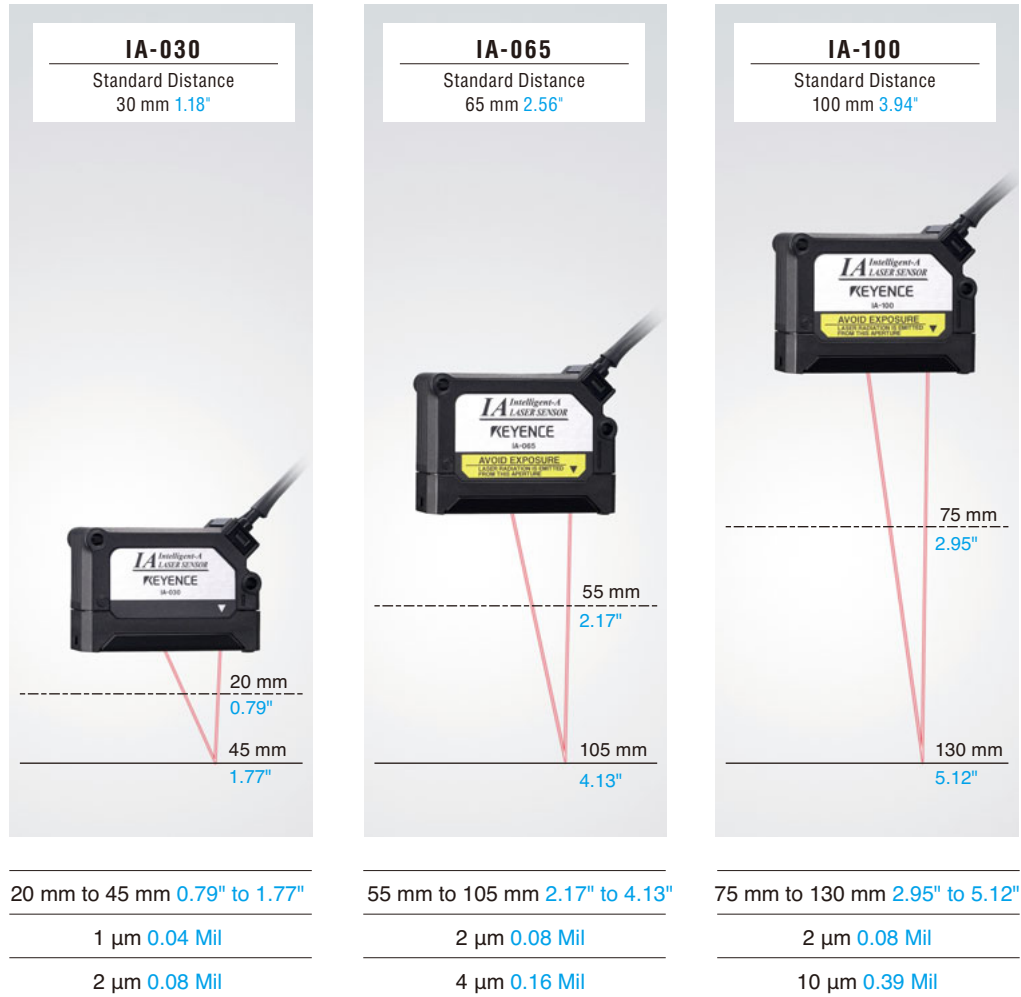
APPLICATIONS BY INDUSTRY

<p>TRANSPORTATION Control of gasket coating</p>	<p>PLASTICS & RUBBER Detecting presence/absence of cap seals</p>	<p>STEEL INDUSTRY Detection of double sheets</p>	<p>ELECTRONICS Chip presence/absence and double chip detection</p>
<p>PAPER INDUSTRY Measurement of paper tension</p>	<p>PLASTICS & RUBBER Tension control of sheet material</p>	<p>FOOD Counting of packages</p>	<p>PHARMACEUTICALS Detection of cap position</p>

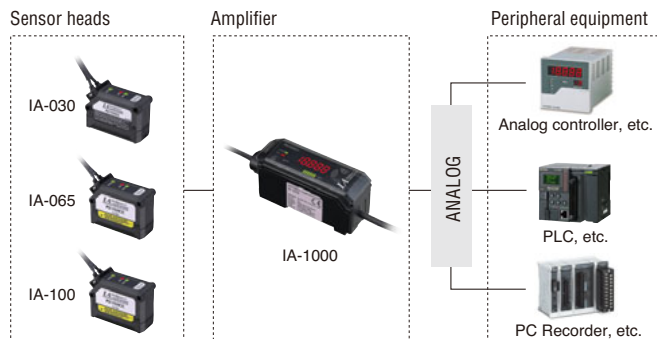
3 types of IA Series Sensor Heads are Available

The sensor head lineup offers three models according to application and mounting requirements, resulting in complete application solving ability of the IA Series.

HEAD LINE-UP



SYSTEM CONFIGURATIONS



ANALOG OUTPUT

Multi-stage setting supported




If analog data is transmitted to a PLC, multilevel setting can be implemented to cover various workpieces, enabling a reduction in labor-hours.

Device feedback

Because the output is analog, position information can be fed back, and analog control can be implemented.

SPECIFICATIONS

Head

Model		IA-030	IA-065	IA-100
Appearance				
	Reference distance	30 mm 1.18"	65 mm 2.56"	100 mm 3.94"
Measurement range		20 to 45 mm 0.79" to 1.77"	55 mm to 105 mm 2.17" to 4.13"	75 mm to 130 mm 2.95" to 5.12"
Light source	Red semiconductor laser, wavelength: 655 nm (visible light)			
	Laser class	Class1 (FDA CDRH Part1040.10)** Class1 (IEC 60825-1)	ClassII (FDA CDRH Part1040.10) Class2 (IEC 60825-1)	
Output		220 μW	560 μW	
Spot diameter (at standard distance)		Approx. 200 × 750 μm 7.89 × 29.53 Mil	Approx. 550 × 1750 μm 21.65 × 68.9 Mil	Approx. 400 × 1350 μm 15.75 × 53.15 Mil
Linearity **		±0.1% of F.S. (F.S.=±5 mm 0.20", 25 to 35 mm 0.98" to 1.38")	±0.1% of F.S. (F.S.=±10 mm 0.39", 55 to 75 mm 2.17" to 2.95")	±0.15% of F.S. (F.S.=±20 mm 0.79", 80 to 120 mm 3.15" to 4.72")
Repeatability **3		2 μm 0.08 Mil	4 μm 0.16 Mil	10 μm 0.39 Mil
Sampling rate		0.33/1/2/5 ms (4 levels available)		
Operation status indicators		Laser warning: Green LED, Analog output: Red LED, Measurement center: Green LED		
Temperature characteristics		0.05% of F.S./°C (F.S.=±5 mm 0.20", 25 to 35 mm 0.98" to 1.38")	0.06% of F.S./°C (F.S.=±10 mm 0.39", 55 to 75 mm 2.17" to 2.95")	0.06% of F.S./°C (F.S.=±20 mm 0.79", 80 to 120 mm 3.15" to 4.72")
Environmental resistance	Enclosure rating	IP67		
	Ambient light **4	Incandescent lamp: 5000 lux	Incandescent lamp: 7500 lux	
	Ambient temperature	-10 to +50°C 14 to 122F° (No condensation or freezing)		
	Relative humidity	35 to 85% RH (No condensation)		
Vibration		10 to 55 Hz 1.5 mm 0.06" in the X, Y and Z directions, 2 hours respectively		
Material		Housing material: PBT Metal parts: SUS304 Packing: NBR Lens cover: Glass Cable: PVC		
Weight (including cable)		Approx. 120g	Approx. 130g	



*1 The classification is implemented based on IEC 60825-1 following the requirement of Laser Notice No.50 of FDA(CDRH).

*2 Value when measuring the KEYENCE standard target (white diffuse object).

*3 Value when measuring the KEYENCE standard target (white diffuse object) at the reference distance, sampling rate: 1 ms, and average number of times: 16.

*4 Value when the sampling rate is set to 2 ms or 5 ms.

Amplifier unit

Model		IA-1000
Appearance		
	Display rate	Approx. 10 times/sec
Minimum displayable unit		1 μm 0.04 Mil (IA-030) · 2 μm 0.08 Mil (IA-065/IA-100)
Display range		-99.999 to 99.999 mm -3.94" to 3.94"(IA-030) · -99.998 to 99.998 mm -3.94" to 3.94" (IA-065/IA-100)
Analog output voltage		0.5 to 4V, Output impedance 100 Ω.
Control input**1	Bank switch input	Non-voltage input
	Zero-shift input	
	Stop emission input	
Power supply	Power voltage	10 to 30 VDC Ripple (P-P) 10% included
	Power consumption	1500 mW max. (at 30 V; 50 mA max.)
Environmental resistance	Ambient temperature	-10 to +55°C 14 to 131F° (No condensation or freezing)
	Relative humidity	35 to 85% RH (No condensation)
	Vibration	10 to 55 Hz 1.5 mm 0.06" in the X, Y and Z directions, 2 hours respectively
Material		Front sheet: Polycarbonate Key tops: Polyacetal Cable: PVC
Weight (including cable)		Approx. 110 g
Power supply I/O cable	 <ul style="list-style-type: none"> (Brown) 10 to 30 VDC (Blue) Power supply GND (Black) Analog voltage output (0.5 to 4 V) (Shielded) Analog voltage output (GND) (Pink**2) External input (Purple) Laser emission stop input 	

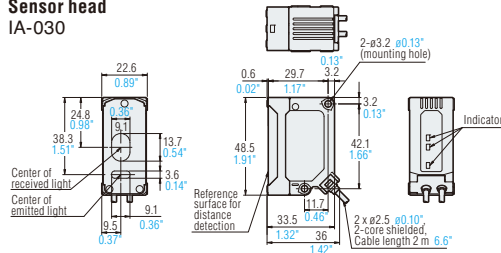
*1 Either bank switching input or zero shift input can be used. The rated non-voltage input is: ON voltage, 2 V or less; OFF current, 0.05 mA or less.

*2 The external input activates, depending on the amplifier OPTIONAL settings. (bnK: Bank switching, SFT: Zero shift, oFF: Input off)

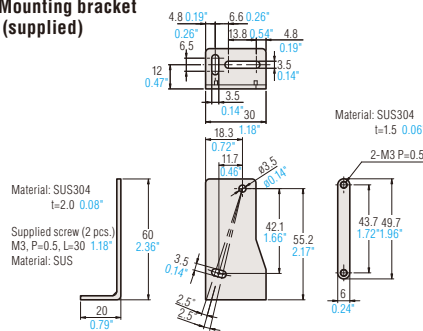
DIMENSIONS

Unit: mm inch

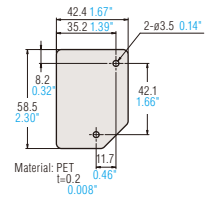
Sensor head IA-030



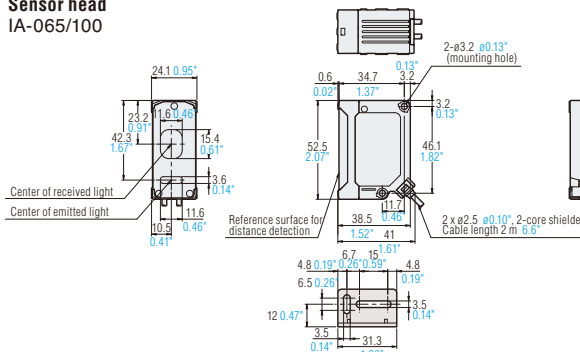
Mounting bracket (supplied)



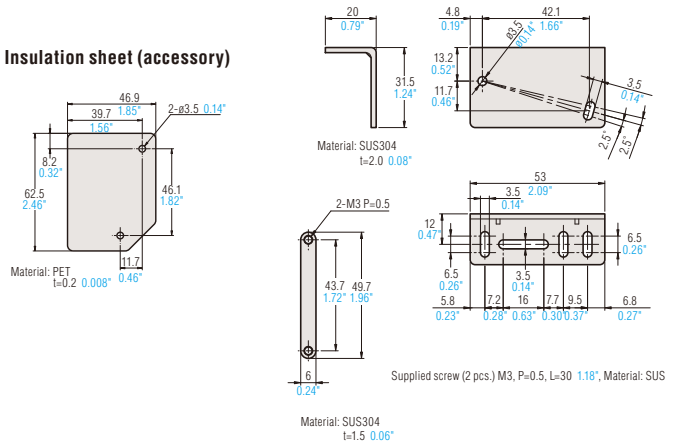
Insulation sheet (accessory)



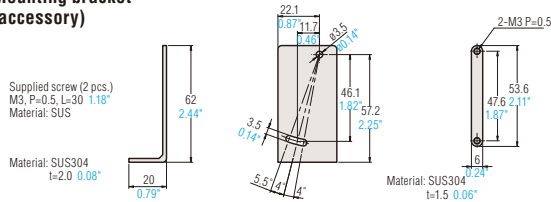
Sensor head IA-065/100



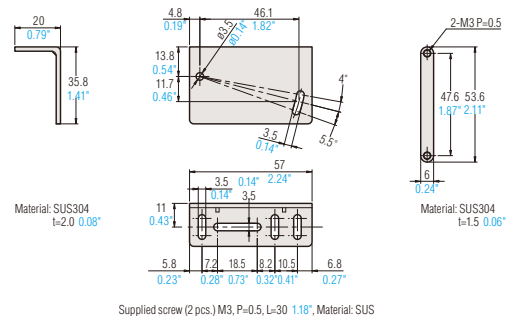
Insulation sheet (accessory)



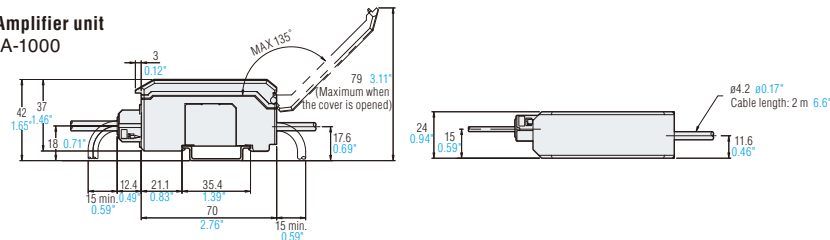
Mounting bracket (accessory)



Rear mounting bracket for IA-065/100 (optional) OP-87128



Amplifier unit IA-1000



CALL TOLL FREE TO CONTACT YOUR LOCAL OFFICE
1-888-KEYENCE
1-888-539-3623

www.keyence.com

SAFETY INFORMATION
Please read the instruction manual carefully in order to safely operate any KEYENCE product.

CONTACT YOUR NEAREST OFFICE FOR RELEASE STATUS

KEYENCE CORPORATION OF AMERICA

Head Office 500 Park Boulevard, Suite 200, Itasca, IL 60143, U.S.A.

PHONE: +1-201-930-0100 FAX: +1-855-539-0123 E-mail: keyence@keyence.com

AL Birmingham	CA San Jose	CO Denver	IL Chicago	MI Detroit	MO St. Louis	NC Raleigh	PA Philadelphia	TN Nashville	WI Milwaukee
AR Little Rock	CA Cupertino	FL Tampa	IN Indianapolis	MI Grand Rapids	NJ Elmwood Park	OH Cincinnati	PA Pittsburgh	TX Austin	
AZ Phoenix	CA Los Angeles	GA Atlanta	KY Louisville	MN Minneapolis	NY Rochester	OH Cleveland	SC Greenville	TX Dallas	
CA San Francisco	CA Irvine	IA Iowa	MA Boston	MO Kansas City	NC Charlotte	OR Portland	TN Knoxville	WA Seattle	

KEYENCE CANADA INC.

Head Office PHONE: +1-905-366-7655 FAX: +1-905-366-1122 E-mail: keyencecanada@keyence.com
Montreal PHONE: +1-514-694-4740 FAX: +1-514-694-3206 Windsor PHONE: +1-905-366-7655 FAX: +1-905-366-1122

KEYENCE MEXICO S.A. DE C.V.

PHONE: +52-55-8850-0100 FAX: +52-81-8220-9097
E-mail: keyencemexico@keyence.com

The information in this publication is based on KEYENCE's internal research/evaluation at the time of release and is subject to change without notice. Company and product names mentioned in this catalog are either trademarks or registered trademarks of their respective companies. The specifications are expressed in metric units. The English units have been converted from the original metric units. Copyright (c) 2009 KEYENCE CORPORATION. All rights reserved.

KA1-1017

IA-KA-C-E 1030-3 611334