ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Keyence IV-500CA* at our website: ***Click HERE***

KEYENCE

Vision Sensor
IV Series





RAPID SET-UP

AUTO FOCUS

VISION SENSOR

Intelligent sensor
I-SERIES

IV Series

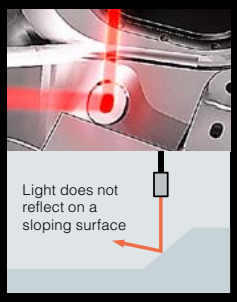


Example of Conventional Presence Detection

BENEFITS OF USING A VISION SENSOR FOR PRESENCE DETECTION

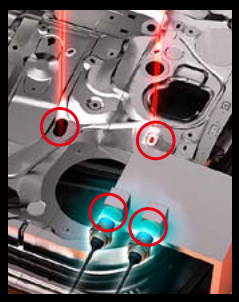
Can be used with difficult to detect workpieces.

The vision sensor enables detection in environments, which were previously unstable with a photoelectric sensor, such as sloping surfaces where light does not reflect well.



A single unit can be used for multiple part presence inspections.

Up to 16 tools can be utilized for each captured image.



Sensor can also detect regardless of part position variations

With the position adjustment function, detection is performed simply by placing the detection object in the imaging area.



Easy, stable detection with a single vision sensor unit

Vision Sensor

FOR PRESENCE DETECTION

New ideas for handling difficult detection

Difficult applications that formerly required multiple conventional photoelectric or proximity sensors can now be tackled easily and at low cost with one "IV Series vision sensor". Our unbeatable vision and presence sensor know-how enables KEYENCE to introduce a new style of presence detection.

EASY-TO-USE

RAPID SET-UP

Startup is completed in approximately 1 minute thanks to “Easy Navigation”.

STABLE DETECTION

OUTSTANDING IMAGING CAPABILITY

Clear images are realized with high-intensity illumination and high-performance lenses, which are standard equipment.

AFFORDABLY PRICED

REDUCE INTRODUCTION COSTS

Choose from 8 different sensor heads to suit your needs.



Intelligent sensor
I-SERIES

Mechanism of Sensor
RAPID SET-UP

Automatic Focus

Focusing, which used to be a manual process, can now be done automatically in the IV Series. One-touch quick focusing is done by a unique automatic focus motor developed exclusively for the IV Series.



Automated, one-touch brightness adjustment

Gain, exposure time, and illumination are adjusted automatically, and operations can be completed with one-touch controls. As anyone can now shoot clear images, there are fewer variations due to differing imaging skills.

Environmental Resistance IP67 (sensor)

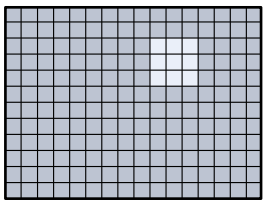
Complies with the IP67 enclosure rating, which is based on IEC/JIS standards. Can be used safely in a dusty or wet environment.



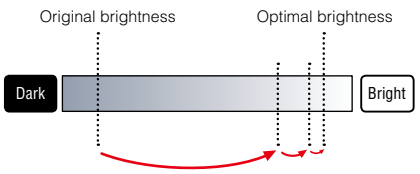
AUTOMATIC BRIGHTNESS ADJUSTMENT

IBA - INTELLIGENT BRIGHTNESS ADJUST -

With the newly developed algorithm installed in the IBA processor, the brightness is automatically adjusted to the optimum level in an instant. Additionally, our unique methods enable high-speed automatic adjustment without any adverse effects from the background.



By dividing the screen into multiple pixel blocks, presence/absence of the workpiece is recognized where the brightness has changed.



Instead of gradually moving towards the optimum brightness, adjustments can be made faster by making one large adjustment close to the optimum brightness and then performing fine adjustments.

Unit: mm inch

Model	IV-500CA	IV-500C	IV-500MA	IV-500M	IV-150MA	IV-150M	IV-2000MA	IV-2000M
Focus adjustment	Auto	Manual	Auto	Manual	Auto	Manual	Auto	Manual
Type	Color		Monochrome		Monochrome			
Minimum field of view/ Installation distance	25 × 18/50 0.98" × 0.71"/1.97"				12 × 9/50 0.47" × 0.35"/1.97"		45 × 33/300 1.77" × 1.30"/11.81"	
Maximum field of view/ Installation distance	210 × 157 8.27" × 6.18"				36 × 27 1.42" × 1.06"		300 × 225 11.81" × 8.86"	
	500 19.69"				150 5.91"		2000 78.74"	

RAPID SET-UP

Easy navigation

Simply follow the setup flow from “single touch imaging” to output setup. The intuitive touch screen operation allows startup to be completed in about one minute, without the need for referring to manuals.

Single touch imaging
↓
Tool setup
↓
Output setup



TOOL AUTO TUNE

Multiple master and defective object images can be taken with Pass/Fail judgment attached to enable automatic adjustment of thresholds and parameters to optimum values. Images can be shot immediately, read from the image history or read from USB memory.

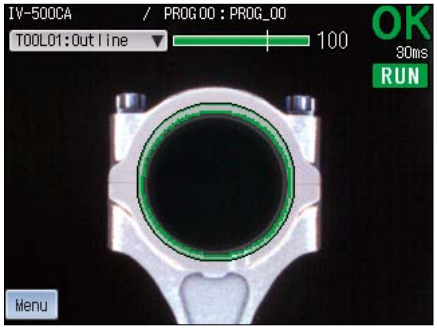
Pass/Fail allocation screen

Selection screen of image registration source

Stable Detection

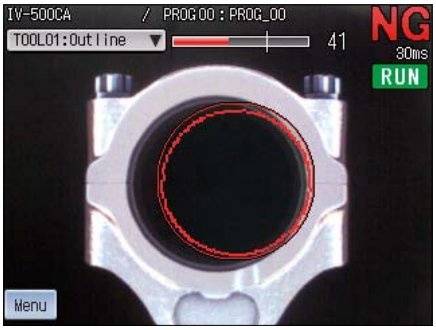
Newly developed pattern tool for stable detection

Shape Detection



PASS

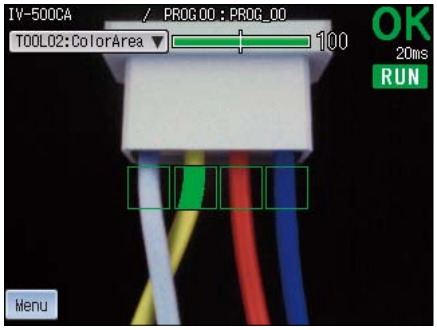
Model type detection by internal diameter difference of metal part



FAIL

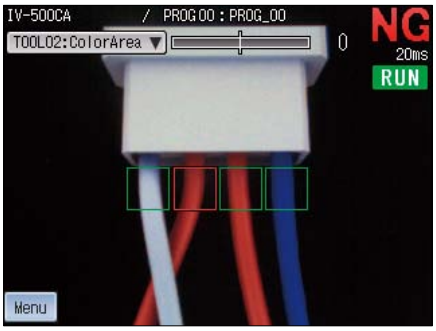
The match percentage of the object is calculated based on the registered master shape information. Brightness differences or differences in individual surface conditions, which were previously difficult to handle with normalized correlation methods (pattern matching) can be identified.

Area



PASS

Detection by cable color difference



FAIL

Using the registered master area (number of pixels) as reference, the difference in area from the inspection object is calculated. When the sensor is a color type, judgment can be made based on the desired area of the specified color. In the case of the monochrome type, brightness is judged by the area binarized in black and white.

POSITION ADJUSTMENT

If the object is misaligned, 100% inspection cannot be achieved because the object may be outside the inspection area. The position adjustment function calculates the amount of misalignment from the master image in order to correct the position, and enable correct judgment. In addition, 180° high-speed tracking is supported for rotation tracking. This means you don't need to worry about misalignment of the workpieces.



PASS

Detection of sticker presence/absence by using position adjustment



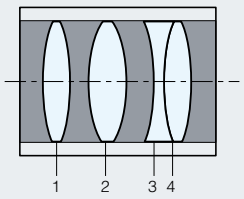
FAIL

Technology for stable detection

HP-Quad* lens

The newly developed lens contains 4 layers of glass that achieve low aberration with high light-gathering power, enabling bright, clear images with low distortion for stable detection.

*High Precision-Quad

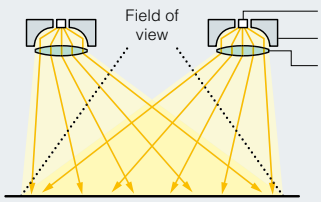


The Quad lens enables capture of the entire field of view image under uniform conditions.

Hi-R* illumination

Our pursuit of an even more efficient reflector shape with less LED light intensity loss has enabled the realization of outstanding brightness and uniformity.

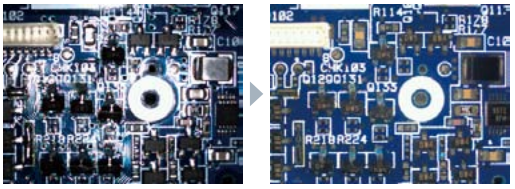
*High Reflection



HS-HDR* FUNCTION

Detection is stabilized by widening the light-receiving sensitivity range when dispersion occurs in the reflection. High speeds are realized by adjusting within a single image capture.

*High Speed HDR



HS-HDR function OFF

HS-HDR function ON

POLARIZING FILTER

Glare from glossy surfaces is reduced because only one direction of the light wave can pass through. The compact size enables easy installation.



Without polarized filter

With polarized filter [USING OP-87436]

DOME LIGHT [USING IV-D10]

Effective in reducing glare. Generating indirect light from various directions ensures the object is uniformly illuminated. This method is generally more effective than a polarizing filter at reducing glare.

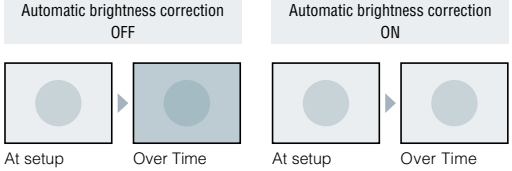


Without dome attachment

With dome attachment

AUTOMATIC BRIGHTNESS CORRECTION

When the illumination has deteriorated over time, image brightness is corrected automatically so that it does not become darker. When a brightness standard is set with a master image at installation, screen brightness can be maintained.



Software
RAPID SET-UP

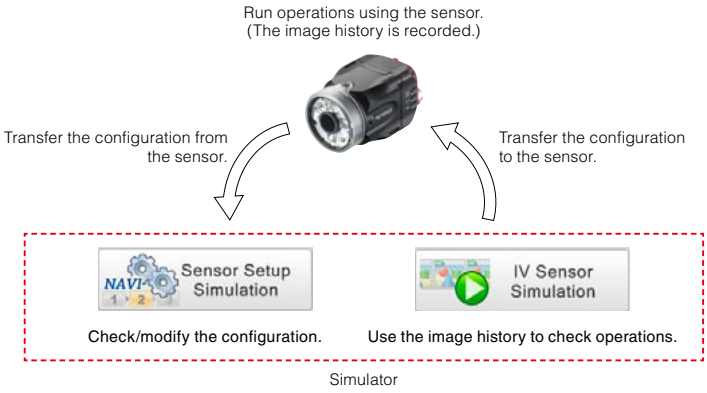
Software for IV Series
IV-H1
IV-Navigator

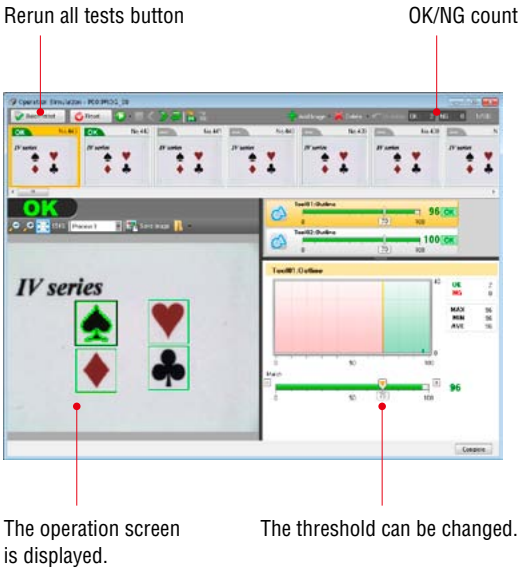
The IV Series can be set up with an intelligent monitor (IV-M30) or a PC. As PCs can display a larger list, setup procedures are even easier to understand, and can be setup smoothly by users on the first try.



Simulation Function

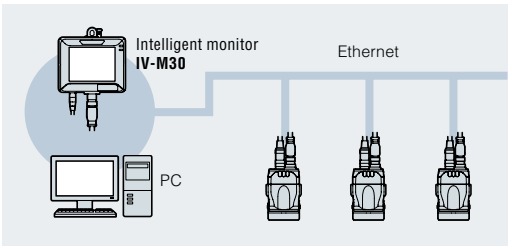
This function allows you to check and modify the program configurations and perform operation simulations based on the image history, without connecting the sensor.
This enables easy computation of the optimal thresholds while looking at the detection result statistics and histogram, even when you are away from the actual worksite.





Remote Operation

The IV Series can be setup and monitored via Ethernet. Naturally, remote setup procedures are just as easy as normal operations.
(Can be performed on a PC or an IV-M30 intelligent monitor.)



Useful functions that suit the operating environment

Excellent Interface Support

The IV Series is equipped with EthnerNet/IP™ and PROFINET communication functions. PLC compatibility makes for a stress-free introduction of the IV Series into your PLC-based systems. Only one Ethernet cable is required which prevents erroneous wiring.



Logic Function

Output conditions can be specified with results from multiple tools, involving AND, OR, and inversion. The output can be programmed for varying situation. For example, you might use the OK output to check for products, while the NG output could be used when eliminating defective products.
The sensors themselves offer a versatile set-up, which allows for easy installation in existing systems with or without PLCs.

FTP Client Function

Images detected by sensors are automatically transferred to the FTP server using the FTP client function. The IV Series also meets the requirements resulting from increased demand for traceability. You can save all images or send only NG images to analyze failed products.

Our Sensor Lineup to Suit Your Needs

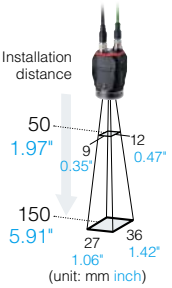
SENSOR LINEUP

Close range sensor model



Monochrome AF type
IV-150MA

Monochrome MF type
IV-150M



Standard sensor model

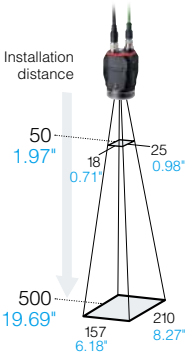


Color AF type
IV-500CA

Color MF type
IV-500C

Monochrome AF type
IV-500MA

Monochrome MF type
IV-500M

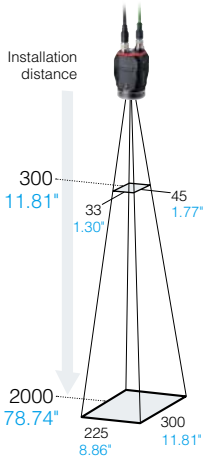


Long range sensor model



Monochrome AF type
IV-2000MA

Monochrome MF type
IV-2000M



AF…Automatic focus model
MF…Manual focus model

* View and optical axis has individual differences.
*The field of vision is halved when the digital zoom function (monochrome type only) is used.

The IV Series can be setup with an intelligent monitor

The IV-M30 has a tough construction that can resist impact. It clears the 1.3 m 4.27' drop test performed under standard usage conditions (KEYENCE standard).
Simply follow the setup flow from “single touch imaging” to output setup. The intuitive touch screen operation allows startup to be completed in about one minute, without the need for referring to manuals.

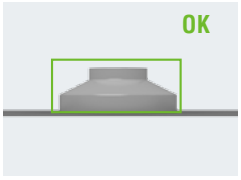


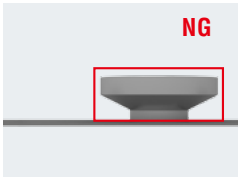


Drop impact resistance 1.3 m 4.27'

Detection of part orientation





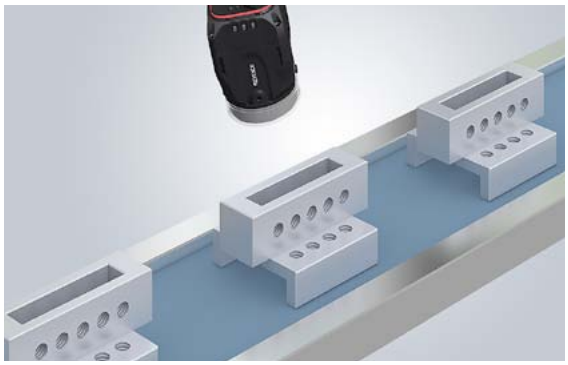


The direction of parts is detected to prevent incorrect assembly in later processes

As shape inspection is able to search for patterns within the entire screen, stable detection is possible even if a minor misalignment has occurred during conveyance.

Shape detection | HS-HDR

Threading presence detection







Detects whether a processed metal part contains threads

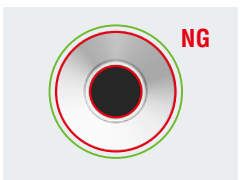
The polarization filter and HS-HDR function enable stable detection, even for metal work with non-uniform reflection.

Thread detection | HS-HDR

Grease application check







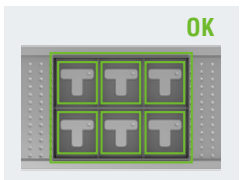
Checks the presence of grease on metallic parts

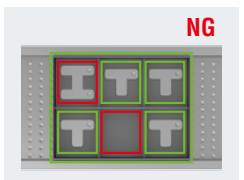
Stable detection can be achieved by reducing glare, which tends to occur frequently in grease detection, using the HS-HDR.

Area | Position adjustment | HS-HDR

Proper part confirmation







Detects the presence and type of parts on a tray

Since up to 16 tools can be arranged, settings can be programed for each pocket to ensure stable detection.

Shape detection | Position adjustment | HS-HDR | 16 tools

Label presence and misalignment detection







Detects the presence and misalignment of bottle labels

By using in combination with a position adjustment tool, misalignment can be detected using items such as the bottle cap as a reference position.

Shape detection | Position adjustment

Hot-melt presence







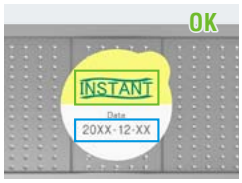
Detects the presence of hot-melt on medicine box flaps

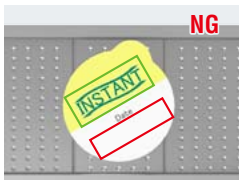
By using area measurement instead of point measurement, it is possible to achieve stable detection on uneven surfaces.

Area

Print presence





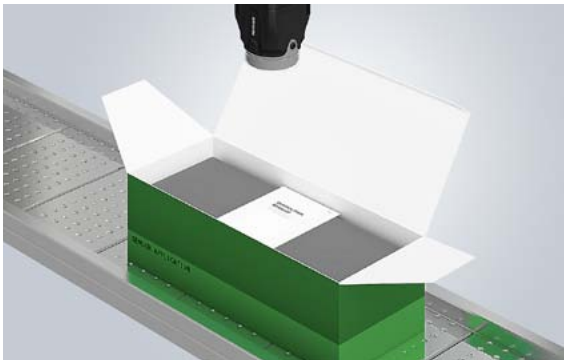


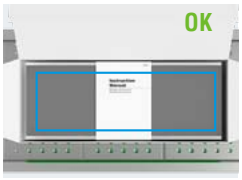
Detects the presence of printing

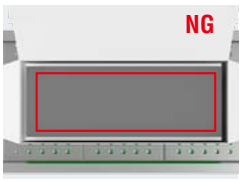
The 360° rotary position compensation function enables stable detection, regardless of cup orientation.

Area | Position adjustment

Package insert presence







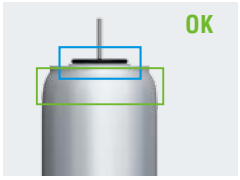
Detects the presence of an insert enclosed within packaging

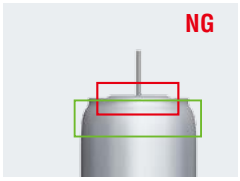
Because the area can be set flexibly, stable detection is achieved even if the insert position varies due to packaging conditions.

Area

O-ring presence detection





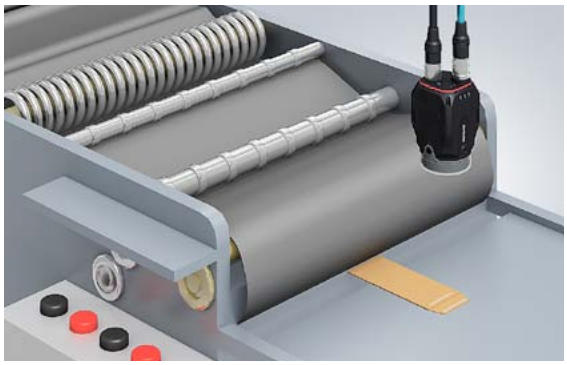


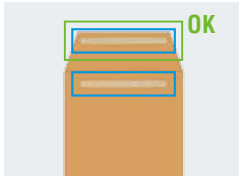
Detects the presence of an O-ring in a spray can

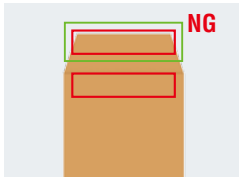
Used in combination with a position adjustment tool, stable detection can be achieved even with varied positions.

Area | Position adjustment | HS-HDR

Adhesive strip presence







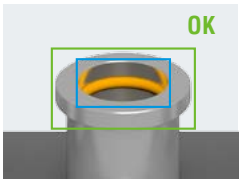
Detects the presence of an adhesive strip on an envelope

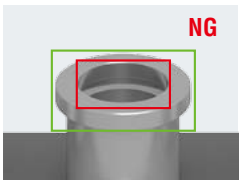
Multiple points can be simultaneously inspected for up to 16 tools. Colors can be set individually for each tool at the touch of a button.

Area | Position adjustment | 16 tools

Product assembly check





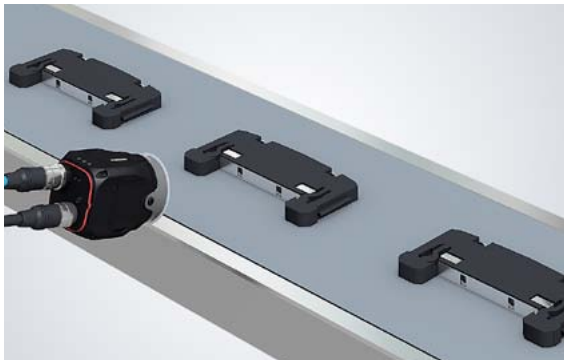


Detects the presence of packing in metallic parts

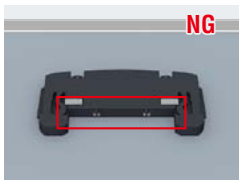
A combination of HS-HDR and a color camera enables stable detection for metal workpieces with uneven reflection.

Area | Position adjustment | HS-HDR

Metal part presence







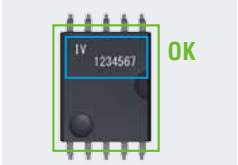
Detects the presence of a metal part assembled on a plastic part

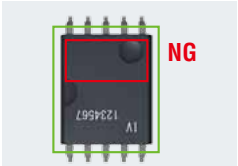
Even in cases involving metallic products, which are difficult to read using general sensors, fine adjustments after assembly are not required because the outline of the product is inspected.

Shape detection | HS-HDR

Presence and direction detection for electrical components





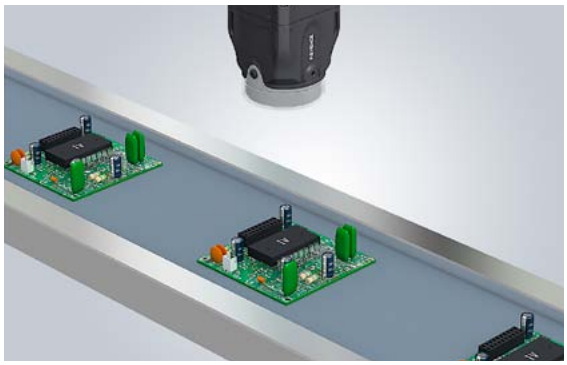


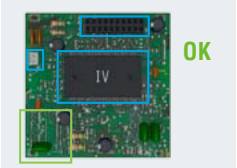
Detects the direction of the IC in carrier tape

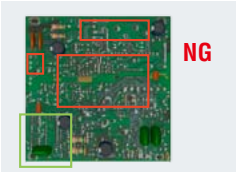
Using the position adjustment tool, stable detection can be achieved even when product has moved in the carrier tape. High speed adjustment enables detection without slowing down the processing time of the unit.

Area | Position adjustment

Printed circuit board mounting check







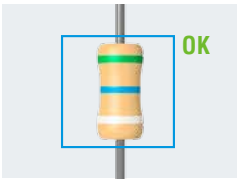
Checks the presence of mounting parts on the PCB

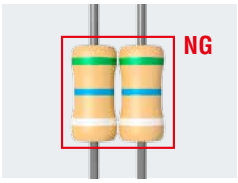
Many parts can be checked as up to 16 tools can be arranged. Furthermore, up to 32 programs can be set, supporting multiple product lines.

Area | Position adjustment | HS-HDR | 16 tools

Overlapping electronic component detection







Detects overlapping (resistance) electronic components

Color variation and unevenness can be detected with a color camera. Both presence and overlap can be detected as area detection can be set with upper and lower thresholds.

Area

Capacitor print presence







Detects print presence on a capacitor

Fine characters, which are conventionally difficult to detect stably with a dot scanning sensor can be detected stably using the scanning area.

Area

Advantages of detecting with area tools

CASE 1 Presence detection of sticker

Detect workpieces which do not sufficiently reflect light

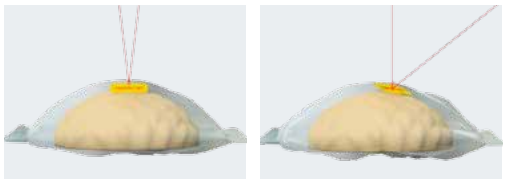
TOOL:

Color Area



CONVENTIONAL METHOD

Light will not be reflected depending on conditions of bags, which will cause unstable detection for sensors detecting with a point.



IV SERIES

Presence of a different color will be detected by using Color Area tool. Presence detection of a sticker can be stably performed without being influenced by surface irregularity and variation in positions, if stickers are in a detected area. Detection areas can be selected from wide variety of sensors according to the size of target workpieces.



CASE 2 Product type detection

Distinguish shapes of workpieces

TOOL:

Outline



CONVENTIONAL METHOD

ON/OFF of several sensors has to be imported to a PLC to distinguish product types, which will take time and labor.



IV SERIES

Shapes will be detected by using Outline tool. The sensor can see target workpieces with an area, so that product type detection can be performed with a single sensor. In addition, shape detection will be performed with outlines of targets, which allows stable detection even there is variation in reflection conditions on metal surfaces.



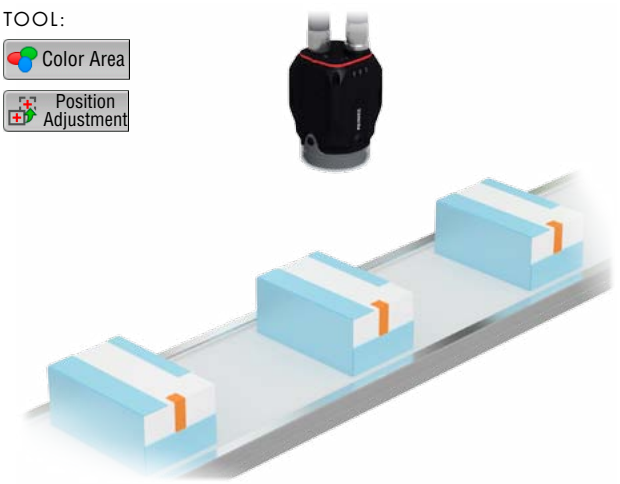
CASE 3 Automatic correction of misalignment due to conveying

No problem even with workpiece misalignment

TOOL:

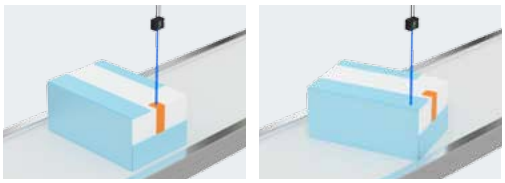
Color Area

Position Adjustment



CONVENTIONAL METHOD

Sensors detecting with a point cannot detect boxes if they are conveyed out of alignment.



IV SERIES

Tools of Position adjustment and ColorArea can be used for such a case. Using Position adjustment tool will automatically correct misalignment even if target workpieces are misaligned in a detected area. There is no need for equipment to align products, which will help reduce cost.



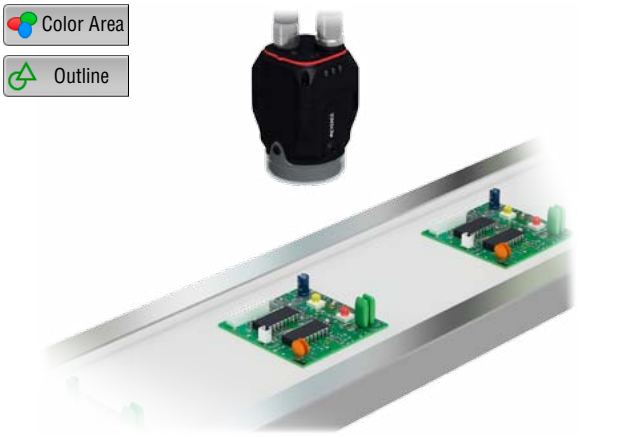
CASE 4 Simultaneous detection at several points

Simultaneously detect several points

TOOL:

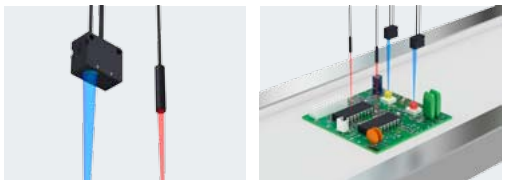
Color Area

Outline



CONVENTIONAL METHOD

It takes some time to perform settings if there are several types of sensors and there is a need for positioning according to product types.



IV SERIES

Tools of ColorArea and Outline can be used to simultaneously detect colors and shapes. There are 16 tools, which can be freely combined, so there will be no problem for changes in designs. Settings can be memorized by product type, so that it will be easy to perform process switchover only by calling up the settings.



SPECIFICATIONS

SENSOR

Model		IV-500CA	IV-500C	IV-500MA	IV-500M	IV-150MA	IV-150M	IV-2000MA	IV-2000M
Installed distance		Standard distance				Short range		Long range	
		(50 to 500 mm) (1.97" to 19.69")				(50 to 150 mm) (1.97" to 5.91")		(300 to 2000 mm) (11.81" to 78.74")	
View		Installed distance 50 mm 1.97" : 25 (H) x 18 (V) mm 0.98"(H) x 0.71"(V) to Installed distance 500 mm 19.69" : 210 (H) x 157 (V) mm 8.27"(H) x 6.18"(V)				Installed distance 50 mm 1.97" : 12 (H) x 9 (V) mm 0.47"(H) x 0.35"(V) to Installed distance 150 mm 5.91": 36 (H) x 27 (V) mm 1.42"(H) x 1.06"(V)		Installed distance 300 mm 11.81": 45 (H) x 33 (V) mm 1.77"(H) x 1.30"(V) to Installed distance 2000 mm 78.74": 300 (H) x 225 (V) mm 11.81"(H) x 8.86"(V)	
Image sensor		1/3 inch color CMOS		1/3 inch monochrome CMOS					
	Pixel	752 (H) x 480 (V)							
Focus adjustment		Auto*1	Manual	Auto*1	Manual	Auto*1	Manual	Auto*1	Manual
Exposure time		1/10 to 1/50000		1/10 to 1/25000		1/20 to 1/25000		1/10 to 1/25000	
Lights	Illumination	White LED		Red LED				Infrared LED	
	Lighting method	Pulse lighting/DC lighting is switchable							
Tools	Type	Outline search, Color area*7, Area*8, Position adjustment							
	Number*2	Detection tools : 16 tools, Position adjustment tool : 1 tool							
Switch settings (programs)		32 programs							
Image history*3	Numbers	100 images*4		300 images*5					
	Condition	NG only/All is selectable							
Analysis information*6		OFF/Statistics/Histograms is switchable Statistics: Processing time (latest value, MAX, MIN, AVE), number of OKs, number of NGs, trigger numbers, trigger errors, judgment results list by tools Histograms: Histogram, matching degree (latest value, MAX, MIN, AVE), numbers of OKs, numbers of NGs							
Other functions		HDR, HighGain, Color filters*7, Digital zoom*8, Brightness correction, Tilt correction, White balance*7, Mask outline, Mask area, Test run, ToolAutoTune, Input monitor, Output test, Security settings, Simulator*9							
Indicators		PWR/ERR, OUT, TRIG, STATUS, LINK/ACT							
Input		Non-voltage input/voltage input is switchable For non-voltage input: ON voltage 2 V or lower, OFF current 0.1 mA or lower, ON current 2 mA (short circuit) For voltage input: Maximum input rating 26.4 V, ON voltage 15 V or higher, OFF current 0.2 mA or lower, ON current 2 mA (for 24 V)							
	Inputs	6 inputs (IN1 to IN6)							
	Function	IN1 : External trigger, IN2 to IN6 : Enable by assigning the optional functions Assignable functions : Program switching, Clear error, External master image registration							
Output		Open collector output NPN/PNP is switchable, N.O./N.C. is switchable For open collector NPN output : Maximum rating 26.4 V 50 mA, remaining voltage 1.5 V or lower For open collector PNP output : Maximum rating 26.4 V 50 mA, remaining voltage 2 V or lower							
	Outputs	4 outputs (OUT1 to OUT4)							
	Function	Enable by assigning the optional functions Assignable functions: Total judge result, RUN, BUSY, Error, Position adjustment result, Judge result of each tool, Result of the logical operation of each tool							
Ethernet*10	Standard	100BASE-TX/10BASE-T							
	Connector	M12 4pin connector							
Network function		FTP client, EtherNet/IP, PROFINET							
Rating	Power voltage	24 VDC ± 10% (including ripple)							
	Current consumption	0.6 A or less							
Environmental resistance	Ambient temperature	0 to +50°C 32 to 122F° (No freezing)							
	Relative humidity	35 to 85%RH (No condensation)							
	Vibration	10 to 55 Hz, 1.5 mm 0.06" double amplitude, 2 hours each for X, Y, and Z axes							
	Shock resistance	500m/s² 6 different directions in 3 times							
	Enclosure rating*11	IP67							
Material		Main unit case : Aluminum die-casting, Packing : NBR, Front Cover : Acrylic, Mounting adapter : POM							
Weight		Approx. 270 g							

*1 The focusing position can be automatically adjusted at the time of installation. Deactivated during the operation. Focusing position can be registered by program.
*2 Tools can be installed by programs.
*3 Saves to the memory in the sensor. The images saved in the sensor can be backed up to the USB memory installed to the intelligent monitor (IV-M30) or to the PC by the software for IV (IV-H).
*4 When using the FTP client function ; 70 pictures
*5 When using the FTP client function ; 210 pictures
*6 This can be displayed on the intelligent monitor (IV-M30) or by software for IV (IV-H1).
*7 Color type only.
*8 Monochrome type only.
*9 Simulator can be used with the IV software (IV-H1).
*10 This is for connection with the intelligent monitor (IV-M30) or software for IV (IV-H1).
*11 Except when polarized filter attachment (OP-87436/OP-87437) is mounted

MONITOR

Model		IV-M30
Display		3.5" TFT color LCD 320 x 240 dot (QVGA)
Touch panel	Method	Analog resistive
	Actuating force	0.8 N or less
Backlight	Method	White LED
	Duration	Approx. 50000 hours (25°C 77°F)
Indicators		PWR, SENSOR
Ethernet *1	Standard	100BASE-TX/10BASE-T
	Connector	M12 4pin connector
Languages		Japanese / English / German / Simplified Chinese / Traditional Chinese / Italian / French / Spanish / Portuguese / Korean
Expanded memory		USB memory *2
Rating	Power voltage	24 VDC ±10% (including ripple)
	Current consumption	0.2 A or lower
Environmental resistance	Ambient temperature	0 to + 50°C 32 to 122F° (No freezing)
	Relative humidity *3	35 to 80 % RH (No condensation)
	Vibration	10 to 55 Hz, 0.7 mm 0.03" double amplitude, 2 hours each for X, Y, and Z axes
	Drop impact resistance	1.3 m 4.27' over the concrete (2 times each in the arbitrary direction)
	Enclosure rating	IP40
Material		Polycarbonate
Weight		Approx. 180 g

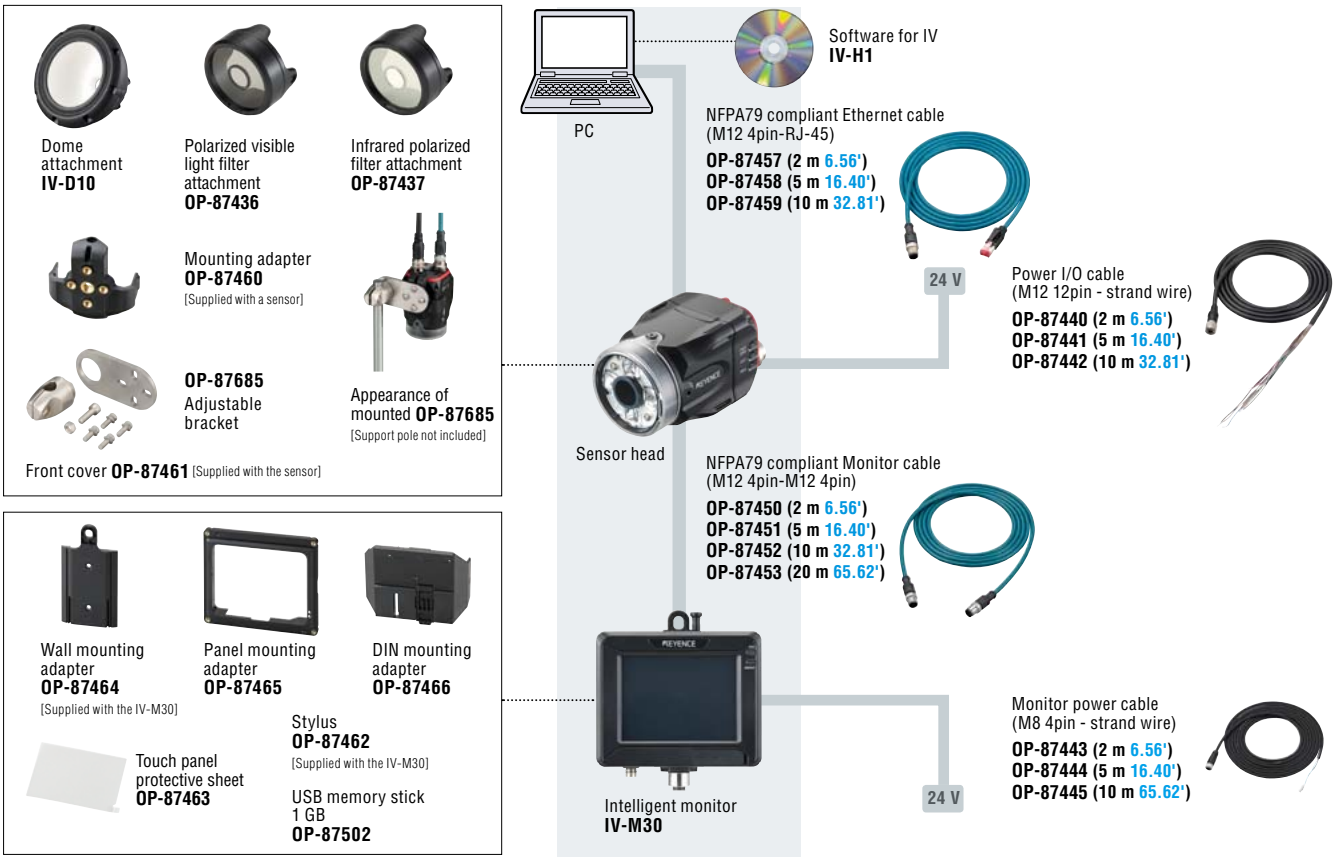
*1 This is dedicated for connection with IV-series sensor.
*2 Use the KEYENCE recommended product.
*3 If the ambient temperature is over 40°C 104°F, use it in the absolute humidity of 40°C 104°F 80% RH or lower.

SOFTWARE

Model		IV-H1
System requirements	Interface	Equip the Ethernet (100BASE-TX) interface
	OS	Windows 7 Home Premium/Professional/Ultimate *1 Windows XP Professional/HomeEdition; either of OS above needs to be pre-installed
	Languages	Japanese / English / German / Simplified Chinese / Traditional Chinese / Italian / French / Spanish / Portuguese / Korean
	Processor	Windows 7: needs to be compliant with system requirements for OS Windows XP: Pentium III or better, Clock speed 1 GHz or faster
	Memory capacity	Windows 7: needs to be compliant with system requirements for OS Windows XP: 512 MB or more (1 GB or more is recommended)
	Required capacity for installation	1 GB or more
	Monitor	Resolution 1024 x 768 pixel or higher, Display: High Color (16bit) or higher
	Operating conditions	.NET Framework 2.0 SP2 needs to be installed *2

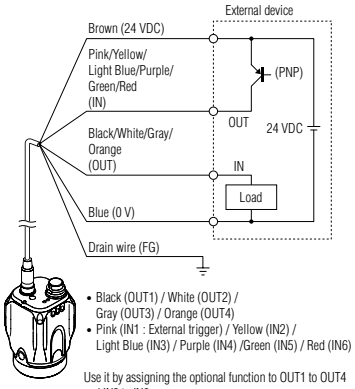
*1 Supported for 32bit and 64bit version.
*2 If .NET Framework 2.0 is not being installed, this will be automatically installed at the time of IV-H1 installation.

*Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.



SELECTING PNP OUTPUT

When PNP is selected in I/O format



- Black (OUT1) / White (OUT2) / Gray (OUT3) / Orange (OUT4)
- Pink (IN1 : External trigger) / Yellow (IN2) / Light Blue (IN3) / Purple (IN4) /Green (IN5) / Red (IN6)

Use it by assigning the optional function to OUT1 to OUT4 and IN2 to IN6.

Wiring color	Name	Assigning default value	Description
Brown	24 VDC	-	+ side of power
Blue	0 V	-	- side of power GND of input-output cable
Black	OUT1	Total judge (N.O.)	Output assignable function • Total judge • Total judge NG • RUN • BUSY • Error • Pos. Adj. • Judge result of each tool (Tool 1 to Tool 16) • Result of the logical operation of each tool (Logic 1 to Logic 4) • OFF (not used)
White	OUT2	BUSY (N.O.)	
Gray	OUT3	Error (N.C.)	
Orange	OUT4	OFF	
Pink	IN1	External trigger ↑	Set external trigger. Activation timing (↑) or deactivation timing (↓) can be set.

Wiring color	Name	Assigning default value	Description
Yellow	IN2	OFF	Input assignable function • Program bit0 to bit4 • Clear error • External master • OFF (not used)
Light Blue	IN3	OFF	
Purple	IN4	OFF	
Green	IN5	OFF	
Red	IN6	OFF	
Drain	FG	-	Insulated frame

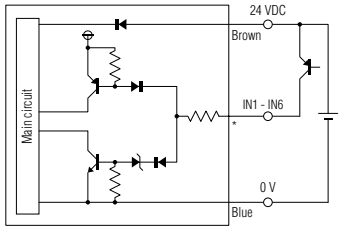
Cable specification
- Brown/Blue/Black/White/Gray/Orange: AWG25
- Pink/Yellow/Light Blue/Purple/Green/Red: AWG28
- With braided shield cable (with drain cable)

INPUT CIRCUIT

Voltage input (When PNP output is selected)

When PNP is selected in I/O format, the circuit becomes voltage input circuit.

- Input maximum rating : 26.4 V
- ON voltage : 15 V or higher
- ON current : 2 mA (for 24V)
- OFF current : 0.2 mA or lower



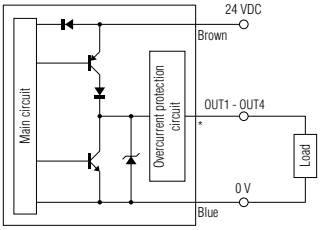
*Pink (IN1 : External trigger) / Yellow (IN2) / Light Blue (IN3) / Purple (IN4) / Green (IN5) / Red (IN6)
Use by assigning the optional functions to IN2 to 6

OUTPUT CIRCUIT

When PNP output is selected

When PNP is selected in I/O format, the circuit becomes open collector PNP output circuit.

- Maximum rating : 26.4 V, 50 mA
- Remaining voltage : 2 V or lower



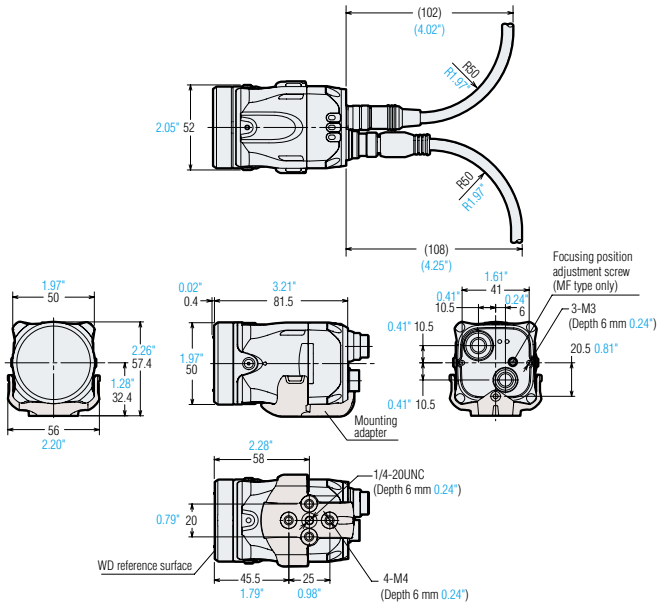
*Black (OUT1) / White (OUT2) / Gray (OUT3) / Orange (OUT4)
Use by assigning the optional functions to OUT1 to OUT4

DIMENSIONS

Unit: mm inch

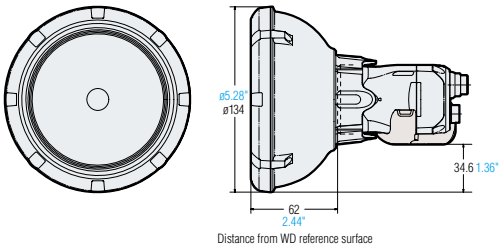
Sensor

IV-500C/IV-150M/IV-500M/IV-2000M/
IV-500CA/IV-150MA/IV-500MA/IV-2000MA



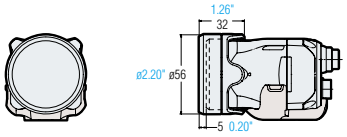
* Mounting screws do not come with the bracket.

With dome attachment



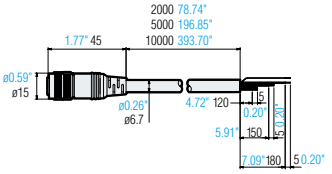
* When using dome attachment, please set the workpiece within the range of 0 to 50 mm 1.97" from the top.
* Dome attachment can be used for standard distance and close range types.

With polarized filter attachment

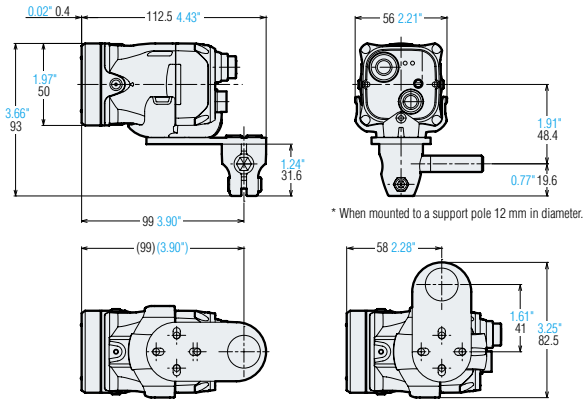


Power I/O cable

OP-87440 (2 m 6.56')/
OP-87441 (5 m 16.40')/
OP-87442 (10 m 32.81')



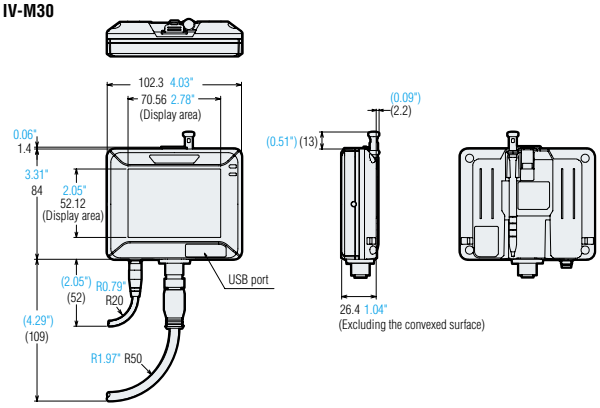
With OP-87685



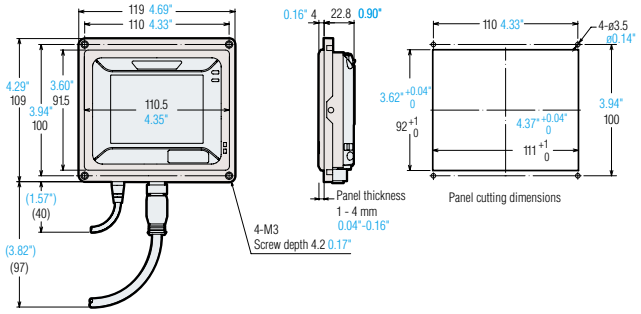
* When mounted to a support pole 12 mm in diameter.

Intelligent monitor

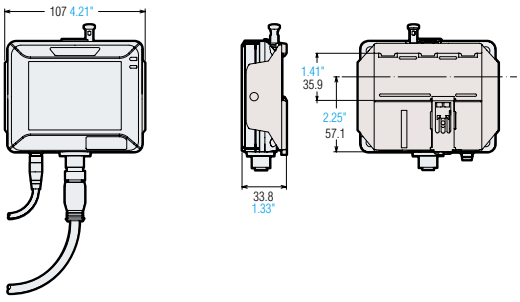
IV-M30



Using the panel mounting adapter

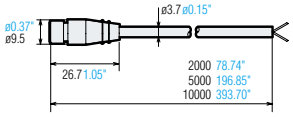


Using the DIN mounting adapter



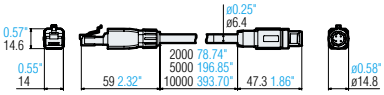
Monitor power cable

OP-87443 (2 m 6.56')/OP-87444 (5 m 16.40')/
OP-87445 (10 m 32.81')



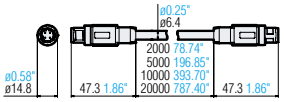
Ethernet cable

OP-87457 (2 m 6.56')/OP-87458 (5 m 16.40')/
OP-87459 (10 m 32.81')

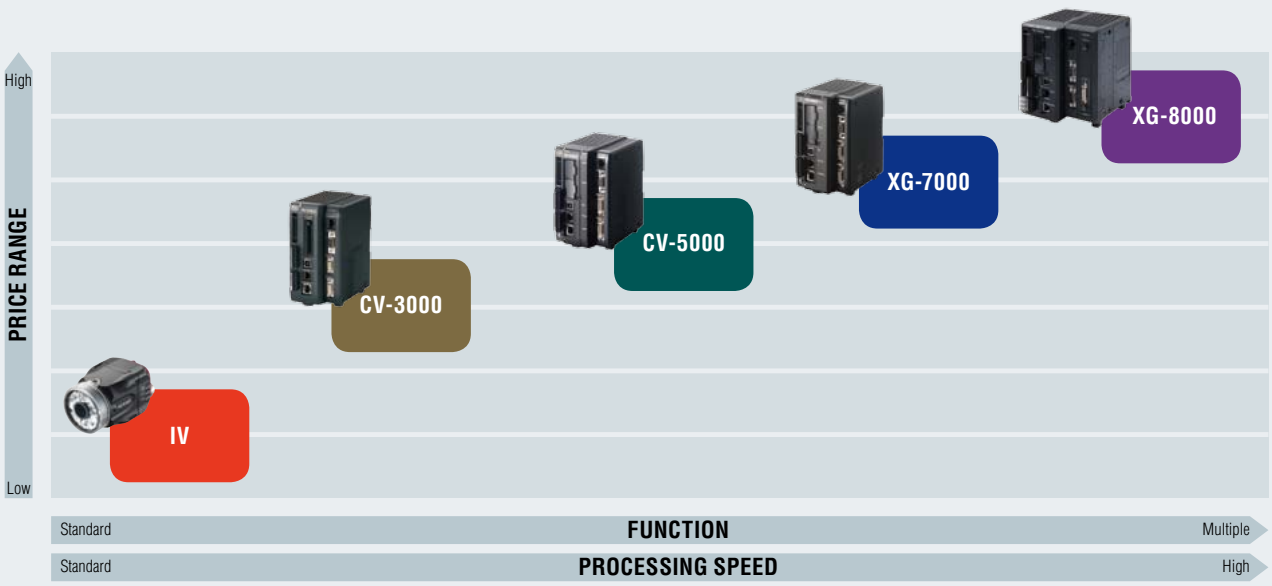


Monitor cable

OP-87450 (2 m 6.56')/OP-87451 (5 m 16.40')/
OP-87452 (10 m 32.81')/OP-87453 (20 m 65.61')



VISION SYSTEM LINEUP



Providing lineups comprising of units for various purpose from building a full-scale vision system to detection or existence check at a reasonable price. The lineup covers the needs of all customers to resolve the every issue that appears on-site.

FUNCTION DETAILS

			IV	CV-3000	CV-5000	XG-7000	XG-8000
Camera	Maximum No. of cameras		1	4	4	4	8
	Variation		8	8	14	14	17
	No. of camera pixels	310,000 pixels	✓	✓	✓	✓	✓
		2 megapixels	—	✓	✓	✓	✓
		5 megapixels	—	—	✓	✓	✓
	Color camera support		✓	✓	✓	✓	✓
	Line scan camera support		—	—	—	—	✓
Controller	Image processing engine		Single core	Single core	Single core (High-speed type)	Single core (High-speed type)	Multi core
	Processing speed		Standard	Standard	High-speed	High-speed	Ultra high -speed
	I/O		✓	✓	✓	✓	✓
	Light extension unit support		—	—	✓	✓	✓
	Touch screen support		—	—	—	✓	✓
Inspection mode	Basic tool	Area	✓	✓	✓	✓	✓
		Detection	✓	✓	✓	✓	✓
		Edge	—	✓	✓	✓	✓
		Flaw and stain	—	✓	✓	✓	✓
		OCR	—	✓	✓	✓	✓
	Utility	Statistical analysis	✓	✓	✓	✓	✓
		Screen customization	—	✓	✓	✓	✓
		Editing during operation	—	—	—	✓	✓
		PC simulation	✓	✓	✓	✓	✓
	Other function	Position adjustment	✓	✓	✓	✓	✓
		Calculation	—	✓	✓	✓	✓
		Preprocessing filter	—	Powerful	Ultra powerful	Ultra powerful	Ultra powerful
		Numeric output	—	✓	✓	✓	✓
		Image calculation	—	—	—	✓	✓
		Image saving	✓	✓	✓	✓	✓
Lens			Unselectable	Selectable	Selectable	Selectable	Selectable
Lighting			Unselectable	Selectable	Selectable	Selectable	Selectable
Feature			• Easy-to-use • Stable detection • Affordably priced	• 20,000 parts per minute processing speed • 2 mega pixel color and monochrome camera • 8 types of monochrome and color cameras • Simultaneous imaging by four cameras/mixed connection	• 3 + 1 Processor System • 11× high-speed CCD camera • 14 different camera types	• Flexible Hardware • Fully Customizable • Flow Chart Programming • Powerful Toolset • Script Based Calculation Function • C-Language Unit • ActiveX Control	• Compatibility issues are eliminated since all the hardware is from the same manufacturer • Robust solid state hardware and fanless design • Easy to understand flowchart programming design which requires minimal programming knowledge

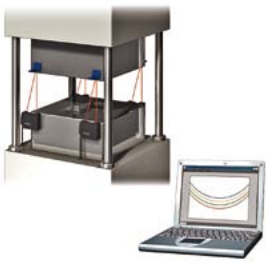
PRODUCT LINEUP

REFLECTIVE-TYPE MEASUREMENT SYSTEM

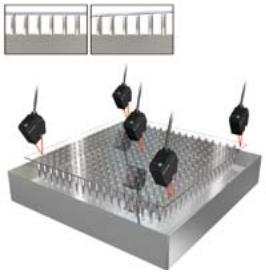
Ultra High-Speed /High-Accuracy Laser Displacement Sensor
LK-G Series

HIGH-SPEED
WIDE-RANGE
12 HEAD CONNECTION





Measuring the stroke of a mold



Measuring glass thickness / warpage / atness

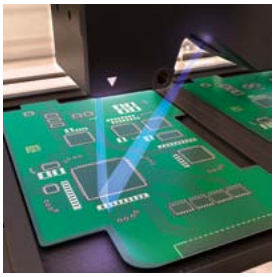
High-speed Inline Profile Measurement Device
LJ-V7000 Series

3D
MULTI-POINT
ULTRA-HIGH-SPEED





Extrusion geometry inspection



PCB component assembly inspection

THRUBEAM-TYPE MEASUREMENT SYSTEM

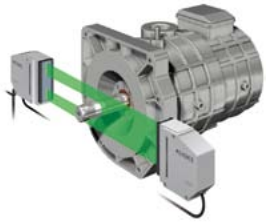
High-Speed, High-Accuracy Digital Micrometer
LS-7000 Series

GREEN LED
LONG LIFE
HIGH-ACCURACY





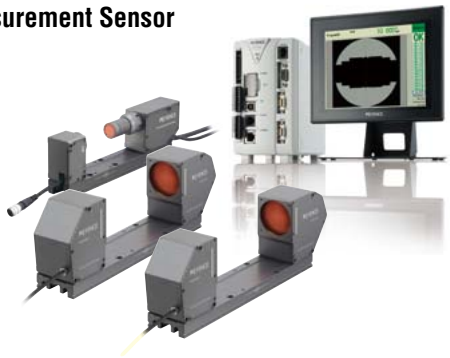
Measuring glass width

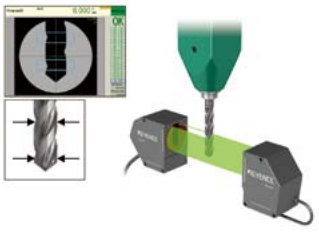


Measuring the outside diameter / runout of a shaft

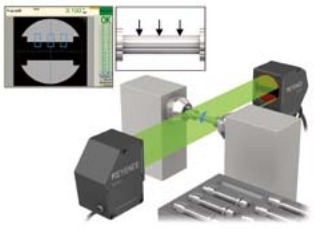
High-Speed 2D Measurement Sensor
TM-3000 Series

2 DIMENSIONAL
HIGH-ACCURACY
INLINE





Measuring the outer diameter of a drill bit



Measuring the eccentricity at multiple points of a solenoid valve

KEYENCE

CALL TOLL FREE TO CONTACT YOUR LOCAL OFFICE 1-888-KEYENCE 1-888-539-3623

www.keyence.ca
E-mail : keyencecanada@keyence.com

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

KEYENCE CANADA INC.

Head Office 5800 Explorer Drive, Suite 320, Mississauga, Ontario L4W 5K9, Canada
PHONE: 905-366-7655 FAX: 905-366-1122

Montreal Office PHONE: 514-694-4740 FAX: 514-694-3206
Windsor Office PHONE: 905-366-7655 FAX: 905-366-1122

KCN1-1074

The information in this publication is based on KEYENCE's internal research/evaluation at the time of release and is subject to change without notice.
Copyright (c) 2012 KEYENCE CORPORATION. All rights reserved.

IV-KCN-C3-US 1015-3 612017 Printed in Japan

612017

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP