

RCXiVY2+ System

Product Lineup

ROBOT VISION RCXiVY2+

RCX320/340

Robot integrated vision system realized only by YAMAHA.

Blob search function optimal for tracking of irregular workpieces is built-in.



Simplicity

Setup is completed as little as eight minutes after power-on.

Auto-calibration makes setup easy.

Sophistication

With up to five million pixels, a variety of workpieces can be supported.

Improve throughput to 100 CPM with conveyor tracking.

Assurance

Comprehensive support covers everything from camera image acquisition to the operation of the gripper and robot.

With support that only the robot manufacturer can provide, you can relax.

For customers who consider to replace “iVY2” with “RCXiVY2+”

Workpieces that have been able to be recognized by the iVY2 system can also be detected by the RCXiVY2+ system under the same conditions without changing the installation position.

Therefore, it is not necessary to evaluate the workpieces again.

However, the exposure time and aperture may need to be adjusted.

In addition, since the installation hole positions of the camera are changed, the plate of the installation section needs to be changed.

Camera 400,000 to 5 million pixels	Parts registration 254 types	Search time reduced by Approximately 50 % less	Maximum cable length 15 m	Monitoring Monitor output is provided
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* Time depends on the workpiece.

Solutions RCXiVY2+ can provide:

Reducing teaching process time

Robot teaching work requires a lot of labor and time. The RCXiVY2+ system acts as “robot eye”. The final fine positioning can be automated and greatly reduce the teaching time that was required for the conventional models.

Simplified positioning process

Reducing positioning process time in frequent lot change in small lot production.

Cost in preparation, control, and switching positioning jigs can be reduced.

Random workpieces need to be handled.

With position detection function of RCXiVY2+, pick & place operation of random shaped parts from parts feeder or pallet can be simplified.

Conveyor tracking

With a feedback from encoder of a conveyor RCXiVY2+ can do pick & place following conveyor move.

Yamaha’s comprehensive support of Robot and Vision

Yamaha’s integrated robot vision system. It means Yamaha supports both robot and vision system seamlessly.

Have any questions and don’t know if it is robot or vision related? Simply contact Yamaha representative. We have answers.

RCXiVY2+ features:

- Adjusting parts orientation on the fly
- Conveyor follower
- Searching randomly placed parts
- Top/bottom judgement
- OK/NG judgement

POINT 1

High speed positioning of irregular shaped parts (foods or clothes)

Blob search function

Suitable for pick & place or detection of parts with wide tolerance in shape and size, or high speed counting.

Detection speed is 2 to 10 times faster than edge detection.



POINT 2

Suitable for parts detection and high volume parts count

Application examples

- Detection of electronics components on PC board
- Detection of accessories in package
- Counting of the number of bottles in pallet
- Detection of food labels
- Detection of screws and washers that secure parts
- Checking drilled holes
- Counting of electronics components

*Subject to application and conditions.

POINT 3

Overlap can be eliminated.

Overlapped workpieces are recognized and they can be excluded from the search target.

POINT 4

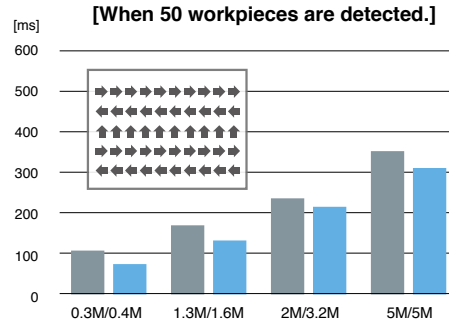
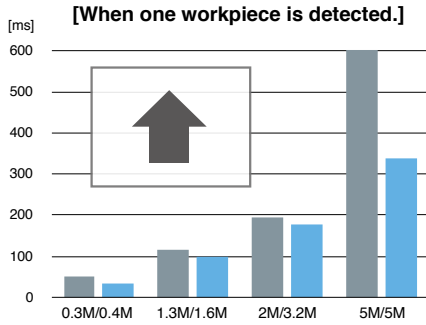
Detection time is shortened up to 45%.

By adopting a high-performance camera and improving the camera frame rate and CPU capability, detection time is reduced 8 to 45% while the resolution is improved.



- Improved camera pixels
- Improved camera frame rate
- Improved CPU

Comparison of search time



Time
Up to **45%** is shortened.

Legend: Conventional iVY2 RCXiVY2+ (NEW)

POINT 5

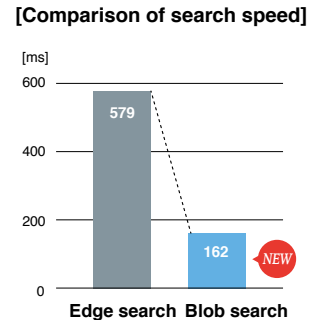
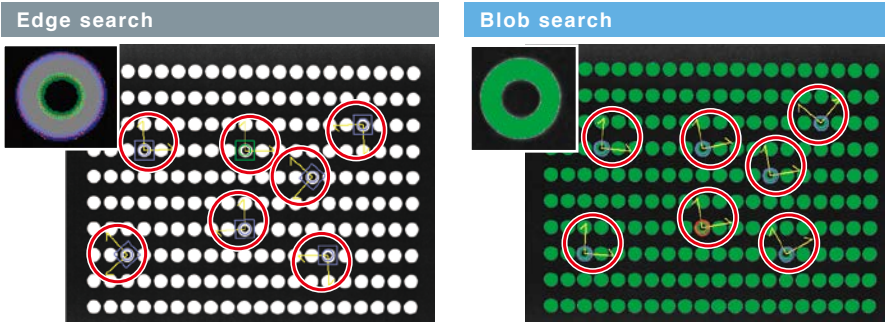
Detection with Speed

Comparing with edge search, blob search speed is 2 to 10 times faster.

Search speed
Up to **10** times faster

Comparison of edge search and blob search

* Only doughnut shape workpieces are detected.



POINT 6

Code recognition function

Codes such as QR codes, data matrix codes, and barcodes can be recognized. This code recognition function is optimal for applications that change the operation corresponding to the code contents such as traceability management, workpiece sorting, and tracking change of sealing. It is not necessary to separately purchase a handy terminal or code reader. Troublesome communication control is also not needed.



- [Supported codes]
- QR code
 - Data matrix code
 - Barcode (JAN/EAN-13 JAN/EAN-8 ITF NW7 CODE39 CODE128)
- * Up to 255 characters can be read. Only alphanumeric characters and symbols are supported. (2-byte characters such as HIRAGANA and KANJI characters cannot be read.)

POINT 7

Automatic image save function/History image function

Images are saved automatically and can be checked easily on an external monitor.

These functions are very convenient when you want to check the captured images retrospectively during operation or debugging or save the images for traceability purposes.

Automatic image save function

Images can be saved to a USB memory automatically. An SSD or HDD that can be connected to a USB port can also be used.

[Parameter]

Image save mode	All images / NG images / Disabled
Image size	Full size / Reduced size (320 x 240 pix.)
Overwrite save	Disabled / Enabled (The images are deleted from the oldest image when enabled.)

[Number of images that can be saved]

Number of images that can be saved when the memory size is 128 GB.

Number of camera pixels	Image size	Number of images that can be saved
0.4 million pixels	0.4MB	327680
1.6 million pixels	1.6MB	81920
3.2 million pixels	3.2MB	40960
5 million pixels	5.0MB	26214
Reduced size	0.08MB	1638400



Number of images that can be saved = Memory size / Image size
 81920 images can be saved by 1.6 million pixel camera when 128 GB memory is used.
 When the cycle time is 3 seconds, images for 68 hours can be saved.

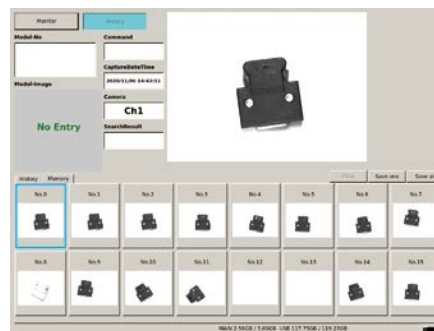
History image function

Images can be displayed on an external monitor during searching. The images and search results can be checked retrospectively with a USB mouse connected.

Past search images and results are checked.



Images in the memories (No. 0 to 15) are checked.



[Number of images that can be saved]

Number of camera pixels	Image size	Number of images that can be saved
0.4 million pixels	0.4MB	1250
1.6 million pixels	1.6MB	312
3.2 million pixels	3.2MB	156
5 million pixels	5.0MB	100

Area for history images 500 MB
 Number of images that can be recorded to the history = 500 MB / Image size

POINT 8

Connection of multiple cameras

Up to eight cameras can be connected via HUB and support various applications such as addition of code recognition camera.

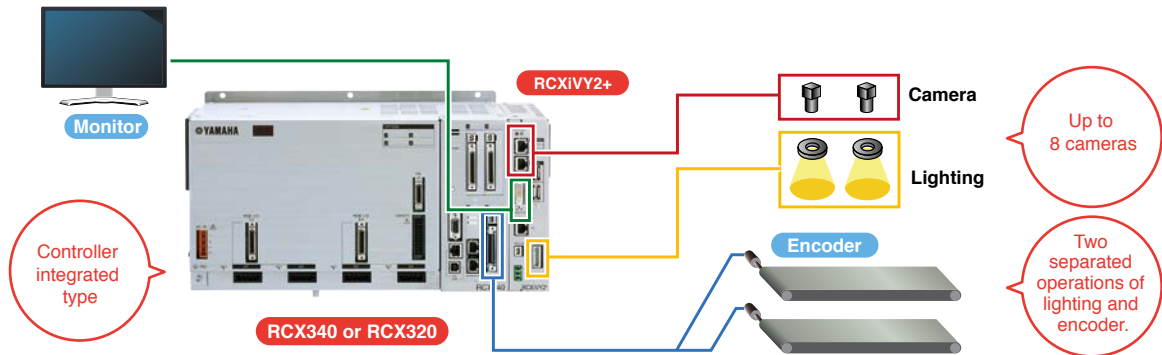
[Application using three cameras]

- ① Workpiece supply position is corrected using the downward camera.
- ② Workpiece positioning or angle is corrected using the upward camera.
- ③ Place position is corrected using the downward camera.

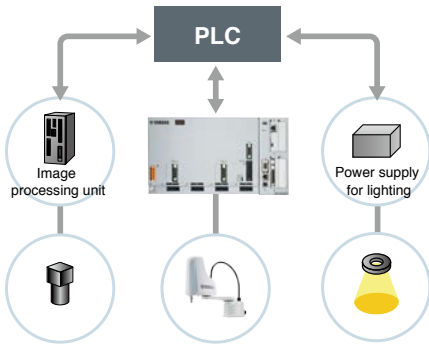


POINT 9

Robot controller integrated type



Typical Robot Vision setup

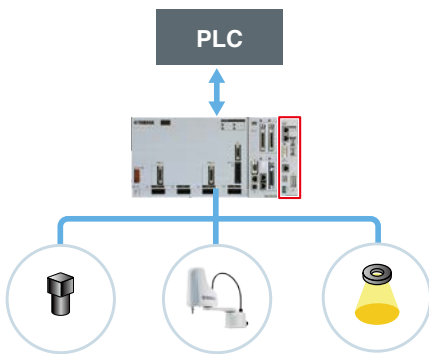


- 1 Time consuming robot coordinates alignment.
- 2 Need to calculate compensation for moving camera setup.
- 3 Operation deviation between the camera and robot due to communication time.
- 4 Adjustment of communication format is needed.

✗

- Handling not easy
- Installation and setup costs are high.
- Robot issue or vision issue? Who to call?

RCXiVY2+ system



- 1 Simple calibration function is incorporated.
- 2 Coordinates are corrected automatically even when the camera moves.
- 3 High-speed connections through dedicated bus line.
- 4 Controller is incorporated to provide the central operation.
- 5 Applicable to all models of YAMAHA robot lineup.

○

- Easy to use
- Various applications are supported using easy operation.
- Cost reduction by reducing work steps.
- Robot and vision supported by Yamaha

Typical Robot Vision setup

MOVE P, P9
OFF LINE
SEND (*) TO CMU Communication with image processing unit
SEND CMU TO P10
ON LINE
MOVE P, P10

↕ RS-232C

Program of image processing unit

Program of host PLC

Camera and robot have separate programs

RCXiVY2+ system

MOVE P, P9
VSEARCH 1,2,0 Searches for workpiece.
P10=VGETPOS(0) Reads the point.
MOVE P, P10 Moves to this point.

POINT

- No communication time lag
- Needs only few command lines.
- Simple and easy to understand

Centralized control using only the robot program

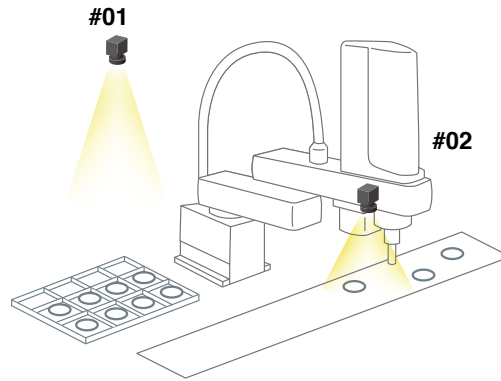
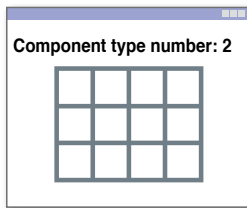
Examples of program commands

VSEARCH ··· Detect parts with designated camera

Camera and component type to be used for detection and the calibration data to be used can be switched with one command.

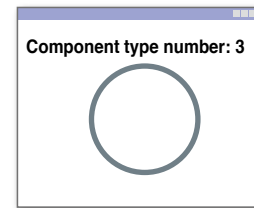
VSEARCH 1, 2, 1

- Camera: 1
- Component type number: 2
- Calibration data: 1



VSEARCH 2, 3, 2

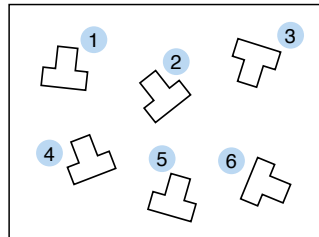
- Camera: 2
- Component type number: 3
- Calibration data: 2



VGETPOS ··· Acquires the coordinates of the detected workpieces.

The search results can be substituted into the point coordinates directly.

```
VSEARCH 1, 2, 1    ··· Detects the workpieces.
N = VGETCNT       ··· Substitutes the number
FOR J = 0 TO N-1  of detected workpieces.
P[ J ] = VGETPOS (J) ··· Acquires the workpiece
NEXT J             coordinates.
```



```
VGETPOS ( 0 ) → Coordinates of 1
VGETPOS ( 1 ) → Coordinates of 2
VGETPOS ( 2 ) → Coordinates of 3
VGETPOS ( 3 ) → Coordinates of 4
VGETPOS ( 4 ) → Coordinates of 5
VGETPOS ( 5 ) → Coordinates of 6
```

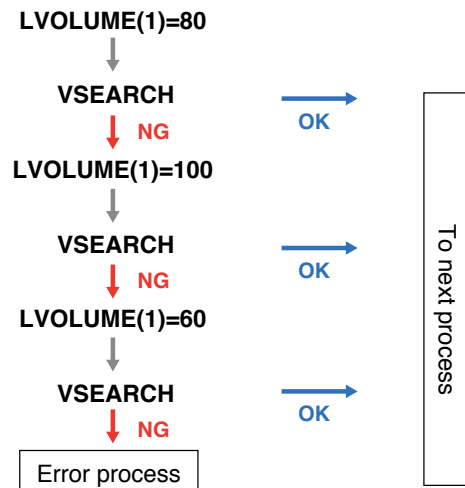
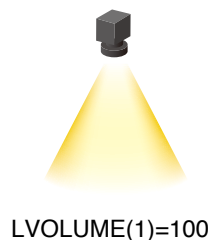
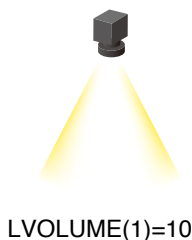
* The order to substitute into VGETPOS can be selected from the following.
1) Score order, 2) X coordinate, and 3) Y coordinate

LVOLUME ··· Intensity of light is adjustable from 0 to 100% range

In detection mode intensity of light can be adjusted with one command. Detection can be repeated with adjusted intensity.

With a robot program of RCiVY2+, retry detection with adjusted light intensity can be easily performed

- Light 1 is set to 10%.
- Light 1 is set to 100%.


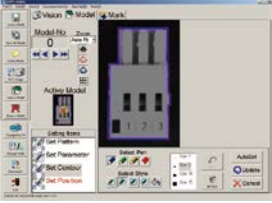
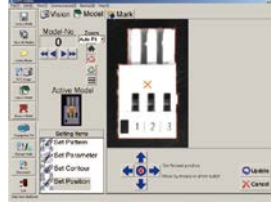
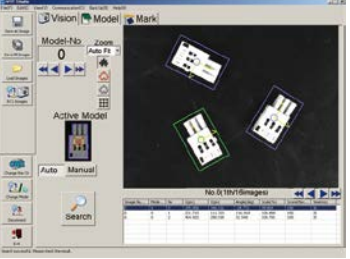


POINT 10

3 easy steps for parts registration

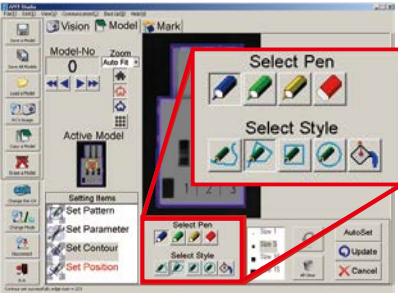
From image acquisition, registration takes just three steps.




Requires as little as **3 minutes**

STEP. 1	STEP. 2	STEP. 3	Search results
<p>Capture images.</p> <p>Put the workpiece within the camera field-of-view and specify an image capturing range.</p> 	<p>Set the contour.</p> <p>Contour is automatically extracted. Paint the necessary contour with a pen tool.</p> 	<p>Register the detection position.</p> <p>Specify the detection position with the mouse. Desired positions can be set.</p> 	



POINT 11

Simple parts judgement process



-  **Contour setting pen**
Paints the areas to be used from among the automatically detected edges.
-  **Priority area pen**
Paints the areas to be used as priority areas during search from among the edges.
-  **Reduction area pen**
Paints the areas where there should not be an edge during search.

[Usage example]

- Workpiece top or bottom judgement

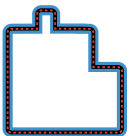
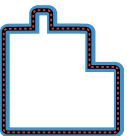
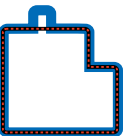
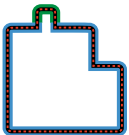
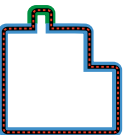
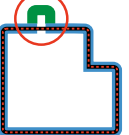
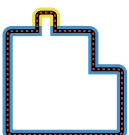
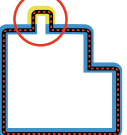
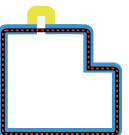
ABC

A C

- Simple OK or NG judgement

• Usage example of contour setting pen

When a workpiece with a partially different shape needs to be distinguished and recognized or when the top or bottom needs to be judged, the detection can be performed by painting the contours in different colors by combining the contour setting pen with the priority area pen and reduction area pen.

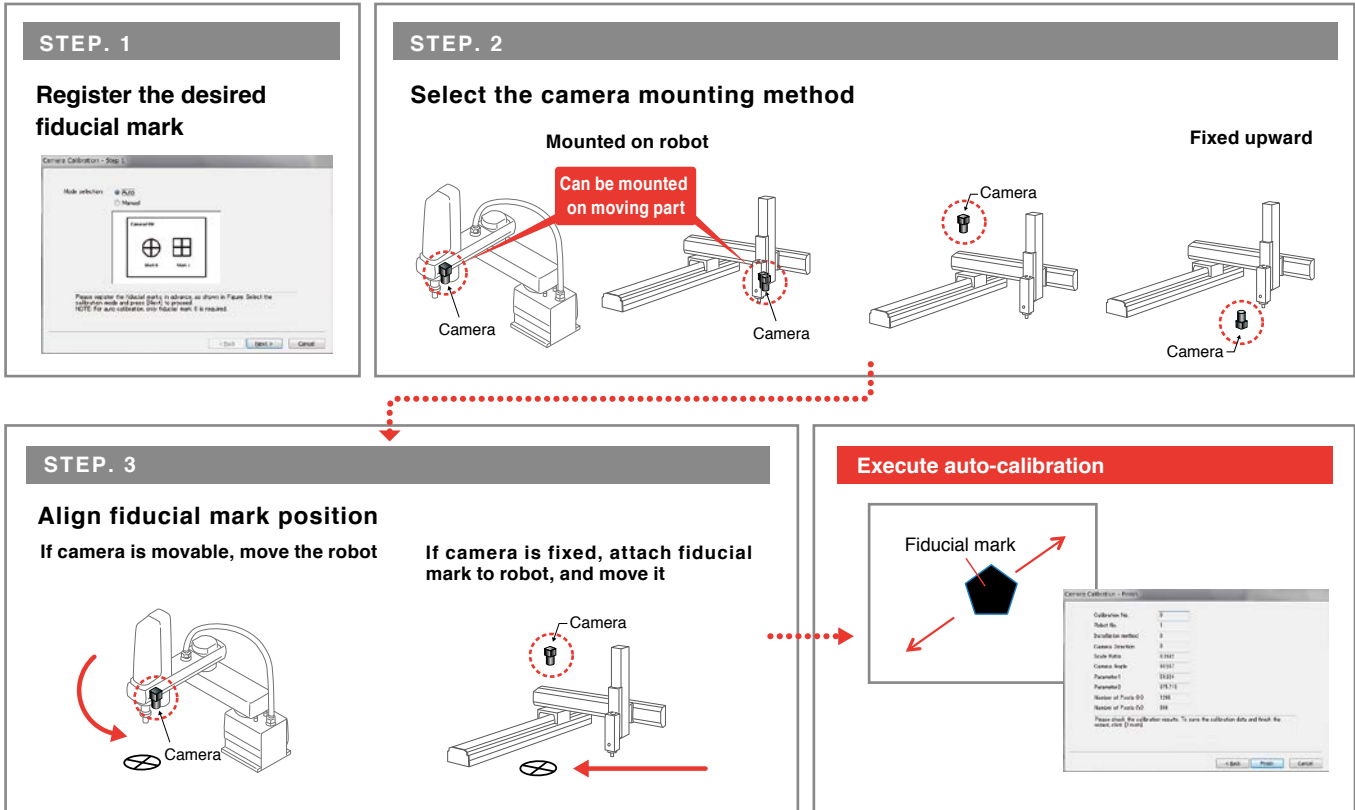
		Detection results		
	Blue : Normal contour setting All contours are handled equivalently.			The score may slightly vary depending on the presence status of the protrusion. However, both are detected.
	Green : Priority area setting In addition to the blue area search, areas painted in green are used as priority areas to perform the judgement.			When no edge is detected in the area set as priority area, this is judged as NG and the workpiece is not detected.
	Yellow : Reduction area setting When there is an edge in the unnecessary area painted in yellow, the score is reduced.			When an edge is detected in the area set as unnecessary area, the score is reduced and the workpiece is not detected.

POINT 12

Simple calibration

Conventional equipment combining "image processing unit + robot" requires many steps in "calibration" that aligns the camera coordinates with the robot coordinates. With the RCXiVY2+ system, following the wizard to perform the operation will complete the calibration easily within a short time. In addition, even when the setting position deviates, the calibration is executed and restored immediately.

Requires as little as **5 minutes**



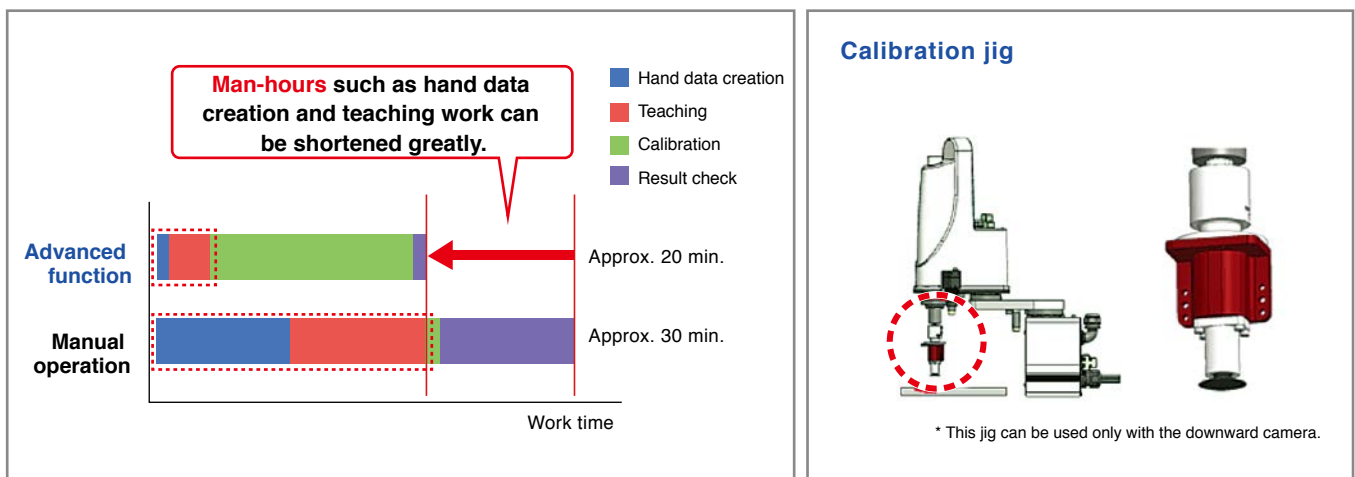
POINT 13

Calibration is automated with the dedicated jig.

By automating the calibration using the advanced calibration function, highly accurate calibration can be achieved easily without depending on the operator's skill.

The hand data can also be created automatically and the time necessary for the calibration is reduced greatly.

Since the dedicated jig is the standard part (option part), the jig does not need to be designed and manufactured and can be used immediately.



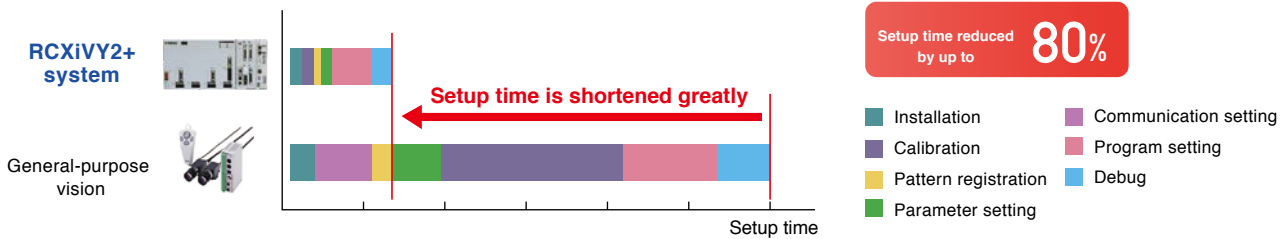
POINT 14

Setup time reduced greatly

When using third-party vision, a coordinate conversion program needs to be created in the robot controller since the robot coordinate data differs from the vision format.

In RCXiVY2+, vision system is incorporated in robot controller the robot coordinate data can be stored into the robot point data using single process. This ensures very simple operation. Additionally, the unified control of the camera control and light control can be performed using the robot program. Start-up process will be greatly simplified.

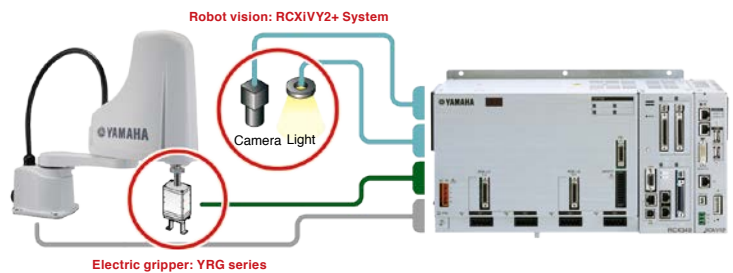
Comparison of setup time



POINT 15

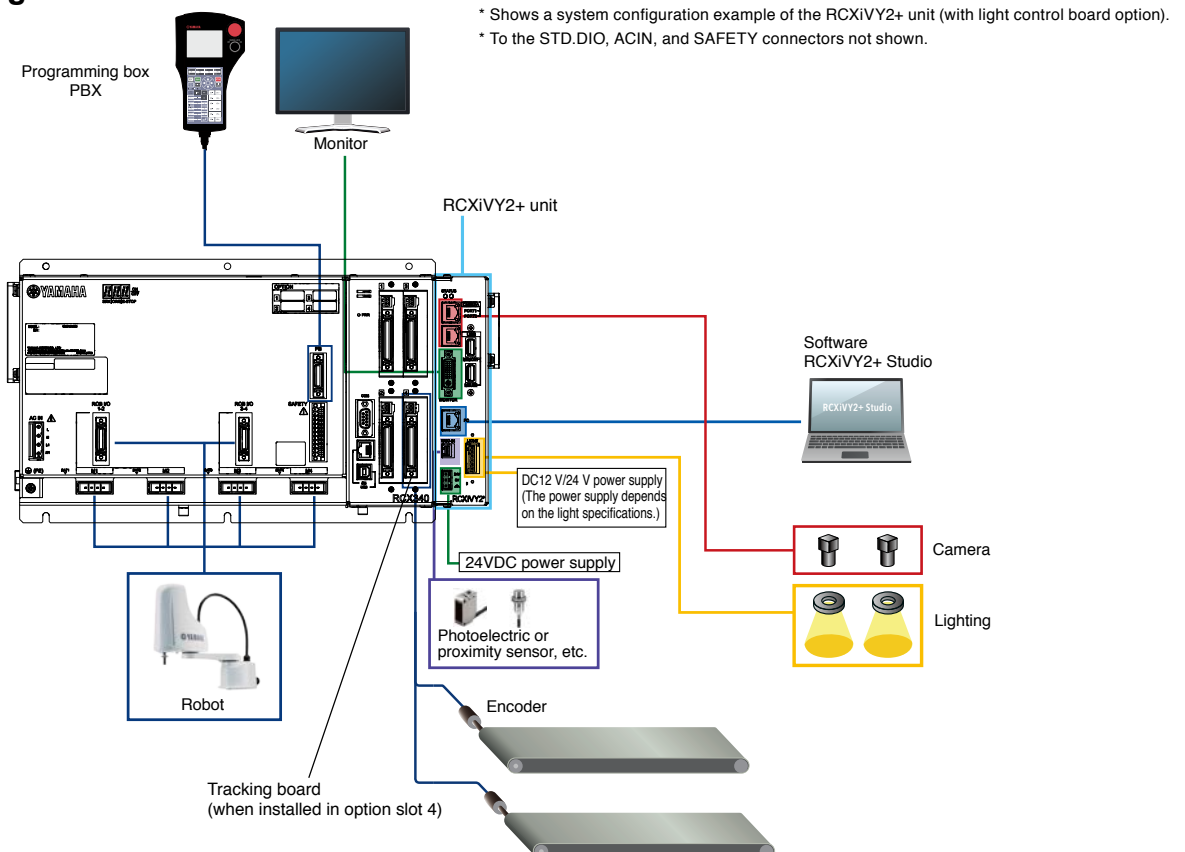
Easy link with peripheral equipment

One controller provides unified control of robot, gripper, and lighting.



POINT 16

System configuration illustration



POINT 17

Conveyor tracking

Ideal for high-speed packaging arrangement high-speed transport of multiple types of items such as pharmaceuticals, cosmetics, and food products.

The vision camera detects the position and orientation of parts moving on the conveyor, and the robot picks them up.

Example program

① New CTMOVE CTMOVE (1),Z=0.0,CTZ=10.0

Can be executed with a single command

Unify the move up command, follow workpiece command, move down command

Operating conditions: YK500XG / payload 1 kg (total of workpiece and tool) / horizontal movement 250 mm / vertical movement 1 mm / conveyor speed 100 mm/sec

POINT 18

Improving productivity by controlling multiple robot systems

Connect up to four units

100 CPM/unit x 4 units
(maximum 400 CPM)

Shortened cycle time

Improve throughput

POINT 19

Up to 254 types of parts registration

Setup changes require only that part numbers be changed. Setup changes are easy.

254 types (0-253) can be registered



POINT 20

Monitor output

Monitor the operating status

Monitor the search status while making calibration settings or during automatic operation.

Contents of output

- Selected type / Captured image
- Search result (position, score, scale)
- Executed command
- Time required by command

Output method

- DVI-I (supports digital monitor or analog monitor)

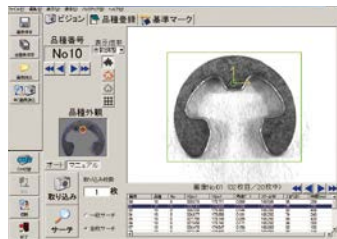


POINT 21

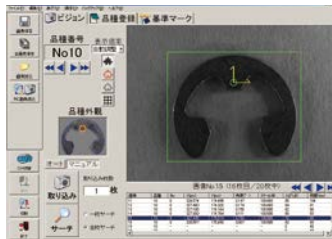
High-precision search even under low light

Edge search engine is built-in

Supports a variety of applications while being minimally affected by the external environment.



When lighting is sufficient



Accurate search even if lighting is insufficient

POINT 22

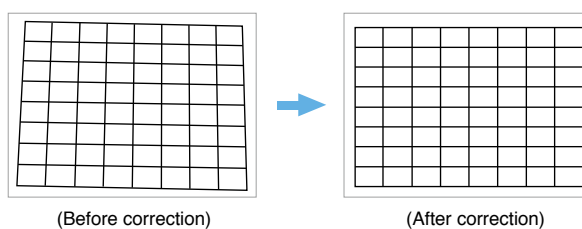
Lens distortion and camera inclination correction function

Mounting accuracy is improved Camera is installed in the inclined status*

The lens distortion and camera inclination when the angle of visibility is wide or when the camera is installed in the inclined status can be corrected.

When the distortion and inclination correction function is enabled during calibration, the calibration data for the distortion and inclination correction is created. When images are captured using this calibration data, captured images are corrected and output.

* Up to approx. 15 degrees



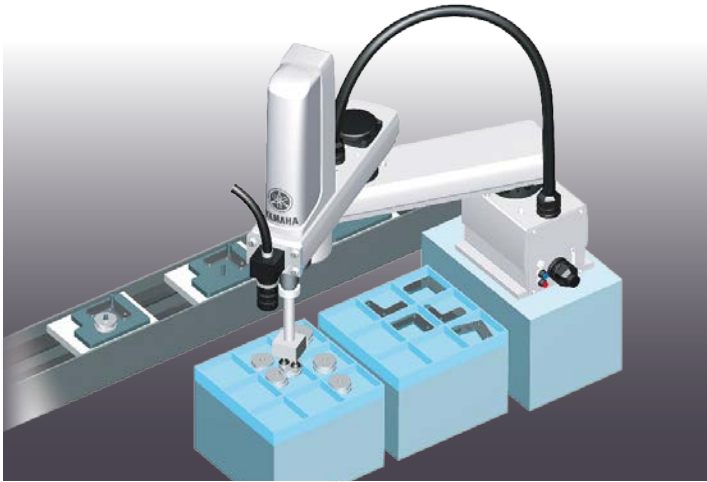
(Before correction)

(After correction)

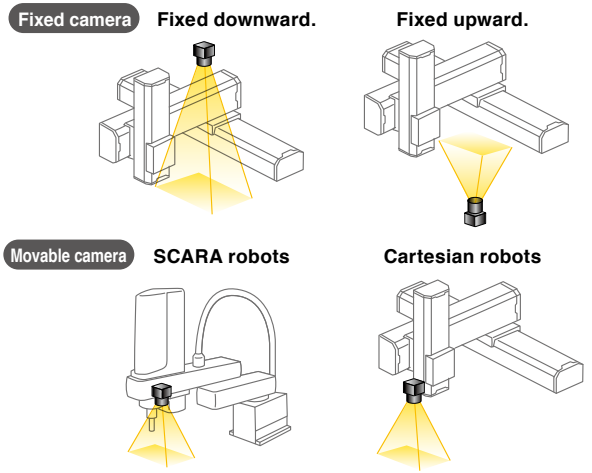
POINT 23

Also supports moving camera

Even if the camera is mounted on the robot, coordinates are automatically converted according to the robot's movement.



Camera position can be selected in accordance with the application.



Even when the camera is moved, the coordinates are corrected automatically.

POINT 24

Easy-to-use programming software RCXiVY2+ Studio

With programming software "RCXiVY2+ Studio", all vision related operations such as registration of fiducial marks and workpieces used for calibration (contour settings, various parameter settings, and read range settings), backup, restore operation, and operation monitor can be performed.

- Search trial-run, part type registration
- Reference mark registration (for calibration)
- Up to 254 workpiece types can be registered.
- Workpiece can also be added easily.
- Up to 100 workpieces can be detected at once.
- Data backup
- This software functions as a monitor during program operation.

Download from website (member site)

POINT 25

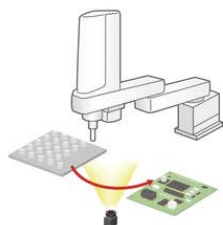
Easy programming

Constructing the most suitable robot vision system for an application.

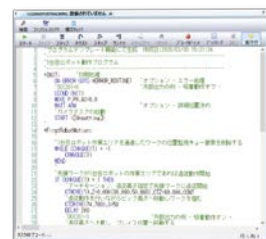
RCX-Studio 2020 program template function

◆ Program is created automatically simply following step-by-step operating process

RCX3 series programming software RCX-Studio 2020 also has following five templates for vision system:



- Pallet picking using the vision
- Dispensing work using the vision
- Gripping deviation correction using the vision
- Gripping deviation and mounting position correction using the vision
- Gripping deviation and mounting position correction using the vision (without using any master)



POINT 26

Wide variety of robot system to choose from most suitable and economical solution for robot vision system



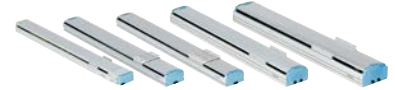
XY-X Cartesian robots



YK-XG/XE SCARA robots



YK-TW orbit type robots



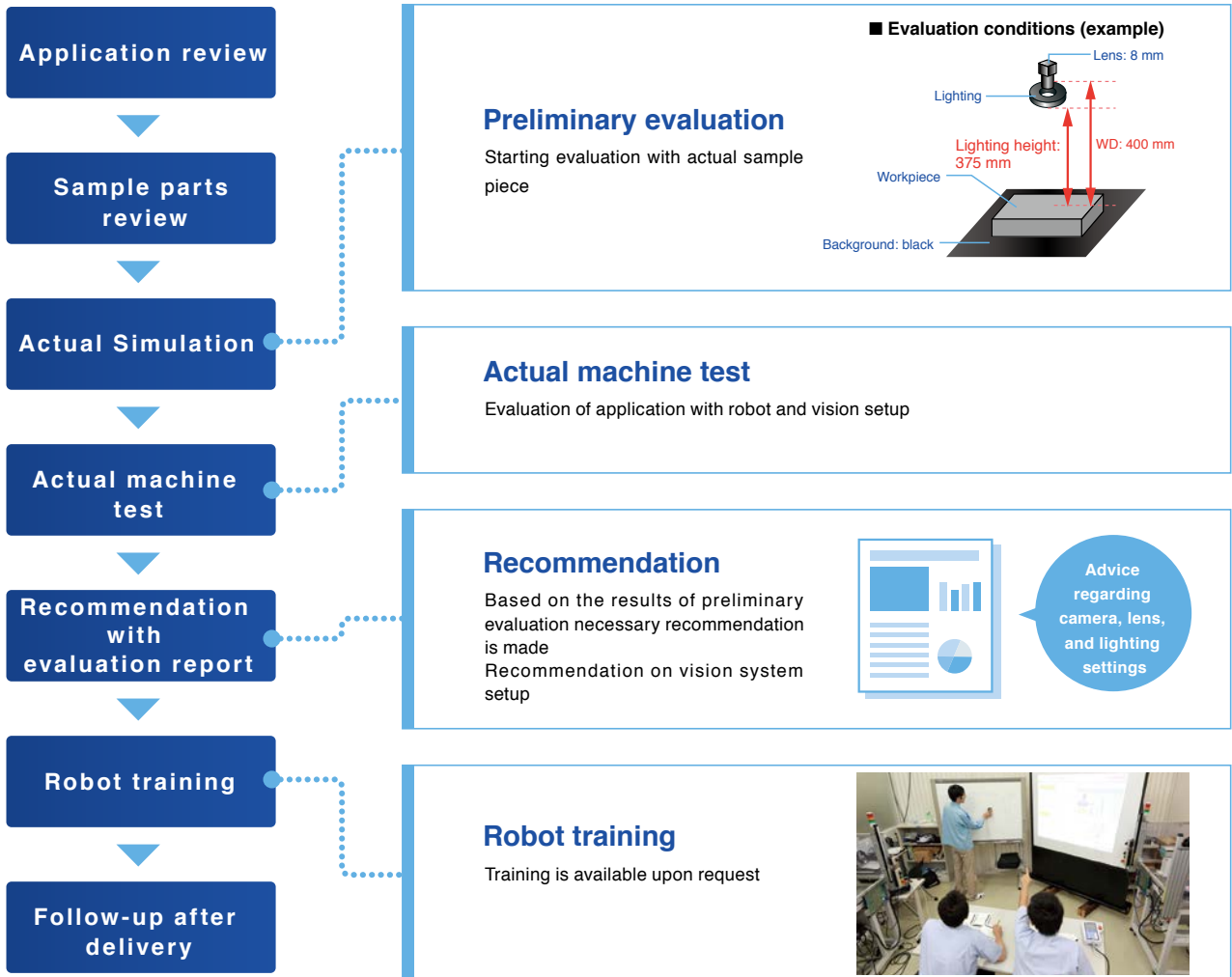
FLIP-X single-axis robots

* The YA series is not supported.

POINT 27

Verifying application prior to purchase

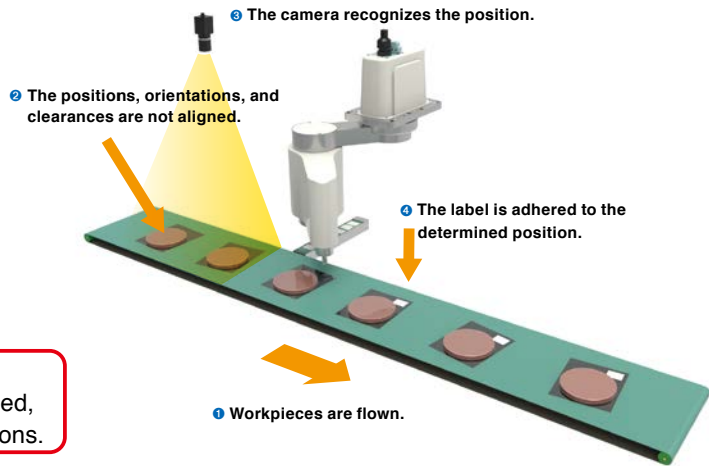
User's application is verified using actual sample parts before making a purchase decision. Based on the evaluation result, recommendation will be made for most suitable and economical solution.



Lot application examples

● Random flow of parts on conveyor

The workpiece positions are recognized by the camera and the labels are adhered to the determined positions on workpieces. The adhesion position can also be specified for each part type.

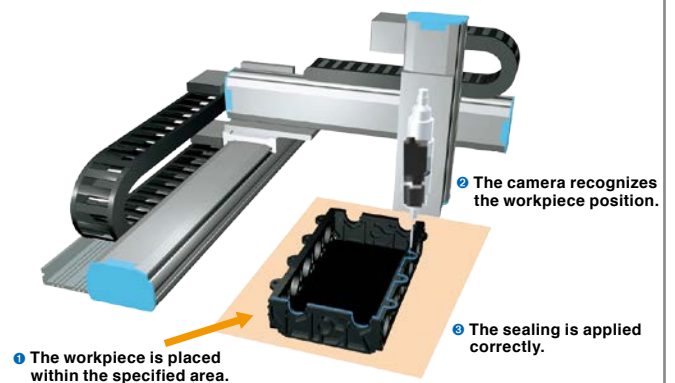


POINT

Even when the positions or orientations of workpieces that are flown are not aligned, the labels are adhered to the same positions.

● Automatically adjusting sealing points

Position of workpiece is correctly recognized by its shape. Changing setup or jig between production lot can be eliminated.

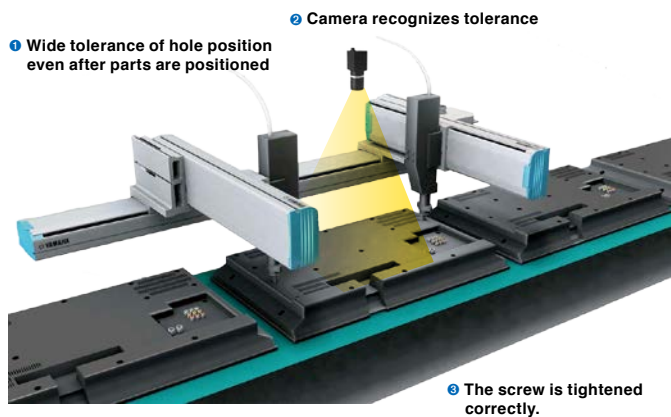


POINT

The workpiece shape is recognized by the camera and the sealing is applied to the correct position.

● Adjusting screw fastening position

Vision camera recognizes actual hole position with wide tolerance and adjust fastening position.



POINT

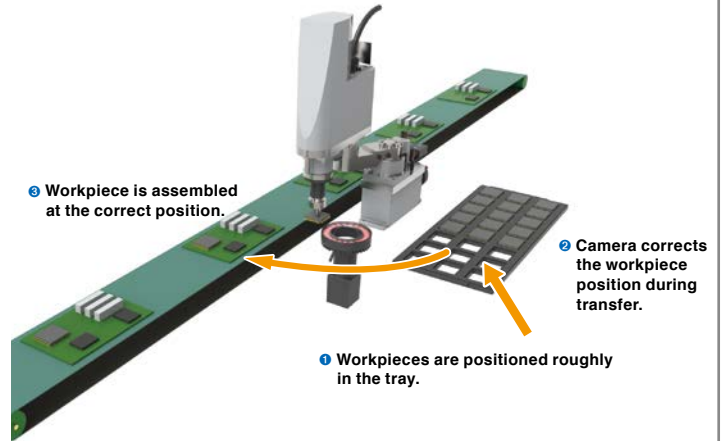
Even when there are variations in product accuracy such as resin mold product, the products can be assembled correctly.

Continues on next page »

» Application examples continued.

● **“Pick-and-Assemble” in one motion**

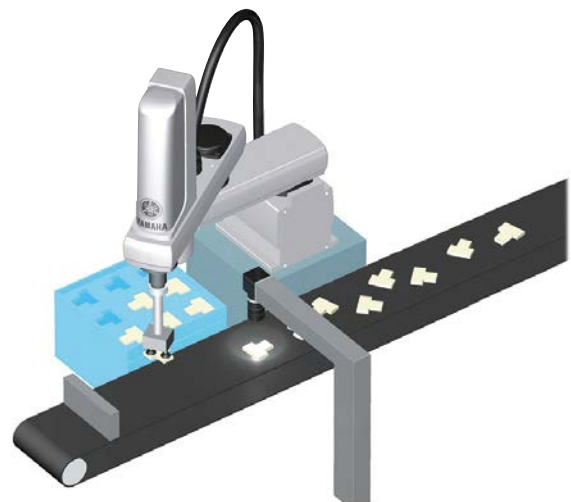
Pick up parts from a tray, adjust position on the fly and install directly.



POINT Use of the upward camera makes it possible to correct the position during transfer.

● **Conveyor tracking**

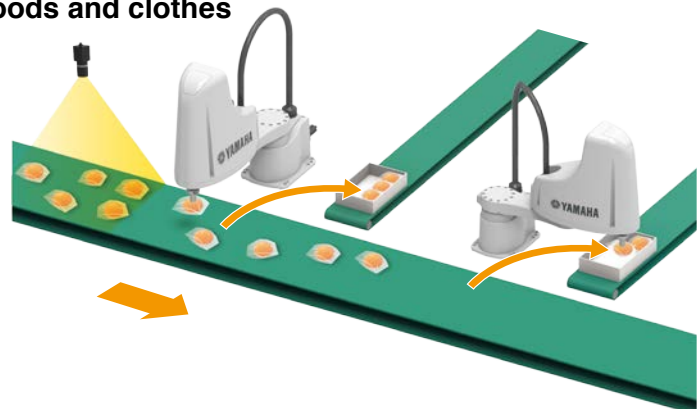
Pick-and-place operation of randomly positioned parts on conveyor by SCARA robot. Position and orientation of parts are recognized by vision camera.



POINT Handling process is reduced without teaching

● **Irregular shape workpieces such as foods and clothes**

Pick-and-place with conveyor tracking for parts with wide tolerance like foods and clothes.



POINT Increasing productivity with two robots

RCXiVY2+ System

Applicable controllers ▶
RCX3 series

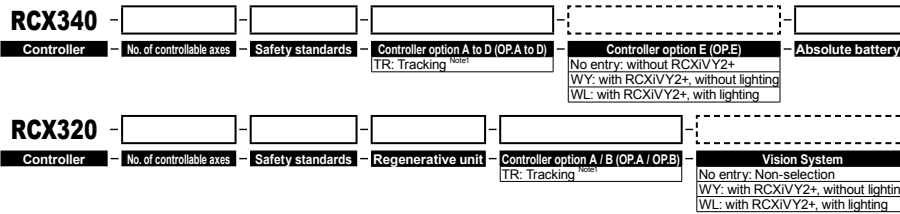
● Robot with image processing functions

Integrated Robot Vision System with “plug-and-play” simplicity.
New functions have been added to the conventional iVY2 to make the vision system even easier to use.



Main functions ▶ P.108

■ Ordering method



For details on the various selection items
RCX320 ▶ P.660
RCX340 ▶ P.679

Note1. Only one tracking board can be selected.

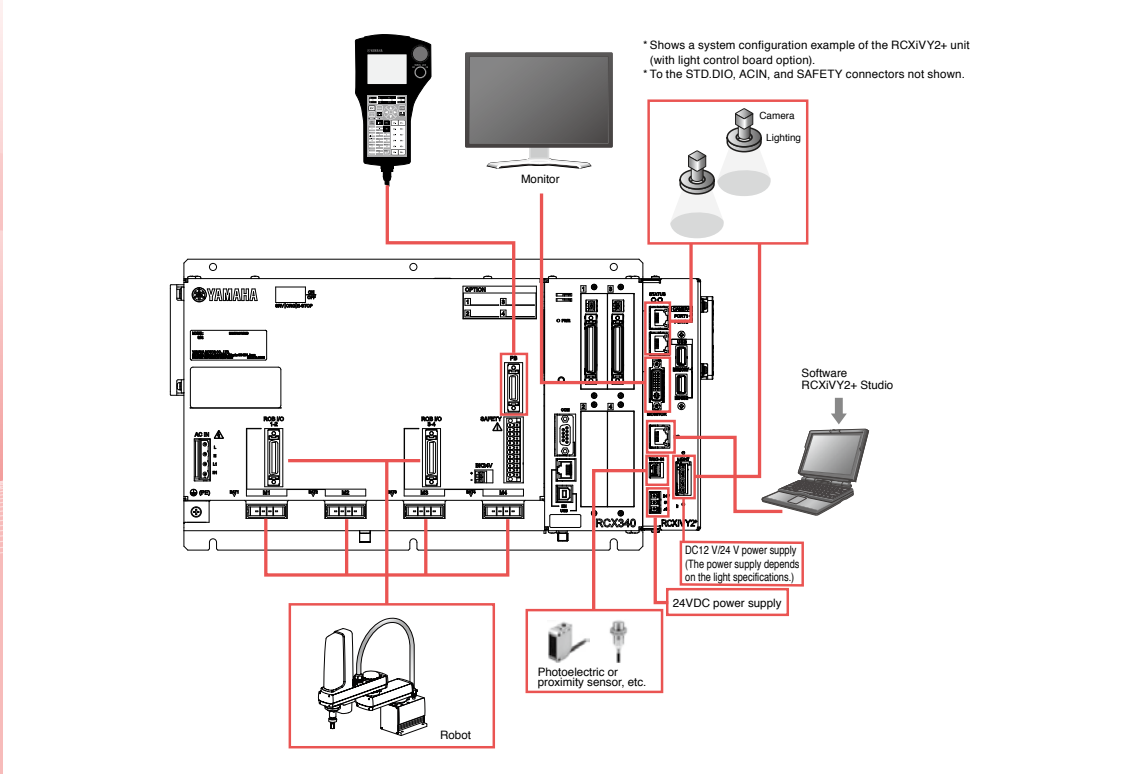
■ Basic specifications

● Robot vision basic specifications

Item		RCXiVY2+ unit
Basic specifications	Applicable controllers	RCX340 / RCX320
	Number of screen pixels	720(H) × 540(V) (400,000 pixels) 1440(H) × 1080(V) (1,600,000 pixels) 2048(H) × 1536(V) (3,200,000 pixels) 2592(H) × 1944(V) (5,000,000 pixels) ^{Note1}
	Model setting capacity	254 models
	Number of connectable cameras	2 cameras (8 units when the HUB is used.)
	Connectable camera	GigE camera PoE: IEEE802.3af 1 ch up to 7W
	External interface	Ethernet (1000BASE-T) ^{Note2} USB 2.0 2Ch (Up to 5V 2.5W / ch)
	External monitor output	DVI-I ^{Note3} Monitor resolution: 1024 × 768 Vertical periodic frequency: 60 Hz Horizontal periodic frequency: 48.4 kHz
	Power supply	24 VDC +/- 10%, Maximum 1.5 A
	Dimensions	W45 × H195 × D130 (RCXiVY2+ unit only)
	Weight	0.8kg (RCXiVY2+ unit only, when the lighting control board option is selected)
	Operating environment	Compliant with the RCX340/RCX320 controller.
	Storage environment	Compliant with the RCX340/RCX320 controller.
	Search method	Edge search, Measuring search, Blob search, Code search
Image capturing	Trigger mode	S/W trigger, H/W trigger
	External trigger input	2 points
Function	Position detection, coordinate conversion, automatic point data generation, distortion and inclination correction	
Camera installation position	Fixed to the fixed camera (up, down) or robot (Y-axis, Z-axis). Vertical direction to the image capturing target workpiece is recommended.	
Setting support function	Calibration, image save function, model registration ^{Note4} , fiducial mark registration ^{Note4} , measuring registration ^{Note4} , blob registration ^{Note4} , code registration ^{Note4} , monitor function ^{Note4}	
Lighting control options	Number of connectable lighting units	Maximum 2
	Modulated light format	PWM modulated light control (0 to 100%), PWM frequency switchable 62.5 kHz/ 125 kHz Continuous light, strobe light (follows camera exposure)
	Lighting power input	12V DC or 24V DC (external supply shared by both channels)
	Lighting output	For 12V DC supply: Total of less than 40W for both channels. For 24V DC supply: Total of less than 80W for both channels.

Note1. Since the rolling shutter is used, the tracking is not supported.
Note2. For setting and monitor operations
Note3. Also usable with an analog monitor by using a conversion adaptor.
Note4. RCXiVY2+ Studio function (requires a Windows PC)

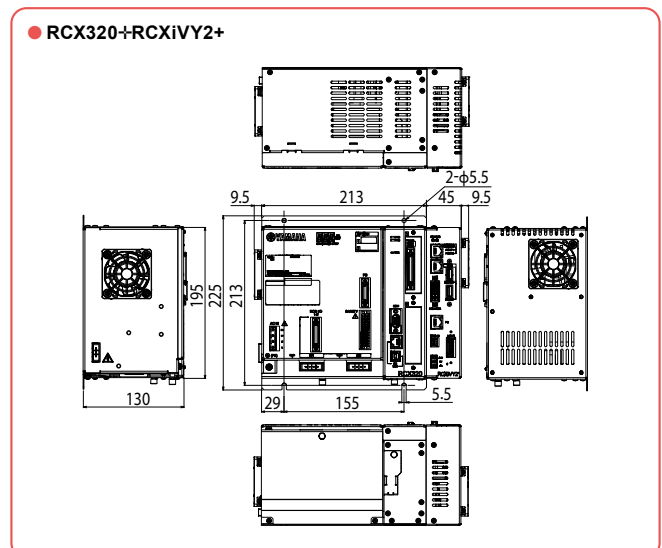
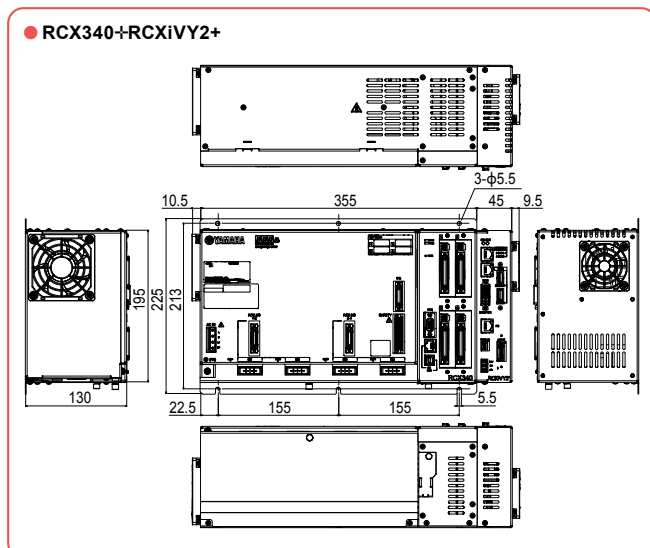
System configuration illustration



Tracking board basic Specifications

Item		Tracking board
Basic specifications	Applicable controllers	RCX340 / RCX320
	Number of connected encoders	Up to 2 units.
	Encoder power supply	5VDC (2 counters total 500 mA or less) (Supplied from controller)
	Applicable encoder	26LS31/26C31 or equivalent line driver (RS-422 compliance).
	Input phase	A, \bar{A} , B, \bar{B} , Z, \bar{Z}
	Max. response frequency	2MHz or less
	Counter	0 to 65535
	Multiplier	4x
	Other	With disconnection detection function

Dimensional outlines



Articulated robots
YA

Linear conveyor modules
LCM

Single-axis robots
CX

Motor-less single axis actuator
Robotomy

Compact single-axis robots
TRANSERO

Single-axis robots
FLIP-X

Linear motor single-axis robots
PHASER

Cartesian robots
XY-X

SCARA robots
YK-X

Pick & place robots
YP-X

CLEAN

CONTROLLER

INFORMATION

Robot positioner

Pulse string driver

Robot controller

RCX+VY2

Option

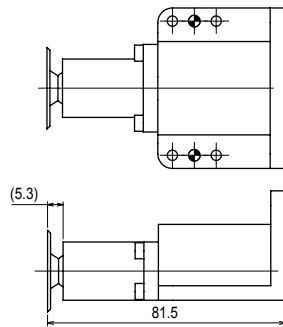
Dimensional outlines

Calibration jig

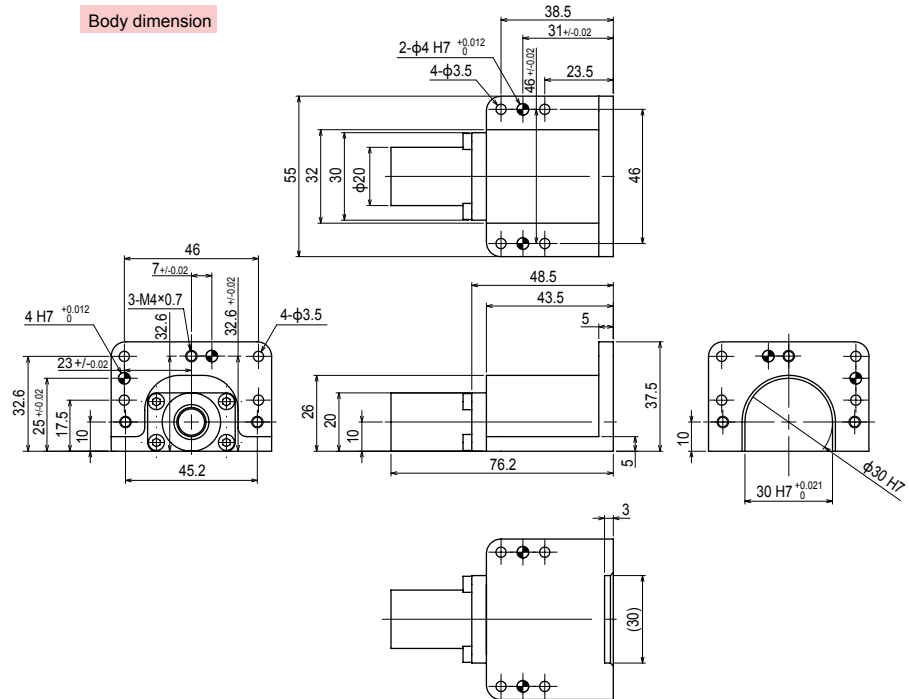
Calibration jig

(Model: KCX-M7200-00)

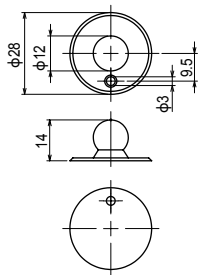
Mark gripper dimension



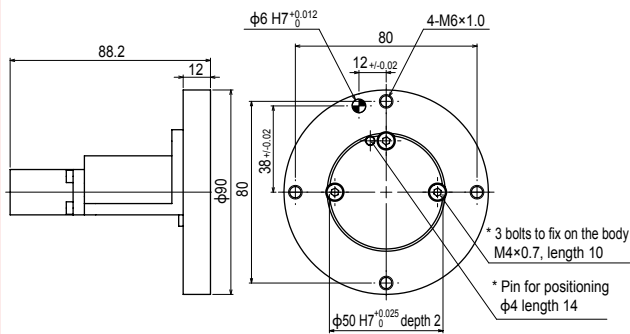
Body dimension



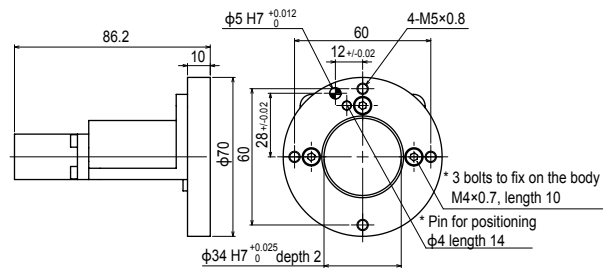
Mark dimension



When using attachment (large)



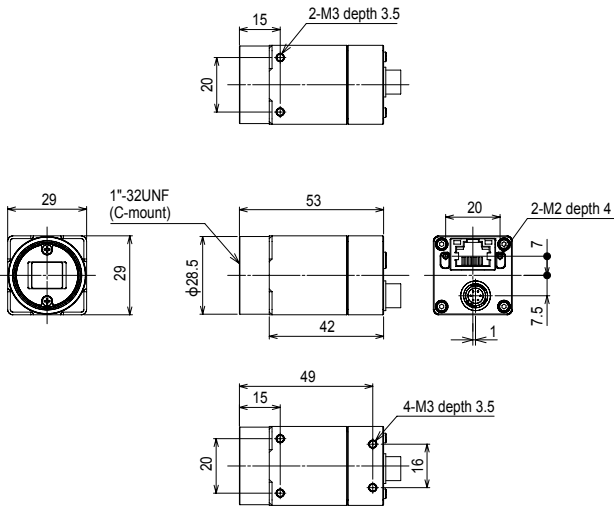
When using attachment (small)



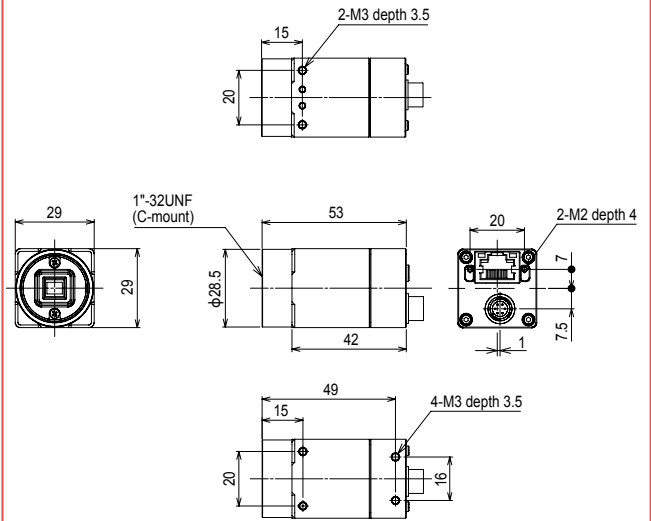
Dimensional outlines

Camera

- CMOS camera
(400,000 pixel • 1,600,000 pixel • 3,200,000 pixel)

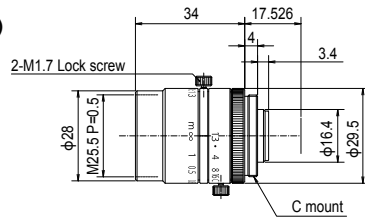


- CMOS camera
(5,000,000 pixel)

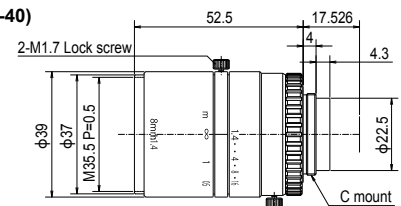


Lenses

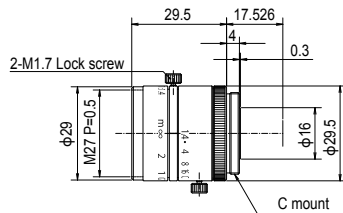
- 8mm lens
(Model: KCX-M7214-00)



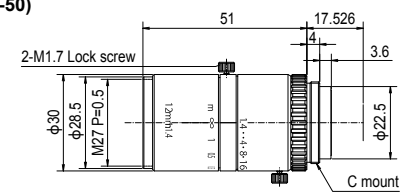
- 8mm lens (megapixel support)
(Model: KCX-M7214-00)



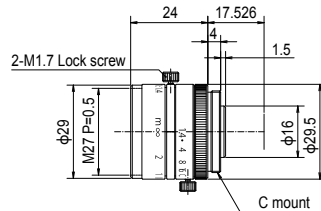
- 12mm lens
(Model: KCX-M7214-10)



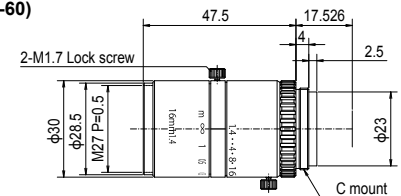
- 12mm lens (megapixel support)
(Model: KCX-M7214-50)



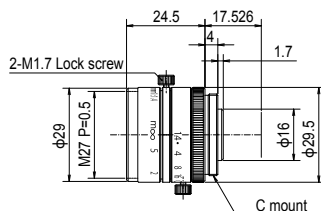
- 16mm lens
(Model: KCX-M7214-20)



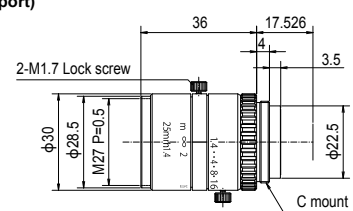
- 16mm lens (megapixel support)
(Model: KCX-M7214-60)



- 25mm lens
(Model: KCX-M7214-30)



- 25mm lens (megapixel support)
(Model: KCX-M7214-70)



Articulated robots YA
 Linear conveyor modules LCM
 Single-axis robots CX
 Motor-less single axis actuator Robotomy
 Compact single-axis robots TRANSEVO
 Single-axis robots FLIP-X
 Linear motor single-axis robots PHASER
 Cartesian robots XY-X
 SCARA robots YK-X
 Pick & place robots YP-X
 CLEAN
 CONTROLLER
 INFORMATION
 Robot positioner
 Pulse string driver
 Robot controller
 RCX+VY2
 Option

Accessories and part options

RCXiVY2+ System

Standard accessories

● RCXiVY2+ unit

The RCXiVY2+ unit adds robot vision to the RCX340/RCX320 robot controller.



● RCXiVY2+ unit

Model	No lighting	KFR-M4400-V0
	With lighting	KFR-M4400-L0

● RCXiVY2+ unit accessories

Name	Model
Trigger input cable connector set	KX0-M657K-00
24V power supply connector	KCF-M5382-00

● Support software for PC RCXiVY2+ Studio

RCXiVY2+ Studio is programming software for the RCXiVY2+ system that allows registering part types and reference marks as well as monitoring the work search status during automatic robot operation by connecting to the robot controller.



Download from website (member site)

● Environment

OS	Microsoft Windows XP / Vista (32 bit / 64 bit) / 7 (32 bit / 64 bit) / 8, 8.1 (32 bit / 64 bit) / 10 (32 bit / 64 bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk capacity	30MB of available space required on installation drive. * Additional vacant space is required for saving images and data.
Display	800 x 600 dot, or higher, 32768 colors (16bit High Color) or higher (recommended)
Communication Port	Ethernet Port of TCP/IP

Note. Microsoft, Windows XP, Windows Vista, Windows 7, Windows 8, 8.1, and Windows 10 are registered trademarks of the Microsoft Corporation, USA.

Note. Ethernet is a registered trademark of the XEROX Corporation, USA.

- YA Articulated robots
- LCM Linear conveyor modules
- CX Single-axis robots
- Robonity Motor-less single axis actuator
- TRANSEVO Compact single-axis robots
- FLIP-X Single-axis robots
- PHASER Linear motor single-axis robots
- XY-X Cartesian robots
- YK-X SCARA robots
- YP-X Pick & place robots
- CLEAN
- CONTROLLER
- INFORMATION
- Robot positioner
- Pulse string driver
- Robot controller
- RCXiVY2
- Option

Options

● CMOS camera



Model	400,000 pixel	720(H) × 540(V)	KFR-M6541-00
	1,600,000 pixel	1440(H) × 1080(V)	KFR-M6541-10
	3,200,000 pixel	2048(H) × 1536(V)	KFR-M6541-20
	5,000,000 pixel	2592(H) × 1944(V)	KFR-M6541-30

● Lens



Model	8mm	KCX-M7214-00
	12mm	KCX-M7214-10
	16mm	KCX-M7214-20
	25mm	KCX-M7214-30
	8mm (megapixel support)	KCX-M7214-40
	12mm (megapixel support)	KCX-M7214-50
	16mm (megapixel support)	KCX-M7214-60
	25mm (megapixel support)	KCX-M7214-70

* Common to iVY2.

● Close-up ring



Model	0.5mm	KX0-M7215-00
	1.0mm	KX0-M7215-10
	2.0mm	KX0-M7215-20
	5.0mm	KX0-M7215-40

● Lighting control board

This board adds lighting control functionality to the RCXiVY2+ system. (Installed in the RCXiVY2+ unit when shipped)

● Lighting control board

Name	Model
Lighting control board	KCX-M4403-L0

● Lighting control board accessories

Name	Model
Lighting power cable connector set	KX0-M657K-10

● Tracking board

This board adds conveyor tracking functionality to the RCX340/RCX320 controller.

● Tracking board

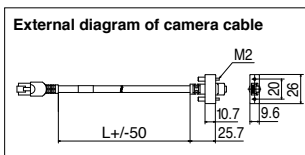
Name	Model
Tracking board	KCX-M4400-T0

● Tracking board accessories

Name	Model
Tracking encoder connector	KX0-M657K-20

● Camera cable

Cable for connecting the camera to the RCXiVY2+ board.



Cable length (L)	Model
5m	KCX-M66F0-00
10m	KCX-M66F0-10
15m	KCX-M66F0-20

* Common to iVY2.

● LAN cable with shield cloth (5 m)



Model	KX0-M55G0-00
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● Tracking encoder cable (10 m)



Model	KX0-M66AF-00
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● Calibration jig (Large and small attachments are provided.)



Model	KCX-M7200-00
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