Model ID		NPM-D3A
PCB dimensions*1	Dual-lane mode	L 50 ㎜ × W 50 ㎜ ～ L 510 ㎜ × W 300 ㎜
	Single-lane mode	L 50 ㎜ × W 50 ㎜ ～ L 510 ㎜ × W 590 ㎜
PCB exchange time	Dual-lane mode	0 s* *No 0 s when cycle time is 3.6 s or less
	Single-lane mode	3.6 s* *When selecting short conveyors
Electric source		3-phase AC 200, 220, 380, 400, 420, 480 V 2.7 kVA
Pneumatic source *2		0.5 MPa、100 L /min (A.N.R.)
Dimensions *2		W 832 ㎜ × D 2 652 ㎜ *3 × H 1 444 ㎜ *4
Mass		1 680 kg (Only for main body:This differs depending on the option configuration.)

Placement head		Lightweight 16-nozzle head V3 (Per head)*5		Lightweight 8-nozzle head (Per head)	2-nozzle head (Per head)
		High production mode[ON]	High production mode[OFF]		
Max. speed		46 000 cph (0.078 s/ chip)	38 000 cph (0.095 s/ chip)	21 500 cph (0.167 s/ chip)	5 500 cph (0.655 s/ chip) 4 250 cph (0.847 s/ QFP)
Placement accuracy(Cpk≧1)		±37 μm/ chip	± 30 μm/ chip (±25 μm/ chip *6)	±30 μm/ chip ±30 μm/QFP □12 ㎜ ～ □32 ㎜ ±50 μm/QFP □12 ㎜ Under	± 30 μm /QFP
Component dimensions (㎜)		0402 chip *7 ～L 6 × W 6 × T 3	03015*7*8 /0402 chip *7 ～L 6 × W 6 × T 3	0402 chip *7 ～L 32 × W 32 × T 12	0603 chip ～L 100 × W 90 × T 28
Component supply	Taping	Tape：4 / 8 / 12 / 16 / 24 / 32 / 44 / 56 ㎜			Tape：4～56 / 72 / 88 / 104 ㎜
		Max. 68(4、8 ㎜ tape、Small reel)			
	Stick	————		Max.16 (Single stick feeder)	
	Tray	————		Max.20 (per tray feeder)	

*Placement tact time,inspection time and accuracy values may differ slightly depending on conditions
*Please refer to the specification booklet for details.

*1 : Due to a difference in PCB transfer reference, a direct connection with NPM (NM-EJM9B) / NPM-W (NM-EJM2D) / NPM-W2 (NM-EJM7D) dual lane specs cannot be established.
*2 : Only for main body
*3 : Dimension D including tray feeder: 2 683 ㎜: Dimension D including feeder cart: 2 728 ㎜
*4 : Excluding the monitor, signal tower and ceiling fan cover.
*5 : Lightweight 16NH V2 is also installable.
*6 : ±25 μm placement support option. (Under conditions specified by Panasonic)
*7 : The 03015/0402 ㎜ chip requires a specific nozzle/feeder.
*8 : Support for 03015 ㎜ chip placement is optional. (Under conditions specified by Panasonic : Placement accuracy ±30 μm / chip)

⚠Safety Cautions

- Please read the User's Manual carefully to familiarize yourself with safe and effective usage procedures.
- To ensure safety when using this equipment, all work should be performed according to that as stated in the supplied Operating Instructions. Read your operating instruction manual thoroughly.

Panasonic Group products are built with the environment in mind.

Please check the homepage for the details.
panasonic.com/global/corporate/sustainability

Inquiries…

Panasonic Corporation
Process Automation Business Division

3-1-1 Inazu-cho, Toyonaka City, Osaka 561-0854, Japan
TEL +81-6-6866-8675
FAX +81-6-6862-0422

All data as of August 3, 2020

Ver.August 3, 2020

Panasonic

●Changes in specifications and appearance may be made without notice for product improvement.
●Homepage industrial.panasonic.com/ww/fa-jisso

Panasonic
BUSINESS

2020
Electronics Assembly System
catalog
Production Modular

NPM
NEXT PRODUCTION MODULAR

Manufacturing Process Innovation

Model ID **NPM-D3A**
Model No.NM-EJM6E

LNB conveyor + 3 production modulars in-line setup

CE *It may not conform to Machinery Directive and EMC Directive in case of optional configuration and custom-made specification.

NPM NEXT PRODUCTION MODULAR System evolution according to mounting changes NEW CONCEPT MACHINE

1 High area productivity with total mounting lines

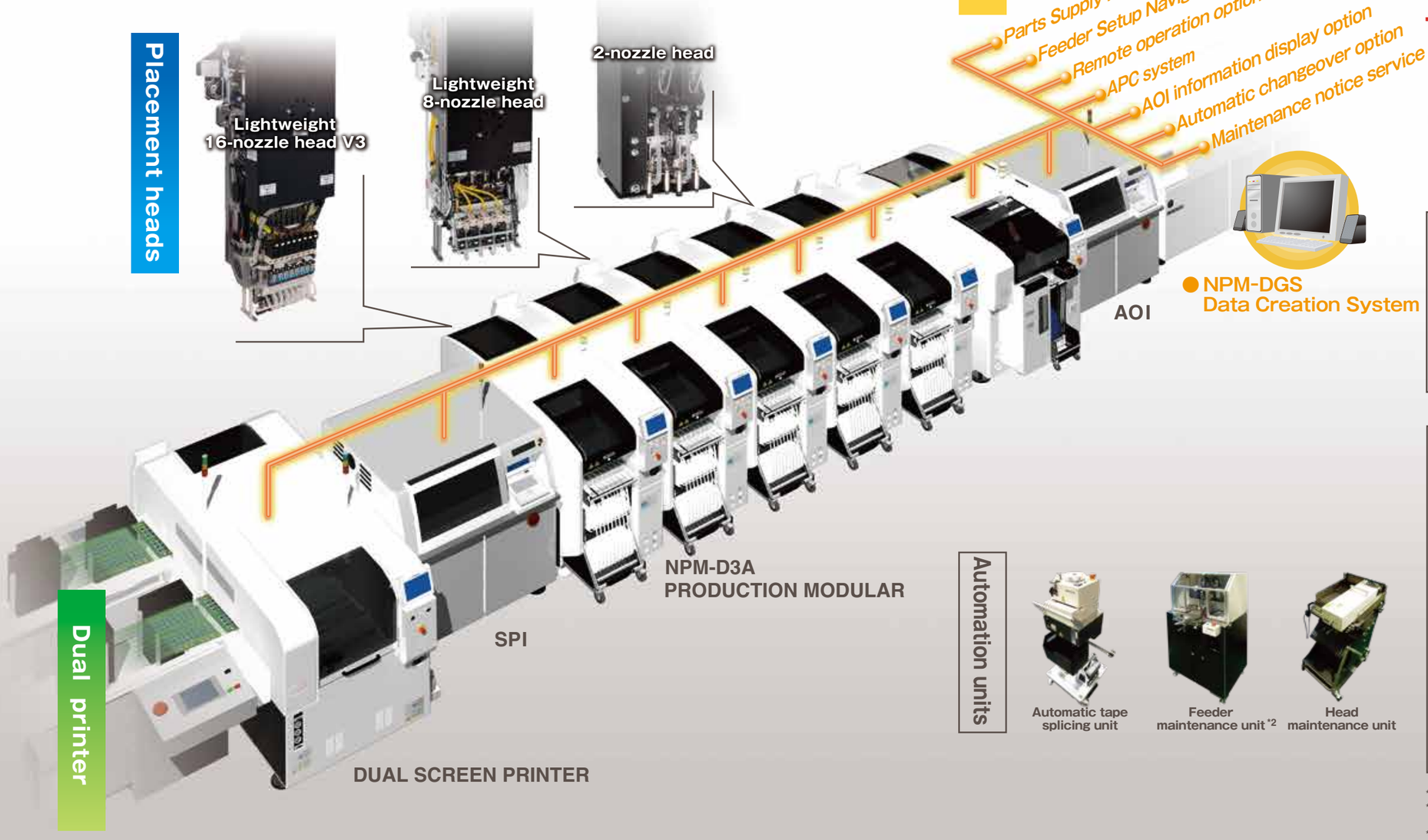
Higher productivity and quality with printing, placement and inspection process integration

2 Configurable modules allow flexible line setup

Head location flexibility with plug-and-play functions

3 Comprehensive control of lines, floor and factory with system software

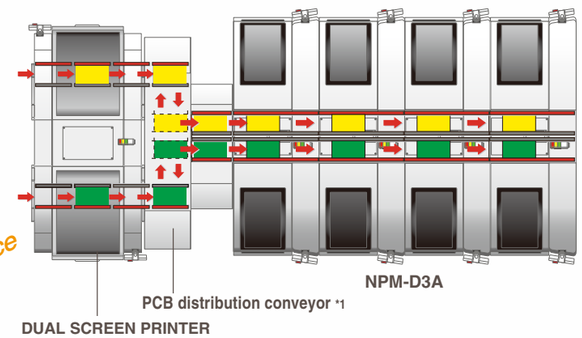
Production plan support through line operation monitoring



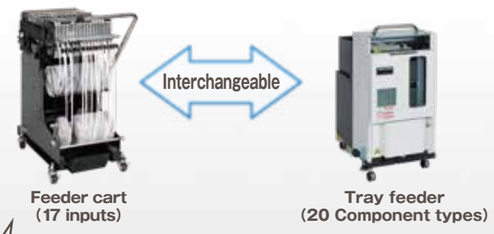
Multi-product line

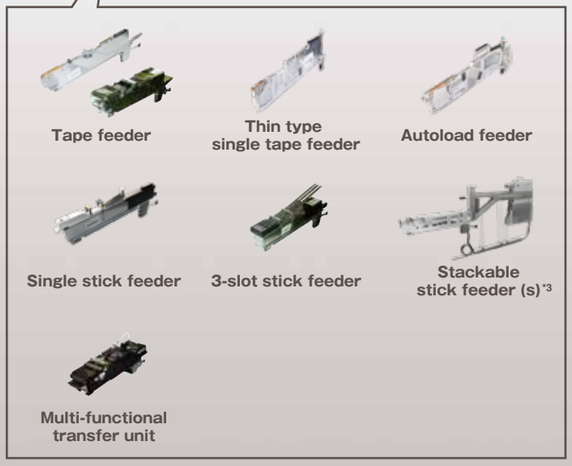
Full dual-lane mounting

The introduction of dual conveyor enables production of different types of PCBs in the same line, thus leading to increased productivity.



Supply units





*1:PCB traverser conveyor to be prepared by customer.
*2:The "Thin type single tape feeder" and "Autoload feeder" require the "Master jig for thin type single feeder" and "Attachment for thin type single feeder".
*3:L-sized one is available separately, depending on the component size.

NPM NEXT PRODUCTION MODULAR

Higher area productivity through dual lane placement
Placement Heads

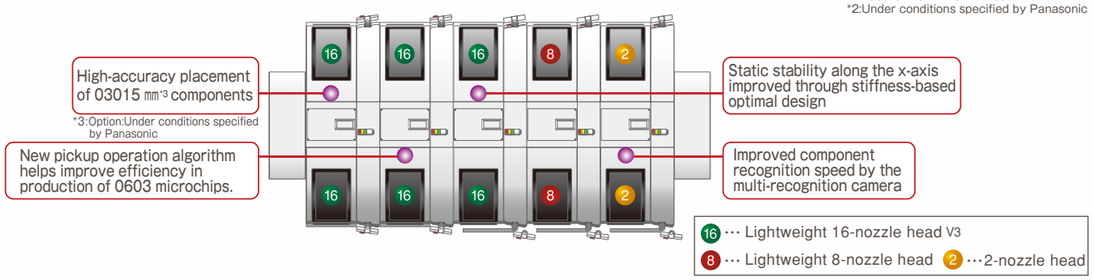
Features

The introduction of light-weight 16NH V3 further advances the performance of the machine.

◆**High production mode** (High production mode: ON)
Max. speed : 92 000 cph[*1] **(IPC9850(1608): 66 200 cph**[*1]**) / Placement accuracy : ± 37 μm**

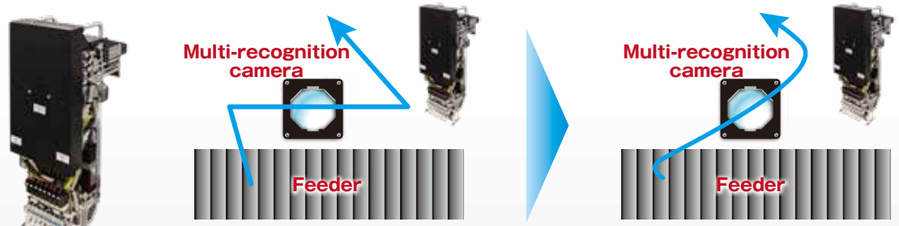
◆**High accuracy mode** (High production mode : OFF)
Max. speed : 76 000 cph[*1] **/ Placement accuracy : ±30 μm (Option : ±25 μm**[*2] **)**

*1:Tact for 16NH V3× 2 head
*2:Under conditions specified by Panasonic



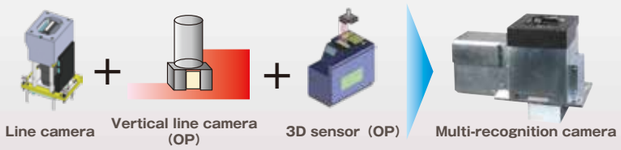
High productivity　Lightweight 16NH V3

The introduction of lightweight 16NH V3 allows the X- and Y-axes to be driven simultaneously during parts recognition, thus improving placement takt through optimal routing.



Multi-recognition camera

The three distinct recognition capabilities conventionally included in separate units have been integrated into one device. Now the three different recognition operations, including the one to detect the parts condition along their heights, can be simultaneously performed in a single scan, thus delivering continued high productivity.
The device can be upgraded from 2D specs to 3D specs.

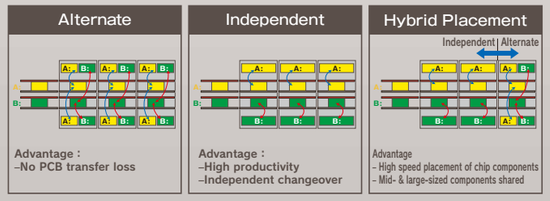


Dual mounting method

Alternate,Independent & Hybrid Placement

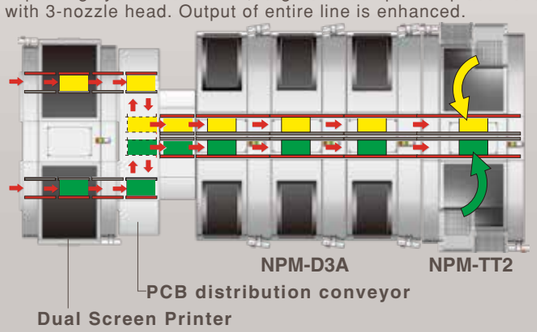
Selectable "Alternate" and "Independent" dual placement method allows you to make good use of each advantage.

- Alternate :Front and rear heads execute placement on PCBs in front and rear lanes alternately.
- Independent:Front head executes placement on PCB in front lane and rear head execute placement on rear lane.



High productivity through fully independent placement

Achieved independent placement of tray components by directly linking with NPM-TT2.
Capable of fully independent placement of tray components improving cycle time of mid-, large-size component placement with 3-nozzle head. Output of entire line is enhanced.



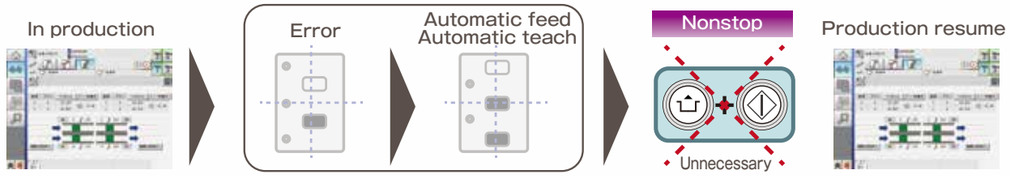
NPM NEXT PRODUCTION MODULAR

Autonomous line control to maintain constant productivity and quality
Auto recovery & Line Control

Improved availability　Automatic recovery option

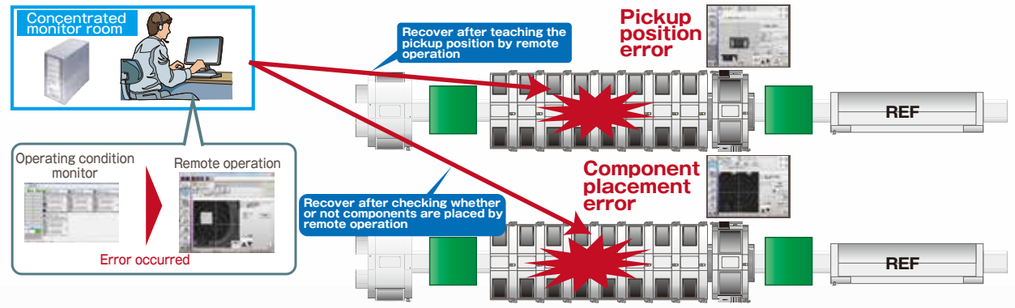
This automatically adjusts the pickup position without interrupting the machine to continue production, thus enhancing machine availability.

[Automatically resume production after pickup position teach]



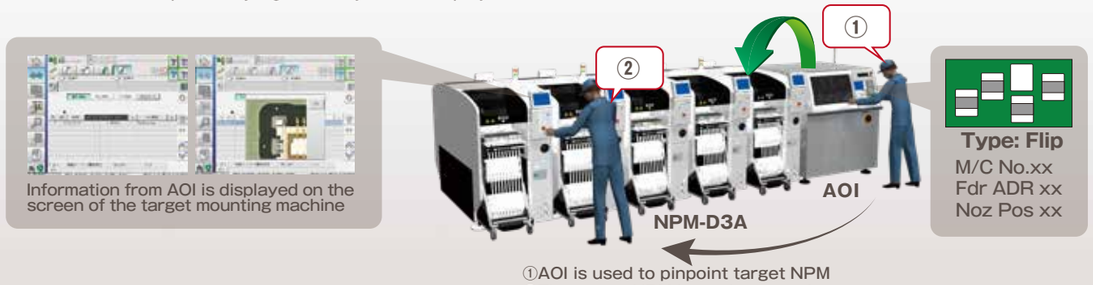
Remote operation option

Recovery by remote operation is available for the error of which recovery can be made based on human judgment alone.
This enables concentrated on-the-floor monitoring, eliminating the time lost for the operator to detect error and take appropriate action, reducing the error recovery time, and thus achieving labor saving and improved operating rate.



AOI Info Display Option

Information on components judged NG by AOI is displayed both on AOI and NPM.

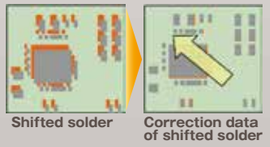


①AOI is used to pinpoint target NPM
②The target NPM is put in a warning state, and information from AOI is displayed on the screen

High-quality mounting　APC system

APC-FB
Feedback to the printing machine

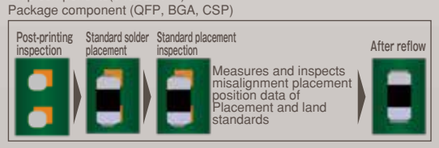
- Based on the analyzed measurement data from solder inspections, it corrects printing positions. (X,Y, θ)



APC-FF
Feedforward to the placement machine

- It analyzes solder position measurement data, and corrects component placement positions (X, Y, θ) accordingly.

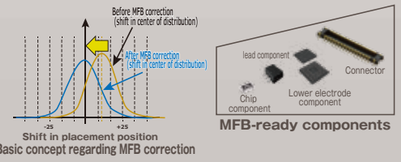
Chip components(0402C/R ～)
Package component (QFP, BGA, CSP)



APC-MFB2
Feedforward to AOI / Feedback to the placement machine

- Position inspection on APC offset position
- The system analyzes AOI component position measurement data, corrects placement position (X, Y, θ), and thereby maintains placement accuracy.

Compatible with chip components, lower electrode components and lead components*1

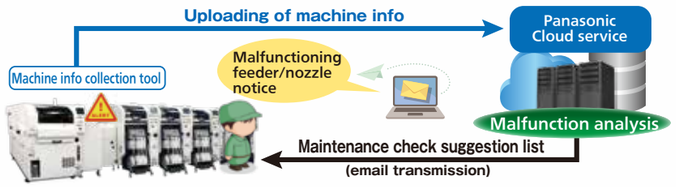


*1:APC-MFB2 (mounter feedback2): Applicable component types vary from one AOI vendor to another. (Please ask your local sales representative for details.)

NPM NEXT PRODUCTION MODULAR
Total management by system software
System Software

Maintenance/Preservation　Maintenance notice service*1

Cloud-based contractual service. It makes malfunction analysis based on machine info uploaded by subscriber to our cloud to find any feeder or nozzle*2 that requires condition check, and then sends a maintenance check suggestion list containing the analysis result to the subscriber.



*1: Maintenance service agreement must be concluded with us. (for details, contact our sales representative.)
*2: Only Panasonic nozzles with 2D code are applicable.

Head diagnosis option

It automatically self-diagnoses placement heads on a regular basis and stores diagnosis histories. Keeping track of any change in the condition of each head, it performs preventive maintenance of the head, reducing losses resulting from heads and sudden machine shutdowns.


Machine head diagnosis screen


LNB history save screen

Component Verification option　Off-line setup support station

Prevents setup errors during changeover Provides an increase of production efficiency through easy operation


*Wireless scanners and other accessories to be provided by customer

●**Preemptively deters component misplacement**
Prevents misplacement by verifying production data with the barcode information on changeover components.

●**Automatic setup data synching function**
The machine itself does the verification, eliminating the need to select separate setup data.

●**Interlock function**
Any problems or lapses in verification will stop the machine.

●**Navigation function**
A navigation function to make the verification process more readily understandable.

With the support stations, offline feeder cart setup is possible even outside of the manufacturing floor.

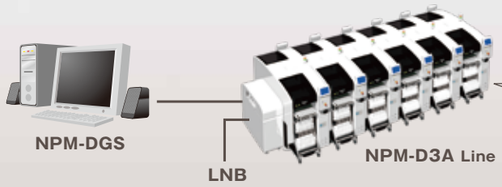
●**Two types of Support Stations are available.**

①Power Supply Station:
Batch Exchange Cart Setup – Provides power to all feeders in cart. Feeder Setup – provides power to individual feeders.

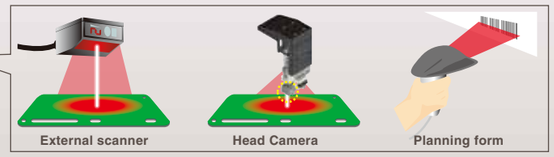
②Component Verification Station:
Additional to the power supply station, Component Verification feature is added to this model.
The station will navigate you to the location where feeders need exchange.

Changeover ability　Automatic changeover option

Supporting changeover (production data and rail width adjustment) can minimize time loss



●**PCB ID read-in type**
PCB ID read-in function is selectable from among 3 types of external scanner, head camera or planning form



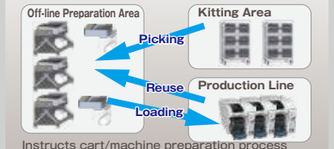
Feeder setup navigator option

It is a support tool to navigate efficient setup procedure. The tool factors in the amount of time it takes to perform and complete setup operations when estimating the time required for production and providing the operator with setup instructions. This will visualize and streamline setup operations during setup for a production line.

1 Gross Production Time Estimate


Production completion time is estimated based on setup time and available human resource

2 Feeder preparation process instructions



Instructs cart/machine preparation process in three steps: load, remove, and relocate

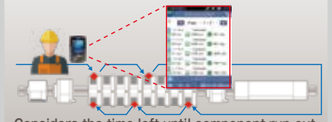
3 Instruction Display on Tablet Device

Instructions can be checked from anywhere

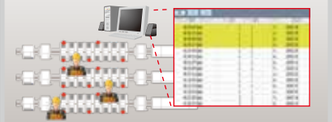
Operating rate improvement　Parts supply navigator option

A component supply support tool that navigates efficient component supply priorities. It considers the time left until component run-out and efficient path of operator movement to send component supply instructions to each operator. This achieves more efficient component supply.

1 Wireless scanner indication of supply priorities


Considers the time left until component run-out and efficient path of operator movement to send supply priority instructions.

2 Visualization of supply statuses


Visualizes supply instructions sent to each operator on the main troubleshooting console.

3 Cut down of redundant work and waiting times

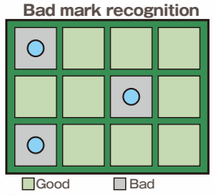
Components are supplied per operator to prevent any overlaps.

*PanaCIM is required to have operators in charge of supplying components to multiple production lines.

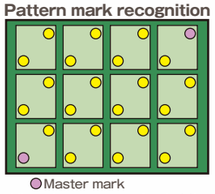
PCB info communication function

Information of mark recognitions done on first NPM machine in line is passed on to downstream NPM machines. Which can reduce cycle time utilizing the transferred information.
[Subject for communication]

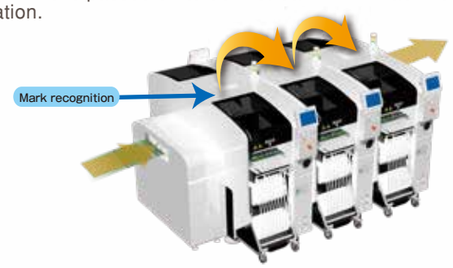
Bad mark recognition


Good　Bad
Bad mark is scanned at the first machine.

Pattern mark recognition

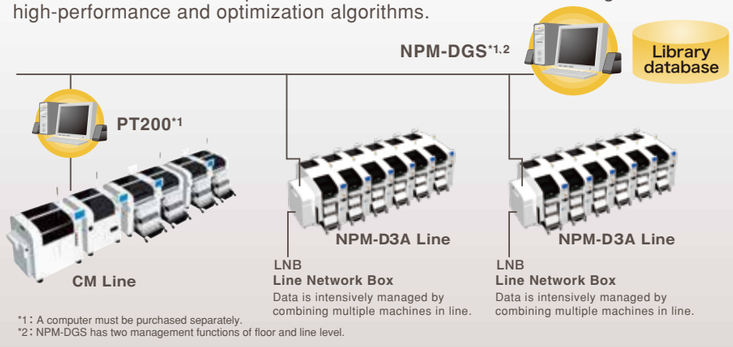

Master mark
All marks are recognized at the first machine and downstream machines only recognize master marks.

*Please refer to "Specification" booklet for details.



Data Creation System　NPM-DGS (Model No.NM-EJS9A)

This is a software package that provides integrated management of component library and PCB data, as well as production data that maximizes mounting lines with high-performance and optimization algorithms.



*1: A computer must be purchased separately.
*2: NPM-DGS has two management functions of floor and line level.

CAD import


Allows you to import CAD data and check polarity, etc., on the screen.

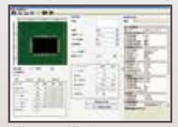
Optimization


Realizes high productivity and also allows you to create common arrays.

PPD editor


Update production data on PC during production to reduce the loss of time.

Component library


Allows unified management of the component library including mounting, inspection and dispensing.

Offline Camera(option)

Component data can be created offline even while the machine is in operation.

Use the line camera to create component data. Lighting conditions and recognition speed can be confirmed in advance, so it contributes to the improvement of productivity and quality.


Offline Camera Unit

DGS Automation(option)

Automated manual routine tasks reduce operation errors and data creation time.

Manual routine tasks can be automated.
By collaborating with the customer system, the routine tasks for creating data can be reduced, so it contributes to a significant reduction in production preparation time.
It also includes the function to automatically correct the coordinates and angle of the mounting point (Virtual AOI).

Example of entire system image:

Automated tasks (excerpt)
- CAD import
- Offset mark setting
- PCB chamfering
- Mounting point misalignment correction
- Job creation
- Optimization
- PPD output
- Download

Optimization of setup(option)

In production involving multiple models, setup workloads are taken into account and optimized.

For more than one PCB sharing common component placement, multiple setups may be required due to a shortage of suppy units. In order to reduce the required setup workloads in such a case, this option divides PCBs into similar component placement groups, selects a table(s) for setup and thus automates component placement operation. It contributes to improving setup performance and reducing production preparation time for customer manufacturing various kinds of products in small quantities.

Example: