

LJ-V Series

Selection guide

Cable connector

Sensor head cable
CB-B3(3 m 9.8')/CB-B10(10 m 32.8')



Display monitor cable
OP-66842(3 m 9.8')
OP-87055(10 m 32.8')



Sensor head extension cable
CB-B5E(5 m 16.4')
CB-B10E(10 m 32.8')
CB-B20E(20 m 65.6')



RS-232C cable
OP-96368(2.5 m 8.2')



Touch panel monitor cable
OP-87258(3 m 9.8')
OP-87259(10 m 32.8')



D-sub9 pin connector
OP-26401



Optional accessories

24 VDC constant-voltage
 power supply
CA-U3



Specifications

Controller/display unit/operating system environment



Controller

Model		LJ-V7001	LJ-V7001P
No. of connectable sensors		Max. 2 units	
Display	Minimum display unit	0.1 μm 0.0004 Mil, 0.00001 mm ² , 0.01°	
	Maximum display range	±99999.9 mm 3937.00", ±999999 mm ²	
Input terminal block	Laser remote interlock input	No-voltage input	
	Encoder input	NPN open-collector output, voltage output (5 V/12 V/24 V), and line-driver output all supported	
	Trigger inputs	No-voltage input	Voltage input
	Timing 1, 2 input		
	Auto-zero 1, 2 input		
	Reset 1, 2 input		
	Start measurement/stop input		
	Start storage/stop input		
	Clear memory input		
	Laser OFF input		
Program switch input	No-voltage input x 4 inputs	Voltage input x 4 inputs	
Output terminal block	Analog voltage output	±10 V x 2 outputs, Output impedance: 100 Ω	
	OUT comparator output	NPN open collector output x 12 outputs (Can freely assign 16 OUTs x 3 stage judgment results)	PNP open collector output x 12 outputs (Can freely assign 16 OUTs x 3 stage judgment results)
	Strobe output	NPN open collector output	PNP open collector output
	Disable trigger output		
	Memory FULL output		
	Ready output		
Error output	NPN open collector output (N.C.)	PNP open collector output (N.C.)	
Ethernet interface		1000BASE-T/100BASE-TX	
USB Interface		USB 2.0 high speed compliant (USB 1.1 Full-SPEED compatible)	
RS-232C interface		Measurement data output and control I/O (Can select a baud rate of up to 115,200 bits/s)	
Rating	Voltage	Includes 24 VDC ±10% ripple (P-P)	
	Maximum current consumption	1.3 A or less when connected to 1 head/ 1.9 A or less when connected to 2 heads	
Environmental resistance	Operating ambient temperature	0 to +50°C 32 to 122°F	
	Operating ambient humidity	20 to 85% RH (No condensation)	
Weight		Approx. 1500 g	

- The rating for NPN open-collector output is up to 50 mA (40 V or less), residual voltage of up to 1 V
- The rating for PNP open-collector output is up to 50 mA (30 V or less), residual voltage of up to 1 V
- The rating for non-voltage input is up to 1 V for ON voltage and up to 0.6 mA for OFF current
- The rating for voltage input is a maximum input voltage of 26.4 V, a minimum ON voltage of 10.8 V, and up to 0.6 mA for OFF current

Display output unit

Model		LJ-VM100
Monitor output		Analog RGB XGA (1024 × 768) Touch panel monitor (CA-MP120T), specialized connector included
Voltage		Supplied from the controller
Power consumption		2.5 W or less
Environmental resistance	Operating ambient temperature	0 to +50°C 32 to 122°F
	Operating ambient humidity	20 to 85% RH (No condensation)
Weight		Approx. 400 g

LJ-H2 (LJ-Navigator 2) operation system environment

Item	Minimum system requirements	
PC Interface	Ethernet*1	1000BASE-T/100BASE-TX
	USB*1	USB 2.0 high speed compliant (USB 1.1 Full-SPEED compatible)
Supported OS	Windows7 (Home Premium, Professional, Ultimate) Windows Vista (Home Basic, Home Premium, Business, Ultimate) Windows XP (SP2 or later) (Home Edition, Professional Edition)	
Supported languages*2	Japanese, English, German, French, Simplified Chinese, Traditional Chinese	
CPU	Core i3 2.3 GHz or higher	
Memory capacity	2GB or more	
2D cache memory	2MB or more	
Free space on hard disk	10GB or more	
Display resolution	XGA (1024 x 768) or higher	
Weight	Approx. 400 g	

*1 Connections through a hub are not covered under warranty.

*2 Only Japanese and English are currently supported. Other languages are expected to receive support in the near future.

• Windows is a registered trademark of the Microsoft Corporation, U.S.A.

• Core is a registered trademark of the Intel Corporation.

Head/cable



Sensor head unit

Model	LJ-V7060K	LJ-V7060	LJ-V7080	LJ-V7200	LJ-V7300		
Mounting conditions	Specular reflection		Diffuse reflection				
Reference distance	54.6 mm 2.15"	60 mm 2.36"	80 mm 3.15"	200 mm 7.87"	300 mm 11.81"		
Measurement range	Z-axis (height)	±7.6 mm 2.99" (F.S.=15.2 mm 0.60")	±8 mm 0.31" (F.S.=16 mm 0.63")	±23 mm 0.91" (F.S.=46 mm 1.81")	±48 mm 1.89" (F.S.=96 mm 3.78")	±145 mm 5.71" (F.S.=290 mm 11.42")	
	X-axis (width)	NEAR side	8 mm 0.31"	13.5 mm 0.53"	25 mm 0.98"	51 mm 2.01"	110 mm 4.33"
		Reference distance	14 mm 0.55"	15 mm 0.59"	32 mm 1.26"	62 mm 2.44"	180 mm 7.09"
	Far side	8 mm 0.31"	15 mm 0.59"	39 mm 1.54"	73 mm 2.87"	240 mm 9.45"	
Light source	Blue semiconductor laser						
	Wavelength	405 nm (visible beam)					
	Laser class IEC60825-1 FDA(CDRH) Part 1040.10 ^{*11}	Class 2 Laser Product	Class 2M Laser Product ^{*10}	Class 2 Laser Product			
	Output	4.8 mW	10 mW	4.8 mW			
Spot shape (reference distance)	Approx. 21 mm 0.83" x 45 μm 1.77 Mil		Approx. 48 mm 1.89" x 48 μm 1.89 Mil	Approx. 90 mm 3.54" x 85 μm 3.35 Mil	Approx. 240 mm 9.45" x 610 μm 24.02 Mil		
Repeatability ^{*1}	Z-axis (height) ^{*2}	0.4 μm 0.02 Mil		0.5 μm 0.02 Mil	1 μm 0.04 Mil	5 μm 0.20 Mil	
	X-axis (width) ^{*3}	5 μm 0.20 Mil		10 μm 0.39 Mil	20 μm 0.79 Mil	60 μm 2.36 Mil	
Linearity	Z-axis (height) ^{*4}	±0.1% of F.S.				±0.05 to ^{*5} ±0.15% of F.S.	
Profile Data interval	X-axis (width)	20 μm 0.79 Mil		50 μm 1.97 Mil	100 μm 3.94 Mil	300 μm 11.81 Mil	
Sampling cycle (trigger interval) ^{*6}	Top speed: 16 μs (high-speed mode) Top speed: 32 μs (advanced function mode)						
Temperature characteristics	0.01% of F.S./°C						
Environmental resistance	Enclosure rating ^{*7}	IP67 (IEC60529)					
	Ambient operating illuminance ^{*8}	Incandescent lamp: 10000 lux max					
	Ambient temperature ^{*9}	0 to +45°C 32 to 113°F					
	Operating Ambient humidity	20 to 85% RH (No condensation)					
	Vibration resistance	10 to 57 Hz, 1.5 mm 0.06" double amplitude in X, Y, and Z directions, 3 hours respectively					
Impact resistance	15 G/6 msec						
Material	Aluminum						
Weight	Approx. 450 g		Approx. 400 g	Approx. 550 g	Approx. 1000 g		

^{*1} This value is from a case in which measurement has been performed with a reference distance at an average frequency of 4096 times.

^{*2} The measurement targets are KEYENCE standard targets (white diffuse objects). This value is from a case in which the average height of the default setting area has been measured in height mode. All other settings are default.

^{*3} The measurement target is a pin gauge. This value is from a case in which the position of the intersection between the rounded surface of the pin gauge and the edge level has been measured in position mode. All other settings are default.

^{*4} The measurement targets are KEYENCE standard targets (white diffused objects). The profile data is from a case in which measurement has been performed with 64x smoothing and 8x averaging. All other settings are default.

^{*5} The linearity will differ depending on the measurement area. (See the diagram on the right.)

^{*6} When the measurement area is at its minimum, binning is ON, image capture mode is set to standard, and parallel image capture is ON in high-speed mode. All other settings are default.
When the measurement area is at its minimum, binning is ON and image capture mode is set to standard in advanced function mode. All other settings are default.

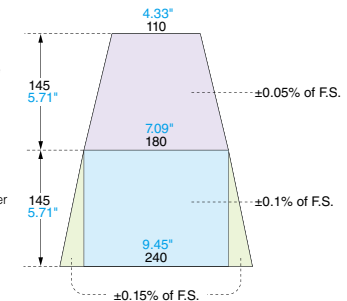
^{*7} This value is from a case in which the head cable (CB-B*) or extension cable (CB-B*E) has been connected.

^{*8} When measuring white paper, this is the illuminance for the light-receiving surface of the sensor head when light has been shined onto white paper.

^{*9} Use the sensor head after first mounting it on a metal plate.

^{*10} Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers and microscopes) within a distance of 100 mm 3.94" may pose an eye hazard.

^{*11} The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice No.50.



Cables

Model	CB-B3	CB-B10	CB-B5E	CB-B10E	CB-B20E
Cable type	Head cable		Extension cable		
Cable length	3 m 9.8'	10 m 32.8'	5 m 16.4'	10 m 32.8'	20 m 65.6'
Minimum bend radius	22 mm 0.87"				
Enclosure rating ^{*1}	IP67 (IEC60529)				
Material (outer covering)	PVC				
Weight	Approx. 250 g	Approx. 750 g	Approx. 400 g	Approx. 800 g	Approx. 1500 g

^{*1} This value is from a case in which the sensor head has been connected. However, the controller side connector is not included.

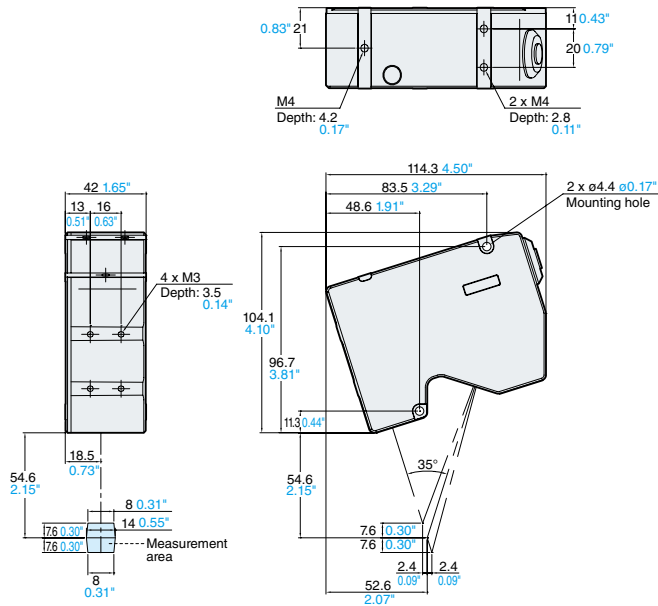
• Regarding cable extension between the head and controller: Up to 2 cables can be connected with the CB-BxxE, and these cables should be kept to a total length of 30 m 98.4' or less.

Dimensions

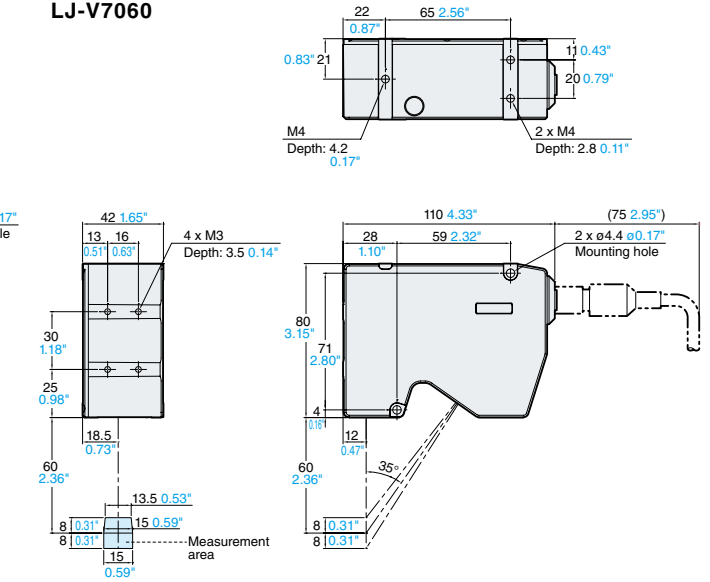
Sensor head

Unit (mm inch)

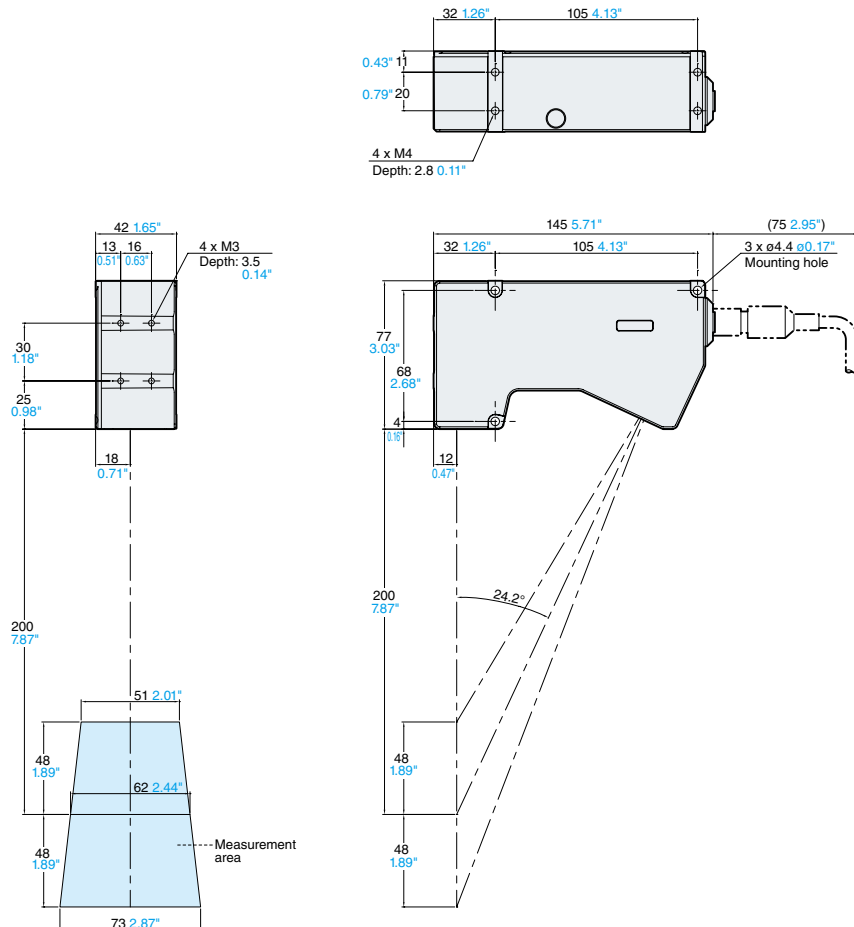
High-accuracy specular target model
LJ-V7060K



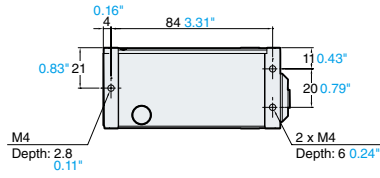
High-accuracy model
LJ-V7060



Long range model
LJ-V7200

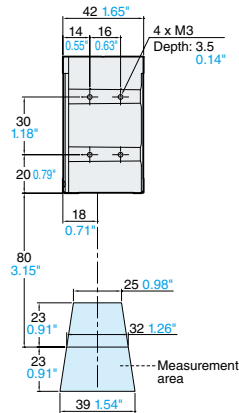
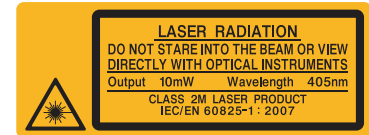


Mid-range model
LJ-V7080

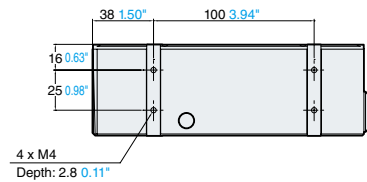
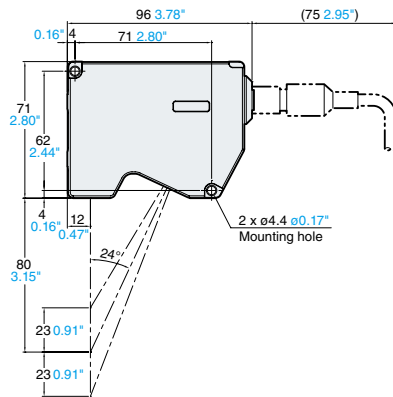


Laser warning/explanatory label

LJ-V7060



LJ-V7060K, LJ-V7080, LJ-V7200,
LJ-V7300



Ultra-long range model
LJ-V7300

