# YSUP

**NEW**

## Intelligent Factory®

## Yamaha´s Unique & Proven Solutions

**IoT/M2M Integration system**

| | | |
|---|---|---|
| Simplified Programming | Real-time Production Analysis | Flexible M2M communication |
| Smart Setup operations | Traceability | Remote Support |

# Smart Setup Operations

## Component Setup Verification

Components setup verification function prevents invalid setup conditions.

Shows the setup / changeover on a guide display, and collates to verify that setting status is correct.

component → Feeder → setup position
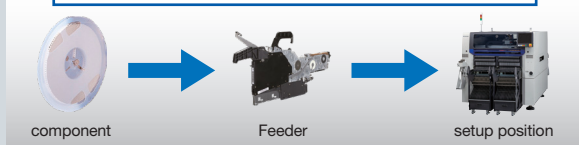
## Rank Monitoring (YSUP-ST / YSUP-MI)

Bin code management for LED ranking can confirm the correct LED rank is being mounted.

## Offline Setup Navigation (YSUP-ST)

Utilizes an off-line loading station and feeder cart to load components on feeders and setup feeders on dedicated carts. All setups will be validated based on machine specific program setup conditions.
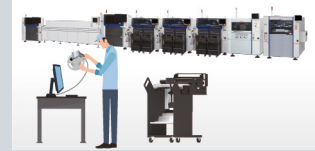
## Material Time Limit Management (YSUP-ST / YSUP-MI)

Define and monitor setup and production times for any MSL ranked consumable. The system will reject those consumables that exceed defined time limits.

Expired

Incorrect rank

# Real-time Production Analysis

## Live Production Dashboard

Visualizes equipment operation, production OEE and quality conditions for the production floor or for each line. Customizable thresholds can be set for any parameter allowing for easy understanding of a failing condition. In addition, the dashboard display can be customized.
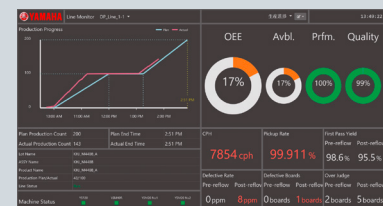
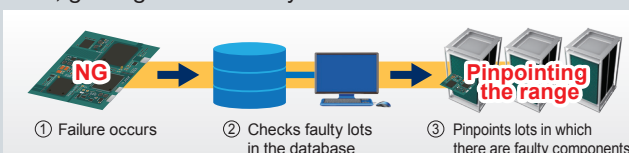## Production Analytics Dashboard

Production Analytics Dashboard utilizes business intelligence algorithms to convey a top-down approach to analyze cause and remedy solutions to improve production OEE.
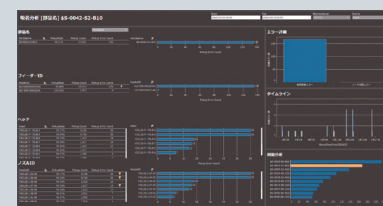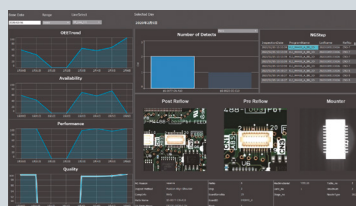
# Traceability Package

## Production History Search (T-TOOL)

T-Tool captures real-time data related to PCB assembly and machine driven events. Users will be able to query serialized data to pinpoint information at component level; gaining more visibility to extensive relational data.

NG

Pinpointing the range

① Failure occurs
② Checks faulty lots in the database
③ Pinpoints lots in which there are faulty components

## Accumulation of All Images (All Image Tracer)

Saves all of your mounter components recognition images on time, and all the way through the production process yet with no stress. Gives powerful support for analyzing component mounting quality.
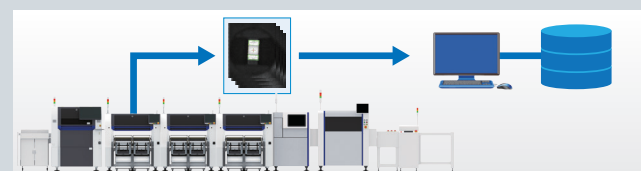
# Flexible M2M

## Auto Program Change-Over (APCO)

APCO automates change over for tooling, programs, setup and conveyor width.

Switch　Switch　Switch　Switch

SEMI SMT-ELS Immediate Product Change is also available.

SEMI SMT-ELS M2M protocol is also available.
● SEMI SMT-ELS M2M is a communication standard between different machine manufacturers
● SEMI SMT-ELS details: https://global.yamaha-motor.com/business/smt/software/semi_smt_els/

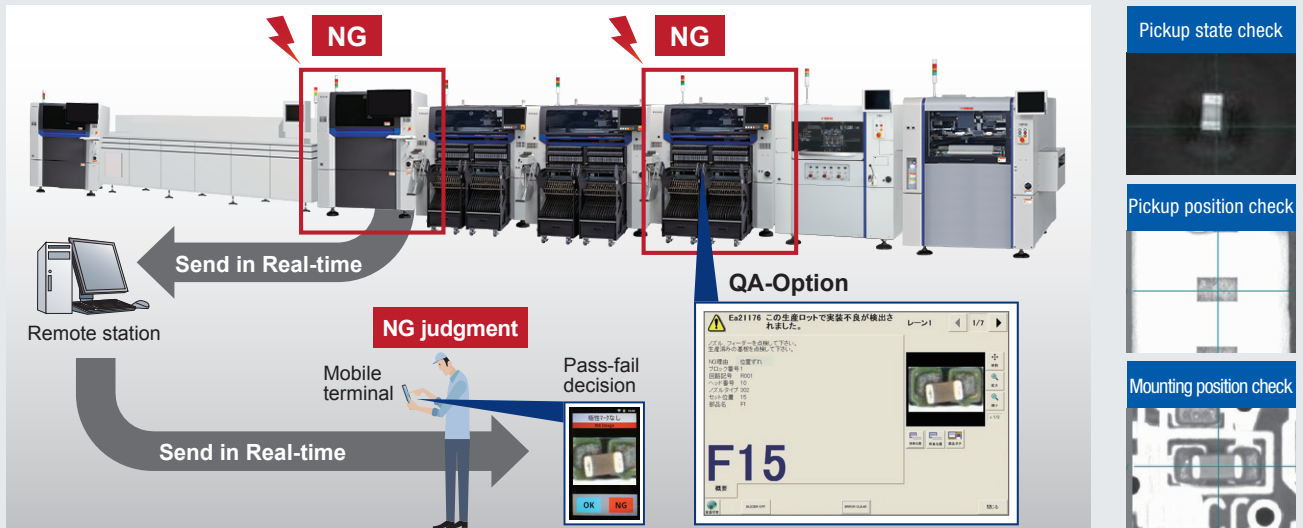## Printer ↔ SPI Feedback

Defect result offsets from SPI can be fed back to printer to automatically adjust print offset. Also SPI machine can request stencil cleaning operation at printer.

SPI　Printer

0201 Prining errors　　Print error feedback
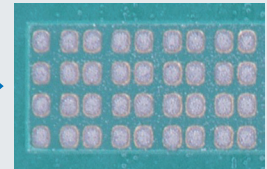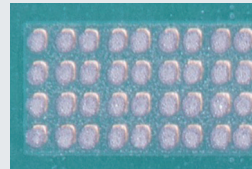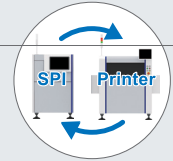
# Mounter <-> AOI Linking (QA Option)

AOI defect results can be fed back to the mounting process to provide equipment operator information related to the defect. In turn, allowing the opportunity to resolve the issue in real-time.

NG　NG

**Send in Real-time**

Remote station

**NG judgment**

Mobile terminal

Pass-fail decision

OK NG

**Send in Real-time**

QA-Option

Ea21176 この生産ロットで実装不良が検出されました。

F15

Pickup state check

Pickup position check

Mounting position check
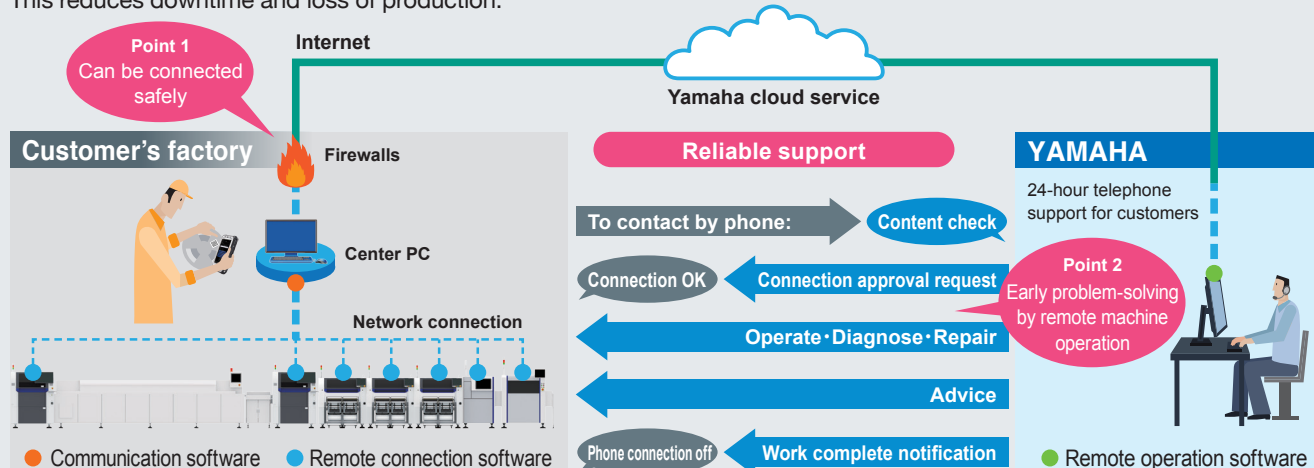
### Mobile Decision Function

Communicates the inspection pass-fail results to an operator's mobile terminal.
Supports operator's efficient production by making the secondary judgement on the inspector results during machine operation.

# Remote Support: Maintenance Package

## Remote Machine Support

Allows support staff the ability to assist with issue resolution and providing training support.
This reduces downtime and loss of production.

**Point 1** Can be connected safely

**Internet**

**Yamaha cloud service**

**Customer's factory**　Firewalls

**Reliable support**

**YAMAHA**

24-hour telephone support for customers

Center PC

To contact by phone:　Content check

Connection OK　Connection approval request

**Point 2** Early problem-solving by remote machine operation

Network connection

Operate・Diagnose・Repair

Advice

● Communication software　● Remote connection software

Phone connection off　Work complete notification
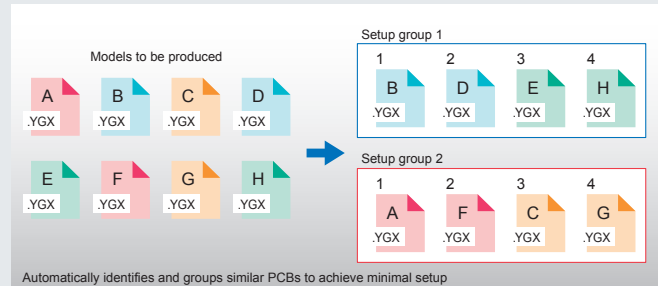
● Remote operation software

## Simplified Programing & Scheduling Package

Create PCB data from various CAD data formats easily. PCB programs are transferable between Yamaha equipment (Printer, SPI, Mounter, AOI)



Creating PCB data

PCB data + PCB image · Gerber image · Inspector data

CAD
CAM
GERBER
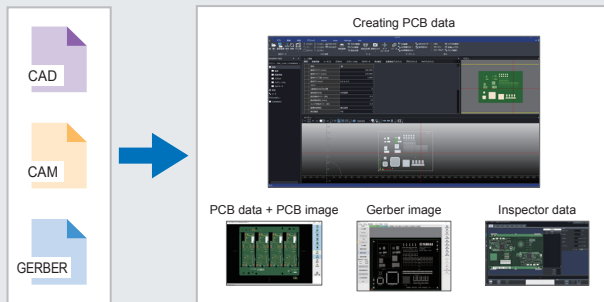
## Optimization via Automated Decision-Making (YSUP-PG)

Optimizes component setup positions and mounting sequences to realize efficient production. It is also possible to plan optimal setup groups or production sequences by considering the PCB surface, reflow conditions, soldering type, and other detailed conditions based on multiple PCB data.



Models to be produced

A .YGX  B .YGX  C .YGX  D .YGX
E .YGX  F .YGX  G .YGX  H .YGX

Setup group 1
1 B .YGX  2 D .YGX  3 E .YGX  4 H .YGX

Setup group 2
1 A .YGX  2 F .YGX  3 C .YGX  4 G .YGX

Automatically identifies and groups similar PCBs to achieve minimal setup

## Graphical User Interface

### ● Real-time Drawing
Reflects changes made to a graphic immediately to create error-free component data.
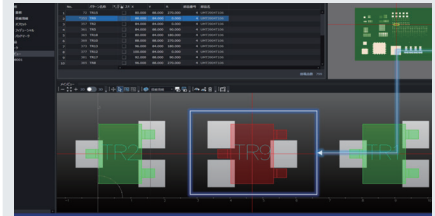


### ● 3D Graphics
Displays the PCB data in a 3D image to make it easier to see the mounting status of components.
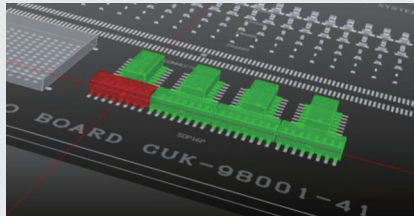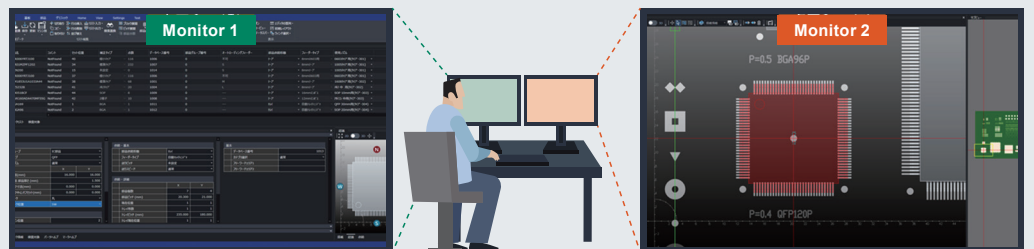


### ● Mounting Simulation
Displays a virtual PCB based on the PCB design data* to check the PCB data for errors before actual mounting.

* PCB design data: Gerber data, ODB++, etc.



### ● Multi-monitor Support
Displays two screens simultaneously to realize comfortable operability.

Monitor 1

Monitor 2