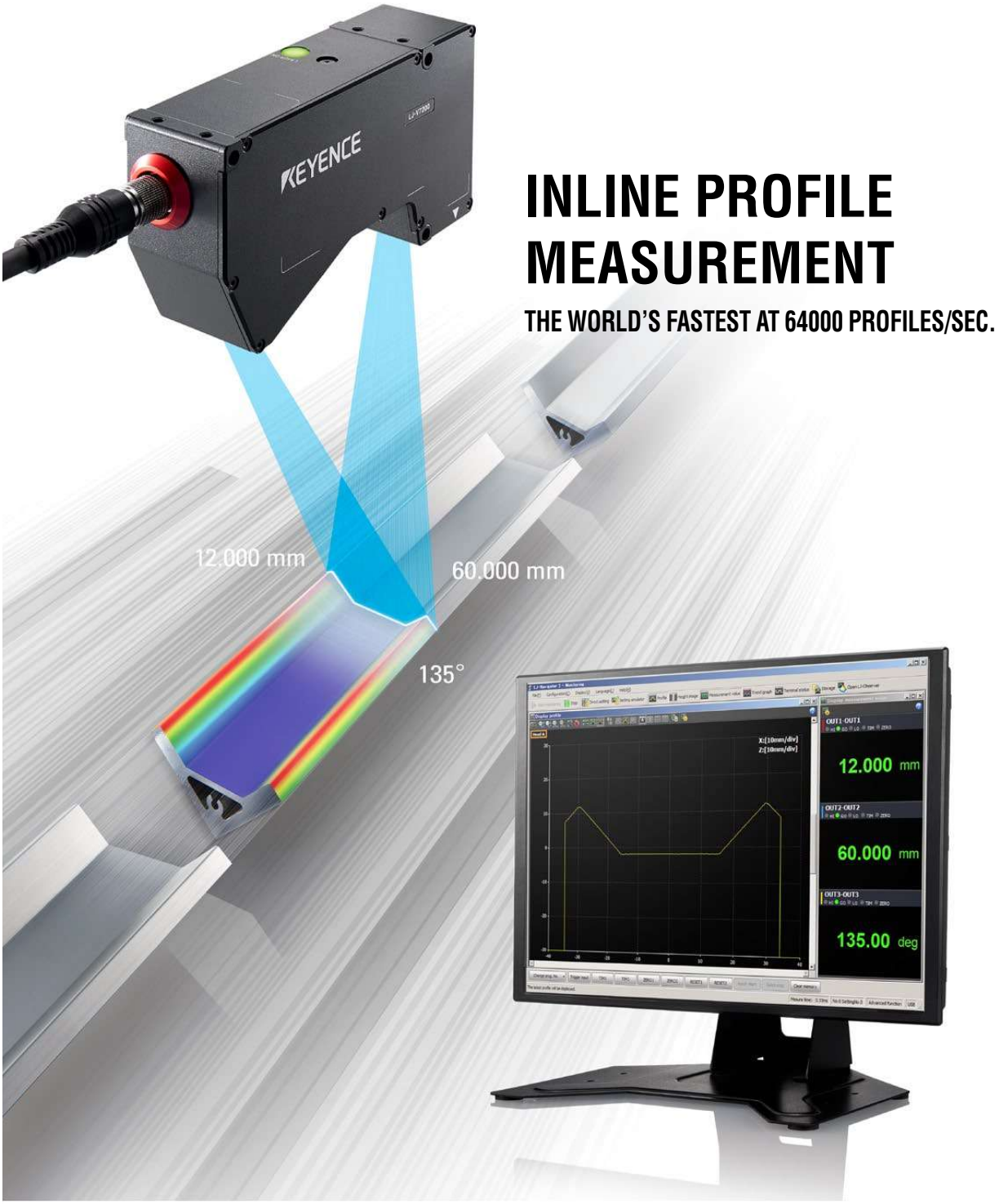
KEYENCE

High-speed 2D/3D Laser Scanner
LJ-V7000 Series

CE



INLINE PROFILE MEASUREMENT

THE WORLD'S FASTEST AT 64000 PROFILES/SEC.

OFFERING A SOLUTION TO ANY PROBLEM

2D/3D Laser Scanner

LJ-V Series

CONTACT-TYPE MEASURING SENSORS

With contact-type sensors, **scratches** are an inevitable concern. In addition, **soft objects** can sometimes be troublesome and unmeasurable. User-caused **variations in the inspection results** also prove difficult to improve.



Workpiece contact and human errors

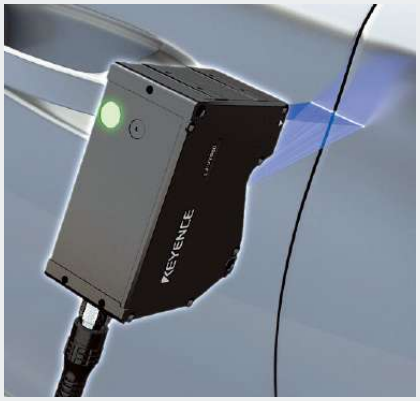
NON-CONTACT MEASUREMENT

Direct measurement using a laser

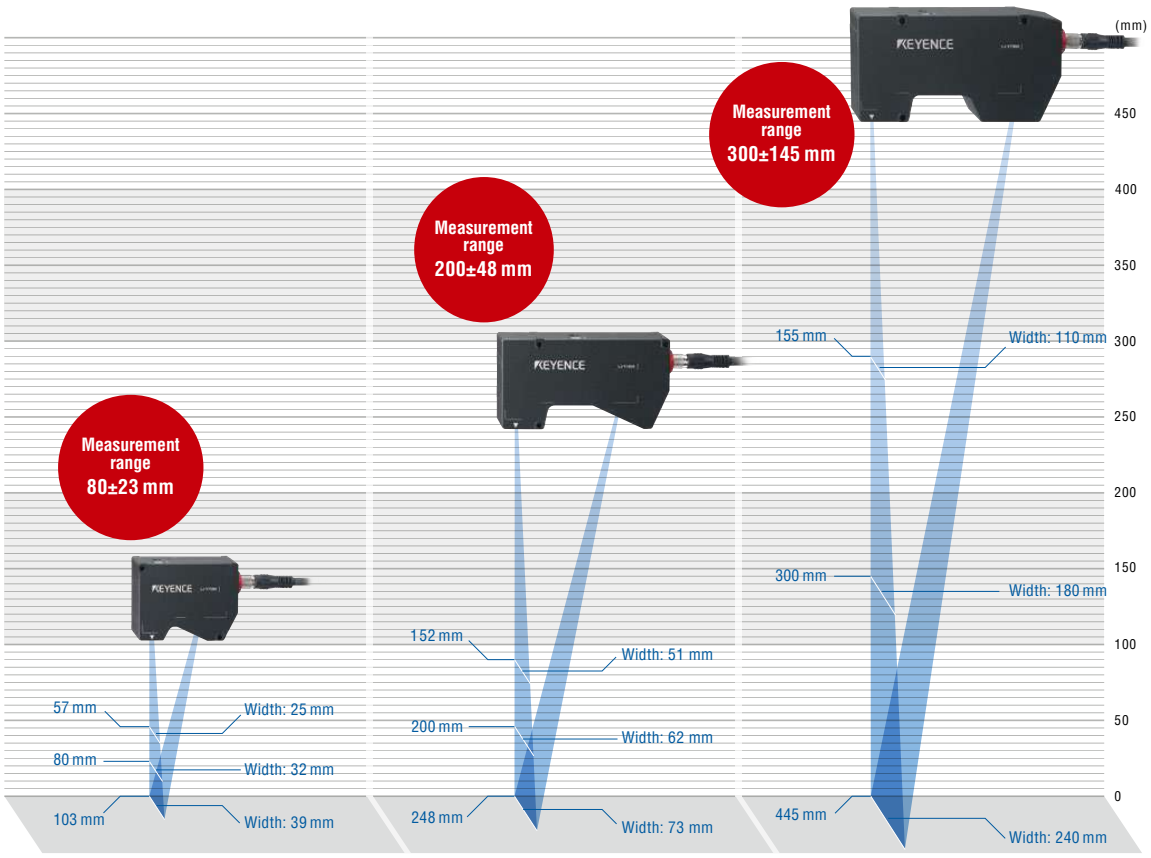
No damage to workpieces

No variation in results from person to person

No need to stop the line



Middle range	Long range	Ultra-long range
LJ-V7080	**LJ-V7200**	**LJ-V7300**



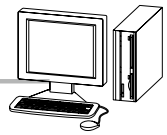
Measurement range	Z-axis 80±23 mm	Measurement range	Z-axis 200±48 mm	Measurement range	Z-axis 300±145 mm
	X-axis 32 mm		X-axis 62 mm		X-axis 180 mm
Repeatability	Z-axis 0.5 µm	Repeatability	Z-axis 1 µm	Repeatability	Z-axis 5 µm
	X-axis 10 µm		X-axis 20 µm		X-axis 60 µm

Connect to PC

Connect using the USB cable or an Ethernet cable.



USB cable
OP-66844



PC (not included)

Connect to colour monitor



Display output unit
LJ-VM100

+



Display monitor connection cable
OP-66842 (3 m)
OP-87055 (10 m)

+



Console
OP-87504



LCD colour monitor
CA-MP120

Connect to touch panel



Display output unit
LJ-VM100

+



Display monitor connection cable
OP-66842 (3 m)
OP-87055 (10 m)

+



Touch panel HMI extension cable
OP-87258 (3 m)
OP-87259 (10 m)



Touch panel HMI
CA-MP120T

PROFINET unit

Model		CB-PN100
Compatible network		PROFINET IO communication
Ethernet	Compliant standards	IEEE 802.3u*1
	Transmission speed	100 Mbps, full duplex (100BASE-TX)
	Transmission media	STP or Category 5e or higher UTP
	Maximum cable length	100 m
PROFINET IO	Supported functions	Data I/O communication
		Record data communication
	Number of connectable PROFINET IO controllers	1
	Update time	2 ms to 2048 ms
	GSDML	Version 2.25
	Conformance class	Conformance Class A compliant
	Conformance test version	Based on Version 2.2.4
	Applicable protocol	LLDP, DCP
Power supply voltage		24 V ±10% (supplied from the controller unit of the laser scanner)
Power consumption		0.12 A max.
Weight		Approx. 470 g

*1 Although this unit conforms to IEEE 802.3u and can establish 100 Mbps full duplex communication using AutoNegotiation function, it does not have AutoCrossOver and AutoPolarity functions that are normally required for the PROFINET IO standard. Select a straight or cross cable according to the Ethernet port of the device to be connected.

EtherNet/IP™ unit

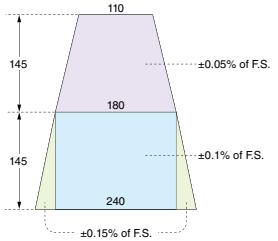
Model		CB-EP100
Compatible network		EtherNet/IP™ and displacement sensor-specific protocols (socket communication)
Ethernet	Compliant standards	IEEE 802.3 (10BASE-T), IEEE 802.3u (100BASE-TX)
	Transmission speed	10 Mbps (10BASE-T), 100 Mbps (100BASE-TX)
	Transmission media	STP or Category 3 or higher UTP (10BASE-T), STP or Category 5 or higher UTP (100BASE-TX)
	Maximum cable length	100 m (Distance between the unit and Ethernet switch)
	Maximum number of connectable hubs*1	4 hubs (10BASE-T), 2 hubs (100BASE-TX)
EtherNet/IP™	Supported functions	Cyclic communication (Implicit messaging), Message communication (Explicit messaging), Compatible with UCMM and Class 3
	Number of connections	64
	RPI	0.5 ms to 10000 ms (in 0.5 ms)
	Tolerable communication bandwidth for cyclic communication	6000 pps
	Message communication	UCMM, Class 3
	Conformance test	Compatible with Version A9
Power supply voltage		24 VDC, including ±10% ripple (P-P) (supplied from the controller unit of the laser scanner)
Power consumption		0.12 A max.
Environmental resistance	Operating ambient temperature	0 to +50°C
	Operating ambient humidity	20 to 85% RH (No condensation)
Weight		Approx. 470 g

*1 The number of connectable hubs is not limited when using a switching hub.

Sensor head unit

Model			LJ-V7020K*11	LJ-V7020*11	LJ-V7060K	LJ-V7060	LJ-V7080	LJ-V7200	LJ-V7300
Mounting conditions			Specular reflection	Diffuse reflection	Specular reflection	Diffuse reflection			
Reference distance			24.2 mm	20 mm	54.6 mm	60 mm	80 mm	200 mm	300 mm
Measurement range	Z-axis (height)		±2.3 mm (F.S.=4.6 mm)	±2.6 mm (F.S.=5.2 mm)	±7.6 mm (F.S.=15.2 mm)	±8 mm (F.S.=16 mm)	±23 mm (F.S.=46 mm)	±48 mm (F.S.=96 mm)	±145 mm (F.S.=290 mm)
	X-axis (width)	NEAR side	6.5 mm	6.5 mm	8 mm	13.5 mm	25 mm	51 mm	110 mm
		Reference distance	7 mm	7 mm	14 mm	15 mm	32 mm	62 mm	180 mm
		Far side	7.5 mm	7.5 mm	8 mm	15 mm	39 mm	73 mm	240 mm
Light source			Blue semiconductor laser						
	Wavelength		405 nm (visible beam)						
	Laser class (IEC60825-1 FDA(CDRH) Part 1040.10*1)		Class 2M Laser Product*12		Class 2 Laser Product	Class 2M Laser Product*12	Class 2 Laser Product		
	Output		10 mW		4.8 mW	10 mW	4.8 mW		
Spot size (reference distance)			Approx. 14 mm × 35 µm		Approx. 21 mm × 45 µm		Approx. 48 mm × 48 µm	Approx. 90 mm × 85 µm	Approx. 240 mm × 610 µm
Repeatability*2	Z-axis (height)*3		0.2 µm		0.4 µm		0.5 µm	1 µm	5 µm
	X-axis (width)*4		2.5 µm		5 µm		10 µm	20 µm	60 µm
Linearity	Z-axis (height)*5		±0.1% of F.S.						±0.05 to ±0.15% of F.S.*6
Profile Data interval	X-axis (width)		10 µm		20 µm		50 µm	100 µm	300 µm
Sampling cycle (trigger interval)*7			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*8		IP67 (IEC60529)						
	Ambient operating illuminance*9		Incandescent lamp: 10000 lux max.						
	Ambient temperature*10		0 to +45°C						
	Operating Ambient humidity		20 to 85% RH (No condensation)						
	Vibration resistance		10 to 57 Hz, 1.5 mm double amplitude in X, Y, and Z directions, 3 hours respectively						
	Impact resistance		15 G/6 msec						
Material			Aluminium						
Weight			Approx. 410 g		Approx. 450 g		Approx. 400 g	Approx. 550 g	Approx. 1000 g

*1 The laser classification for FDA(CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice No. 50.
*2 This value is from a case in which measurement has been performed with a reference distance with 4,096 times of averaging.
*3 The measurement targets are KEYENCE standard targets. 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.
*4 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.
*5 The measurement targets are KEYENCE standard targets. The profile data is from a case in which measurement has been performed with 64 times of smoothing and 8 times of averaging. All other settings are default.
*6 The linearity will differ depending on the measurement area. (See the diagram on the right.)
*7 For high-speed mode, when the measurement area is at its minimum, binning is ON, image capture mode is set to standard, and parallel image capture is ON. All other settings are default. For advanced function mode, when the measurement area is at its minimum, binning is ON and image capture mode is set to standard. All other settings are default.
8 This value is from a case in which the sensor head cable (CB-B) or extension cable (CB-B*E) has been connected.
*9 This is the illuminance for the light-receiving surface of the sensor head during white paper measurement when light has been shined onto the white paper.
*10 The sensor head must be mounted on a metal plate for use.
*11 The double polarisation function cannot be used.
*12 Do not look into the beam directly using any optical instruments (such as eye loupes, magnifiers, microscopes, telescopes, or binoculars). Viewing the laser output with an optical instrument may pose an eye hazard.



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PRODUCT: LJ-V7300 / KEYENCE LJ-V Series 2D Laser Profiler Sensor Head

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