

NEW

Analog output switchable  
Judgment output Switchable

## HD series Laser Displacement Sensor

CE   
RoHS

Different materials and colors  
Can handle different materials and  
colors with ease

Various materials, color linearity  $\pm 1\%$   
High-speed sampling frequency up to 2000Hz  
Repeatability up to 1 $\mu$ m



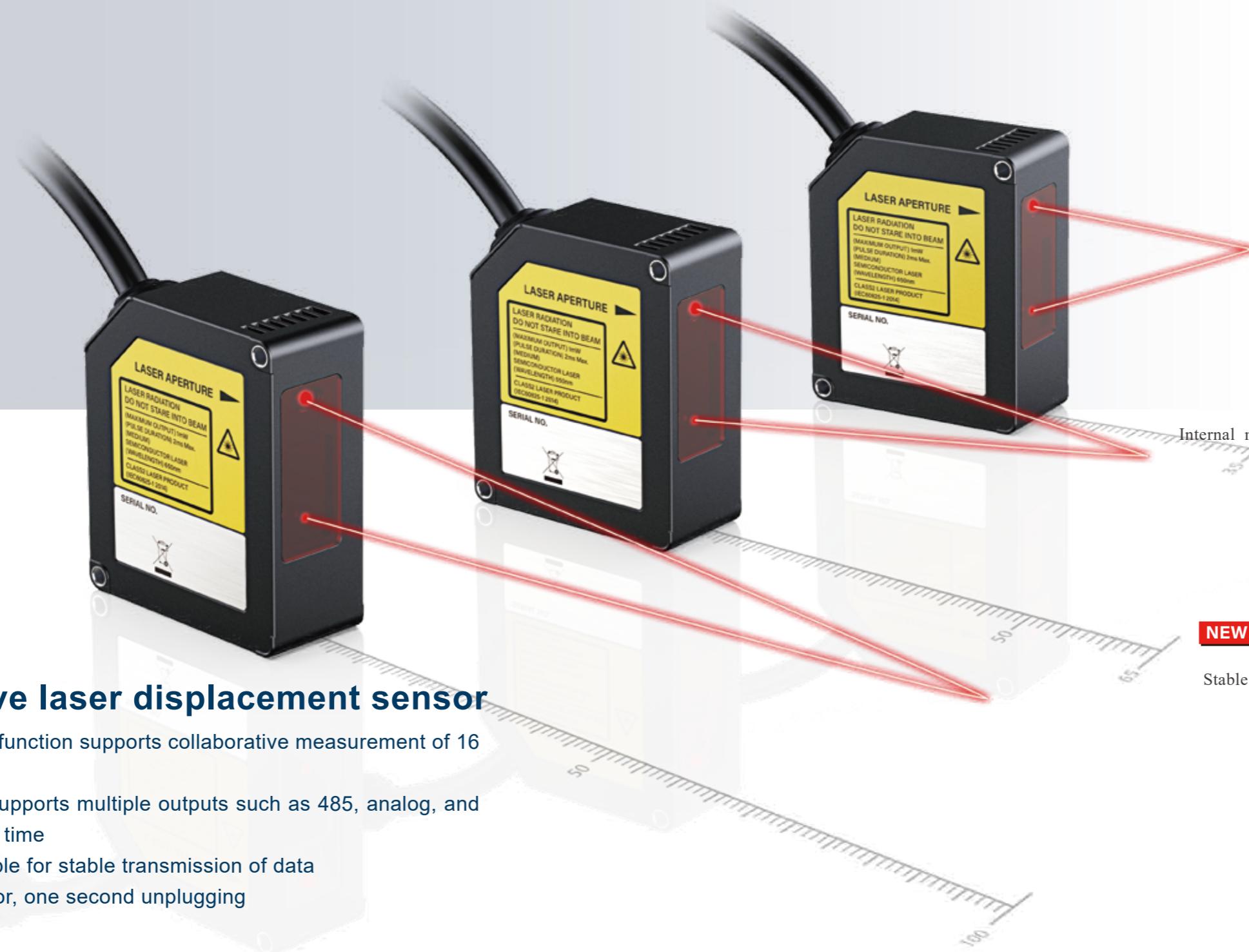
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HD -BROCHURE-BA  
20240605  
PRINTED IN CHINA



## HD series Cost-effective laser displacement sensor

- Bus communication function supports collaborative measurement of 16 stations
- The 12-core cable supports multiple outputs such as 485, analog, and judgment at the same time
- Coaxial shielded cable for stable transmission of data
- Quick-Lock connector, one second unplugging

### IP67 Protection

Can be used in dusty and humid environments.  
Internal mounting holes have metal sleeves to withstand high mounting stresses.

### High stability

**NEW** Upgraded to the second generation of SPA algorithm  
SUPER-POINT-AI GORITHM.  
Stable picking of points even on workpieces of different colors and materials compared to the first generation.  
Ensures reliable sensor output.

## Responding to the Demand for Production Innovation with Three "New Senses"



Test reports are issued by domestic authoritative organizations  
Built-in coefficient correction for different installations



Guidelines for IEC Class 2 laser safety measurements



Fast sampling at 2000 FPS  
1-1024 output average adjustable

## ·Specification

HD Series						Laser displacement sensor							
Model	HD-035		HD-065		HD-100		Reference distance	35mm		65mm		100mm	
Measuring range	30 to 40mm		45 to 85mm		60 to 140mm		Light source	Visible light semiconductor laser (Wavelength 650nm, below 1mW, JIS2 level, IEC/EN Class2, FDA Class2)					
Spot type <sup>※1</sup>	Point	Line	Point	Line	Point	Line	Spot size	$\leq 75\mu\text{m}$	$65 \times 1600\mu\text{m}$	$\leq 150\mu\text{m}$	$120 \times 1600\mu\text{m}$	$\leq 270\mu\text{m}$	$180 \times 1600\mu\text{m}$
Optical receiving device	CMOS image sensor												
Supply voltage	Current type: 12-24V DC $\pm 10\%$ , ripple 0.5%; Voltage type: 18-24V DC $\pm 10\%$ , ripple 0.5%												
Current consumption	When the power supply voltage is 24V, the current consumption is below 100mA												
Input(Switchable)	Pulse width input According to the input time, there are zero setting, ZERO OFF, reset, teaching, laser control, and memory switching In case of using NPN output: 0 depends on the time it is connected to 0V; In case of using PNP output: it depends on the time it is connected to the external power supply +pole												
	External input In case of using NPN output: action when connected to 0V; In case of using PNP output: Actions when external power supply + pole is connected												
	<NPN type> 2 channels, maximum current: 50mA, applied voltage 3-24VDC; Leakage current: below 0.1mA												
Judgment output(Switchable)	<PNP type> 2 channels, maximum current: 50mA; Leakage current: below 0.1mA												
	Analog output(Switchable) 4-20mA (Load impedance: below 300 $\Omega$ ), 0-10V (Output Impedance: 100 $\Omega$ )												
Communication interface	RS485 modbus RTU, RS422												
Output operation	Open when the output is ON												
Short circuit protection	Incorporated (automatic restoration)												
Linearity <sup>※2</sup>	$\pm 0.1\%$ F.S.		$\pm 0.1\%$ F.S.		$\pm 0.1\%$ F.S.								
Repeatability <sup>※3</sup>	$1\mu\text{m}$		$4\mu\text{m}$		$8\mu\text{m}$								
Sampling frequency	2000Hz, 1000Hz, 500Hz, 200Hz adjustable												
Action indicator light	Power Green LED; Lasers, OUT1, OUT2, warning yellow LED												
Temperature characteristics	0.05%F.S./ $^{\circ}\text{C}$												
Use ambient illuminance	Illumination of lighted surface Incandescent lamp 10000 Lux												
Ambient temperature range	Working hours: 0-50 $^{\circ}\text{C}$ , when saving: -15 to +70 $^{\circ}\text{C}$												
Ambient humidity range	When working, when saving: 35 to 85%RH (No condensation)												
Voltage withstandability	AC 1000V 50/60Hz 1min												
Vibration (durable)	10-150Hz Dual amplitude 0.7mm 3-axis each direction 80min												
Impact (durable)	300m/s <sup>2</sup> 3 times in each of 6 directions (up and down, left and right, front and back)												
Protection level	IEC IP67												
Connection method	PVC cable 14PIN shielded cable, standard length 50mm, extension cables are available separately.												
Material	Body housing PBT, optical mount PPS, cable PVC												
Notes	<p>※1 This value is the value at the detection center distance and is defined based on the center light intensity of 1/e<sup>2</sup> (13.5%). Detection errors may be sent when there is light leakage outside the defined area and when the reflection ratio around the target object is higher than that of the target object. It may not be possible to accurately measure workpieces smaller than the spot size.</p> <p>※3 Indicates the error relative to the ideal straight line of the displacement output when measuring our standardized object. Linearity and measurement values vary depending on the object. F.S. indicates the entire measuring range. (HD-035: 10mm)</p> <p>※4 The maximum range of fluctuation of the measured value when detecting the measured object in a completely stationary state.</p> <p>※5 It is scheduled to be classified as diffuse-reflective type Class 2 according to IEC60825-1 in accordance with Laser Notice No. 50 of the FDA standard, and has been declared CDRH.</p>												

For instance		Description				
tG51HZ-□□□-□□□		1 Range	2 Analog Voltage Output Type	3 Serial Communication Type	4 Spot Shape	5 Determine the type of output
1 T 2 T 3 T 4 T 5		035:35 $\pm 5\text{mm}$	V:Voltage	E:RS385	P:Spot	N:NPN
		065:65 $\pm 2\text{mm}$	I:Intensity of current		L:Short Line Spot	P:PNP
		100:100 $\pm 40\text{mm}$				

Note: All models can switch between NPN/PNP output and analog voltage/analog current output through UI or serial port commands. The model shown on the product label and UI indicates the default configuration of the product at the factory.

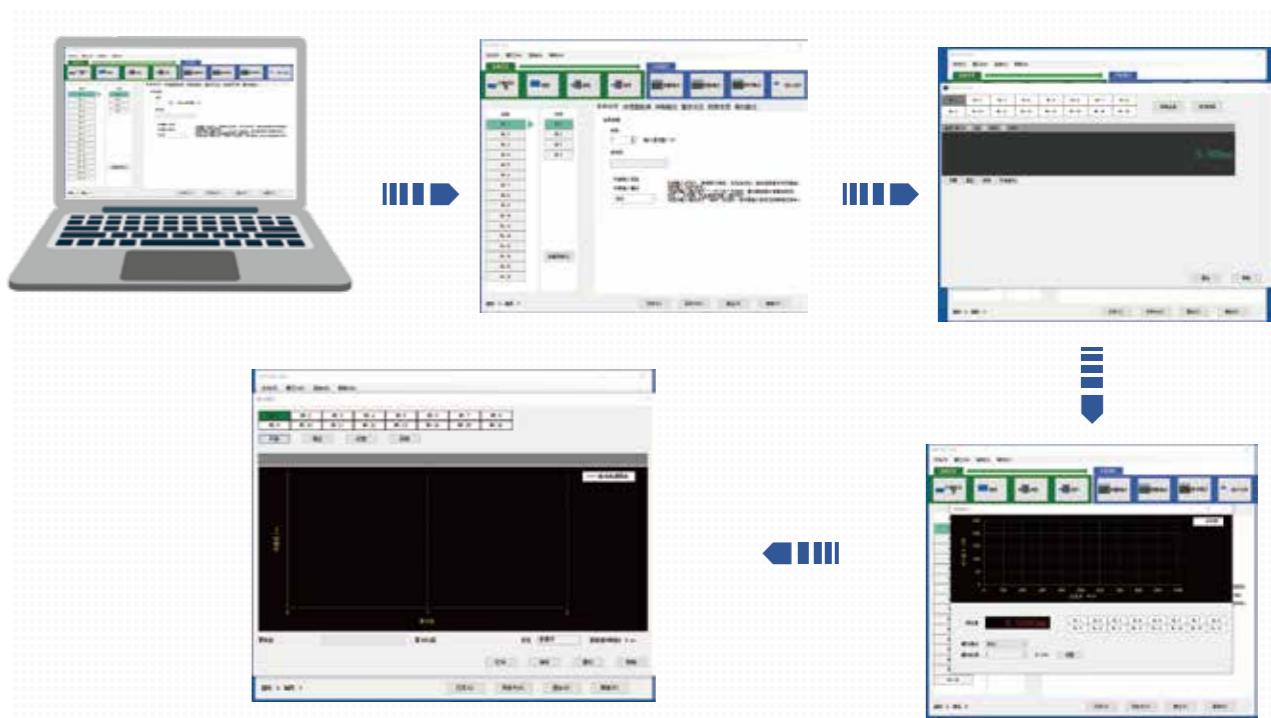
## ·Options (sold separately)

Type	Product Pic.	Model	Description	
Extension cables		HD-YCX2Z	Length:2m,N.W.kg:approx.124g	12 cores rubber insulated cable with one side connector
		HD-YCX5	Length:5m,N.W.kg:approx.310g	
		HD-YCX10	Length:10m,N.W.kg:approx.604g	
Mounting Bracket		HD-AZZJ	N.W.kg:80g	Stainless steel mounting bracket

\* For other lengths, please contact our sales.

## ·Software Operating Environment Requirements & Operation Chart

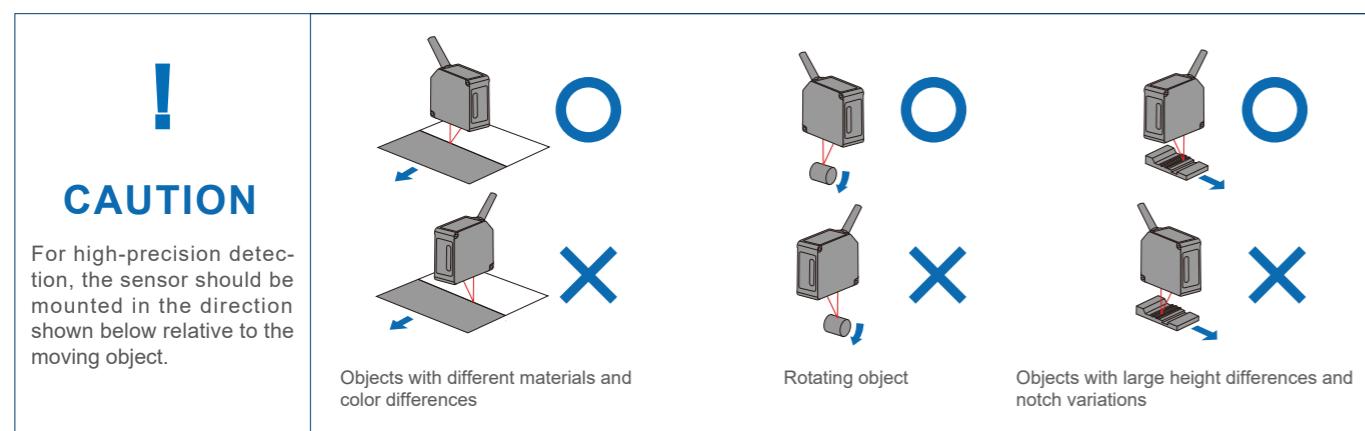
PCenvironment	PC-AT Compatible						VisualStudio Runtime		
	OS	OS type	32/64	Edition	Service Pack	.Net			
CPU	Windows®XP		32bit	Professional	SP2 and above	Unnecessary	VS2008 necessary		
	Windows®Vista			Enterprise	No special requirements				
Monitor	Windows®7		32bit/64bit	Intel Pentium 4 2GHz or higher or a compatible CPU of the same class or higher					
				xGA(1024x768 256color)above					
				1GB above					
Memory card	Available space 100Mb or more								
	Based on USB 2.0 full Speed(compatible with USB 1.1)								
Hard disk									
USB interface									



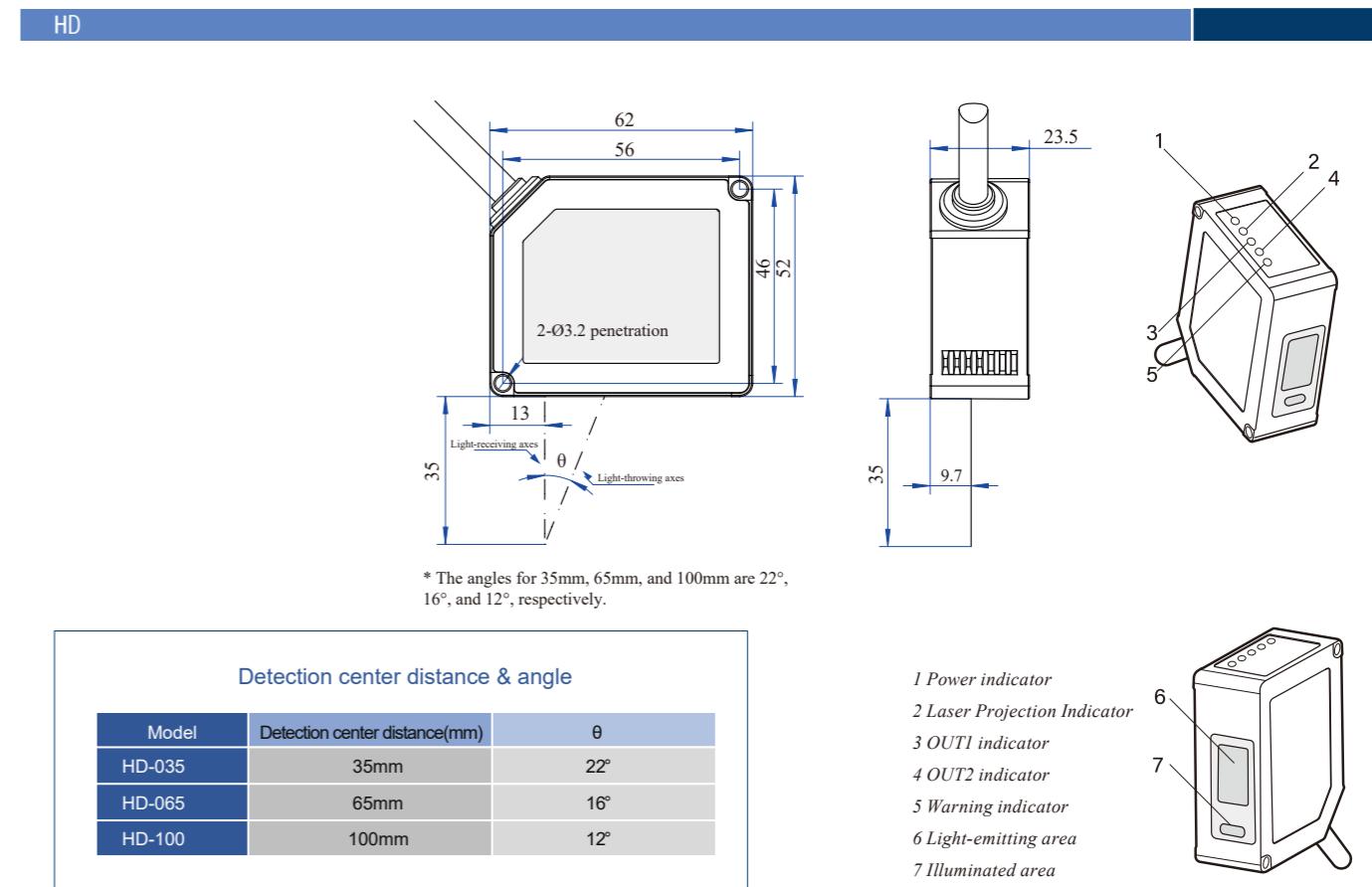
## ·Measurement range chart & detector head mounting direction



## ·Detection head mounting direction



## ·Product Dimension



## ·Measure with confidence even in harsh

- Protection structure IP67
- Robot cables
- Repeatability 1µm

- Sensor cables and extension cables come standard with robot cables that
- You can use them with peace of mind even in movable areas.
- Moreover, three-dimensional UV bonding has been adopted for the optical parts.
- This makes it possible to suppress stress and realize good temperature characteristics.

