

# YAMAHA INTELLIGENT FACTORY **SMT Innovation**

## SMT Assembly Management Software IoT/M2M Integration System

Integrated solutions for:

Quality assurance

Real-time diagnostics

Skill-free operation

Predictive maintenance

Closed-loop feedback

Manpower reduction

## P-Tool The Data Programming Package

### Product preparation

Save preparation time by converting CAD data.

- Data importers
- Reverse gerber engineering
- Component teaching
- PCB scanning

### Visual editor

Verify up front the placement program correctness and avoid trial runs on pick and place equipment.

- Virtual sticky tape
- First time right
- New product introduction (NPI)

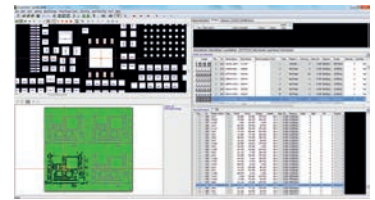
### Optimizing and balancing

Rich programming features meet your need for flexibility.

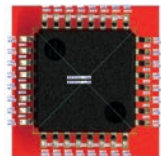
- Optimizer engine simulation. Complete program in 3-dimensions to prevent any interference from components and nozzles.
- Single machine optimizer
- Line optimizer
- Setup optimizer for multi-PCB production

### Advanced productivity – grouping

- Optimizes multiple boards by automatic grouping, setups and change-overs into common, collective shape.
- Reduces operator-hours needed for production setups and to cut overall production time.



Visual editor



STATUS	Board Num	Production Time	Machine Standing Time / Idle Setup	Offline Setup	Feeder Num	Call Num
	540	543 min			430	50
Group1 : 1st	60	62 min			200	9
Group2 : 1st	150	120 min			24	11
Group3 : 2nd	60	117 min			35	12
Group4 : 1st	150	124 min			24	11
Group5 : 1st	120	92 min			27	7

## M-Tool The Line Monitoring Package

### Performance floor monitor

Checks the overall production floor status on the web.



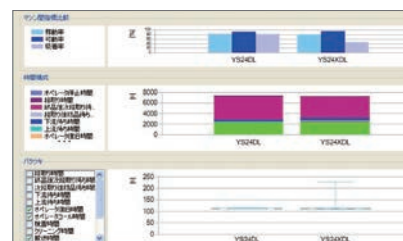
### Line control

Overall integrated control by monitoring and controlling each line and machine status remotely from a PC.



### Performance line monitor

Checks the line status, line efficiency, operating ratio, pickup rate, etc. in real time.



### Remaining components monitor

Monitors and controls the remaining components status on the line.

Line名称	マシン名称	F/R	セット位置	部品番号
SMT1	YS12.1	Front	FO01	1 PAI
SMT2	SMT2	Rear	FO02	2 PAI
SMT1	YS88	Front	FO03	3 PAI
SMT3	YS12.1	Front	FO04	4 PAI
SMT1	YS12.2	Front	FO05	5 PAI
SMT1	YS12.2	Front	FO06	6 PAI
SMT1	YS12.2	Front	FO07	7 PAI
SMT1	YS12.2	Front	FO08	8 PAI
SMT1	YS12.2	Front	FO09	9 PAI
SMT1	YS12.2	Front	FO30	10 PAI

Mobile warning

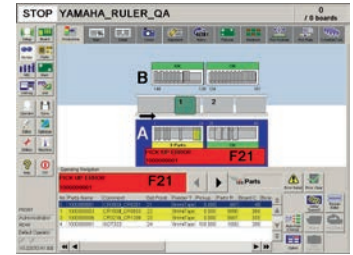


## S-Tool The Setup Navigation Package

### Setup verification

Ensure fast and first time right setup and changeover.

- Setup verification both offline and inline
- Flexible feeder assignment
- Parts remain counter
- Check components stock information during set-up and production



Setup verification

### Parts remain counter

Monitors remaining number of components, and requests resupply before running out of components. This reduces machine downtime by preparing components beforehand.

#### When not using the parts remain counter

Operating	Machine runs out of components and stops	Looking for reels	Attach reels	Setting feeders	Operating
<b>Reduces equipment downtime</b>					
Operating	Warning	Looking for reels	Attach reels	Machine runs out of components and stops	Setting feeders
<b>Non-stop operation</b>					
Operating	Warning	Looking for reels	Splicing	Operating	Operating

### Material time limit management

Checks components stock information during setups and production while taking storage information for solder and moisture sensitive device (MSD) into account. Issues components stock ageing or deterioration warnings. Prevents use of components stock that reached its expiry date.



### LED binning

LED light

Ranges from yellow to blue elements

Ranges from light to dark even with the same current value

Differs in convergence

Managing the complexity of LED binning with easy programming tables in P-Tool.

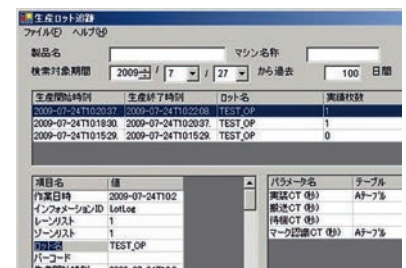
Our S-Tool navigation package supports operators to prevent mistakes by exchanging reels of one to another bin.

## T-Tool The Traceability Package

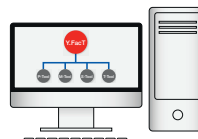
### Traceability

Save the costs of recall by recording all necessary production data.

- Batch traceability and reporting
- Component-level traceability and reporting
- Production information response



← Recording →



← Tracking →



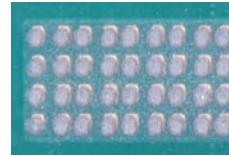
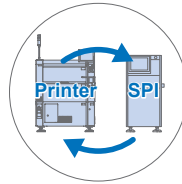
## Yamaha Intelligent Factory

IoT & M2M System linking Yamaha SMT machines to equipment made by other companies and give all-around high productivity in the Total SMT production process.

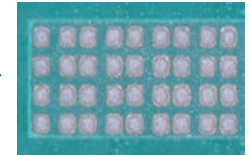
### SPI linked functions

Ensures high positioning accuracy by linking SPI with Yamaha printing functions and feeding back information on solder misses during printing.

Note: Please consult us for information on corresponding manufacturers and functions.



0201 mm printing errors



Print error feedback

### Actual adaptive accurate (3A)

A part mounting position corrector function ensures the terminal of each part is uniformly mounted on the printed solder by correcting the part mounting position.



After printing solders



After mounting components

### IoT Platform

Yamaha IoT Platform connects Yamaha machines to the internet and cloud environment. Please consult us to obtain further information.

### Quality assurance (QA)

When the AOI finds a defect, this function will show an error message on the machine that mounted this component. The AOI image is displayed on the mounter, as well as the head number, nozzle type and feeder position with actual image of the pickup position and pickup state. The error message gives options to check easy the possible cause of the error.

### Mobile decision function

Sends information and images of defect via wireless LAN to the operator's mobile terminal to allow making on-the-spot pass-fail decisions.



Make pass-fail decision from your mobile terminal.



Android device

Send in real time

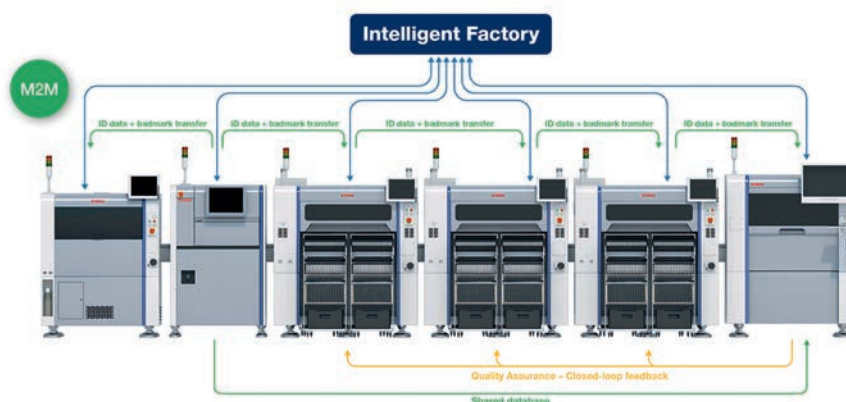


Transfers error information to the user's mobile terminal.

## Auto program change over

Automatically select the PCB program by scanning 2D code on the board or by scanning barcode on production order sheet. After changing the program, the board width and support pin positions are automatically changed and the machine checks if all components are available.

Transfers the scanned ID information and the PCB position information, and selects the conveyor width and PCB program on each machine.



Mobile decision  
Mobile remain  
quantity warning

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