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Find the *Keyence LK-031* at our website: *Click HERE*

CCD Laser Displacement Sensors



LK Series

CE

Features

- Linearity of ±0.1% of F.S.
- Repeatability of 1 µm 0.04 Mil
- 30 µm 1.18 Mil diameter beam spot
- Ultra long measuring distance up to 750 mm 29.53"
- Measurement unaffected by color, surface texture or stray light

Expert Engineering Sites

A new site with answers to all of your difficult measurement application questions

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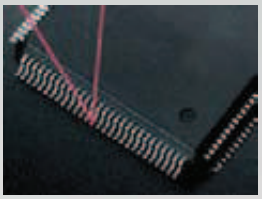


Measurement of various target surfaces

The LFTC circuit enables measurement of multicolored or patterned targets. Low reflectance targets, such as black rubber, can be measured without additional adjustment.

Laser beam spot of 30 µm 1.18 Mil diameter

KEYENCE's unique optical system minimizes lens aberration to give the LK-031 a minimum spot diameter of 30 µm 1.18 Mil. This enables the surface contour of a target to be accurately measured.



Lineup

Type	Compact/high-accuracy		High-precision	Standard
Model	LK-011		LK-031/036	LK-081/086
Measurement mode	Normal	Mirror surface	–	–
Reference distance	11 mm 0.43" / 10 mm 0.39" / 9 mm 0.35" 10 ±1mm 0.39"±0.04"	7.9 mm 0.31" / 7.0 mm 0.28" / 6.1 mm 0.24" 7.0 ±0.9 mm 0.28"±0.04"	35 mm 1.38" / 30 mm 1.18" / 25 mm 0.98" 30 ±5 mm 1.18"±0.20"	95 mm 3.74" / 80 mm 3.15" / 65 mm 2.56" 80 ±15 mm 3.15"±0.59"
Repeatability	0.1 µm 0.004 Mil		1 µm 0.039 Mil	3 µm 0.12 Mil
Linearity	±0.25% of F.S.		±0.1% of F.S.	
Sampling cycle	128/256/512/2,048 µs		512 µs	1,024 µs

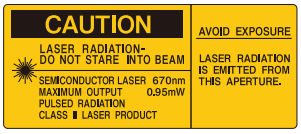
Type	Long-distance	
Model	LK-503	
Measurement mode	High-precision mode	Long-range mode
Reference distance	450 mm 17.71" / 350 mm 13.78" / 250 mm 9.84" 350 ±100 mm 13.78"±3.94"	750 mm 29.53" / 500 mm 19.69" / 250 mm 9.84" 500 ±250 mm 19.69"±9.84"
Repeatability	10 µm 0.39 Mil	50 µm 1.95 Mil
Linearity	±0.1% of F.S.	
Sampling cycle	1,024 µs	

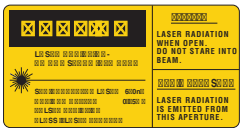
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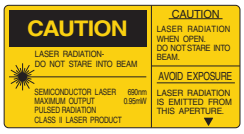
Specifications

Type		Compact high-accuracy	High-precision	Standard	Long-distance *4	
Model	Sensor head	**LK-011**	**LK-031/036**	**LK-081/086**	**LK-503**	
	Controller	**LK-3101**	**LK-2001/2011**	**LK-2101/2111**	**LK-2503**	
Measurement mode		Normal (mirror surface)	—		High-precision mode	Long-range mode
Reference distance		10 mm (7.0 mm) 0.39" (0.28")	30 mm 1.18"	80 mm 3.15"	350 mm 13.78"	500 mm 19.69"
Measuring range		±1 mm (±0.9 mm) ±0.04" (±0.04")	±5 mm ±0.20"	±15 mm ±0.59"	±100 mm ±3.94"	±250 mm ±9.84"
Light source		Visible red semiconductor laser				
Output		0.95 mW				
Wavelength		670 nm			690 nm	
Laser Class	FDA (CDRH) Part 1040.10	Class II Laser Product				
	IEC 60825-1	Class 2 Laser Product				
Spot diameter (at reference distance)		Approx. 20 µm 0.79 Mil	Approx. 30 µm 1.18 Mil (LK-031) Approx. 30 x 850 µm 1.18 x 33.46 Mil (LK-036)	Approx. 70 µm 2.76 Mil (LK-081) Approx. 70 x 1100 µm 2.76 x 43.3 Mil (LK-086)	Approx. 0.7 mm 0.03"	Approx. 0.3 mm 0.01"
Repeatability		0.1 µm *1 0.004 Mil	1 µm *1 0.039 Mil	3 µm *1 0.12 Mil	10 µm *1 0.39 Mil	50 µm *1 1.97 Mil
Linearity		±0.25% of F.S. *2	±0.1% of F.S. *2			
Sampling cycle		128/256/512/2,048 µs selectable	512 µs	1024 µs		
Analog output	Voltage output	±10 V (±9 V) (0.1 µm 0.004 Mil/mV) *3	±5 V (1 µm 0.039 Mil/mV) *3	±5 V (3 µm 0.12 Mil/mV) *3	±10 V (10 µm 0.39 Mil/mV) *3	±5 V (50 µm 1.97 Mil/mV) *3
	Impedance	100 Ω				
	Current output	4 to 20 mA (Applicable load: 350 Ωmax.)				
Alarm output		NPN: 100 mA max. (40 V max.) (N.C.), Residual voltage: 1 V max.				
Other functions		AUTO ZERO, Response selection, Shift/Span adjustment, Holding output in alarm condition				
Power supply		24 VDC ±10%, Ripple: 10% (P to P) or less				
Current consumption		400 mA max.				
Temperature fluctuation	Sensor head	0.04% of F.S./°C	0.01% of F.S./°C		0.02% of F.S./°C	
	Controller	0.005% of F.S./°C	0.01% of F.S./°C			
Enclosure rating		IP64	IP67			
Ambient light		Incandescent or fluorescent lamp: 10000 lux max.				
Ambient temperature		0 to 50°C 32 to 122°F				
Relative humidity		35 to 85%, No condensation				
Housing	Sensor head	Aluminum die-cast				
	Controller	Polycarbonate				
Weight (including cable)	Sensor head	Approx. 80 g	Approx. 260 g	Approx. 385 g	Approx. 700 g	
	Controller	Approx. 515 g				

*1 Repeatability was obtained using KEYENCE's analog sensor controller (RD-50) with the number of averaging measurements set to 64.
Note: The ripple of the analog output may be 1 mV or more due to common mode noise when observed with an oscilloscope or a high-speed A/D conversion board.
*2 Linearity was obtained using KEYENCE's standard target (Zirconia block gauge: LK-031/036, LK-081/086, LK-011, White ceramic block gauge: LK-503).
*3 When measurement is impossible, 12 V (31.2 mA) is output.
*4 The LK-503 can both be used in High-precision mode or Long-range mode.



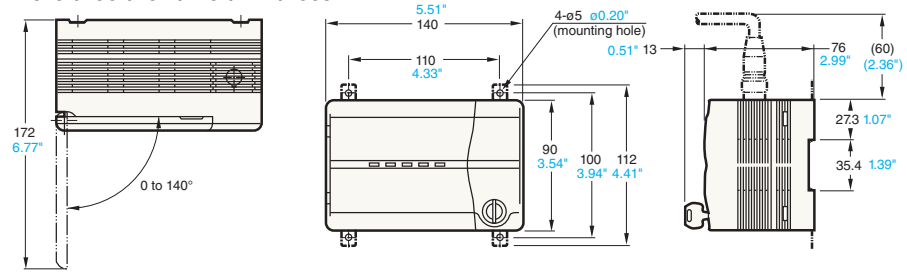




Dimensions

Unit: mm inch

Controllers
LK-3101/2001/2011/2101/2111/2503

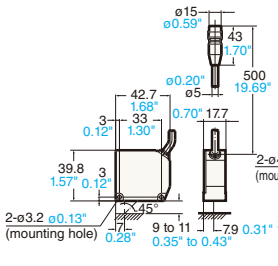


Extension cable (Optional)

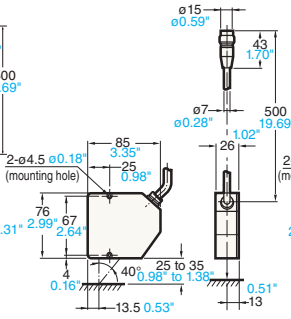
Cable length	Model
2 m 6.6'	**LK-C2**
5 m 16.4'	**LK-C5**
10 m 32.8'	**LK-C10**

Sensor head

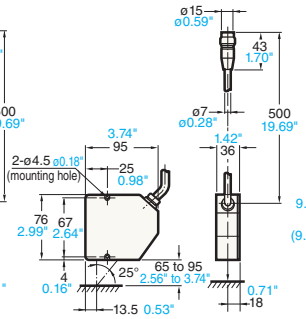
LK-011



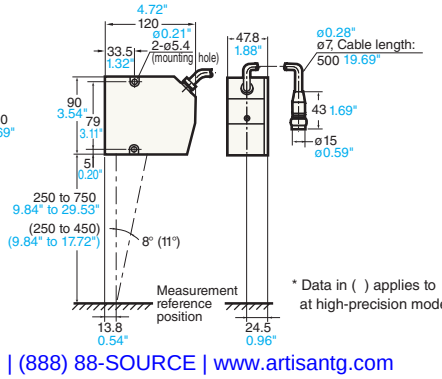
LK-031/036



LK-081/086



LK-503



* Data in ( ) applies to at high-precision mode.

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