Machine configuration

Supply unit layout

Rear camera

Mounting head

Front camera

	Layout 1	Layout 2	Layout 3	Layout 4	Layout 5
	8 mm taping : 120 Tray : 0	8 mm taping : 136 Tray : 0	8 mm taping : 94 Tray : 24	8 mm taping : 102 Tray : 24	8 mm taping : 68 Tray : 48
Top	ASF *1 cart (60-slot) ITF *2 cart (30-slot)	ASF *1 cart (34-slot) × 2 ITF *2 cart (17-slot) × 2	ASF *1 cart (34-slot) / tray ITF *2 cart (17-slot) / tray	ASF *1 cart (34-slot) / tray ITF *2 cart (17-slot) / tray	ASF *1 cart (34-slot) / tray ITF *2 cart (17-slot) / tray
Bottom	ASF *1 cart (60-slot) ITF *2 cart (30-slot)	ASF *1 cart (34-slot) × 2 ITF *2 cart (17-slot) × 2	ASF *1 cart (60-slot) ITF *2 cart (30-slot)	ASF *1 cart (34-slot) × 2 ITF *2 cart (17-slot) × 2	ASF *1 cart (34-slot) / tray ITF *2 cart (17-slot) / tray

*1 : Auto Setting Feeder   *2 : Intelligence Tape Feeder

Panasonic CONNECT

Electronics Assembly System

Modular Placement Machine
Catalogue

Model ID
NPM-GW
Model No.
NM-EJM2F

Model ID	NPM-GW		
Model No.	NM-EJM2F		
PCB dimensions	Single conveyor	Batch mounting : L 50 mm × W 50 mm to L 760 mm × W 687 mm	2 position mounting : L 50 ㎜ × W 50 ㎜ to L 360 ㎜ × W 687 ㎜
	Dual conveyor / PC size PCB width 300 mm	Dual transfer (Batch) : L 50 mm × W 50 mm to L 760 mm × W 300 mm	Dual transfer (2 position) : L 50 ㎜ × W 50 ㎜ to L 360 ㎜ × W 300 ㎜
		Single transfer (Batch) : L 50 mm × W 50 mm to L 760 mm × W 590 mm	Single transfer (2 position) : L 50 ㎜ × W 50 ㎜ to L 360 ㎜ × W 590 ㎜
	Dual conveyor / M size PCB width 260 mm	Dual transfer (Batch) : L 50 mm × W 50 mm to L 760 mm × W 260 mm	Dual transfer (2 position) : L 50 ㎜ × W 50 ㎜ to L 360 ㎜ × W 260 ㎜
		Single transfer (Batch) : L 50 mm × W 50 mm to L 760 mm × W 510 mm	Single transfer (2 position) : L 50 ㎜ × W 50 ㎜ to L 360 ㎜ × W 510 ㎜
Electric source	3-phase AC 200、220、380、400、420、480 V 2.5 kVA		
Pneumatic source *1	Min.0.5 MPa、200 L / min (A.N.R.)		
Dimensions *2	W 1 410 mm × D 2 320 mm × H 1 444 mm *3 / W 1 410 mm × D 2 468 mm × H 1 444 mm *4		
Mass	2 810 kg *3 / 2 840 kg *4		

Placement head	FC16 head (Per head)	FC08 head (Per head)	FC03 head (Per head)
Max. speed *5	52 000 cph*6 (0.070 s / chip)	26 500 cph (0.136 s / chip)	10 000 cph (0.360 s / chip)
Placement accuracy (Cpk≧1)*5	± 25 µm /chip	± 25 µm / chip ± 25 µm / QFP	± 25 µm / chip ± 20 µm *7 / QFP
Component dimensions (㎜)	0201 chip *8 *9 / 03015 chip *8 to L 10 × W 10 × T 6 *10	0402 chip *8 to L 45 × W 45 or L 100 × W 40 × T 12	0603 chip to L 120 × W 90 or L 150 × W 25 × T 40 or L 135 × W 135 × T 18 *11
Component supply / Taping	Tape : 4 / 8 / 12 / 16 / 24 / 32 / 44 / 56 mm	Tape : 4 to 56 / 72 mm	Tape : 4 to 56 / 72 / 88 / 104 mm
	Max.136 (4、8 mm tape)		
Component supply / Stick	———	Max.16 (SF3*12)	
Component supply / Tray	———	Max.48	

Please refer to the specification booklet for details.

*1 : Only for main body
*2 : Excluding the monitor and signal tower
*3 : Machine dimensions and mass for standard configuration
(NPM-GW and ASF*13 cart (60-slot) × 2 or cart (34-slot) × 4).
They differ depending on the optional configuration.
*4 : Dimensions and mass of the machine and
two ITF *14 carts (30-slot).
They differ depending on the optional configuration.

*5 : Values such as the maximum takt time and placement accuracy
may differ slightly depending on conditions.
*6 : Under optimal operating conditions for the machine with
dual lane mode.
*7 : The placement angle recognition setting needs to be enabled.
*8 : 0201 / 03015 / 0402 component requires a specific nozzle
/ tape feeder.
*9 : 0201 component placement is optional.
(Under conditions specified by Panasonic)

*10 : T 6 needs dedicated short nozzles and is
□6.5 mm or less.
*11 : □135 mm is option.
*12 : Stick Feeder 3-slot
*13 : Auto Setting Feeder
*14 : Intelligent Tape Feeder

⚠️ 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.   For details here   **Panasonic GREEN IMPACT**

Inquiries…

NPM G

CE

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

"Autonomous Factory" Concept *

A factory that immediately responds to every situation and continues to evolve autonomously

Ensuring the production of non-defective items through the integrated control of autonomous uninterrupted mounting lines and floors independent of any human intervention and judgment

Advancements in components and PCBs
Digitalization of manufacturing
Decreased labor population
Sudden change in demand / supply Changing needs
Semiconductor shortage
International situation
Natural disaster Pandemic

*Under development toward the realization of the concept

Plan Formulation AI
5M management

Plan preparation / Resource* planning
Suggestion for maximization of profits with minimum resources*

Resource* plan
Shipment plan

Production capacity
Resource* usage

Project optimization / Resource* allocation
Giving instructions to maximize production volume with specified existing resources*

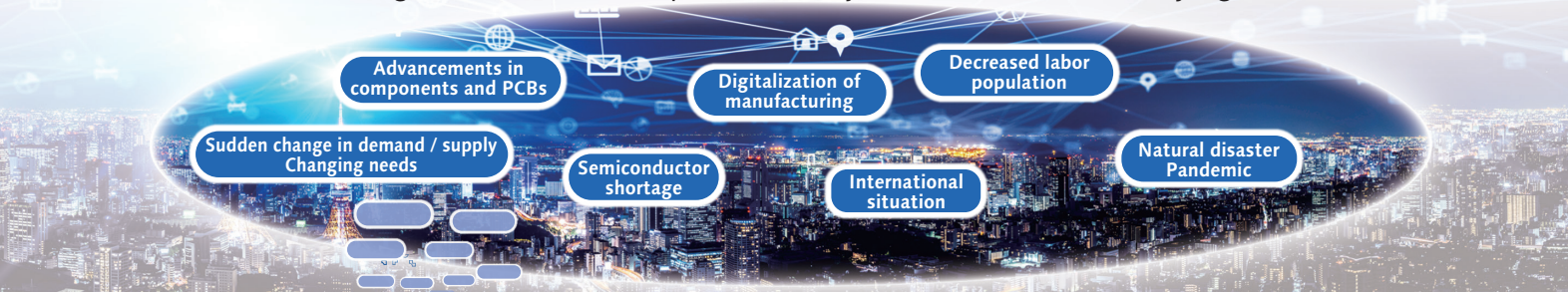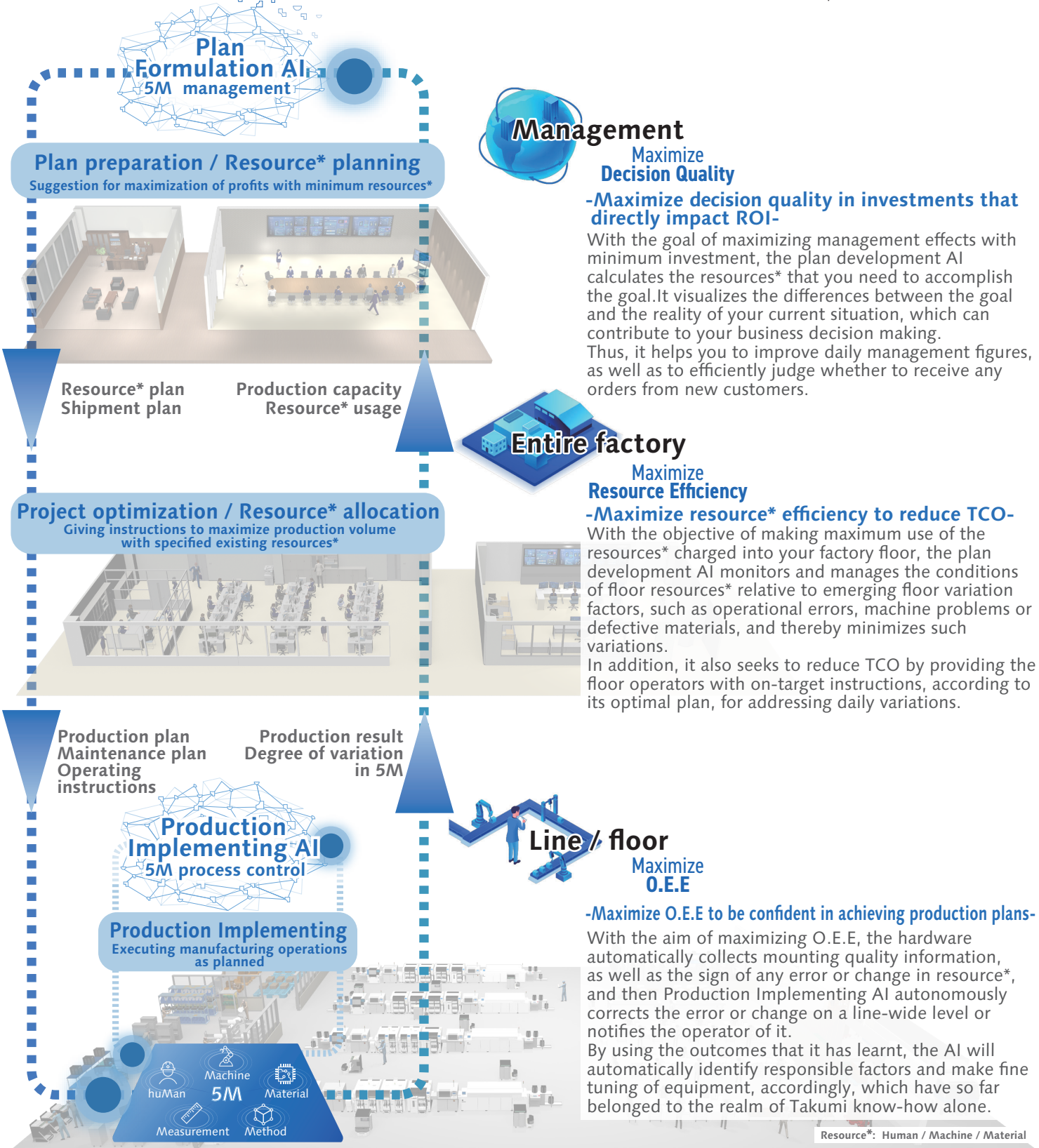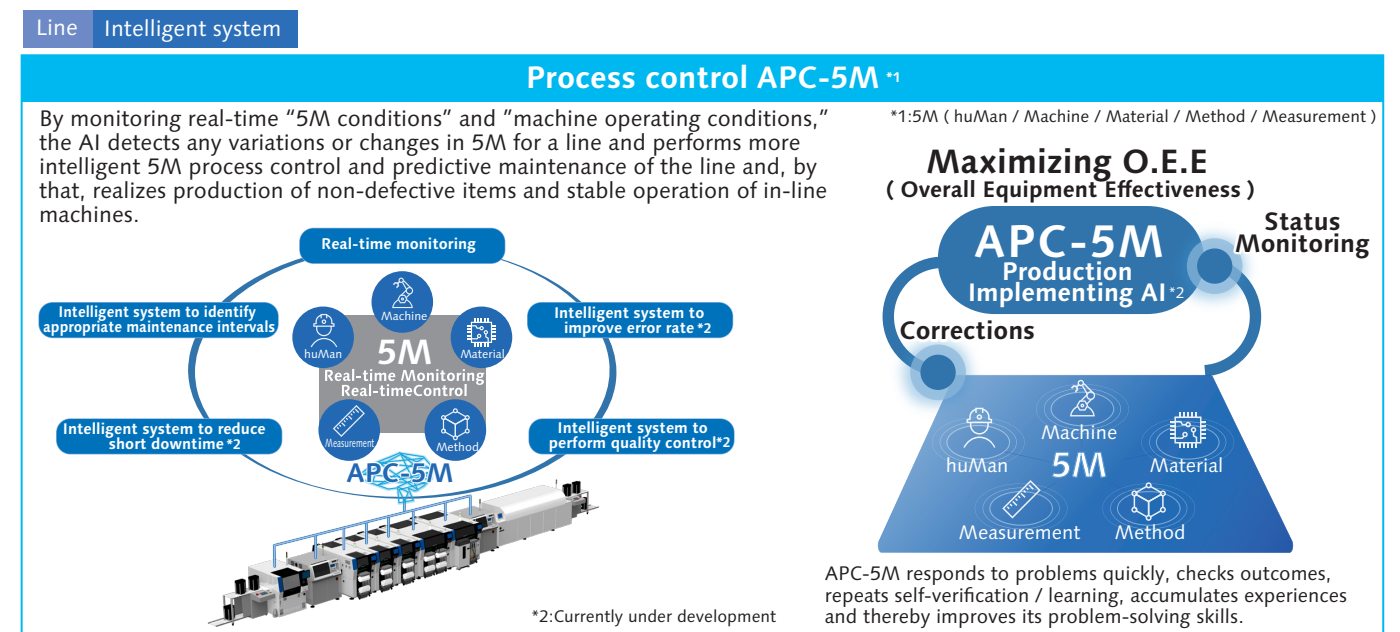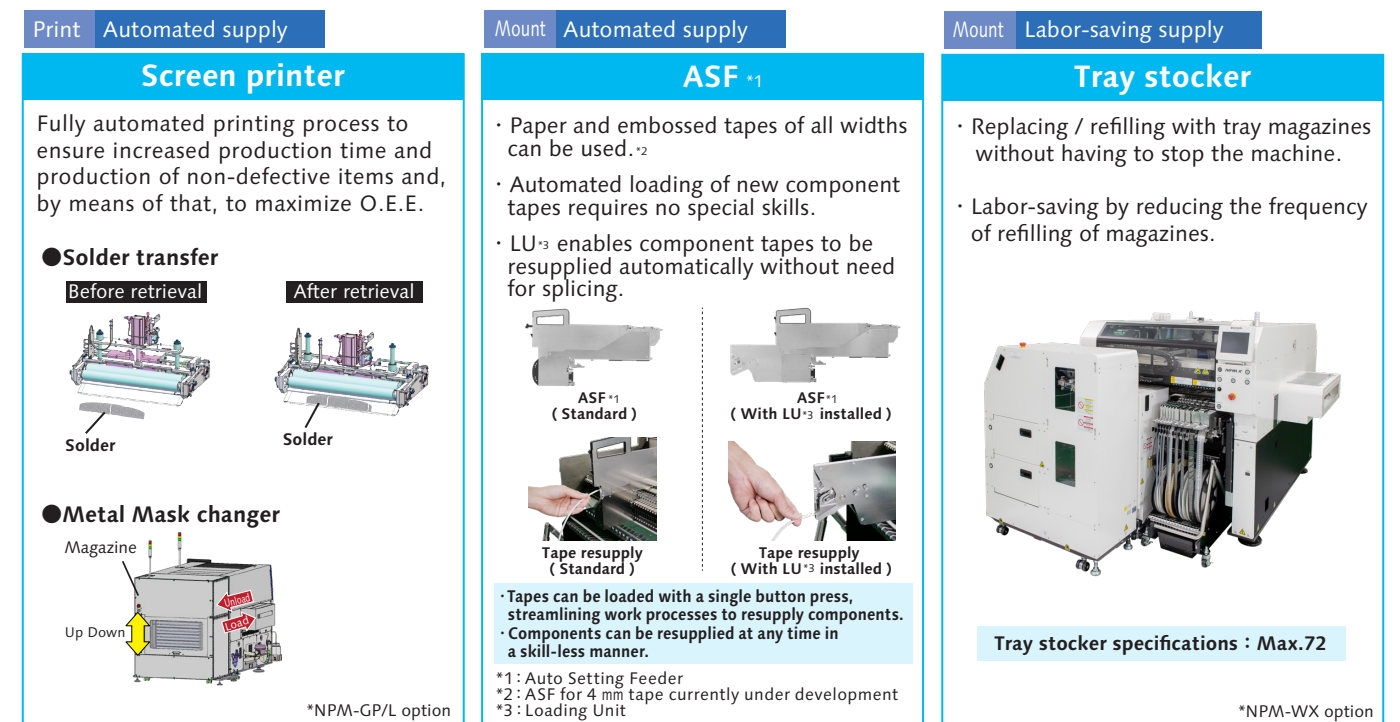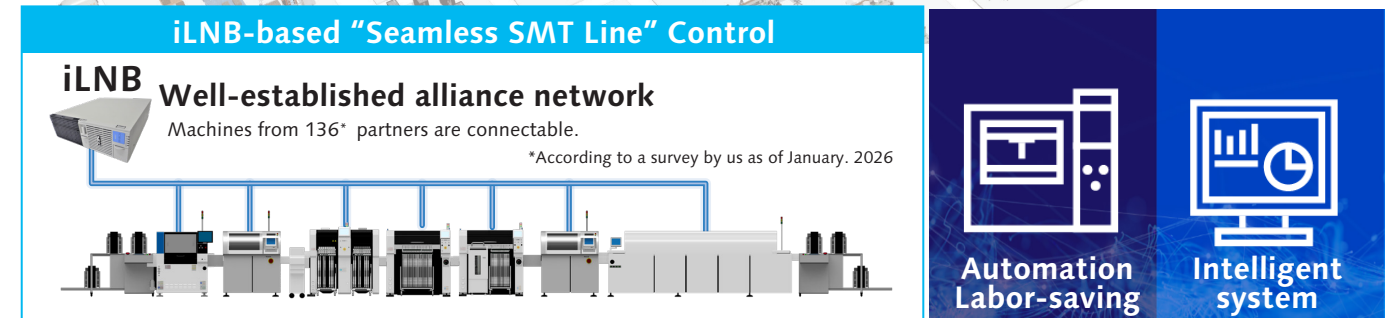Production plan
Maintenance plan
Operating instructions

Production result
Degree of variation in 5M

Production Implementing AI
5M process control

Production Implementing
Executing manufacturing operations as planned

huMan / Machine / Material / Measurement / Method
5M

Management

Maximize Decision Quality

-Maximize decision quality in investments that directly impact ROI-

With the goal of maximizing management effects with minimum investment, the plan development AI calculates the resources* that you need to accomplish the goal. It visualizes the differences between the goal and the reality of your current situation, which can contribute to your business decision making.
Thus, it helps you to improve daily management figures, as well as to efficiently judge whether to receive any orders from new customers.

Entire factory

Maximize Resource Efficiency

-Maximize resource* efficiency to reduce TCO-

With the objective of making maximum use of the resources* charged into your factory floor, the plan development AI monitors and manages the conditions of floor resources* relative to emerging floor variation factors, such as operational errors, machine problems or defective materials, and thereby minimizes such variations.
In addition, it also seeks to reduce TCO by providing the floor operators with on-target instructions, according to its optimal plan, for addressing daily variations.

Line / floor

Maximize O.E.E

-Maximize O.E.E to be confident in achieving production plans-

With the aim of maximizing O.E.E, the hardware automatically collects mounting quality information, as well as the sign of any error or change in resource*, and then Production Implementing AI autonomously corrects the error or change on a line-wide level or notifies the operator of it.
By using the outcomes that it has learnt, the AI will automatically identify responsible factors and make fine tuning of equipment, accordingly, which have so far belonged to the realm of Takumi know-how alone.

Resource*: Human / Machine / Material

Automation / Labor-saving Solution + Intelligent system Solution to Achieve Manufacturing That Is Further in Line with Production Plan

iLNB-based "Seamless SMT Line" Control

iLNB Well-established alliance network
Machines from 136* partners are connectable.

*According to a survey by us as of January. 2026

Automation Labor-saving
Intelligent system

| Print | Automated supply |
Screen printer
Fully automated printing process to ensure increased production time and production of non-defective items and, by means of that, to maximize O.E.E.

● Solder transfer

Before retrieval / After retrieval

Solder / Solder

● Metal Mask changer

Magazine

Up Down

*NPM-GP/L option

| Mount | Automated supply |
ASF *1
· Paper and embossed tapes of all widths can be used.*2
· Automated loading of new component tapes requires no special skills.
· LU*3 enables component tapes to be resupplied automatically without need for splicing.

ASF*1 (Standard)
ASF*1 (With LU*3 installed)

Tape resupply (Standard)
Tape resupply (With LU*3 installed)

· Tapes can be loaded with a single button press, streamlining work processes to resupply components.
· Components can be resupplied at any time in a skill-less manner.

*1 : Auto Setting Feeder
*2 : ASF for 4 mm tape currently under development
*3 : Loading Unit

| Mount | Labor-saving supply |
Tray stocker
· Replacing / refilling with tray magazines without having to stop the machine.
· Labor-saving by reducing the frequency of refilling of magazines.

Tray stocker specifications : Max.72

*NPM-WX option

| Line | Intelligent system |
Process control APC-5M *1

By monitoring real-time "5M conditions" and "machine operating conditions," the AI detects any variations or changes in 5M for a line and performs more intelligent 5M process control and predictive maintenance of the line and, by that, realizes production of non-defective items and stable operation of in-line machines.

*1:5M (huMan / Machine / Material / Method / Measurement)

Real-time monitoring
Intelligent system to identify appropriate maintenance intervals
Intelligent system to improve error rate *2
Intelligent system to reduce short downtime *2
Intelligent system to perform quality control*2

5M
Real-time Monitoring
Real-timeControl

Machine / huMan / Material / Measurement / Method

APC-5M

*2:Currently under development

Maximizing O.E.E (Overall Equipment Effectiveness)

APC-5M
Production Implementing AI*2

Status Monitoring
Corrections

huMan / Machine / Material / Measurement / Method
5M

APC-5M responds to problems quickly, checks outcomes, repeats self-verification / learning, accumulates experiences and thereby improves its problem-solving skills.

Realization of Autonomous Mounting Line

NPM-GW

Aiming for Actualization of Autonomous Factory

NPM-GW's features
New platform to realize "Autonomous Factory"

1 Basic performance improved through core unit upgrade

FC16 head

2 Autonomous control of variations in 5Ms

FC08 head   FC03 head

3 Departure from skill-based operations

NPM-GW

---

1 Basic performance improved through core unit upgrade

Increased productivity

【 FC16 head 】
Max.speed：104 000 cph *1
IPC9850 (1608)：70 000 cph *1

【 FC08 head 】
Max.speed：53 000 cph *2
IPC9850 (1608)：42 000 cph *2

【 FC03 head 】
Max.speed：20 000 cph *3
IPC9850 (1608)：13 800 cph *3

*1：Tact time for the machine with FC16 × 2 heads
　　(Under optimal operating conditions for the machine with dual lane mode.)
*2：Tact time for the machine with FC08 × 2 heads
*3：Tact time for the machine with FC03 × 2 heads

Improved ability to support components

【 mm 】
45 *1
40
18
12
6
3

FC03 head
Component weight:50 g
(option 350g)
Placement load:100 N

FC08 head *2

FC16 head *3

Expanded Option
Option
Expanded
Expanded
Expanded

0201 03015 0402 0603 □6 6.5 □10 □32 □45 150×25 □135
                                          100×40 120×90
component dimensions 【 mm 】
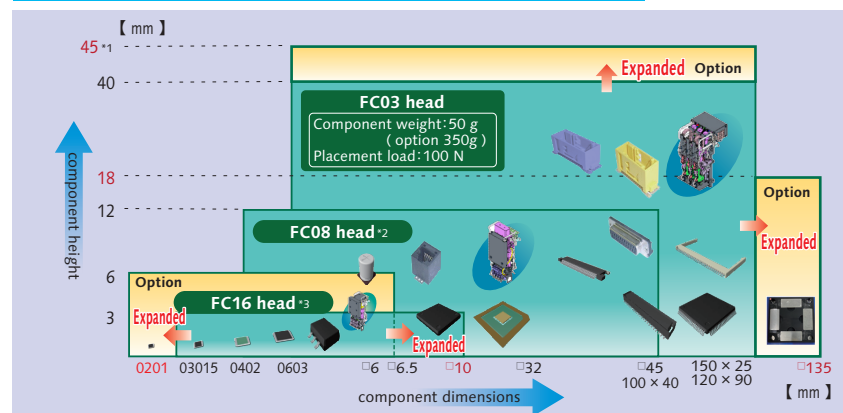
*1：When the PCB thickness is at the maximum (8.0 mm), the height of a component will be 45 mm.
　(PCB thickness + Max component height ≦ T53)
*2：High-speed head placement constant load control option enables to support a placement load of 1.0 N.
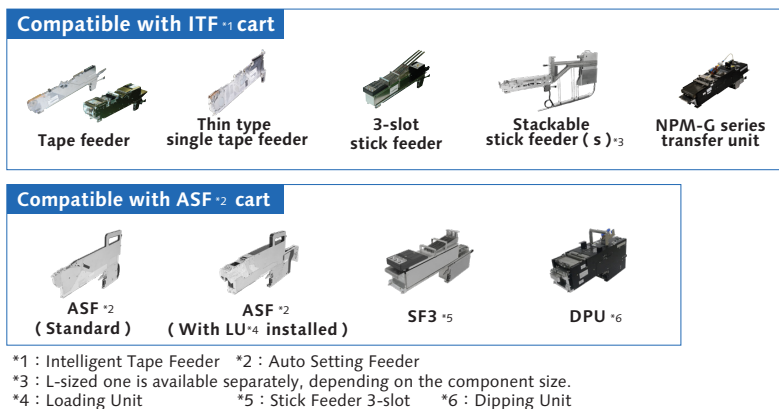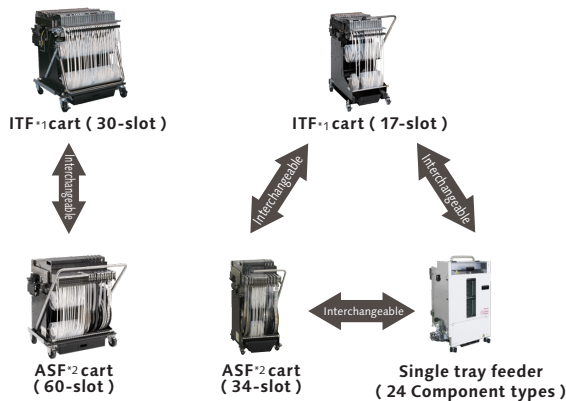*3：High-speed head placement constant load control option enables to support a placement load of 0.5 N and 1.0 N.

Increased PCB adaptability

Increase in transportable PCB size. (The following figures show increases compared to NPM-WX.)

Single conveyor spec

Long PCB	Short PCB
760 × 687 ㎜ ⇧ 750 × 610 ㎜	360 × 687 ㎜ ⇧ 350 × 610 ㎜

Dual conveyor spec

Long PCB	Short PCB
760 ㎜ ⇧ 750 × 590 ㎜	360 ㎜ ⇧ 350 × 300 ㎜
Single transfer	Dual transfer
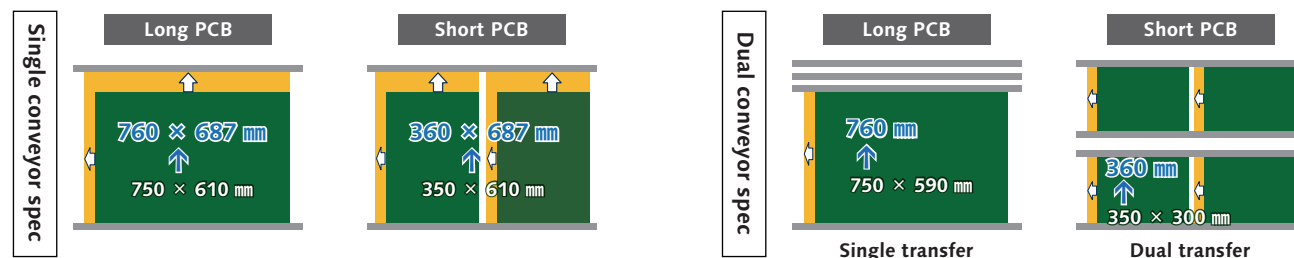
Greater versatility in supply units

Its overall versatility has been enhanced as it now allows you to make the following exchanges on your own.
・Exchanging ITF*1 cart (30-slot) for ASF*2 cart (60-slot)
・Exchanging ITF*1 cart (17-slot) / ASF*2 cart (34-slot) for single tray feeder (24-product type)

ITF*1 cart (30-slot)   ITF*1 cart (17-slot)

Interchangeable   Interchangeable   Interchangeable

ASF*2 cart (60-slot)   ASF*2 cart (34-slot)   Single tray feeder (24 Component types)

Compatible with ITF*1 cart

Tape feeder   Thin type single tape feeder   3-slot stick feeder   Stackable stick feeder (s)*3   NPM-G series transfer unit

Compatible with ASF*2 cart

ASF *2 (Standard)   ASF *2 (With LU*4 installed)   SF3 *5   DPU *6

*1：Intelligent Tape Feeder　*2：Auto Setting Feeder
*3：L-sized one is available separately, depending on the component size.
*4：Loading Unit　　*5：Stick Feeder 3-slot　　*6：Dipping Unit
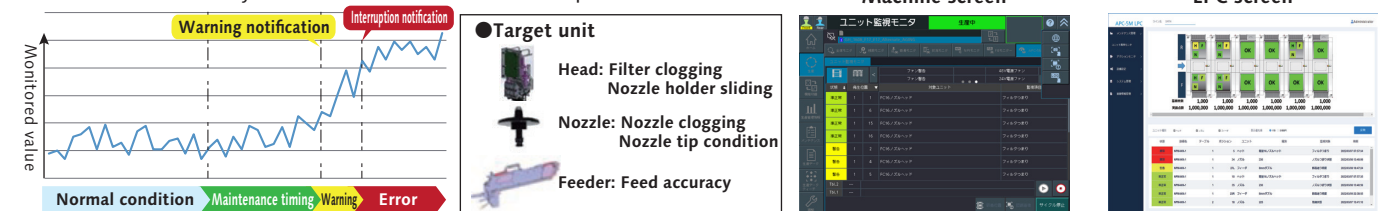
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2 Autonomous control of variations in 5Ms
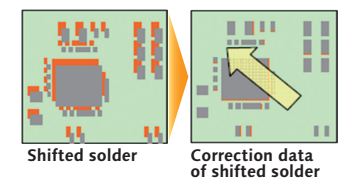
APC system

APC-5M: Real-time unit monitoring

APC-5M monitors the conditions of target units in real time and provides notification of the timing of maintenance of each unit or any error condition that could interrupt production, depending on variations in monitored unit values.
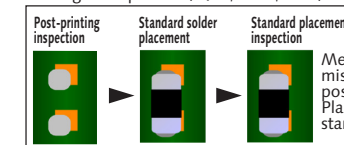This function enables you to conduct maintenance at optimal times.

Machine screen   LPC screen

Monitored value
Warning notification   Interruption notification

Normal condition Maintenance timing Warning Error

●Target unit
Head: Filter clogging
Nozzle holder sliding
Nozzle: Nozzle clogging
Nozzle tip condition
Feeder: Feed accuracy

APC-FB *1
Feedback to the printing machine
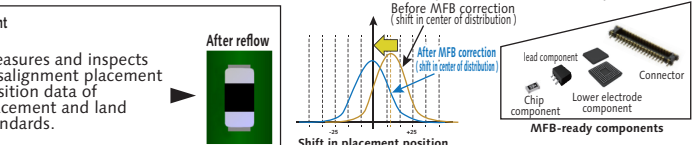・Based on the analyzed measurement data from solder inspections, it corrects printing positions. (X , Y , θ)

Post-printing inspection   Standard solder placement

Shifted solder   Correction data of shifted solder

APC-FF *1
Feedforward to the placement machine
・It analyzes component placement data and corrects component placement positions (X , Y , θ) accordingly.
Chip components (0402C / R ～)
Package component (QFP, BGA, CSP)

Standard placement inspection

Measures and inspects misalignment placement position data of Placement and land standards.

APC-MFB2
Feedforward to AOI / Feedback to the placement machine
・Inspects part location based on APC offset correction 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 *2

After reflow

Before MFB correction
(shift in center of distribution)
After MFB correction
(shift in center of distribution)
lead component   Connector
Chip component   Lower electrode component
Shift in placement position
Basic concept regarding MFB correction
MFB-ready components

*1：APC-FB (feedback) / FF (feedforward)：3D inspection machine of another company can be also connected. (Please ask your local sales representative for details.)
*2：APC-MFB2 (mounter feedback2)：Applicable component types vary from one AOI vendor to another. (Please ask your local sales representative for details.)

Automatic recovery option   Pickup position automatic teach in case of an error

When pickup / recognition error occurred, the machine automatically corrects the pickup position without stopping, and resumes production. That improves machine operation rate.
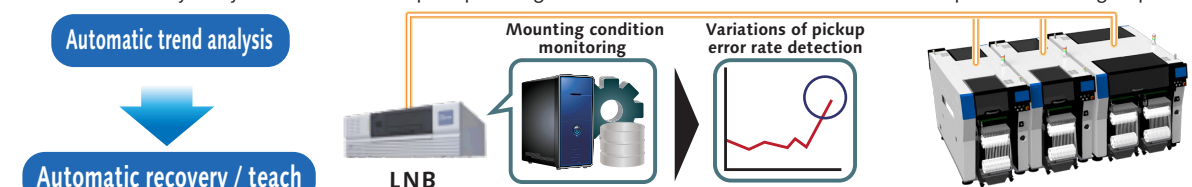(Components：4 mm embossed (black) / 8 mm paper / embossed (black) tape component. *Embossed tape (transparency) is not supported.)

【 Automatically resume production after pickup position teach 】

In production   Error   Automatic feed Automatic teach   Nonstop   Production resume
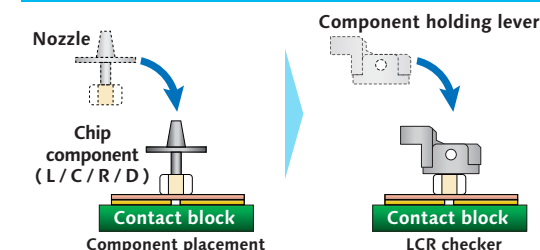
Unnecessary
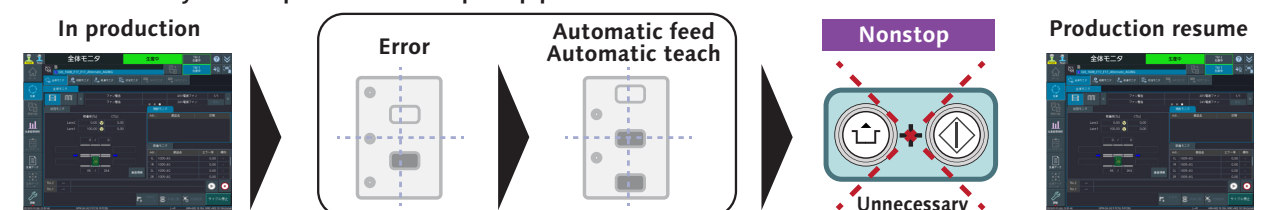
Evolved automatic recovery (predicted control)

LNB automatically analyzes the variation of pickup / recognition error rate and instructs the machine to perform teaching to prevent machine error stop.

Automatic trend analysis

Mounting condition monitoring   Variations of pickup error rate detection

Automatic recovery / teach   LNB

LCR checker

Nozzle   Component holding lever

Chip component (L / C / R / D)

Contact block   Contact block
Component placement   LCR checker

An LCR check is performed on mounted components at the start of production, or during component supply or product changeover.
It helps detect wrong reels loaded and defective components.
In addition, because verified data is output to a file on LNB (FA PC) , the data can also be used for trace management.

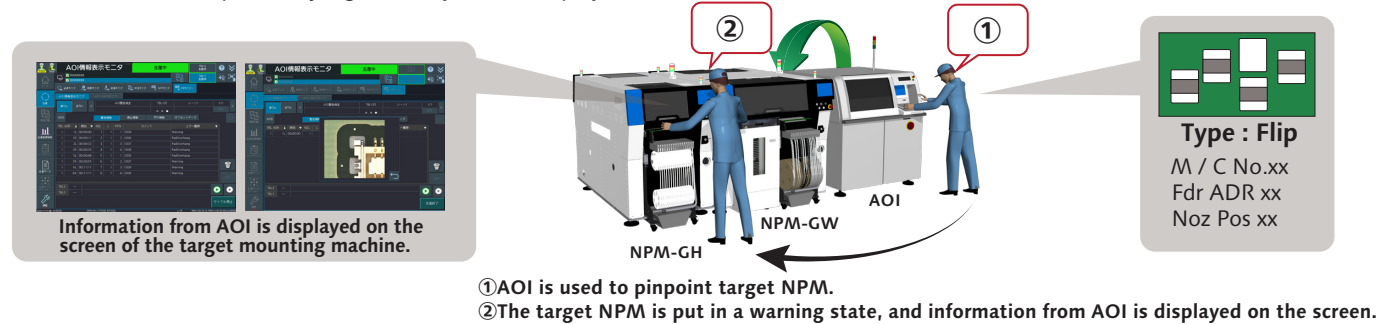| Component size	0402 to □6 mm
Component	Resistance , Capacitor , Inductor , Diode

3 Departure from skill-based operations

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.

Concentrated monitor room

Operating condition monitor — Remote operation

Error occurred

Recover after teaching the pickup position by remote operation.

Recover after checking whether or not components are placed by remote operation.

Pickup position error

Component placement error

REF

REF
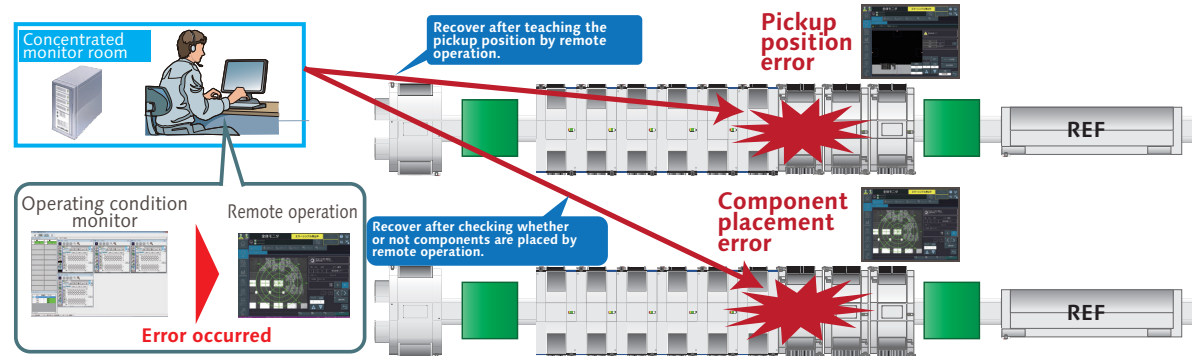
AOI Info Display option

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

Information from AOI is displayed on the screen of the target mounting machine.

② ①

NPM-GH NPM-GW AOI

Type : Flip
M / C No.xx
Fdr ADR xx
Noz Pos xx

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.

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.

Parts supply navigator option

It is a parts supply support tool to present an efficient sequence of parts supply. Taking into account the length of time before parts shortage occurs and the least time-wasting moving path possible, the tool provides the operator with instructions for parts supply. This makes parts supply more efficient.
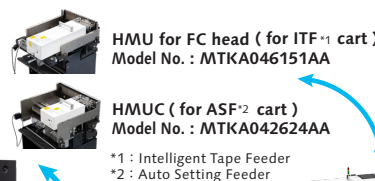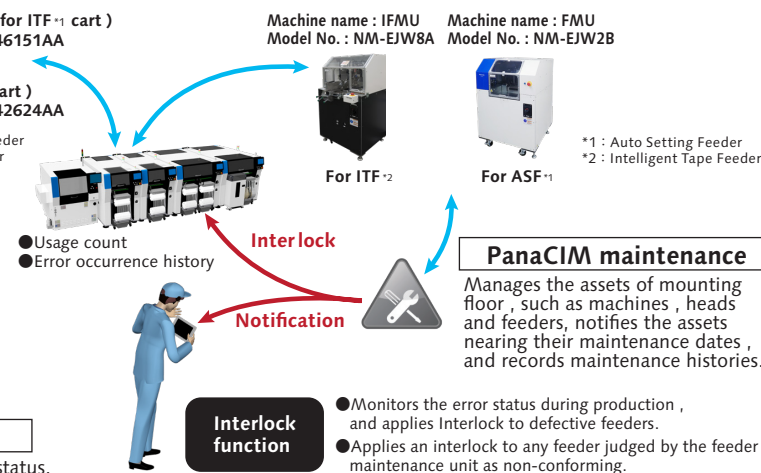
Placement head maintenance

Good use is made of the machine's self-diagnosis function to automatically detect the maintenance timing of the placement head. In addition, the maintenance unit can be used to keep the placement head in working condition without requiring skills.

Load checker

Measures the "indentation load" imposed by placemen head and has the machine and LNB displayed the measurement result (possible to measure even a low load of 0.5 N as well).

Head mentenance unit

To automate the inspection and maintenance of the placement head.

Feeder maintenance

Independent of operator skill, the feeder maintenance unit automatically performs feeder performance inspections and calibrations. Its combined use with the PanaCIM maintenance module can automatically prevent the inclusion of non-conforming feeders into production.

Feeder maintenance unit

It automates an inspection of major parts affecting the feeder's performance and calibrates the pickup position to prevent short-time stoppages and maintain quality. For FMU (exclusive to ASF [1]), the judgment accuracy has been improved and the X-directional adjustability has been automated.

HMU for FC head (for ITF[1] cart)
Model No. : MTKA046151AA

HMUC (for ASF[2] cart)
Model No. : MTKA042624AA

[1] : Intelligent Tape Feeder
[2] : Auto Setting Feeder

Machine name : IFMU
Model No. : NM-EJW8A

Machine name : FMU
Model No. : NM-EJW2B

For ITF [2]   For ASF [1]

[1] : Auto Setting Feeder
[2] : Intelligent Tape Feeder

● Usage count
● Error occurrence history

Interlock

Notification

Interlock function

PanaCIM maintenance

Manages the assets of mounting floor , such as machines , heads and feeders, notifies the assets nearing their maintenance dates , and records maintenance histories.

● Monitors the error status during production , and applies Interlock to defective feeders.
● Applies an interlock to any feeder judged by the feeder maintenance unit as non-conforming.

Head diagnosis function
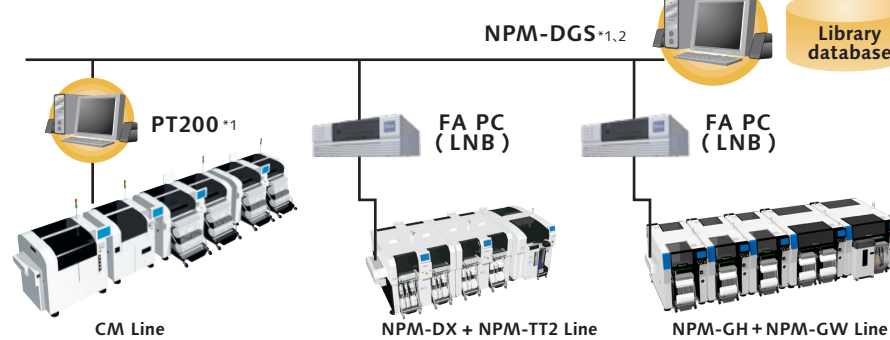
Checks the pneumatic circuit condition.

Blow error detection

Checks the placement blow status.

### 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.

NPM-DGS[1,2] Library database

PT200 [1]

FA PC (LNB)   FA PC (LNB)

CM Line   NPM-DX + NPM-TT2 Line   NPM-GH + NPM-GW Line

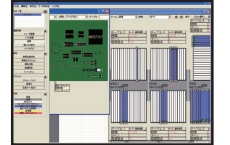[1] : A computer must be purchased separately.
[2] : NPM-DGS has two management functions of floor and line level.
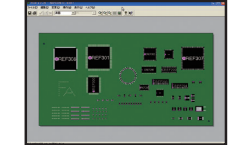
CAD import
Allows you to import CAD data and check polarity, etc., on the screen.

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 unit V2

New component data can be created offline without relying on an individual operator's skill and proficiency, thus contributing to quality improvement and O.E.E maximization.

Thanks to adoption of a new component recognition camera and a wider variety of dedicated software functions, it now enables you to create component data more efficiently.
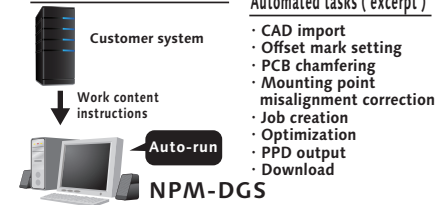
Offline Camera unit V2

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:

Customer system

Work content instructions

Auto-run

NPM-DGS

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:

Line

PCB

A C
B D

Setup group ● Setup table

Line

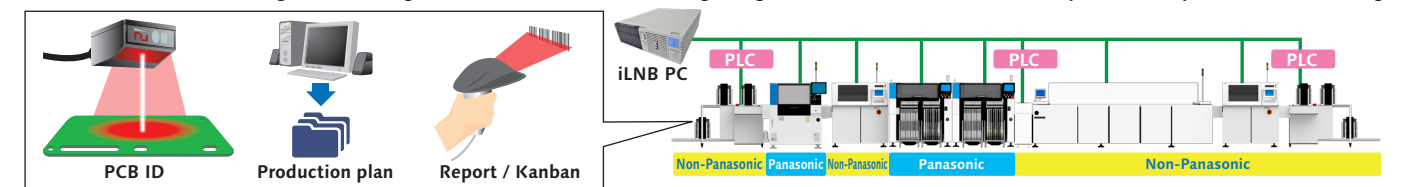Group 1 Group 2 Group 3
B D   C   A
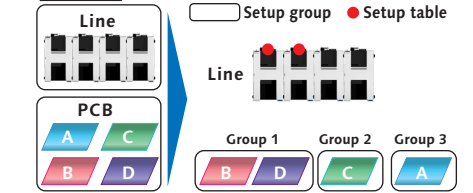
Changeover ability Automatic changeover option

All machines, including NPM, in SMT line are connected via iLNB, which allows automatic changeovers to be performed sequentially, starting from the first machine in the line.
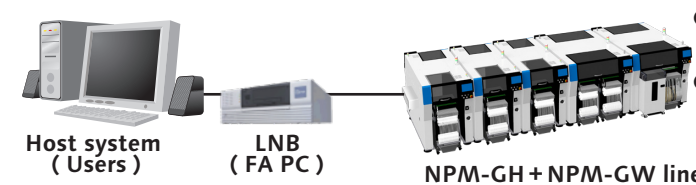● Trigger for changeover
You can select from among the following three methods : PCB ID reading using an external scanner, Production plan, and Report / Kanban reading.

iLNB PC

PCB ID   Production plan   Report / Kanban

PLC   PLC   PLC

Non-Panasonic Panasonic Non-Panasonic Panasonic Non-Panasonic

Open interface Host communication option

Able to standardize the interfacing with your systems currently used. Provides data communication with our standard interfaces.

Host system (Users)   LNB (FA PC)   NPM-GH + NPM-GW line

● Events
Outputs a real-time event of equipment.

● Other company's component verification
Communicates with your component verification systems.

● Component management data
· Component remaining quantity data: Outputs component remaining quantity data.
· Trace data: Outputs data linked with component information[*] and PCB information.

[*] Entry of component information with PanaCIM material verification or other company's component verification (this option) is required.