

KEYENCE

NEW High-speed Inline Profile
Measurement Device

LJ-V7000 Series



THE WORLD'S FASTEST 3D LASER INSPECTION SYSTEM

*64,000 profiles per second allows precision inspection
of even the most difficult parts*

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LJ-V7000 Series

Revolutionary Speed and Stability

**What makes a 3D laser system
that is truly useful inline?**

Modern manufacturing continuously seeks to improve product quality, improve defect detection, and increase yield. This means that inspection systems need to continuously improve their performance to provide a means to reach these goals.

KEYENCE's revolutionary LJ-V7000 Series 3D inspection system is designed from the ground up to allow inspection of any production target at high speed in extreme detail.



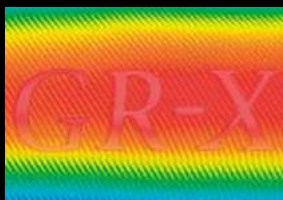
[World's fastest] 240 times faster than conventional devices

64,000 profiles/sec. sampling 12,800,000 points/sec.

The LJ-V7000 Series was designed to achieve the world's fastest sampling speed. No other laser based 3D measurement system on the market even comes close.

The LJ-V7000 can measure products moving on high-speed lines with high precision and no loss of data.

For example, the LJ-V7000 can measure targets moving at 6.4 m/s with a profile pitch of 0.1 mm 0.0039".



[Industry best] 64 times the dynamic range of conventional devices

Overwhelming responsiveness to target properties to optimize output stability

Normally, detection stability is inversely proportional to speed. However, the LJ-V7000 Series incorporates cutting edge technology that greatly improves both variables. Shapes are accurately measured even where there is a high variation in target reflectivity under the same optical axis.



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Applications

Extrusion geometry inspection



High speed 3D extrusion inspection is made possible by the revolutionary advancement in available sampling rates. Various targets can be measured precisely and at high speed, including rubber, metal, ceramics, concrete, and food products.

Orientation check before pick and place operation



Before entering the cell, the orientation and shape of the target are scanned and the feedback is sent to the robot. This system allows the robot to perform high-speed, high-accuracy operations in dynamic conditions.

3D inspection of powdered metal components



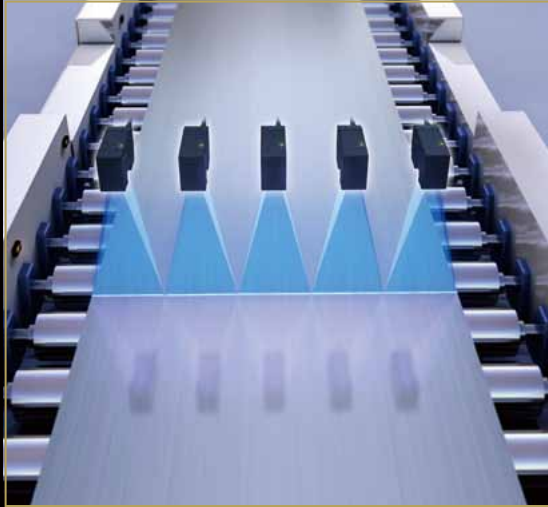
With a dedicated high-speed encoder input, the LJ-V7000 Series can perform detailed 3D inspections of complex parts on the fly. In addition, it is possible to rapidly output full profile data for external processing via built-in USB and Gigabit Ethernet outputs.

Bearing seal inspection



Bearings are rotated to inspect seal integrity and perform a variety of other measurements. The LJ-V7000 Series provides the high sampling rates necessary to perform all inspections at full production speeds.

Rolled steel defect inspection



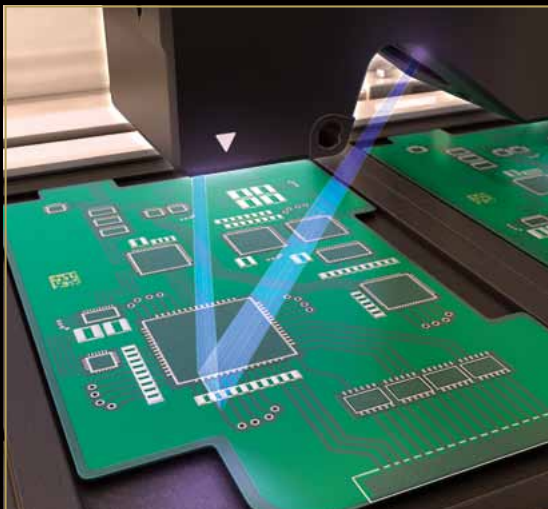
The advanced processing algorithms of the LJ-V7000 make multi-head setups easy. Obtaining profiles at 64,000 Hz, it is possible to detect even minute defects over a wide area.

Pre-weld assembly and weld bead inspection



The onboard processing capability of the LJ-V7000 Series systems allows onboard inspection of both pre-weld assembly quality and post-weld bead condition. In addition, the robust IP67 structure of the head allows the system to be installed in environments not usually suitable for optical systems.

PCB component assembly inspection



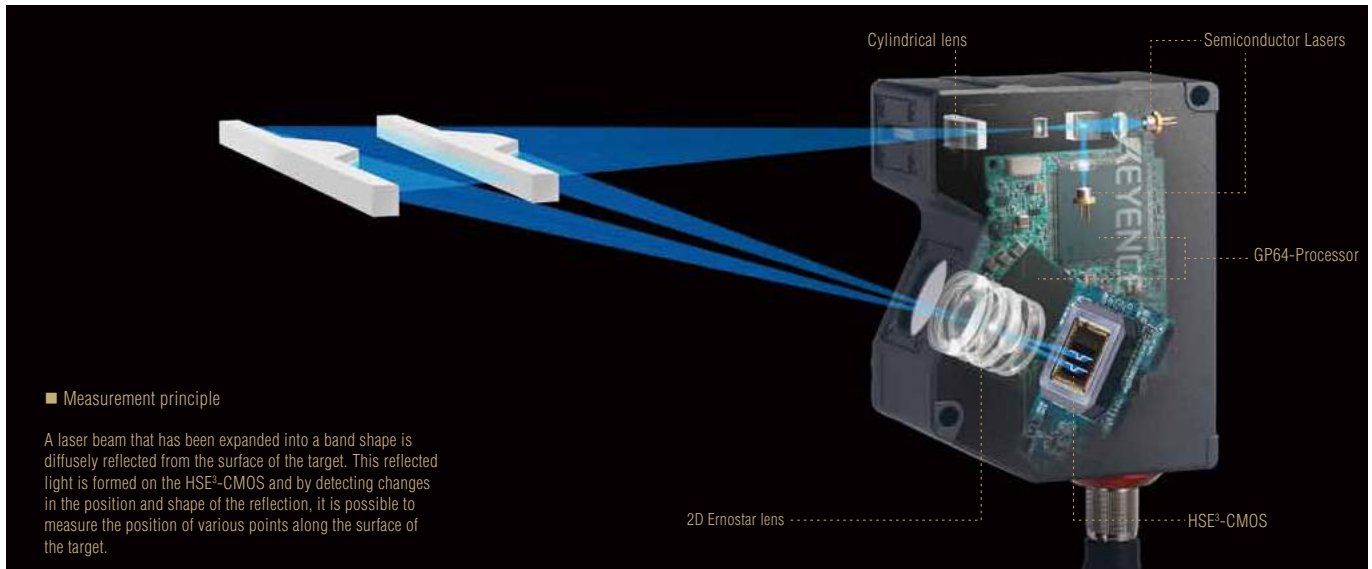
With the advanced optics of the LJ-V7000 system, it is possible to verify component mounting on a PCB even at production speeds. Details like IC fitting, solder paste level and component alignment can all be inspected with extreme precision.

Rapid inspection of medical components



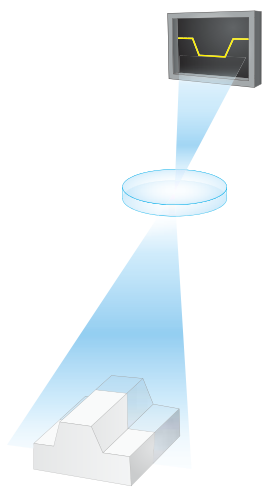
Despite the rapid production rates of most disposable medical components, the LJ-V7000 makes it possible to perform 100% inspection of details like warpage, length and diameter with micron level precision.

Advanced technology delivers ultra-high speed and stability



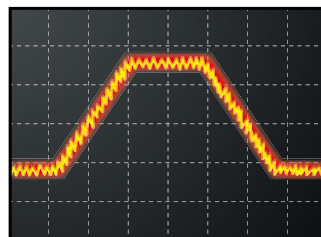
World's first

Blue laser optical system Provides optimal stability and accuracy on a wide variety of targets.



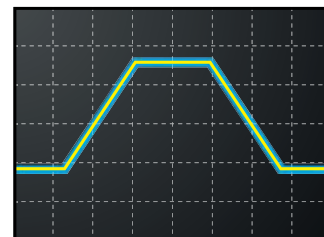
The LJ-V7000 Series is the first 3D laser inspection system in the world to adopt a blue laser. A sharp line beam is formed on the light-receiving element by focusing a short wavelength 405 nm laser to its diffraction limit with a 2D Ernstar lens. This generates a stabilized high-precision profile ensuring optimal accuracy and limiting image blur. Also, the output intensity of the laser source has been optimized to provide a clear return even on targets with a wide range of reflectivities.

Red laser (conventional)



With a conventional red laser, beam focus is severely limited resulting in a diffuse image of the part that contributes to measurement errors.

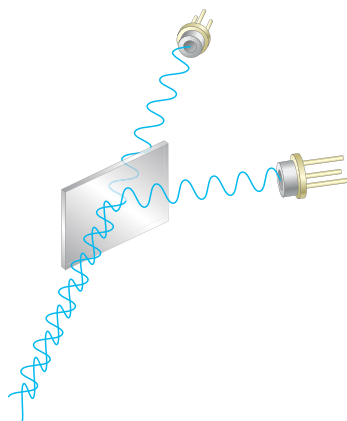
Blue laser (LJ-V)



With a blue laser, the target image is tightly focused with minimal blurring or other sources of error.

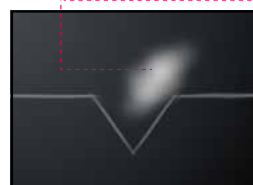
World's first

Double polarization function Compensates for stray reflections caused by target geometry

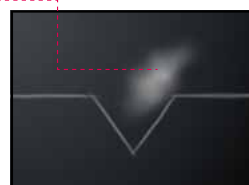


KEYENCE has developed the world's first double polarization function, which distinguishes and cancels stray reflections that normally pose an obstacle to measurement. The transmitted beam is polarized in both the X and Y axes, and captured data is analyzed for each of these components. Stray reflections will generate significant differences in the amount of received light for X-polarization and Y-polarization, and this characteristic is used to compensate for areas of the image affected by such reflections. The power of this function is demonstrated in the measurement of metallic targets with complex shapes and complicated areas.

Stray reflections -> A large difference in light intensity is generated between (1) and (2).



(1) (X polarization) Captured image



(2) (Y polarization) Captured image

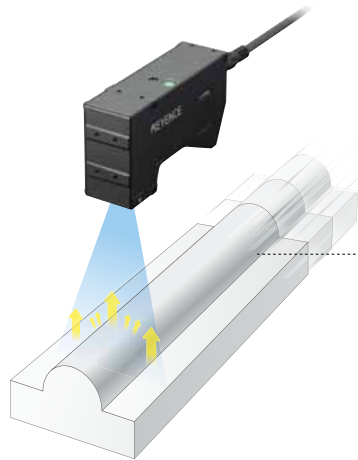
Stray light effects are cancelled.



Generated profile

Newly developed/world's greatest

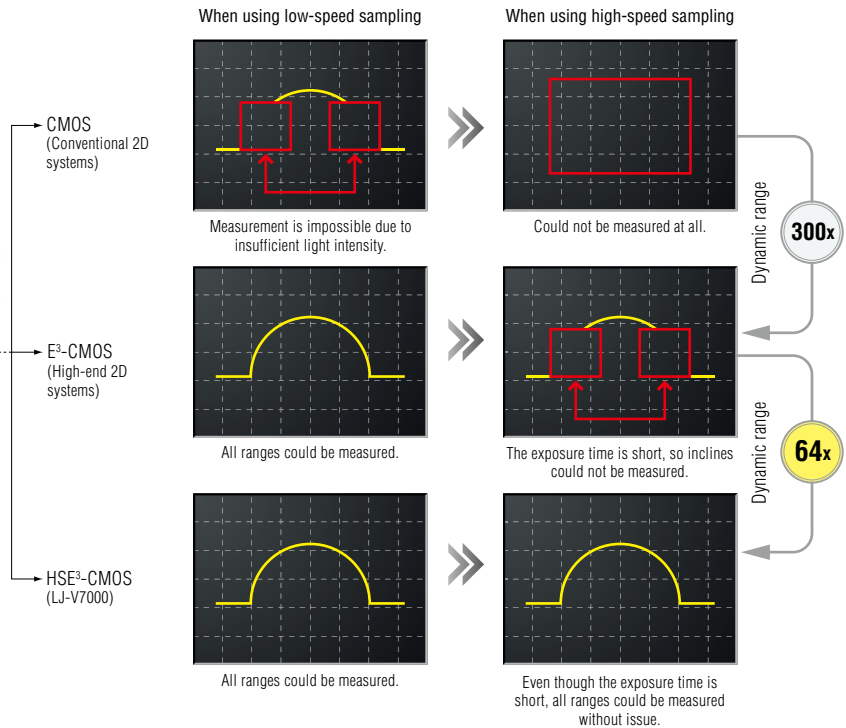
HSE³-CMOS Provides enhanced stability on any target, even at high speed



Reflectivity and light intensity in the horizontal axis will change greatly depending on the shape, color, material, or sampling speed (exposure time) of the target.

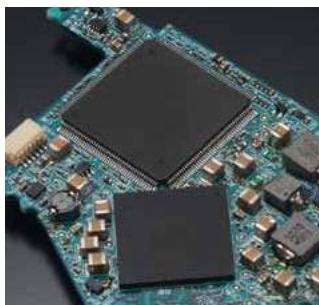
The LJ-V7000 Series is equipped with the newly developed HSE³-CMOS. In addition to improved speed, the dynamic range has been further enhanced to be well above that of conventional light receiving elements. Even with an extremely short exposure time of 15.6 μ s, the LJ-V7000 can reliably measure a range of surfaces from black (small amount of reflection) surfaces to those with luster (large amount of reflection) simultaneously.

* HS=High Speed E³=Enhanced Eye Emulation

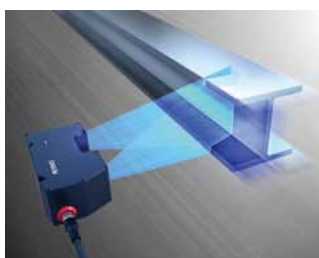
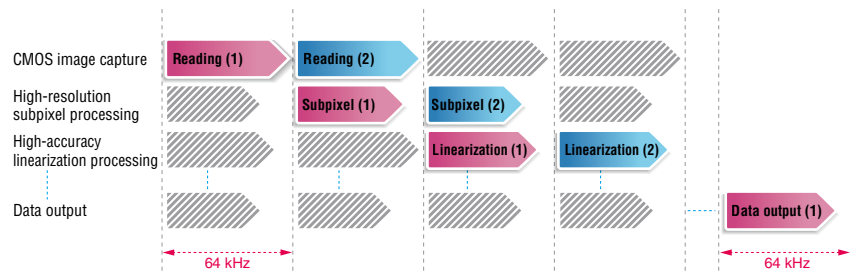


Newly developed

GP64-Processor Next generation system designed for high speed data processing



The custom developed GP64 processor, exclusive to the LJ-V7000, is designed to provide high speed parallel data processing. This allows the system to maintain a 64 kHz output frequency while maximizing output stability and accuracy.



Conventional systems have difficulty generating tight profile spacing on rapidly moving targets. At a speed of 6.4 m/s, conventional systems could at most generate a 24.3 mm 0.92" profile pitch.

240x the speed of conventional systems

LJ-V7000 With the advances incorporated into the LJ-V7000, it is now possible to generate a 0.1 mm 0.004" profile pitch on the same target.

Top-of-the-line onboard profile processing capability

The industry's greatest flexibility

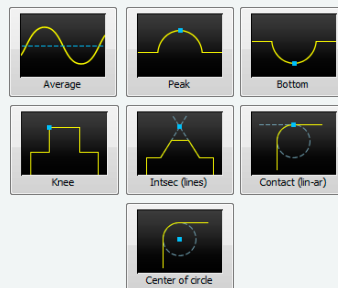
74 discrete measurement modes

With 13 types of data extraction tools and 7 types of feature definition tools, a single LJ-V7000 can provide a total of 74 distinct measurement definitions. This allows a single system to provide the level of flexibility necessary to adapt to constant changes in production requirements.

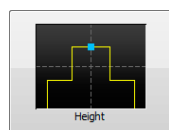
Data extraction tools



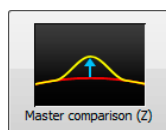
Feature definition tools



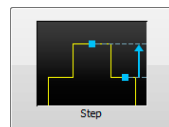
Types of measurements



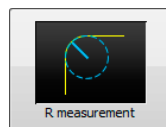
Measures the height of a specified feature.



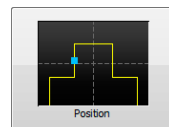
Makes a comparison with the registered master profile and then extracts the largest difference in height.



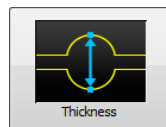
Measures the height difference from a reference feature to a specified feature.



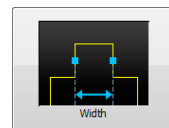
Measures the radius of an arc segment.



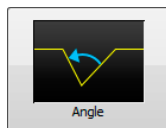
Extracts the position coordinates of a specified feature.



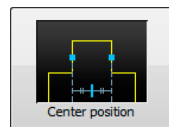
Measures the thickness of a specified feature.
(When using sensor heads)



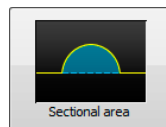
Measures the width of a specified feature.



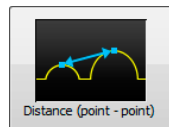
Measures the angle between two specified lines
or the angle from a single horizontal line.



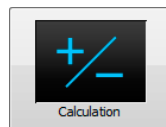
Extracts the position coordinates of the center
point for a specified feature.



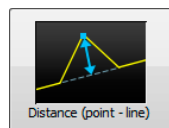
Measures the cross-section area from a
reference line or master profile.



Measures the distance between 2 features.



Provides a data output calculation based on
other extractions.



Measures the distance from a reference line to a
specified feature.

The industry's greatest flexibility

16 channels of independent measurement

Any 16 dimensions can be measured simultaneously with a measurement mode that has been selected from the 74 types that are available. The LJ-V7000 can perform onboard profile analysis at a previously impossible rate.

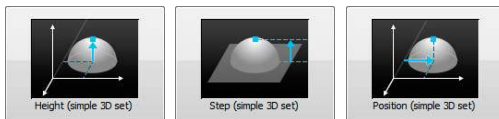


Ease-of-use

Easy 3D measurement function

Equipped with an easy 3D measurement function for height, height differences, and position. Not only is it possible to measure 2D cross-section profiles but it is also possible to easily measure scanned 3D data of the target.

Types of measurements

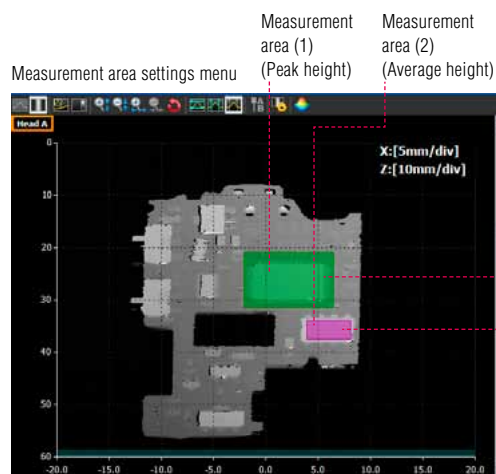
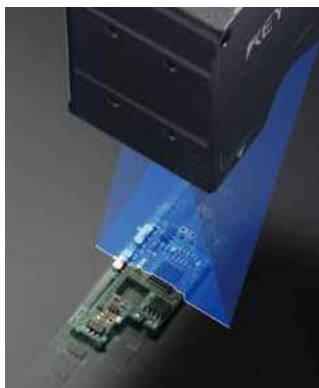


Types of measurement targets for each measurement

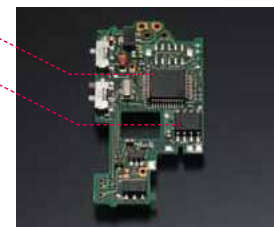
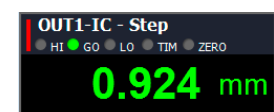


Measurement example (PC board assembly verification)

Scanning the measurement target



Measurement value (1)-(2)



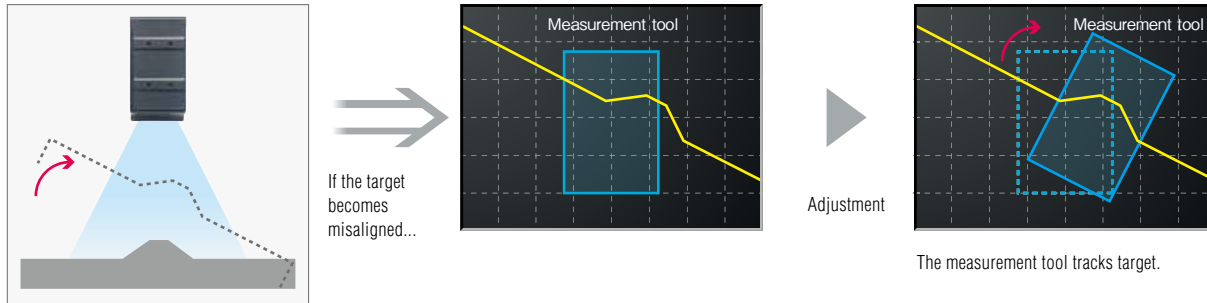
An emphasis on inline measurement

X adjustment, Z adjustment, θ adjustment

Advanced position correction function

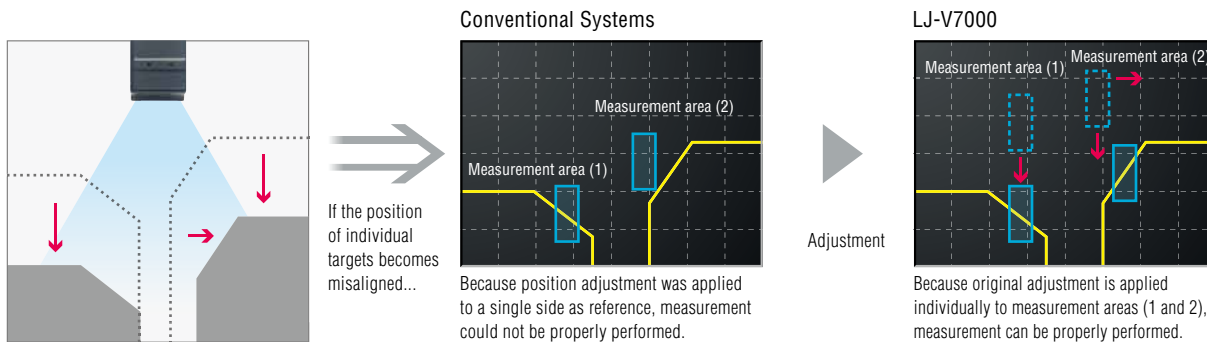
The LJ-V7000 can correct target misalignment errors, which are directly connected to errors in the measurement results. Even in production processes where the target presentation is not consistent, the LJ-V7000 Series system can provide onboard analysis without error.

$\theta \rightarrow X$ adjustment



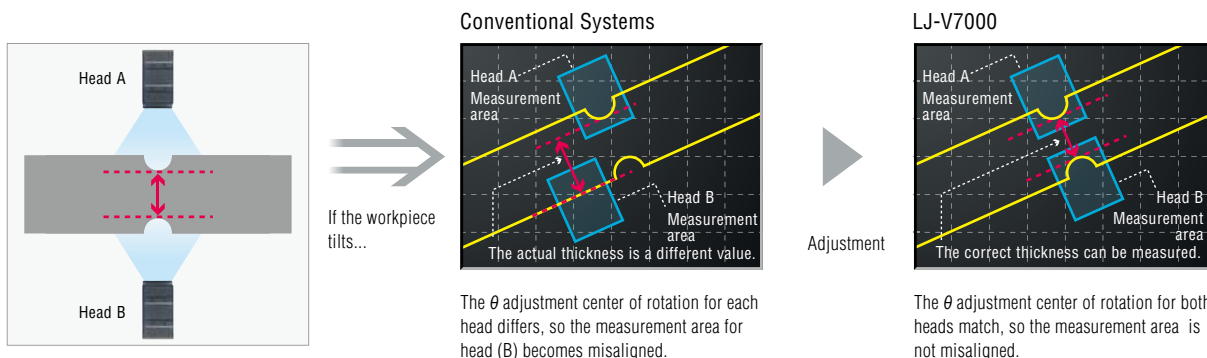
Multi-component XZ θ adjustment function

The LJ-V7000 Series is equipped with a new function that makes it possible to individually set various adjustments in two areas. This is effective when measuring gaps, angles, or height differences that are constructed of two parts.



Dual head adjustment function

By defining the spatial alignment of both heads, it is possible for the LJ-V7000 to match the θ adjustment center of rotation for both heads. Even when measuring targets with surface variations or incline changes, it is possible to measure the correct points.



<Ex.> Minimum thickness measurement

Multiple interface options

Three easy setup interfaces to choose from

The LJ-V7000 has an optional touch panel that allows on-site performance monitoring and program adjustment. In addition, the system supports setup via PC as well as setup using a connected monitor and control pendant.



Production focused

Easy integration in a production environment

Built-in encoder support

The LJ-V7000 provides onboard support for high frequency encoder inputs allowing precise control over the position of profile samples.

High-flex cable

All LJ-V7000 systems use high-flex cabling rated for robot installation.

IP67 rated head and sensor cable

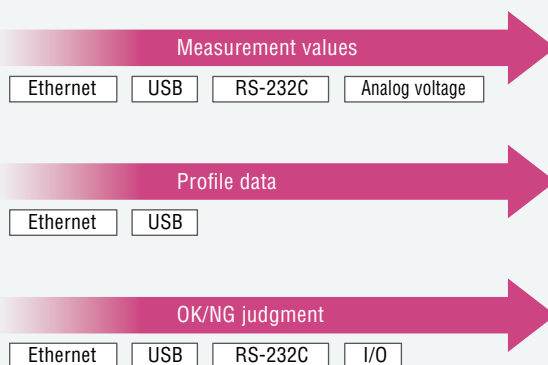
Both the laser sensor head and cable provide an IP67 enclosure rating. This allows the sensor head to be installed in most production environments without the need for costly additional enclosures.

Impact resistance test Clears IEC 68-2-29

All sensor head models are tested to an IEC-68-2-29 shock resistance standards allowing worry free installation on robots and other moving components.

Flexible data output options

Output methods



PC

PLC, etc.



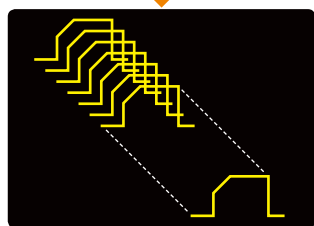
The industry's largest

High volume onboard memory buffer

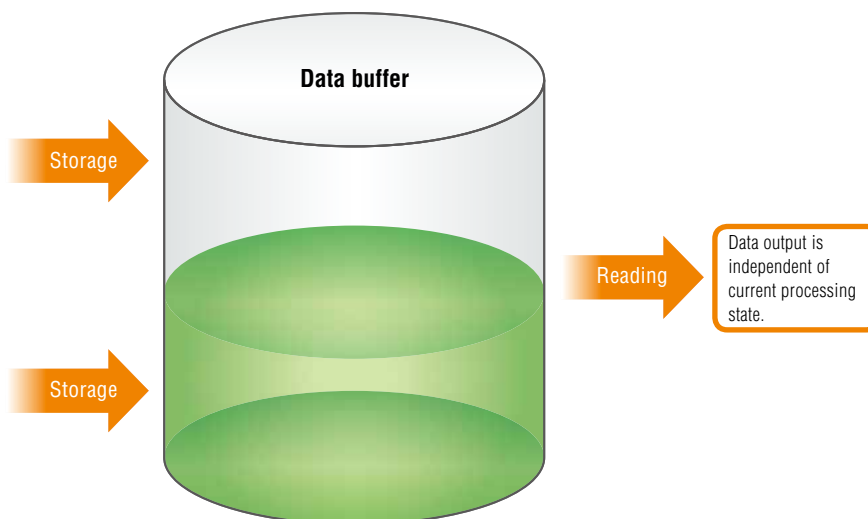
Up to 60,000,000 data points



Up to 250,000 profiles



The LJ-V7000 is equipped with a large-capacity memory buffer that can temporarily store large amounts of data to the controller. With standard settings, over 60,000,000 measurement data points or 250,000 profiles can be stored in onboard memory. In addition, the data buffer can be read at any time, even when the system is actively storing additional data.



Example of data processing

Conventional system



Conventional systems cannot perform measurements while reading out stored data.

LJ-V7000

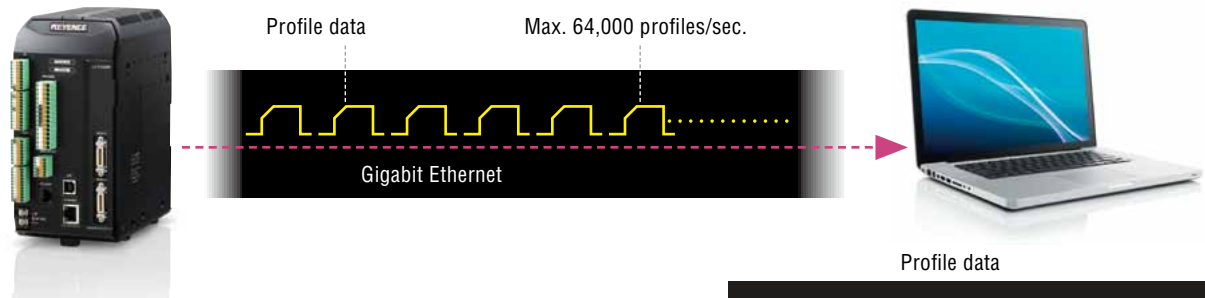


The LJ-V7000 Series handles measurement acquisition and stored data processing independently.

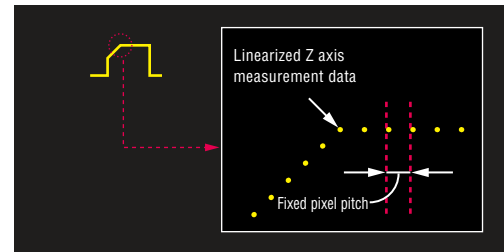
Supports advanced application development

Publicly open communications library

Continuous profile data output at a top speed of 64 kHz

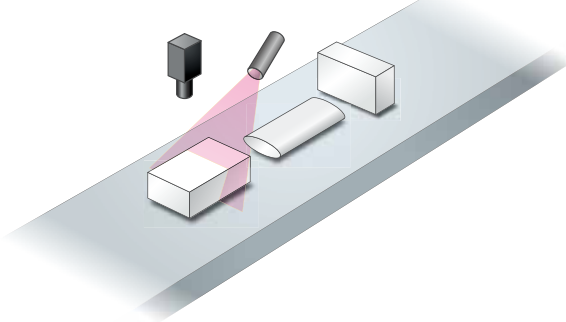


The LJ-V7000 Series has now been equipped with a TOE (TCP/IP off-road engine) specifically for processing high-speed communication. This achieves high throughput that does not affect CPU load. With this it is possible to maintain a 64,000 Hz output frequency. In addition to advanced on-board processing capabilities, the LJ-V7000 also provides full support for external processing of acquired profile data. In addition to published interface libraries, sample interface code is available in several programming languages.

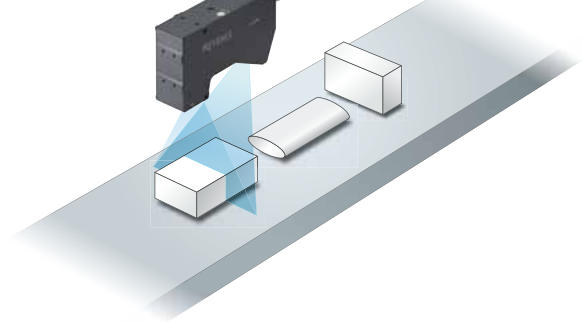


Differences with a 3D measurement camera

3D measurement camera



LJ-V7000 Series



1 Easy installation

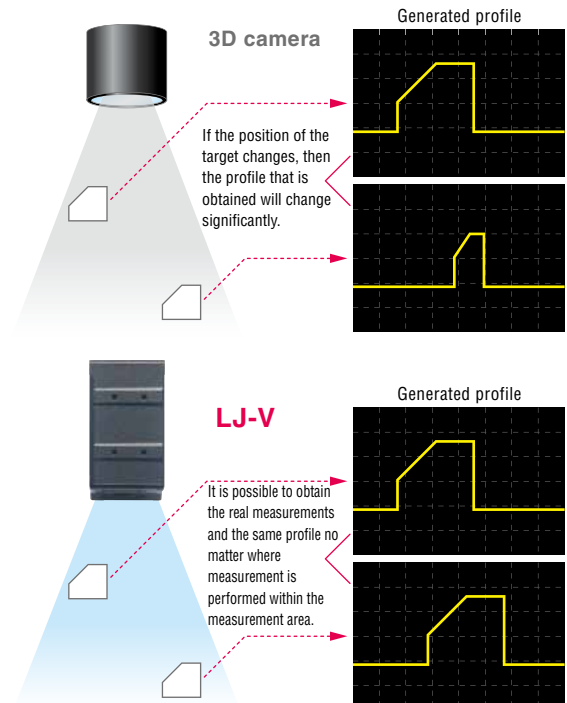
When using a 3D camera, the laser light source and receiver (camera) are independent of each other, greatly complicating on-site installation and adjustment. With the LJ-V, the laser light source and receiver are contained in a single body, making transmitter to receiver mounting adjustment unnecessary. This also ensures that the transmitter and receiver maintain this alignment regardless of machine use.

2 No linearization required

When using a 3D camera, the height of individual pixels and pixel pitch vary due to the relative positions of the laser light source and the receiver, requiring on-site linearization following installation. With the LJ-V Series, the output data is pre-linearized by the controller without the need for additional post-processing.

3 Out of the box traceability

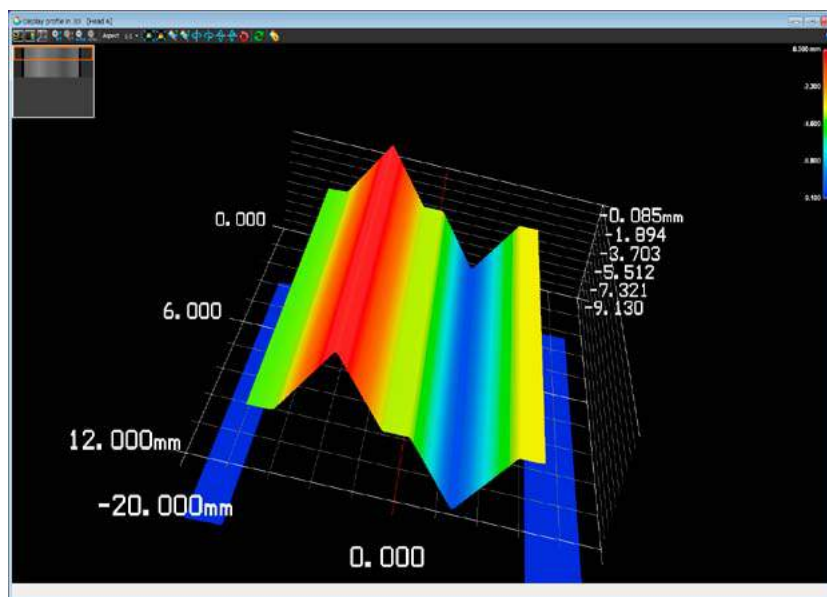
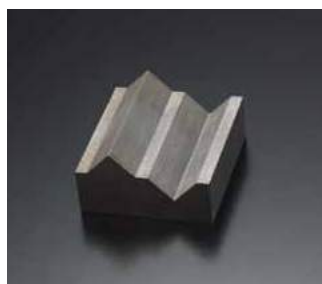
As LJ-V Series is not a machine vision camera, but a traceable measurement device, traceability and calibration documentation is available out of the box. All systems are factory calibrated to international traceability standards and compliance documentation is readily available.



Easy to use PC setup software simplifies setup procedures

Easy 3D display function

With the LJ-V7000 Series, it is possible to instantaneously check the results of a scanned target using a 3D bird's eye view. This greatly simplifies stability evaluations.



Multi-screen function

It is possible to simultaneously monitor multiple screens, including measurement values, measurement profiles, height image displays (grayscale displays), and measurement value trend graphs. Screen size and location is fully adjustable allowing custom interface designs.

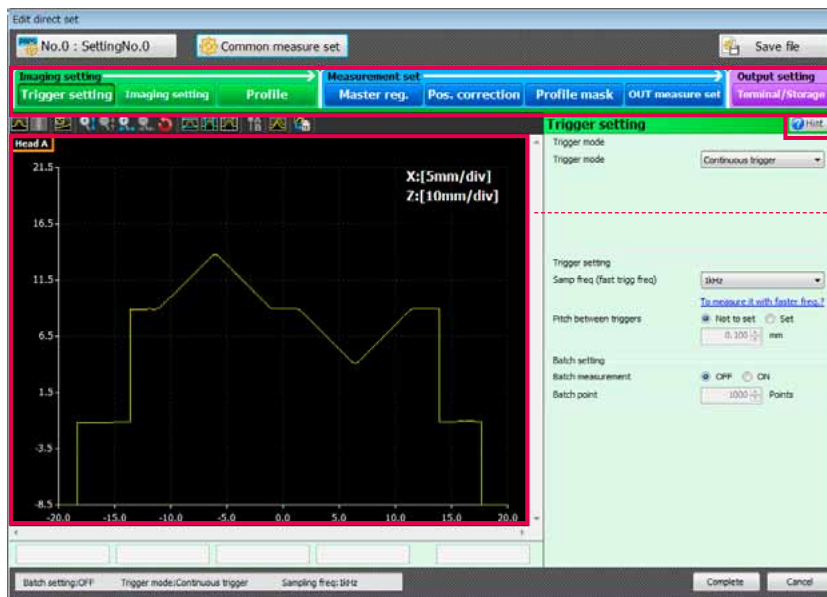
Measurement value monitor

Height image display (Grayscale display)

Profile display



Simple setup



Simple step by step setup
Intuitive layout easily guides any user through setup procedures.

Settings applied in real-time
During the setting process, setting changes are applied in real time. This allows simple closed-loop fine tuning without the need to separately monitor the output.

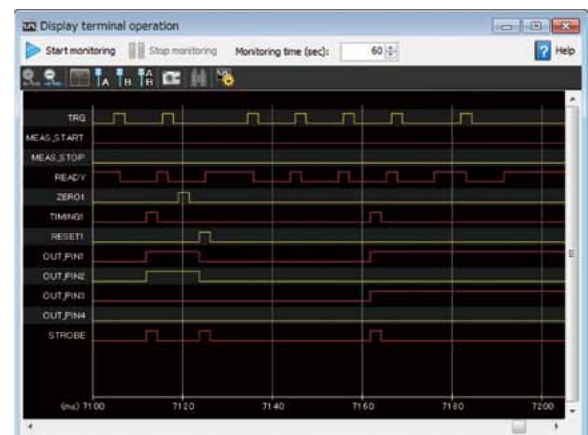
Easy to use help menu
Each section has an easy to use help screen for referencing key details without a user's manual.

Profile storage function



The software provides an easy to use interface for accessing profile data and the data storage functions. In addition, the LJ Navigator 2 software is equipped with various analysis functions, which can be useful for the verification of defects and for research and development.

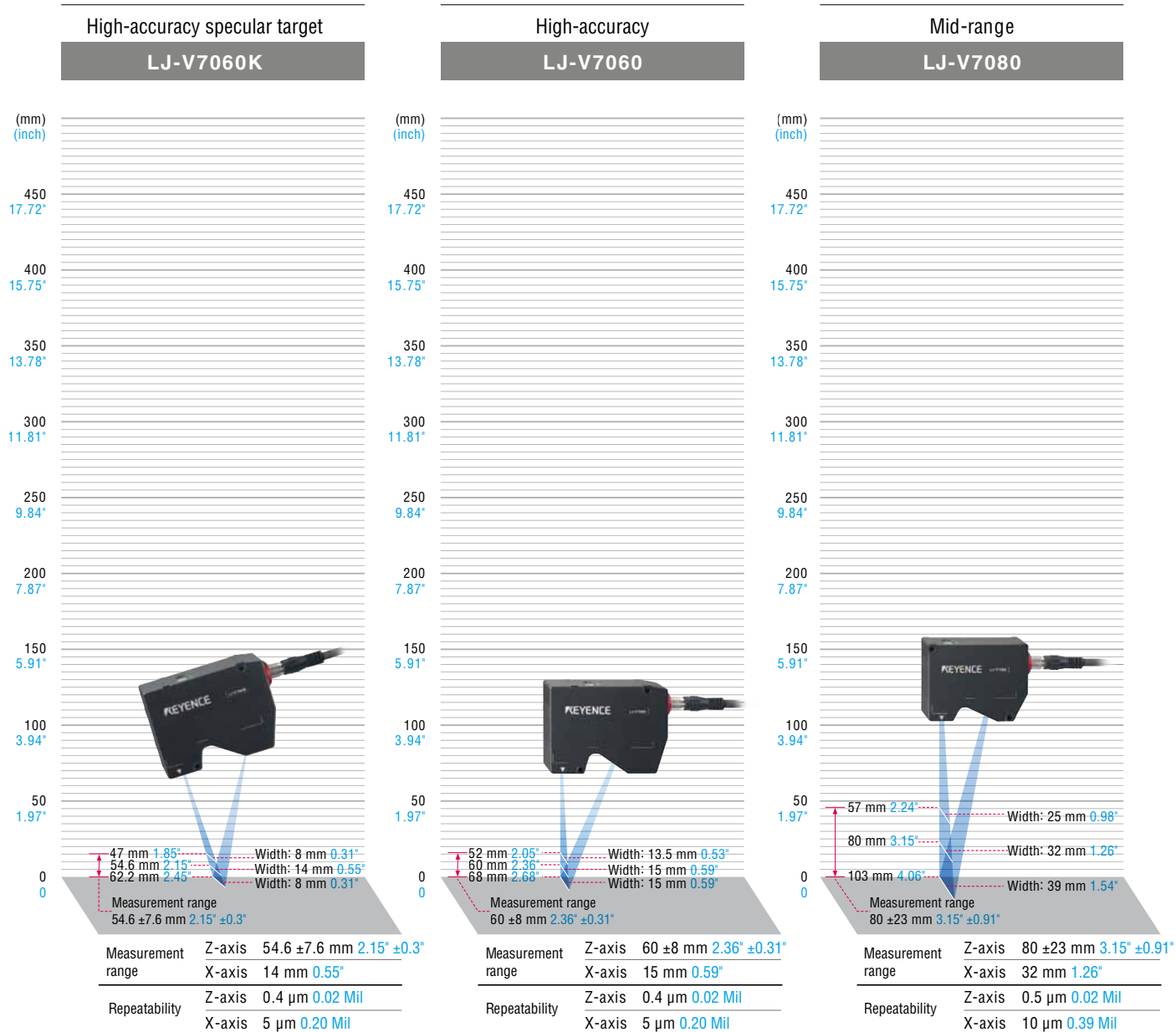
Terminal operation timing chart function



The LJ Navigator 2 software allows active monitoring of all I/O terminals. This greatly simplifies initial setup and troubleshooting.

Component selection guide

Sensor head



Controller



Controller
LJ-V7001(P)

Controller variation

Standard type	LJ-V7001
PNP output type	LJ-V7001P

Settings monitor software
LJ-H2



USB code (LJ-H2 accessory)
OP-66844



Display output unit
LJ-VM100

Console
OP-87504



Monitor

Touch panel monitor
CA-MP120T



Specialized monitor stand
OP-87262





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 Mili, 0.00001 mm ² , 0.01°	
	Maximum display range	±99999.9 mm 393700°, ±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-zero1, 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.

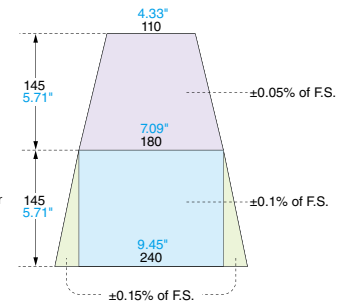
^{*7} This value is from a case in which the head cable (CB-B*) or extension cable (CB-B*E) has been connected.

^{*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.

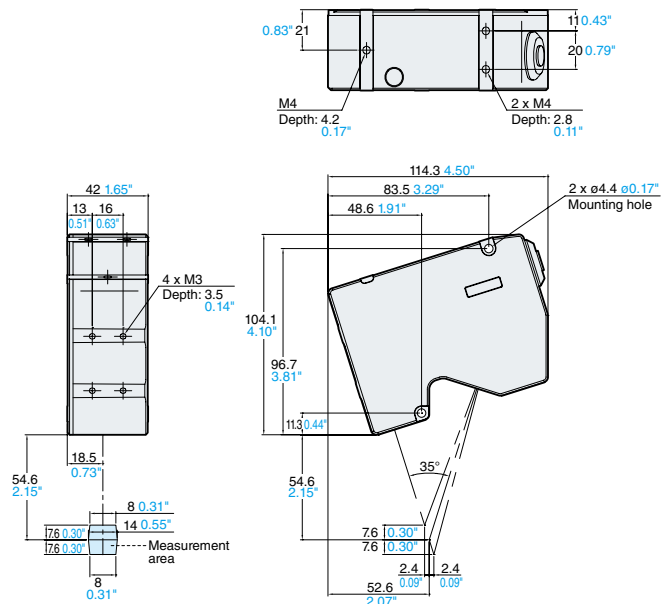
• Regarding cable extension between the head and controller: Up to 2 cables can be connected with the CB-BxxE, and these cables should be kept to a total length of 30 m 98.4' or less.

Dimensions

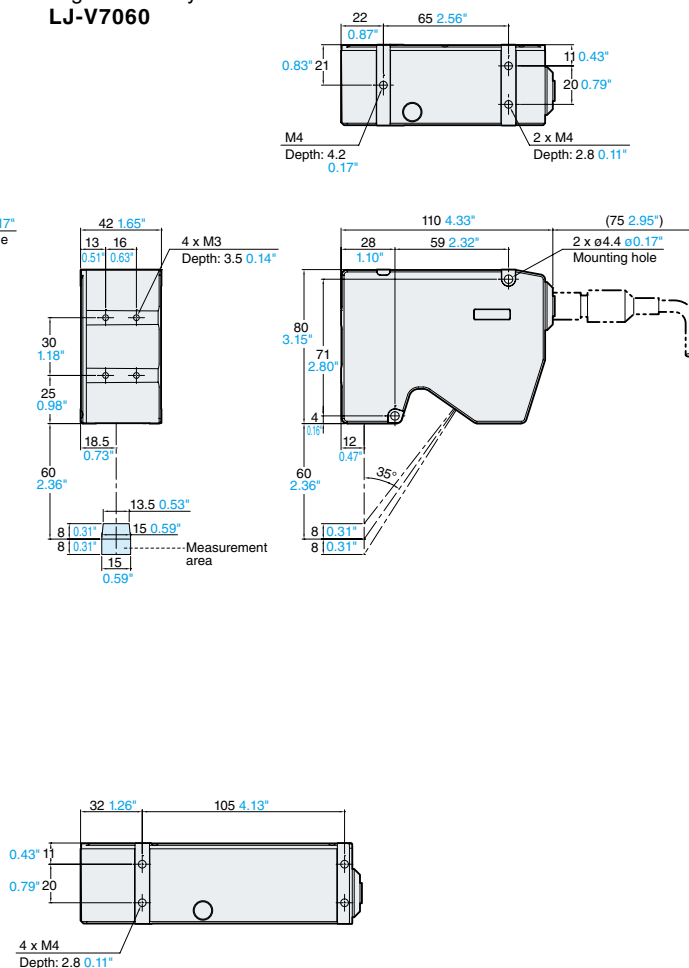
Sensor head

Unit (mm inch)

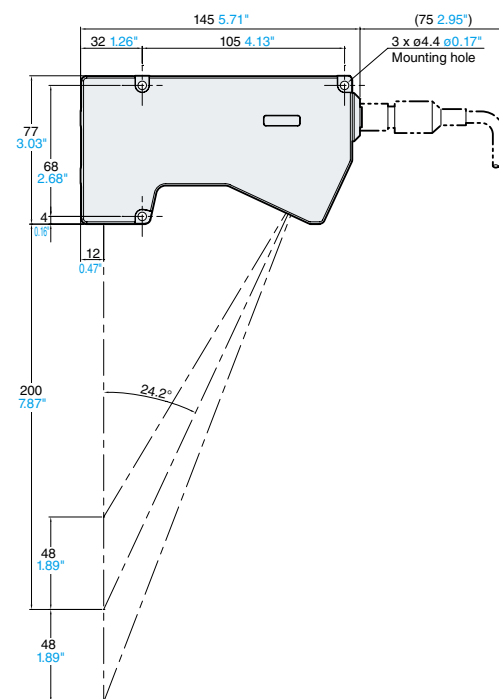
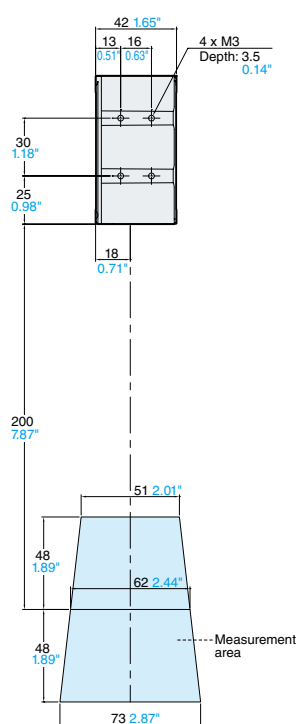
High-accuracy specular target model
LJ-V7060K



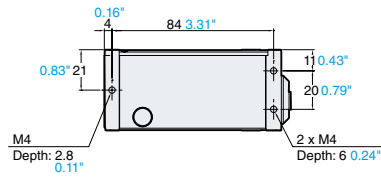
High-accuracy model
LJ-V7060



Long range model
LJ-V7200

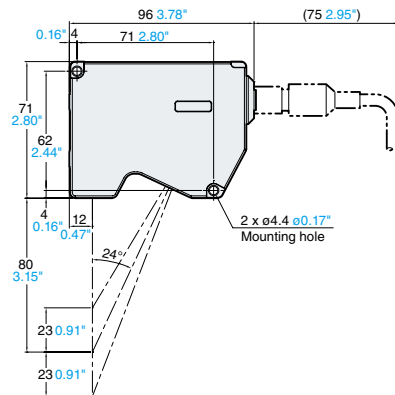
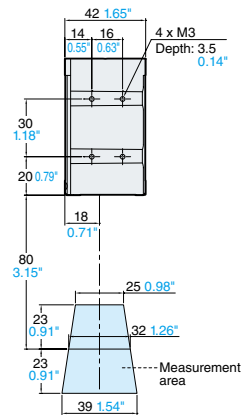
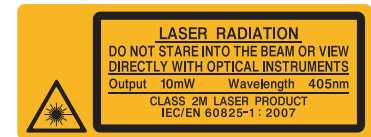


Mid-range model LJ-V7080

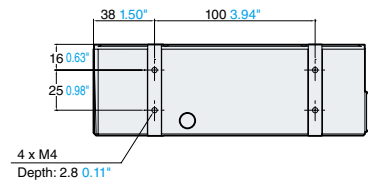


Laser warning/explanatory label

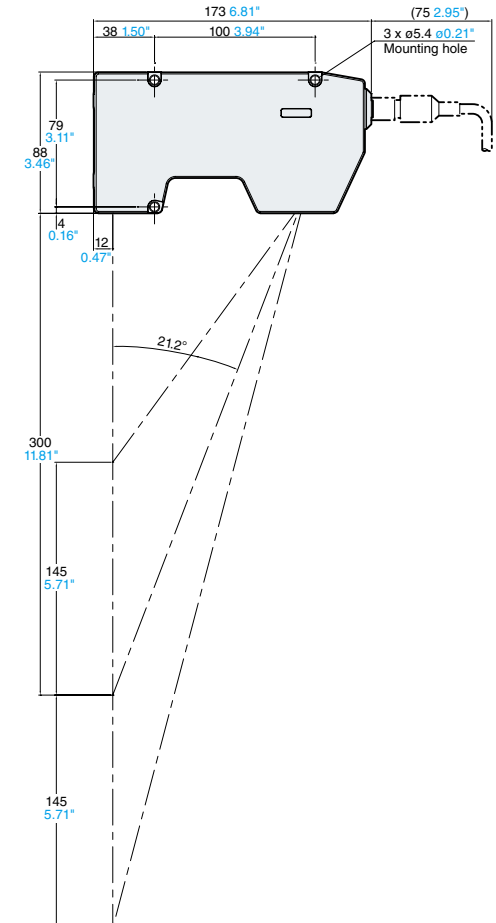
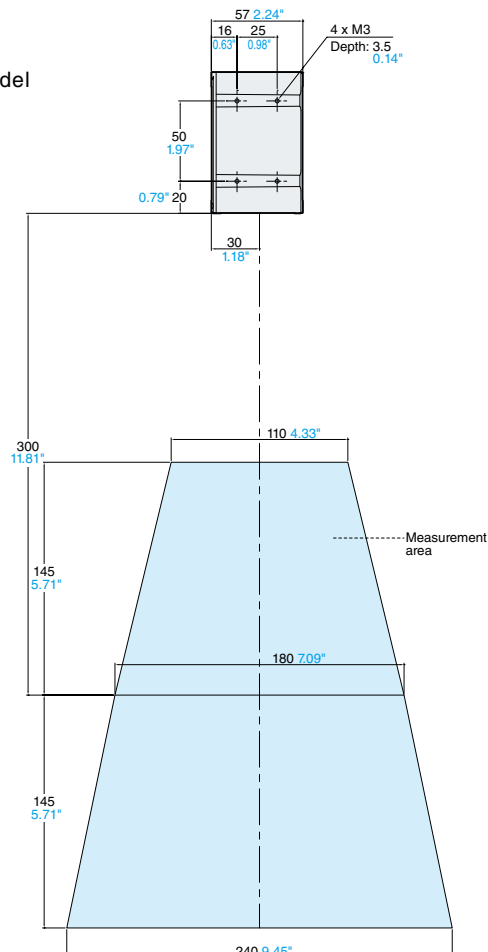
LJ-V7060



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



Ultra-long range model LJ-V7300

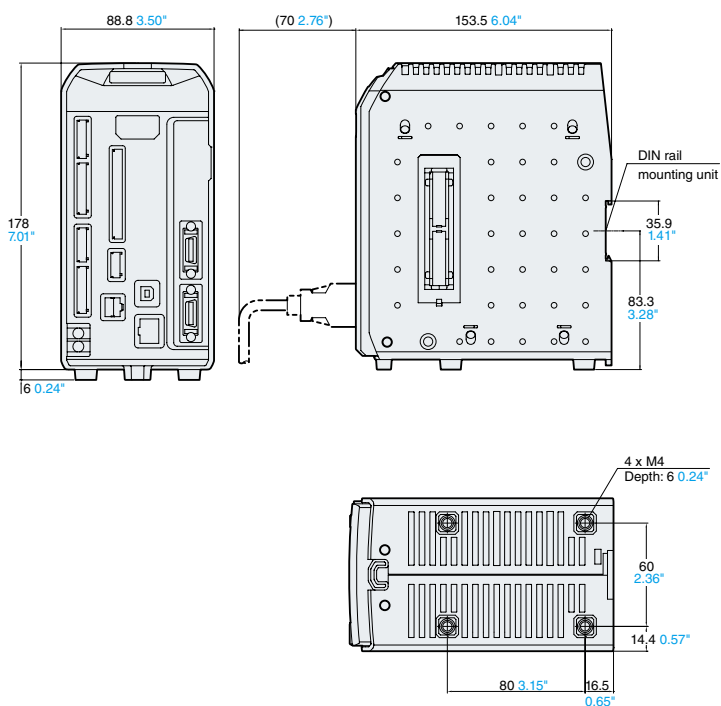


Dimensions

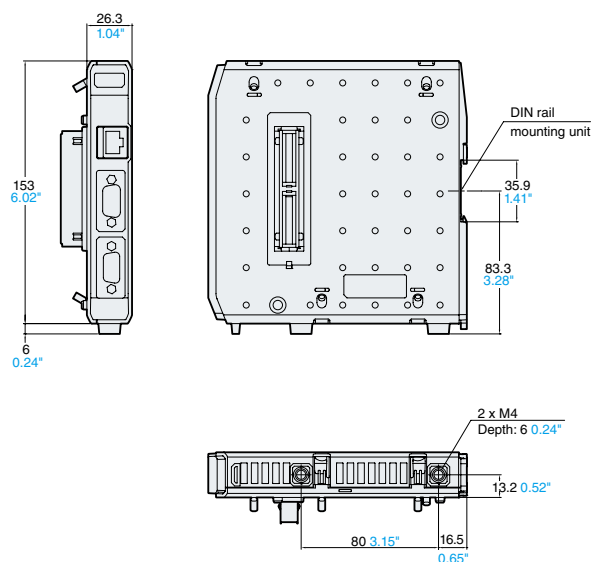
Controller

Unit (mm inch)

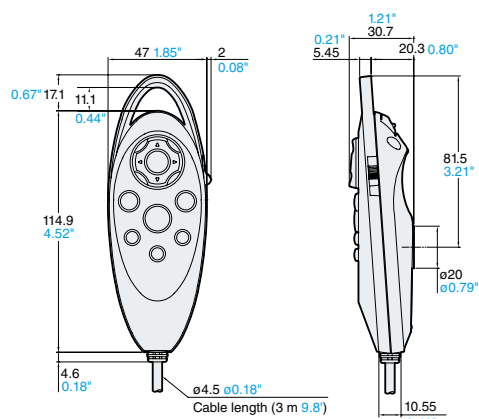
Multi-function controller LJ-V7001(P)



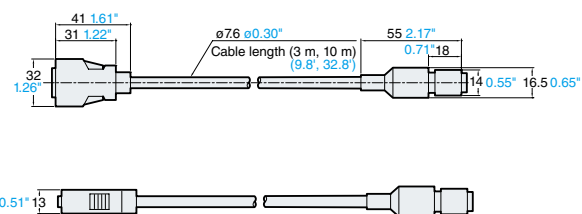
Display output unit LJ-VM100



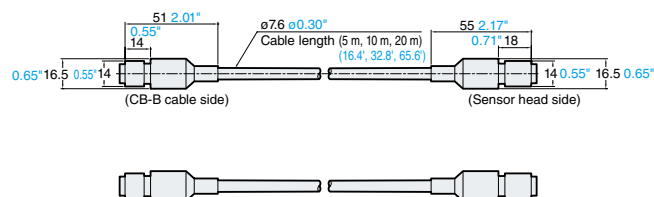
Console OP-87504



Head connection cable CB-B3/CB-B10



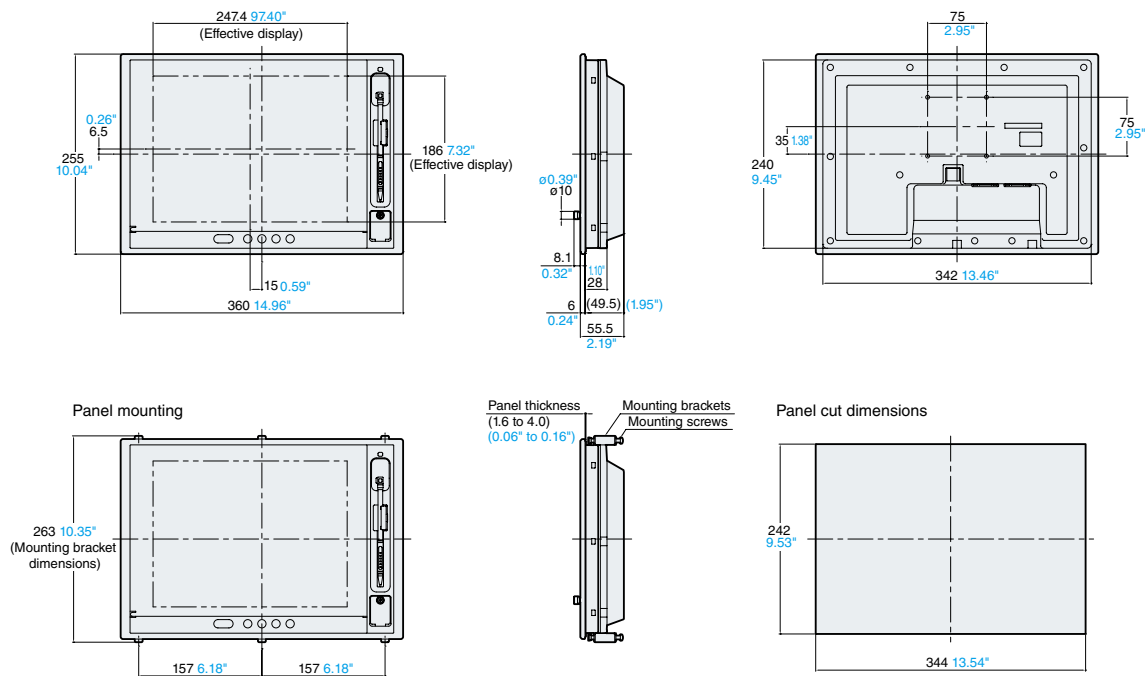
Head connection extension cable CB-B5E/CB-B10E/CB-B20E



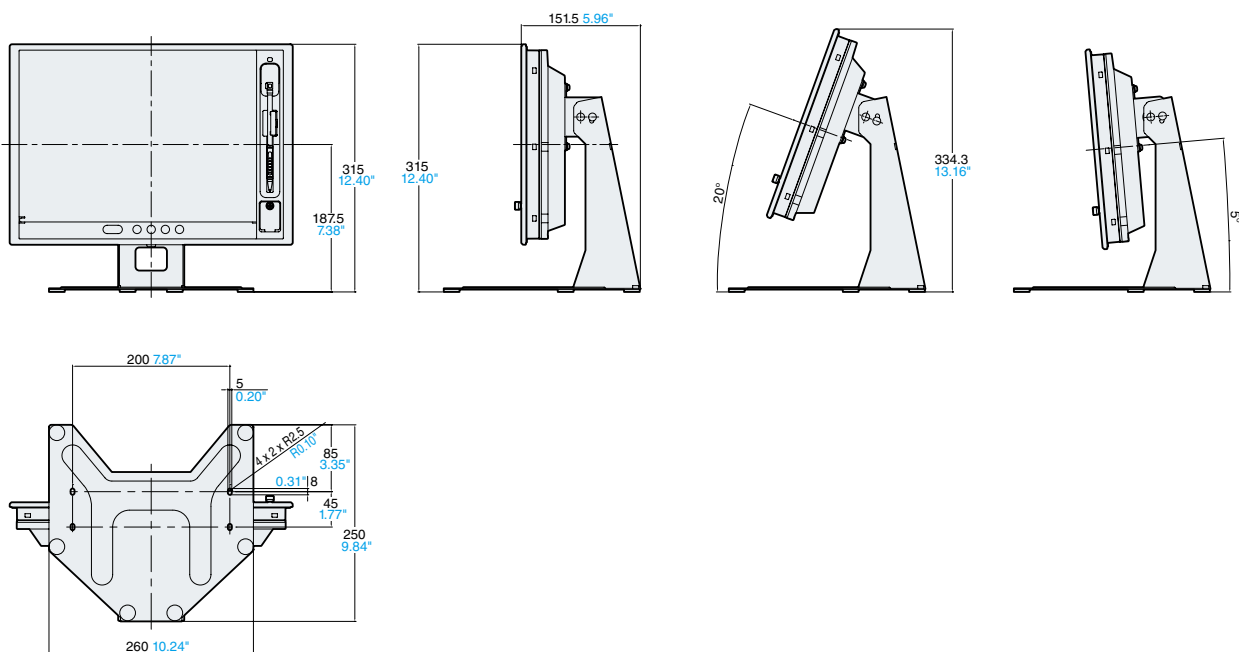
Monitor

Unit (mm inch)

Touch panel monitor CA-MP120T



Touch panel monitor stand OP-87262



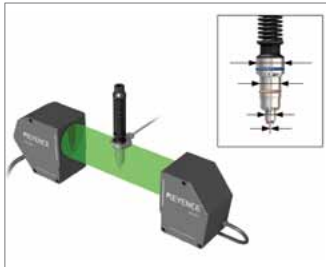
RELATED PRODUCTS

MEASURES 2 DIMENSIONS WITH MICRON PRECISION

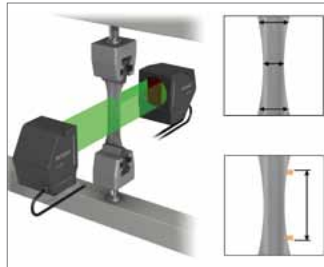
- Simultaneously measures 16 measurement points
- Repeatability $\pm 0.06 \mu\text{m}$ $\pm 0.002 \text{ Mil}$
- Measurement accuracy $\pm 0.5 \mu\text{m}$ $\pm 0.02 \text{ Mil}$



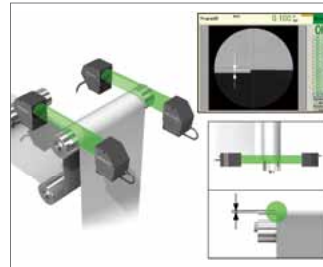
PRODUCT APPLICATIONS



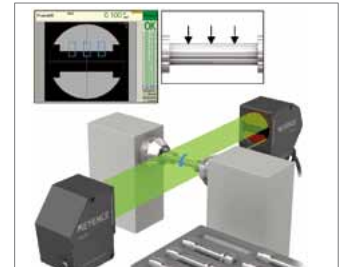
Diameter and height difference measurements on a fuel injector.



Measurement of sample diameter in a tensile tester.



Measurement of web thickness.



Runout measurement of a valve.



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

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