

■Specification

Model		Fast Smart Modular Mounter		
Item		RS-1R		
Conveyor specification		standard	150mm conveyor extensions, upstream and downstream	250mm conveyor extensions, upstream and downstream
Board size	minimum	50×50 mm		
	maximum	1 buffer	650×370 mm (Single clamping)	
			950×370 mm (double clamping)	1,100×370 mm (double clamping)
	3 buffers	360×370 mm	500×370 mm	600×370 mm
Component height		25 mm		
Component size		0201 <sup>*1</sup> ~ □74 mm /150×50 mm		
Placement speed	Optimum	47,000CPH		
	IPC9850	31,000CPH		
Placement accuracy		±35μm(Cpk ≥ 1)		
Feeder inputs		max. 112 <sup>*2</sup>		
Power supply		AC200 ~ 415V <sup>*3</sup> 3-phases		
Apparent power		2.2kVA		
Operating air pressure		0.5±0.05MPa		
Air consumption		200 l/min for internal vacuum generator, 50 l/min with optional vacuum pump		
Machine dimensions (W×D×H) <sup>*4</sup>		1,500×1,810×1,440 mm	1,800×1,810×1,440 mm	2,000×1,810×1,440 mm
Mass(approximately)		1,700kg		


\*1 For metric 0201 compliance please contact us.  
\*2 Using RF(RF08AS) feeders  
\*3 A transformer unit (option) is necessary except AC 200 V.  
\*4 D dimension does not include the front operation monitor. H dimension does not include signal tower.

■Option

Recognitions system	10 / 27/ 54 mm view camera
Operations system	Rear-side operation unit / keyboard (front only)
Inspection function	Coplanarity sensor / Component Verification System(CVS)*5
Conveyor	Conveyor extention *6 / support pin / support sponge
Electrical protection	CE compatible specification / Ground-fault interrupter
Force Control	Force control unit / Force control nozzle
Software <sup>*5</sup>	JaNets / IFS-NX / Flexline CAD
Component handling and feeders	Feeder Trolley RF feeder only / RF-EF dual servo *7) / Electric tape feeder (RF/EF*7) / EF feeder adapter*7/ Electric stick feeder*7(Type-N/Type-W) / Matrix tray server TR8SR, TR5SNX, TR5DNX / Matrix tray changer TR6SNV, TR6DNV / Dual tray server TR1RB / Nonstop operation function / Tray Holder / IC collection belt / Tape reel mounting base(for RF / for EF) / Splicing jig / Electric TrolleyPower Station PW02*8
Others	RS-1R • RS-1 nozzles(with or without RFID tags) / Splicing tape / Big foot / Offset placement after solder screen-printing Solder lighting / Mini-signal light / non-stop operation / FCS calibration jig / large ATC / vacuum pump

\*5 Please contact for details.  
\*6 One side conveyer extention is also possible.  
\*7 When EF feeders adapt the an attachment of EF feeder, the EF feeder can use on RF/EF feeder trolley and fixed bank (rear side). Please inquire details.  
\*8 Separate connection cables for each model are required.

JUKI ECO PRODUCTS




JUKI ECO PRODUCTS

The RS-1R is an eco-friendly product which complies with JUKI ECO PRODUCTS standards for protecting the environment.


•The machine complies with the “JUKI Group Green Procurement Guidelines” on the use of hazardous substances, which is stricter than other restrictions, such as those of the RoHS Directive.

For details of JUKI ECO PRODUCTS, refer to: [http://www.juki.co.jp/eco\\_e/index.html](http://www.juki.co.jp/eco_e/index.html)


\*The RoHS Directive is an EU Directive limiting the use of 6 hazardous substances(lead, hexavalent chromium, mercury, cadmium, PBB and PBDE) in electrical and electronic equipment. The JUKI Green Procurement Guideline is the voluntarily established criteria to eliminate not only the aforementioned six substances, but also other ones which also adversely affect the environment.



MS  
JAB  
CM001



JSA  
JIS Q 14001  
ISO 14001  
JSAE389



UKAS  
ENVIRONMENTAL  
MANAGEMENT  
089

JUKI CORPORATION HEAD OFFICE  
The activities of research, development, design, sales, distribution, and maintenance services of industrial sewing machines, household sewing machines and industrial robots, etc., including sales and maintenance services of data entry systems,

\*Please refer to the product specifications for details.

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■JUKI Specifications and appearance may be changed without notice.  
■This catalogue prints with environment-friendly soyink on recycle paper.

Feb-2019/Rev.00

High-Speed Compact Modular Mounter

RS-1R

Superior Productivity. Versatility  
With the best throughput in an advanced, all-in-one

# BASIC FEATURES



- Class leading speed, up to 47,000 cph
- Newly developed "Takumi Head" with changing recognition sensor height
- Optimum line balance and highest throughput
- Wide component range from 0201 (metric) to large connectors and ICs
- Optimal for LED placement

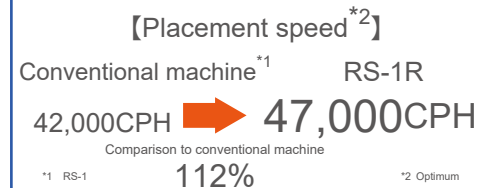
## RS-1R High-Speed Smart Modular Mounter

### Feature 1 Class leading speed, up to 47,000 cph

- Class leading speed, up to 47,000 cph  
Maximum speed of up to 47,000 cph\*. This is made possible by a revolutionary head design that reduces the travel time and distance for every placement.

\* Optimum

- New RF feeders are smaller, thinner, and lighter  
The new RF feeders are smaller and lighter, but still maintain the same high degree of positional accuracy. The thinner width allows up to 112 feeder inputs.\*

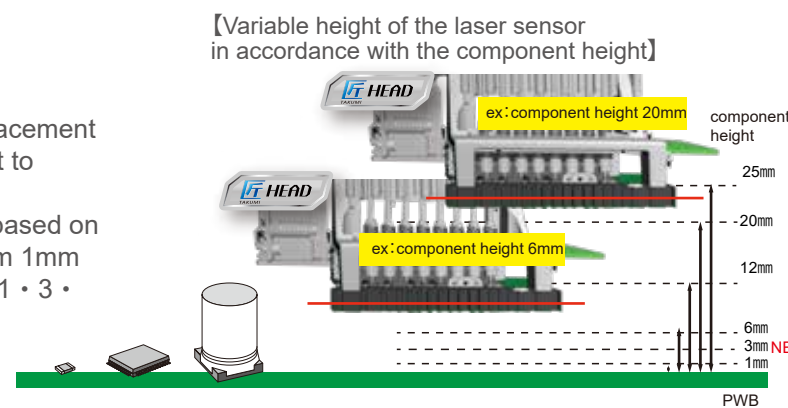


### Feature 2 Self-Optimizing Smart Head

"Takumi head" that automatically optimizes its height between 6 different positions based on component height. Tact time is optimized by keeping the head as close to the PCB as possible for the components placed.



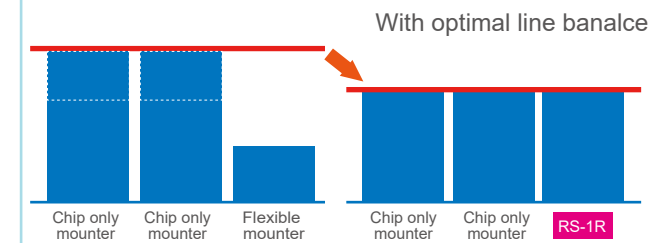
New Dynamic Height 8 nozzle placement head automatically adjusts height to optimize placement speed. This head adjusts automatically based on the components to be placed from 1mm to 25mm in 6 different positions (1 • 3 • 6 • 12 • 20 • 25mm).



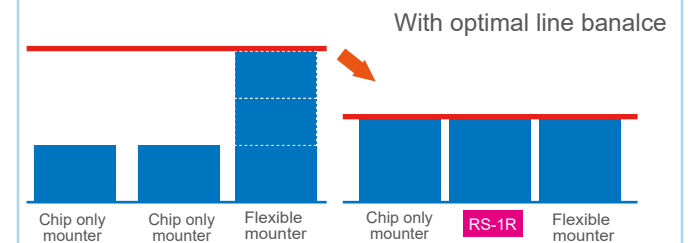
### Feature 3 Optimum line balance and highest throughput

Changing the RS-1 functionality does not require head replacement. The revolutionary design self-optimizes based on the production requirements. The RS-1R can reduce the workload on high speed. A line with two or more RS-1Rs can adjust to a wide variety of production requirements from high speed to high flexibility.

【For PCBs with high placement count】



【For PCBs with many complex components】



### Feature 4 Nozzle traceability function OP

RFID tags are mounted on each nozzle to improve control and traceability. Nozzle maintenance can be monitored and traceability of performance is maintained.



### Feature 5 Large Nozzle ATC OP

Changeable ATC plate supports nozzles up to 7x28mm. Large nozzles for large or heavy components are available.



### Feature 6 Wide component range from 0201 (metric) to large connectors and ICs

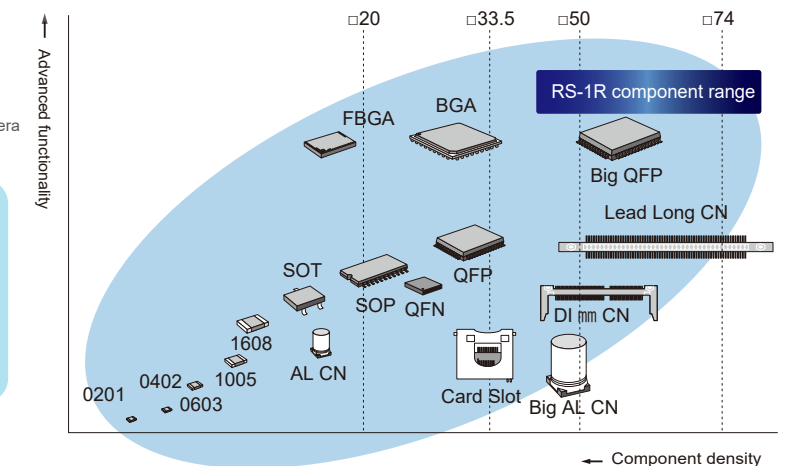
RS-1R supports components from 0201<sup>\*1</sup>(metric) up to 74mm square or 50x150 rectangular parts. Component height up to 25mm.

<sup>\*1</sup> With 10mm view camera  
Please contact in detail.

【Part correspondence power】

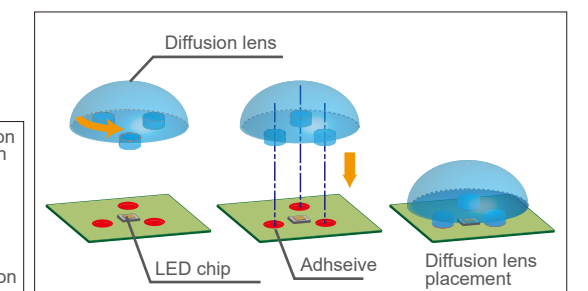
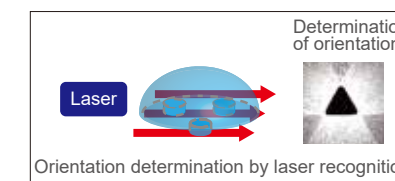
0201<sup>\*2</sup> ~ 74mm  
50x150mm

<sup>\*2</sup> Please contact for details.



### Feature 7 Optimal for LED placement

- High-precision placement of diffusion lenses.  
RS-1R can use either vision or laser centering for diffusing lenses, depending on the component requirements. A wide range of lens styles can be placed.



- Long PCB Support  
Up to 650 x 370mm with single clamping.  
Up to 950 x 370mm with dual clamping, or up to 1200 x 370mm with optional conveyor extensions.





# Recognition Technology

## Component Recognition Technology (54, 27, 10mm field of view)

OP Image

Component shape, lead and ball details are accurately captured using our VCS camera. Component problems such as missing ball detection or bent leads are also detected.

A wide variety of components including BGAs and QFPs and many more are supported.

### ●360 degree part recognition technology

Components that are supplied incorrectly can be corrected and accurately placed using 360 degree recognition technology.

### ●Front/back detection

Components can be checked to see if they are face up/face down in the feeder.

### ●Small chip recognition

Components down to 0201 metric can be centered using the 10mm FOV camera.

### ●Three color recognition lighting

The color of lighting can be changed to match the component requirements for stable, accurate centering.

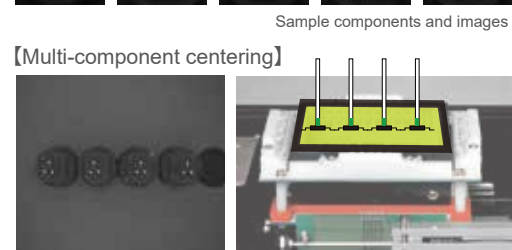
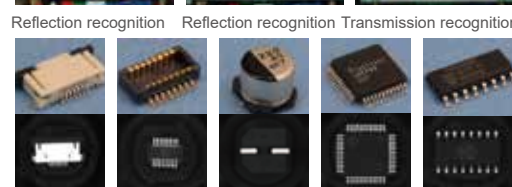
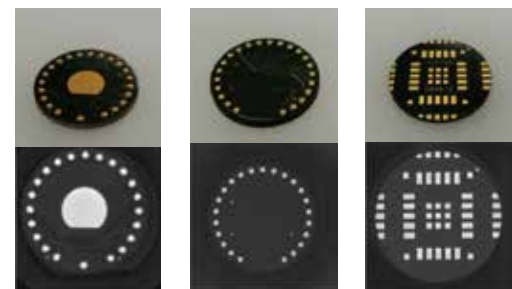
### ●Wide component range

Hundreds of nozzles to choose from and flexible vision to support difficult parts. Simplified data creation make it easy to handle complex components.

### ●Faster image recognition

◎A new VCS unit can center up to 4 parts in a single image, reducing centering time by 25% with the 54mm field of view VCS.

◎Strobing vision can be used with the 10mm and 27mm FOV cameras for faster tact time



Sample images Up to 4 components are centered in a single image

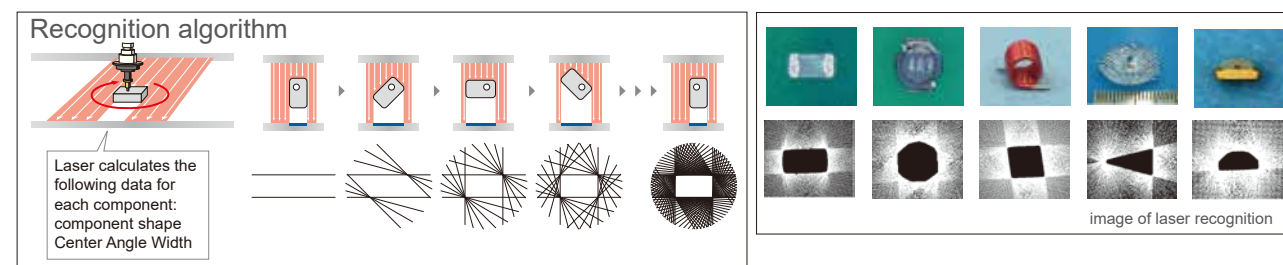
\*KE-3010A

## JUKI's proprietary laser recognition technology is flexible, accurate and reliable.

Laser

Components from 03015 metric to 50mm square SOP, PLCC, and QFP are supported.

Laser centering provides stable, accurate centering and is not affected by variations in component color or shape. Component data is simple, making new part creation faster.

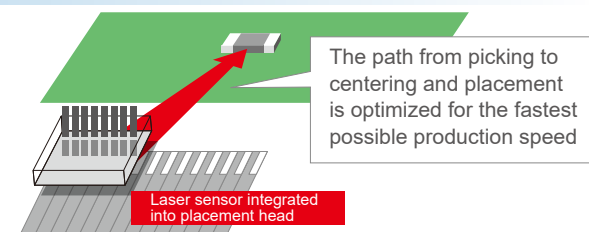


## 8-nozzle simultaneous, on-the-fly centering for high-speed

Laser

The laser sensor is mounted on the head to minimize head travel.

The head moves directly from the pick position to the placement position for the shortest travel time



The path from picking to centering and placement is optimized for the fastest possible production speed

Laser sensor integrated into placement head

# Productivity

## Support sponge

Standard

Soft under board support reduces defects caused by PCB warpage. This unit uses soft pillars that will not damage components on the bottom side and do not require setup for each different PCB. They are easy to removed with a simple magnetic base.



Support sponge

## Bank specification can be selected

OP

Feeder banks are available in either fixed or easy to replace trolley configurations.<sup>1)</sup>



rear front fixed bank specification exchange truck specification<sup>2)</sup>

\* 1 Please contact detail.  
\* 2 Option

## Proactive maintenance warnings

Standard

Dirty laser, low vacuum and upward looking camera condition are all checked prior to production starting to warn the operator of potential problems and prevent defects.



Laser condition check

## Flexible vision teaching

Standard

Complicated programming of odd-shaped components is made easier by following step-by-step guidelines, reducing programming time significantly. Data is created automatically from a picture of the component.

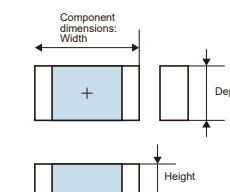


Flexible vision teaching

## Ease-of-operation improved by automatic component measurement

Standard

Component data can be programmed simply by typing approximate dimensions, type and packaging information. Accurate dimensions, number of leads and lead pitch are measured and programmed automatically by the machine.



## Full virtual keyboard

Standard

Standard touchscreen keyboard for fast data entry.



## Automated pre-production check list

Standard

Operators can use the automated pre-production check list to make sure all required operations have been completed. Ensures consistency and reduces overlooked operations.

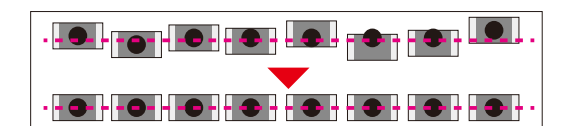


Setup preparation menu

## Pick Position Auto-correction

Standard

The feeder pick position is automatically adjusted based on centering results to improve simultaneous picking and increasing throughput.



Feeder pick position auto-correct

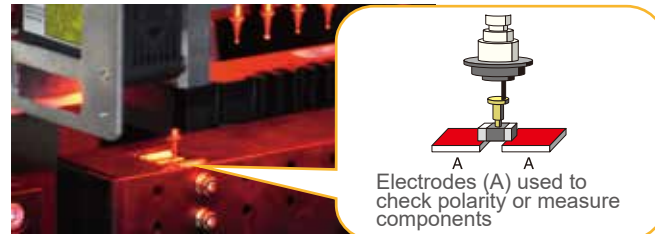
# Quality

## Incorrect component prevention Component Verification System (CVS)

OP

By measuring the resistance, capacitance, or polarity before production starts, the machine can prevent incorrect components from being placed. The new CVS unit can check six components simultaneously, reducing the check and changeover times.

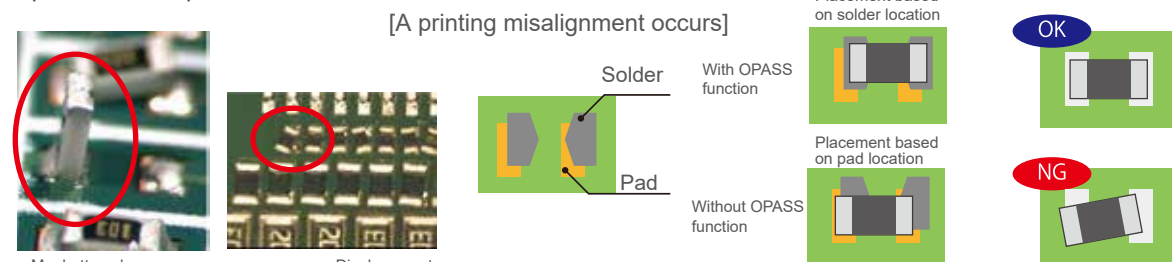
- Check the Resistance, Capacitance and Polarity before production starts.
- Prevents incorrect component/reel from being used
- Prevents incorrect component placement



## Reduce errors due to solder paste alignment Offset Placement After Solder Screen printing

OP

•The OPASS function uses the machine's downward looking camera to check the location of solder paste vs. the pads and corrects the placement accordingly. This function reduces defects caused by misalignment of the paste on the pads.



► Reduction in the percentage defective

•Solder paste for fiducials  
Solder printed pads can be used in place of fiducials for circuit boards that do not have fiducials. This is especially helpful on long PCBs that require double clamping and do not have a fiducial in the appropriate area.

## Coplanarity sensor - checks balls and leads

OP

Prevents placement of defective component by checking lead float of lead component and nick of ball component. High accurate and high speed coplanarity check will improve the products' reliability.



## Improved quality using component checking

Laser

Component presence is monitored from pick to placement, reducing defects.

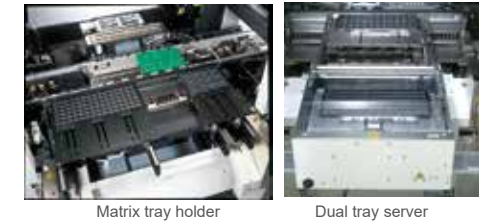
- ① Tombstone detection**  
Tombstone parts can be detected by laser and rejected
- ② Orientation check**  
Component width/length ratio can be checked to ensure the part was picked in the correct orientation
- ③ Dimension check**  
Component width and length can be verified to ensure it is the correct component
- ④ Part drop check**  
Component presence is verified using the laser to ensure it has not fallen off the nozzle
- ⑤ Release check**  
The laser checks the nozzle after placement to ensure the part was released on the PCB

# Other Options

## Tray Component Supply

OP

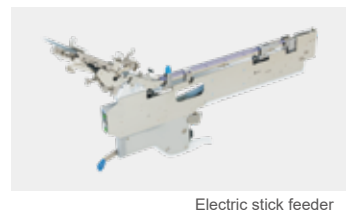
Several options are available to present components in trays. The compact width of the TR8 means there is still room for up to 20 8mm feeders on the same bank. A single tray holder and dual tray server are also available. The rear operation unit makes production more efficient by reducing the time the operator has to move around the line.



## Stick feeder

OP

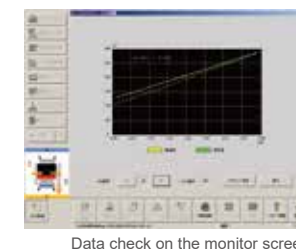
Single lane stick feeders install and remove as fast as tape feeders. Belt drive provides smooth, vibration free operation. LED indicates the feeder status.



## Load Cell

OP

Load cell measures the placement force precisely for each nozzle. The risk of damaging fragile components is reduced during both pick and placement. The load can be set individually for each part number.



## Feeder Setup Stand

OP

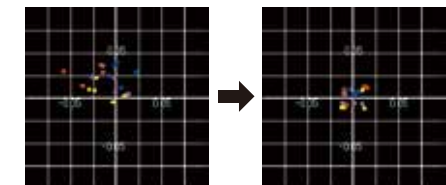
The feeder setup fixture is used to load reels offline quickly and easily. It is safer and easier to use than laying feeders on a table.



## FCS (Flex Calibration System)

OP

JUKI's highly regarded easy maintenance just got even easier! The optional FCS calibration jig is a simple to use system to re-calibrate placement accuracy. The machine automatically picks and places jig components, then measures the error and adjusts all necessary calibrations. (optional)



## Non-stop Operation

OP

Non-stop operation allows the operator to replace feeders while the machine continues to run at full speed.

## The IC collection belt

OP

The IC collection belt provides a safe method to handle rejected parts while also protecting them from further damage. Belt pitch can be set for different size parts.

