# Panasonic
# CONNECT

2022

Manufacturing operations optimizer
## Electronics Assembly System
Catalogue

Model ID
# MFO
Model No.NM-EJS6B

**Replicate SMT floor in cyber space**

# Digital transformation of mounting to innovate manufacturing processes

Marking the end of an era of cut-and-try methods for production plans , MFO , the "next innovation" manufacturing operations optimizer for SMT production lines is ready to help you optimize your production efficiency.

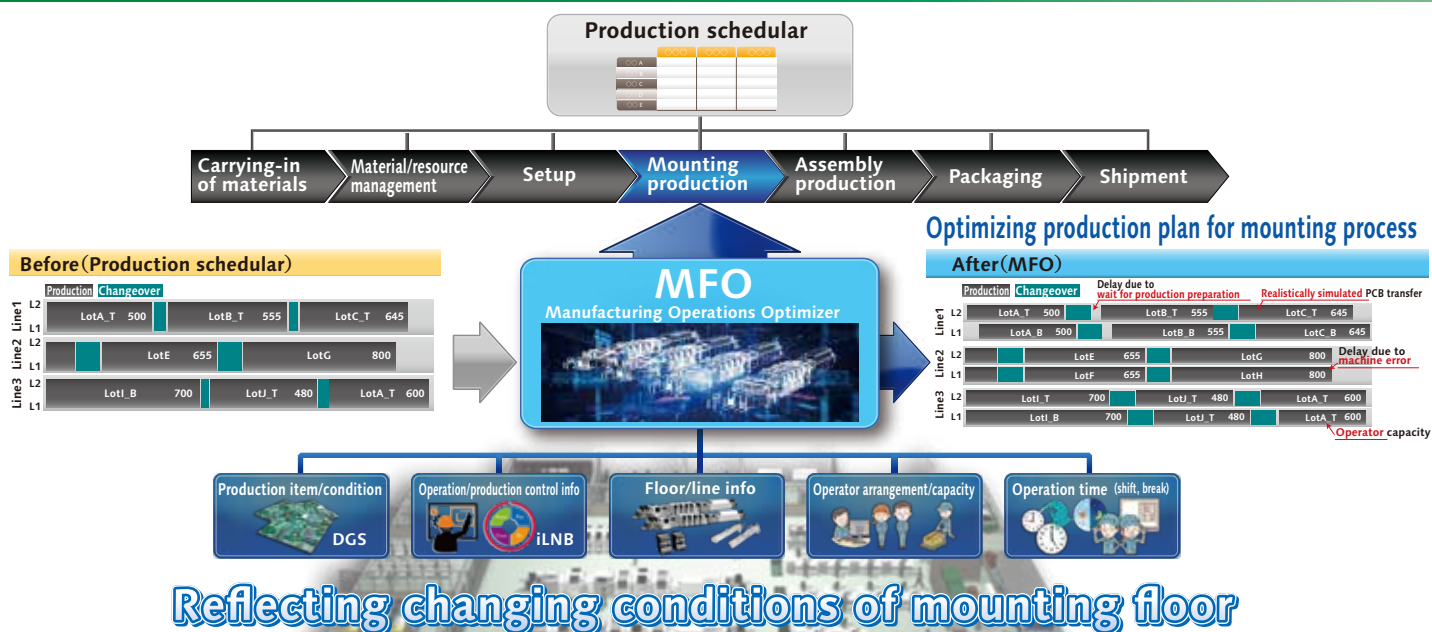**Another set of mounting floor in cyber space**

**Reflecting optimized production plan in production floor (Optimization)**

**Entirely virtualizing mounting floor (Modeling)**

**Actual mounting floor**

· For those who have trouble finding means to verify their shop floor production capacity.
· For those who have trouble creating production plans or data very often.
· For those who have trouble doing dual-lane production or setup changes frequently.
· For those who have trouble loading or allocating resources into or among lines

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## Image of the system

Production schedular

Carrying-in of materials → Material/resource management → Setup → **Mounting production** → Assembly production → Packaging → Shipment

**Before（Production schedular）**

| Line1 | L2 | Production | Changeover |
| | L1 | LotA_T 500 | LotB_T 555 | LotC_T 645 |
| Line2 | L2 | LotE 655 | LotG 800 |
| | L1 | |
| Line3 | L2 | LotI_B 700 | LotJ_T 480 | LotA_T 600 |
| | L1 | |

MFO
Manufacturing Operations Optimizer

**Optimizing production plan for mounting process**

**After（MFO）**

Delay due to wait for production preparation
Realistically simulated PCB transfer
Delay due to machine error
Operator capacity

| Production | Changeover |
| Line1 | LotA_T 500 | LotB_T 555 | LotC_T 645 |
| | LotA_B 500 | LotB_B 555 | LotC_B 645 |
| Line2 | LotE 655 | LotG 800 |
| | LotF 655 | LotH 800 |
| Line3 | LotI_T 700 | LotJ_T 480 | LotA_T 600 |
| | LotI_B 700 | LotJ_T 480 | LotA_T 600 |

Production item/condition — DGS
Operation/production control info — iLNB
Floor/line info
Operator arrangement/capacity
Operation time (shift, break)

## Reflecting changing conditions of mounting floor

## Function list

| Function | Description |
|---|---|
| ①Mounting process simulation | In consideration of "error occurrence in production machines," "parts exchange by operators" and "operators' travel time ," it models a mounting floor , and simulates production conditions including multiple mounting lines and off-line setup processes. This ensures highly accurate simulation results. |
| ②Production plan optimization | In consideration of multiple production lines, it optimizes a production plan based on the production conditions set up in [mounting process simulation]. This allows the "production line" and "production order" of each PCB to be calculated / provided automatically. |
| ③Setup plan optimization | It optimizes "off-line setup" sequence according to the production plan developed in [production plan optimization]. This allows automatic calculation / provision of "priorities for setups in multiple lines ," "a setup plan that takes into account the shred use of carts" and "effects of an increase / decrease in the setup number of operators on the production plan." |
| ④Number of operators optimization | Based on the production conditions set up in [Mounting process simulation] , it optimizes the number of operators required for each line and setup , allowing you to automatically calculate / provide "the number of the operators required." |
| ⑤Auto generation of optimized mounting data | Based on approximate / detailed production plans developed by "production schedular ," it works together with NPM-DGS to prepare mounting production data without operator intervention. At that time , it also determines a production line for relevant product and the setup groups in the line that share common sequence. |

## Applicable machine

| Machine series | Model | Machine info entry |
|---|---|---|
| NPM-X/NPM/VM/AM series | NPM-DX , NPM-WX/WXS , NPM , NPM-D/D2/D3/D3A , NPM-TT/TT2 , NPM-W/W2/W2S , AM100 , VM101/102 | ○* |
| CM/DT series | CM602-L , CM232-M/212-M , CM101-D , CM402-L/M , CM401-L/M , CM400-M , DT401-F/M , DT400-M | |
| Screen printer | SP60/70/80/18 , SPG/SPD/SPV/SPV-DC | |
| NPM-VF series | NPM-VF | |
| Panasonic's former machine | Machines not included in the ones mentioned above | — |
| Non Panasonic machines | Non Panasonic machines (loader , screen printer , SPI , placement machine , AOI , reflow , etc.) | |

*Because machine information is registered during installation , you will be able to easily configure settings such as registration of the floor configuration of your mounting production lines.
※For details , contact us.　※The current version is limited to the mounting process.　※Prepare PC on your own.

## ⚠ 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.**

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● Changes in specifications and appearance may be made without notice for product improvement.
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