

ke korea-ems Co., Ltd.

EMS Specialized Company (ALL Clean Room)
SMT • INSERT • ASS'Y • PCB Contracting •
Parts Contracting • PCB Design





CEO message

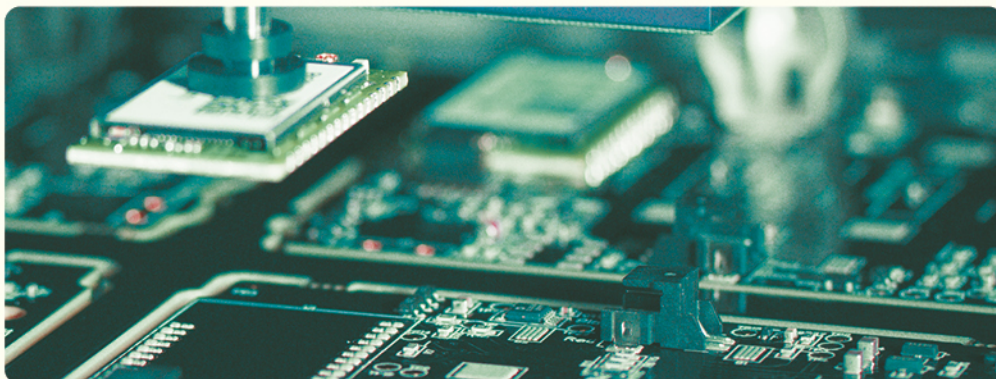
As an IT and information communication related specialized manufacturing company, KOREA EMS Co., Ltd. is contributing to the profits creation of the SMT customers and the development of the domestic electronics industry through many years of accumulated experience in the PBA ASSEMBLY sector, professional core personnel with know-how and advanced technology, cost competitiveness and securing the stable quality, which is the management philosophy of our company.

Kim, Daeyun, CEO of KOREA EMS Co., Ltd.

ke korea-ems Co., Ltd.

INDEX

■ Company introduction / Various Information, Organization chart	04
■ History	05
■ Administration Policy, Quality Policy	06
■ Main product of customer company	07
■ KOREA EMS Co., Ltd. Work Process	07
■ SMT Process Capability	08
■ MI (Manual Insert) Process Capability	08
■ Characteristics and advantages of SMT / MI / Facility / JIG	09
- SMT N2 Reflow	- MI (Manual Insert) N2 Wave Soldering
- 3D Soldering Paste Inspection	- 3D Automatic Optical Inspection
- SMT Docking System (Setting Time Reduction)	
- Material Mobile Rack (Plenty of Materials Loading)	
- Electronic Release Feeder (material loss reduction)	
- Multi Back-up JIG (patent registered by KOREA EMS)	
- High frequency iron (prevents temperature setup error)	
- Standardization of Durostone JIG (model can be changed fast)	
- Robot soldering machine	- Router device (PCB guide cutting)
■ Characteristics and advantages of the software	12
- MES System (barcode management system)	- Work ERP system
- PnP System (prediction and prevention)	- TOLD system (line optimization)
- NEO SPECTOR (LCR measurement)	- Insulation inspection program
- NEO Compare (BOM, P/G comparison and verification)	
- TERATERM Auto Test Program	
■ Characteristics and advantages of the measuring instrument	14
- SMT Reflow Profiler	- WAVE Soldering Profiler
- X-Ray machine	- Power Torque Meter
- O2 Concentration measuring instrument	- Iron temperature measuring instrument
- Surface Resistance Meter	- Statistics measuring instrument
- Human body static electricity measurement and removing device	
■ Important Certificates	15





Company Overview

Company Name : KOREA EMS Co., Ltd.

CEO Name : Kim, Daeyunn

Capital : 100 million won

Dated Established : Jul. 2010

No. of Employee : 00

Address : 184, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, 16648 Korea

Moved into a new own factory in May 2022 (Clean Room of 1,700 pyeong on the 4th floor)

→ Floor Information

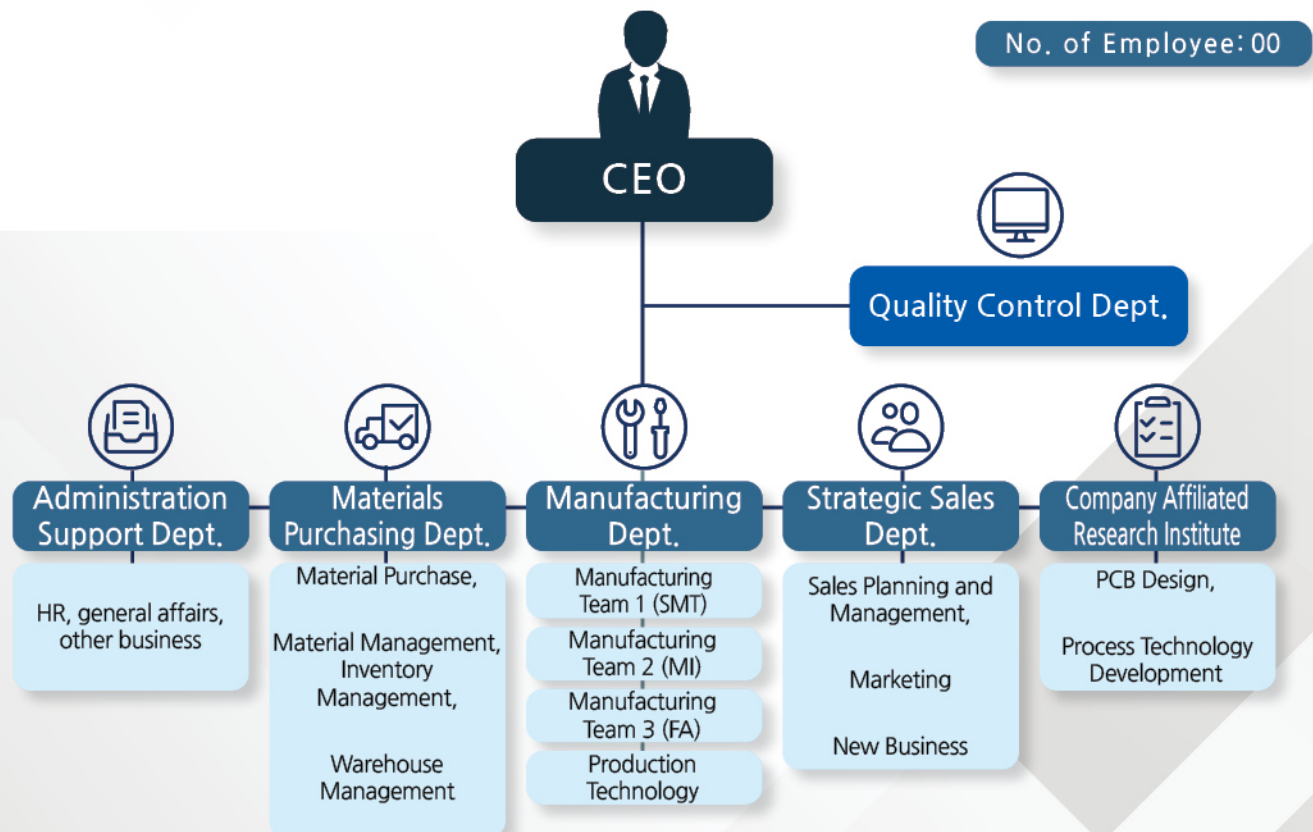
4th floor : CEO's Office/Business Support/Strategic Sales/QC Department/Assembly Line/Buyer Meeting Room

3rd floor : MI/FA/Repair(Clean Room)

2nd floor : Purchase / Material(Clean Room)

1st floor : SMT N2 3 Line, IQC/OQC(Clean Room)

→ Company Organization Chart (Year 2022)





Company History

2010 Jul. 01, 2010 Established QM Tech

2014 Aug. 2014 Quality Management System ISO 9001, 14001 Certification
Dec. 12, 2014 Established QM Tech Corporation

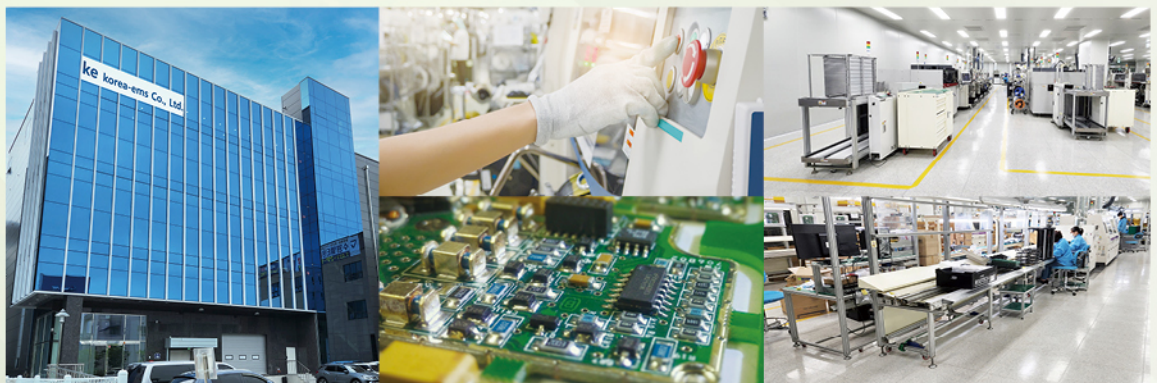
2016 Feb. 2016 Certificate of company-affiliated research institute (Korea Industrial Technology Association)

2017 Nov. 2017 Registered as a material and parts specialized company (Ministry of Trade, Industry and Energy)
Nov. 2017 Registered as a QM-Tech Venture Company (Technology Guarantee Fund)

2018 Mar. 2018 Patent No. 10-1843839 (Korean Intellectual Property Office), Substrate supporting device
Jun. 2018 Patent No. 10-1843839 (Korean Intellectual Property Office), Substrate supporting device
Nov. 2018 Designated and operated as a military service exception company (Military Manpower Administration)
May. 2018 Established TOLP (Line Balance Optimization), PNP (Equipment Prediction and Prevention) System
July. 2018 MES (manufacturing computerized management system), Established Work ERP System
Dec. 2018 Inno-Biz Certification (Ministry of SMEs and Startups)

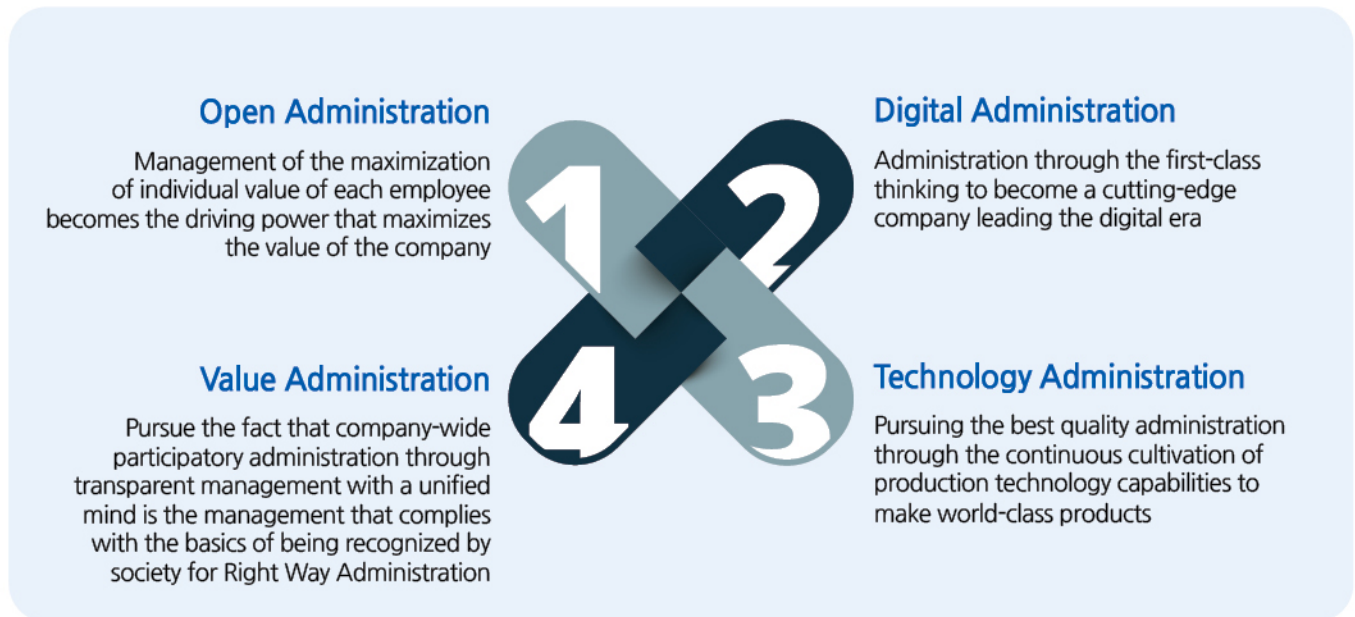
2019 Jan. 2019 Joined as a participating company for the Youth Tomorrow Chaeum (Small and Medium Business Corporation)
Feb. 2019 Joined as a participating company for the Youth Tomorrow Chaeum (Small and Medium Business Corporation)
Aug. 2019 Patent No. 10-2016031 (Korean Intellectual Property Office), Multi-stage impedance slot resonator, etc.

2022 May. 2022 Newly built own factory move-in,
(Clean Room on the 4th floor, 5,619m²)



Administration policy & Quality policy

→ Administration policy













→ Quality policy

KOREA EMS Co., Ltd. materializes the ZERO DEFECT of customer complaints through the KNOW-HOW accumulated for many years.

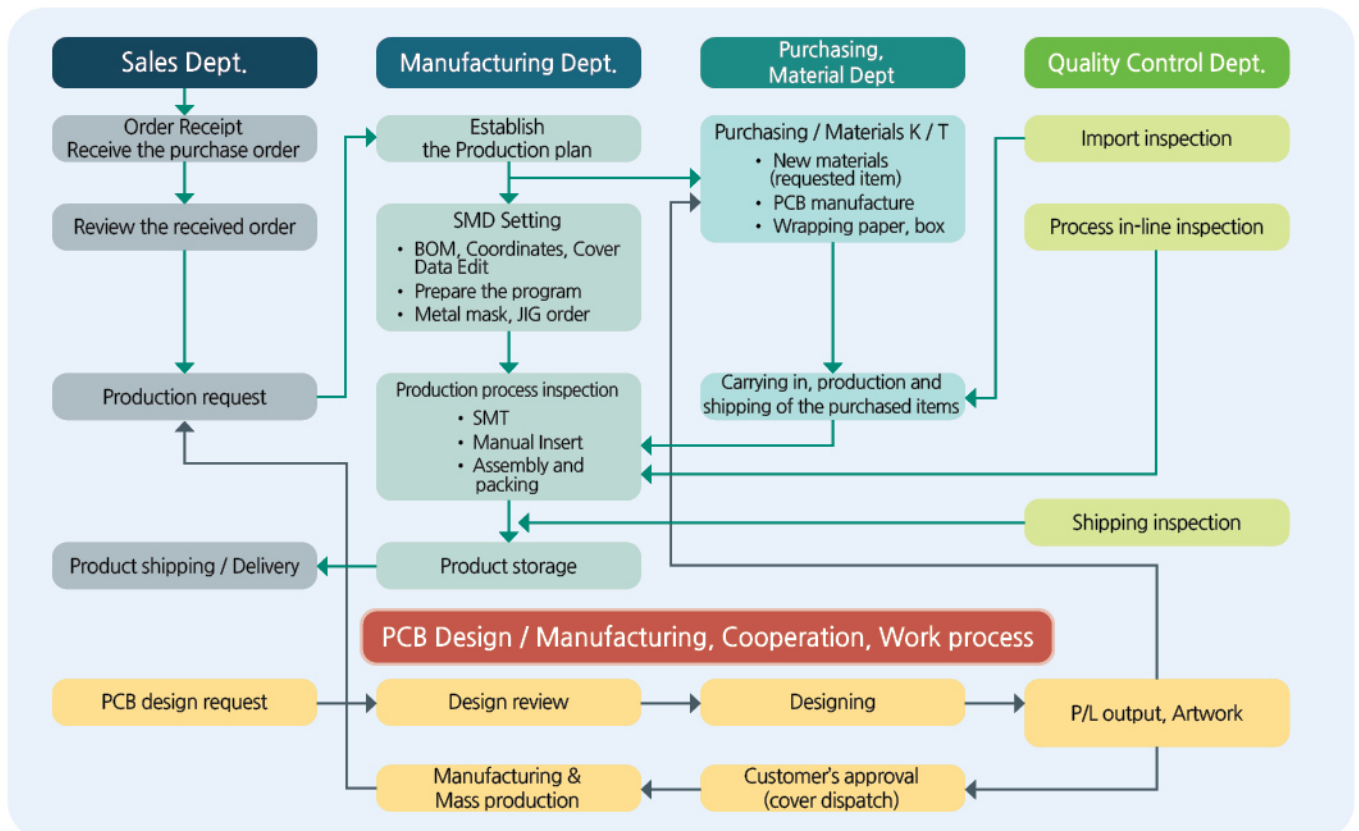
- ⦿ Defect-free product
- ⦿ Maximization of the production efficiency through continuous improvement of the quality
- ⦿ Reasonable business promotion



Main Products of the Customers

NO	Image	ITEM	Remark	NO	Image	ITEM	Remark
1		Digital Power Meter	Samsung Semiconductor	6		Blackbox ADAS	Korea Expressway Corporation
2		Optical communication transmission equipment	KT	7		Medical Device	Export
3		IP CCTV	Public Procurement Service	8		Bluetooth Barcode Reader	Export to USA, Europe, Japan
4		Repeater POWER	SK	9		Mobile Phone Charger	Samsung Electronics
5		Repeater POWER	Export to Europe	10		POWER B.D for TV	Samsung Electro-Mechanics

KOREA EMS Work Process



SMT Process Capability

SMT Line configuration and capability

Line	1Machine	2Machine	3Machine	4Machine	N2	PCB Max Size(mm)
1-Line	DECAN F2	DECAN F2	SM481P	SM482P	USE	510 X 460
2-Line	DECAN F2	SM481P	SM482P	-	USE	510 X 400
3-Line	DECAN F2	SM481P	SM482P	-	USE	510 X 400

Line	1(CPH)	1(CPH)	1(CPH)	1(CPH)	20(h)	Capa Total
1-Line	80,000	80,000	40,000	30,000	4,600,000	10,600,000
2-Line	80,000	40,000	30,000	-	3,000,000	
3-Line	80,000	40,000	30,000	-	3,000,000	



MI (Manual Insert) process capability

MI Line configuration and capability (oxidation prevention of N2 type producing method and the quality improvement of lead-free soldering - customer satisfaction)

Line	Line configuration	ITEM	INSERT(Score)	1H CAPA(EA)	8H CAPA(EA)	Number of persons (persons)
1	AIR Leaded (460mm)	Rectifier (4G, 5G) types	130	35	280	11
2	N2 Unleaded (360mm)	Digital power meter (Main, Power)	35	60	480	12
3	N2 Unleaded (530mm)	Communication transmission devices	45	45	360	8

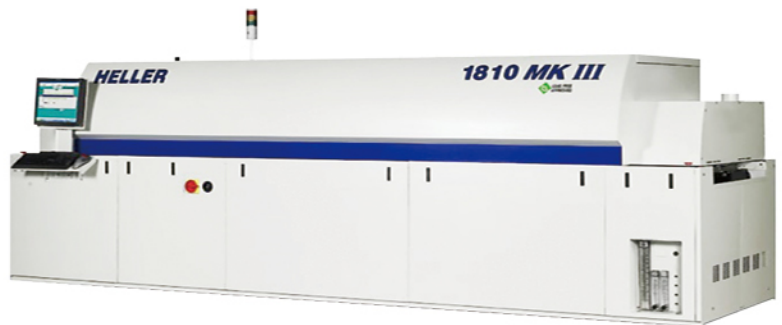


Characteristics and advantages of SMT / MI / Facility / JIG

■ SMT N2 Reflow(1810MK3 III) | Manufacturer : HELLER

Main specification

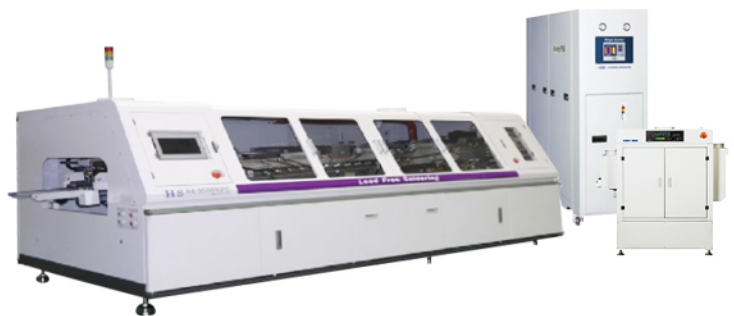
1. Available PCB size : 600mmx460mm
2. Equipment specification
: 4650mm 10zones+cooling 2zones
3. Description of the equipment
An equipment that automatically solders the PCB on which the chip device is mounted by applying nitrogen and heat according to the conditions of each zone to make the good quality finished board.



■ MI(Manual Insert) N2 WAVE Soldering | Manufacturer : KSM(HS04-3000)

Main specification

1. INSERT CONVEYOR (Length 6m, Width 520mm)
2. External FLUX Spray Type.
PCB inside can be coated by using fine spray nozzle.
3. PCB inside can be coated by using fine spray nozzle : 520mm
4. Production method : N2 FULL method - Oxygen concentration less than 2,000 ppm.
Preheating section can be adjusted arbitrarily in mass production. We have the reliability of N2 supply type lead-free soldering process and the quality is stabilized.



■ 3D Soldering Paste Inspection

Model name : KY8030-3(S/N : SS-SL-02937)

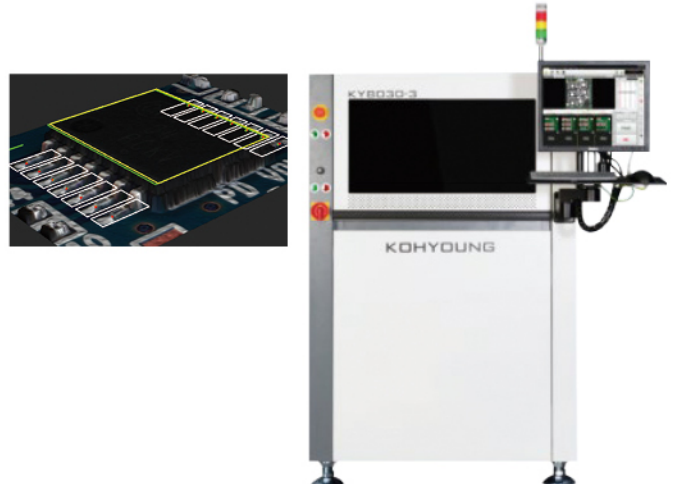
- PCB surface SMT Cream Solder coating inspection equipment
- Inspection data history management



■ 3D Automatic Optical Inspection

Model name : ZENITH (S/N AP-SL-01200)

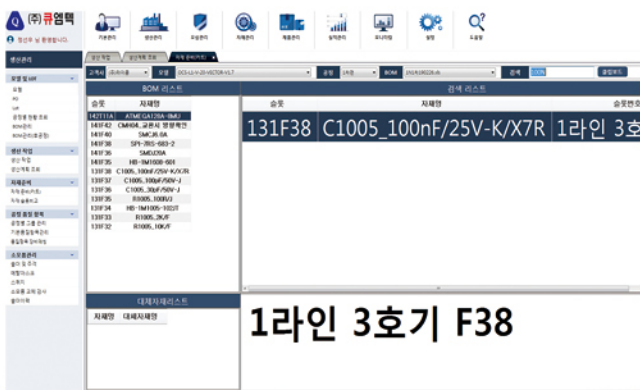
SMT 3D automatic optical inspection equipment.



■ SMT Docking system (reduction of setting time)

We combined the material setting process with MES for the first time in Korea

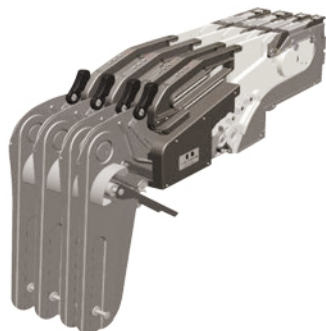
1. Docking operation can be prepared with the optimized program from TOLP when proceeding with the initial product
2. Material finding time can be reduced and mis-insertion of the first product can be prevented by preparing the feeder arrangement table for the reduction of operation time and searching the materials using barcode and part name to be entered on each of the feeder name during docking operation.
3. Make it possible to review in advance so that the problem cannot be occurred during the production by minimizing the errors and finding out the problems of the material beforehand. Line efficiency can be maximized by preparing for the setting of the feeder which takes the longest time for the line setting in advance..



■ Electronic Release Feeder | Manufacturer : Hanwha Techwin

Hi speed,
Hi precision power feeder

1. Integrated use of 0603/2P/4P
2. PICK UP position auto alignment function between feeders for the improvement of simultaneous adsorption rate
3. Feeding pitch auto recognition function
4. Various feeding speed can be set for the improvement of stability of the feeding of the parts
5. Zero Loss when setting and disassembling the materials.
6. None Stop function can be used through the Back Feeding when Bulk materials occurred.



■ Material Mobil Rack Management (for the loading of large number of materials)

Main Specification

1. Carrying in of Materials

Quality of the product can be controlled by managing the temperature (and humidity) of the material room and setting up the zone to prevent condensation (condensation can be occurred due to the temperature difference)

Materials will be moved into the room after storing in the room temperature more than 2 hours.

2. Verification of moving in materials

Carried in materials and corresponding documents will be compared and the receipt date and company identification tag will be attached.

3. Loading the carried-in materials

Materials will be loaded on the mobile rack after the verification of the carried-in material is completed (this will be managed by each item and identification mark will be attached).

4. Material management by each Vendor

Baking and Dehumidification process will be conducted for the humid sensitive materials through the inventory management function and following the requirements of the MSL internal management standard based on the management standard (temperature & humidity, mobile rack, dehumidification box, oven, vacuum packing machine)

5. Release / Return of the Material

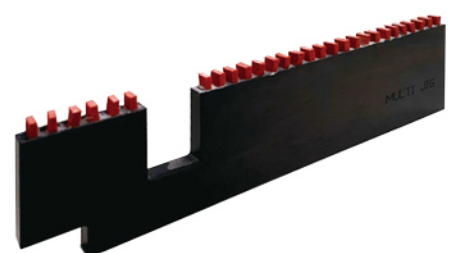
Materials will be released after kitting the material and the left-over will be returned after the process is completed proceed with the operation with the ID tags attached (attach the purchase order release the material return the material)



■ Multi Back-up JIG (Patent Registered by KOREA EMS) Manufacturer : KOREA EMS Co., Ltd

MULTI JIG

1. Fast model change
2. Damages of the primary face by the back-up pin during the production of secondary face can be prevented



■ High-frequency iron (temperature setting error prevented)

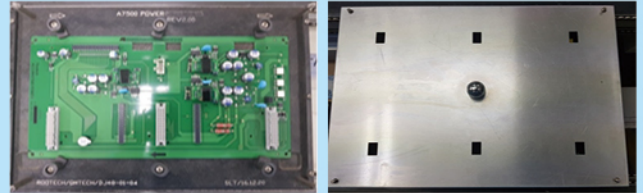
High frequency iron

1. High frequency induction heating type
- Direct Power can reduce unnecessary management time and work such as daily temperature checking, etc.
2. Iron tip change work can be managed in good condition as it can reduce the defects of the component caused by low-temperature cold soldering or overheating by applying the excellent technology that compensates the lost heat and supplying the heat to be required quickly.
3. High frequency iron has almost no temperature deviation, and unlike the ceramic iron, no separate calibration work is required (ceramic needs calibration every 6 months / if used more than 9 months, quality will be changed)



■ Standardization of Durostone JIG (fast model change)

1. Durostone JIG standardization manufacturing: Identical standardized size will be manufactured when making the JIG by each model ► You can improvement of productivity & quality, and react fast for the requirement of the customers for the delivery.
2. Wave Soldering N2 Full manufacturing method can be applied ► Improvement of productivity & quality, Customer's quality satisfaction



■ ROBOT Solder (JAPAN UNIX)

UNIX-DF404S (characteristics & advantages)

- Robot soldering operation for the accurate soldering work
- Effective operation available within narrow space
- You can replace the iron tip and heater with one touch type operation
- Ideal for all kinds work using various iron tip
- Wear of the soldering iron Coordinate value error due to the heat expansion coefficient and impact can be corrected automatically



■ ROUTER Equipment (PCB Guide Cutting)

Camera Teaching

Accurate and easy teaching can be accomplished using camera

Safety Sensor

Safety sensor is installed for the safety of the operator when loading & unloading the PCB

Use of multi steps and life management

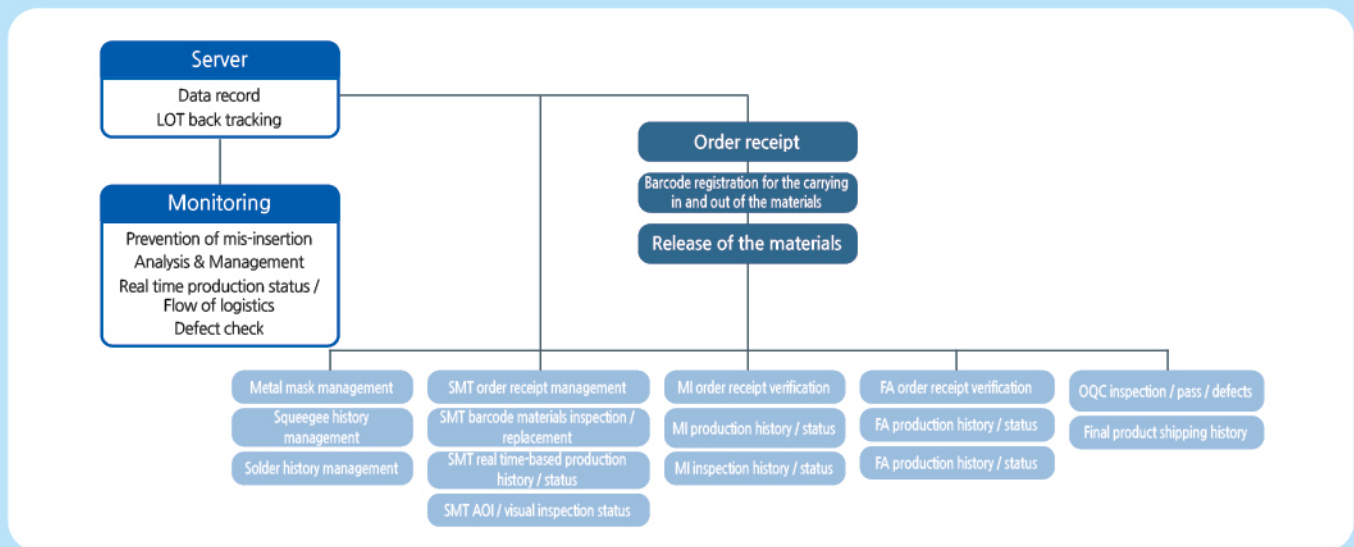
Expendable cost can be reduced by reusing the bit 2~3 times and it extends the life of the bit.



Characteristics and Advantages of the Software

■ MES System (Barcode Management System)

KOREA EMS MES block diagram



MES (Manufacturing Execution System)

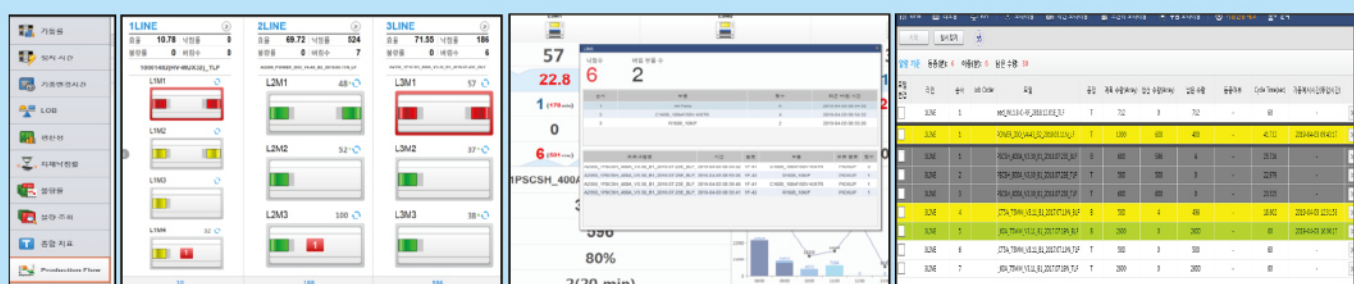
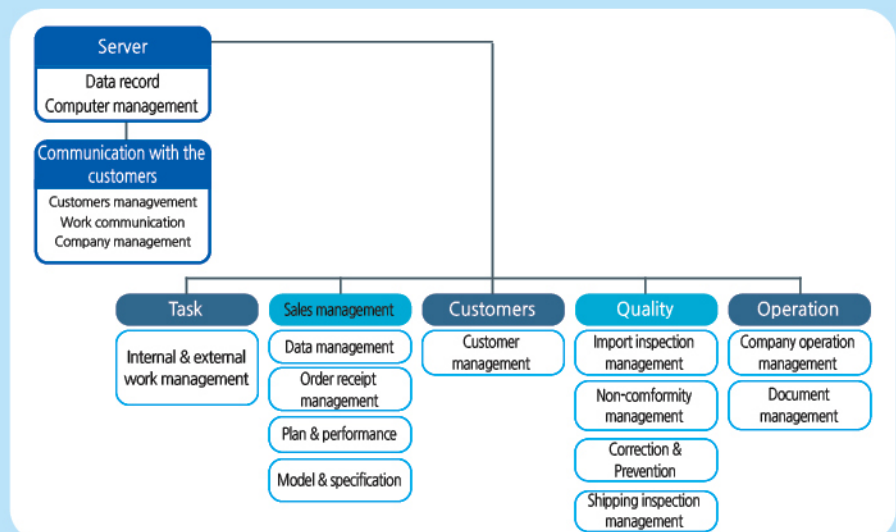
This is a production information system that supports quick decision-making of the operators and managers by managing the carrying in & out of the materials from the establishment of the production plan and clarifying the raw material receipt and LOT management, and processing the work result by each of the management unit and collecting / analyzing the production site information through the history and ID management of the manufacturing process on a real time basis.

■ Work ERP System

This is a tracking management system for business sharing of each department and smooth business communication with customers based on the company operation management, sales performance, plan and quality.

■ PnP System (prediction and revention)

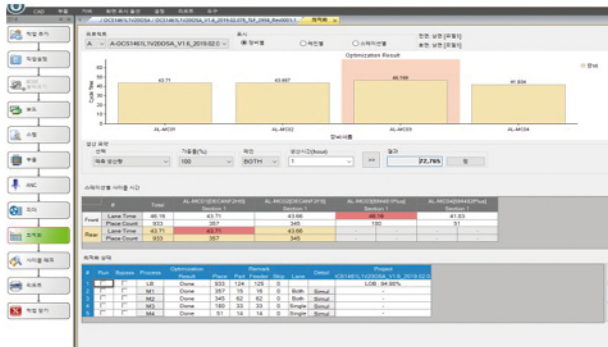
This is a PNP software that is interfaced with the TOLP which can be used for the factory monitoring and production actively. It is possible to check the production history, operation rate, model change, productivity analysis, material loss, etc. of the models produced from the line on a real time basis through the network.



■ TOLP System (Line Optimization)

Completed the establishment and stabilization of Korea first whole line TOLP network system

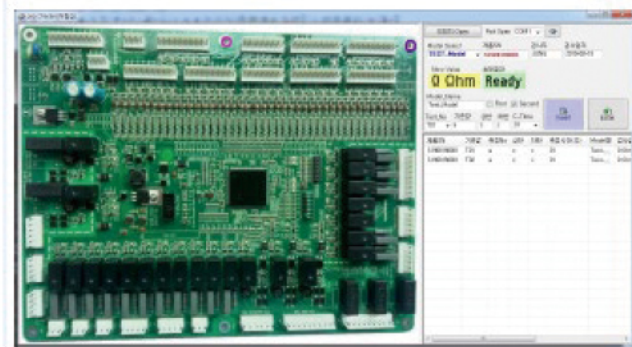
1. The program prepared by EPM can be optimized by each of the line.
2. Optimization program performs optimization process 20 times and finds out the most optimized program and save it automatically. It takes 10 minutes when processing this task with the initial product.



■ Insulation Inspection Program

Milliohmmeter (ohmmeter) GOM-804

Damages of the product can be avoided and important devices can be protected that can be caused when the power is applied by measuring the resistance value and checking the primary resistance before the power is supplied.



■ TERATERM Auto Test Program

Purpose of use

Sytem allows the users to be able to search and manage the Test of the existing Teraterm S/W product using the the Auto Test program, Leo TDR - Software by testing them automatically, and recording and saving the result in the system.

Improvement effect

1. Input time can be reduced with auto Macro function
2. Defects detecting ability can be improved
3. Details and history of the defects can be traced and managed

■ NEO Spector (LCR measurement)

Verification of incorrect mounting (omission) after mounting the SMD Mounter

1. You can check the status of application by each position of SMD material (resistance, ceramic condenser) attached on the PCB surface by applying the initial product LCR meta.



큐넷텍 LCR/SPEC 정격치 CHECK SHEET										작성	검토	승인
										작성	검토	승인
호명명	OSC14011V2005A_V1.6_2018.12.19E_BUF									작성	검토	승인
작성일자	2019-01-04									작성	검토	승인
Line	Line									작성	검토	승인
용 LINE	용 LINE									작성	검토	승인
용 LINE	용 LINE									작성	검토	승인
No.	Ref No	Part No	부품코드	SPC	수량	위치	단위	단위	단위	검사	결과	비고
1	C101	C101, 10K 0.5W	C101, 10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W
2	C102	C102, 10K 0.5W	C102, 10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W
3	C1	C1, 10K 0.5W	C1, 10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W
4	C103	C103, 10K 0.5W	C103, 10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W
5	C104	C104, 10K 0.5W	C104, 10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W
6	C105	C105, 10K 0.5W	C105, 10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W
7	C3	C3, 10K 0.5W	C3, 10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W
8	C4	C4, 10K 0.5W	C4, 10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W
9	C5	C5, 10K 0.5W	C5, 10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W	10K 0.5W

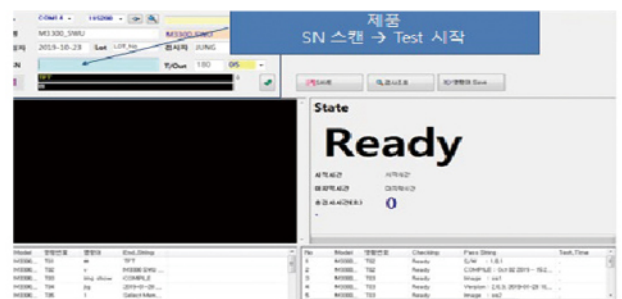
■ NEO Compare

(comparison and verification the BOM, P/G)

A system that compares and verifies data errors with the original BOM when writing the SMD programs

1. BOM data error check - System can check the bom error by comparing consumption and Location of the the BOM.
2. This is a system that allows the program creator to check the errors that could be occurred during the creation of the program by comparing and inspecting it with the original BOM and determine the incorrectness of the program automatically through the accumulated data, and save & manage the inspection history.

No.	Component	Value	Unit	Status	Remark
1	C101, 10K 0.5W	10K 0.5W	10K 0.5W	OK	
2	C102, 10K 0.5W	10K 0.5W	10K 0.5W	OK	
3	C1, 10K 0.5W	10K 0.5W	10K 0.5W	OK	
4	C103, 10K 0.5W	10K 0.5W	10K 0.5W	OK	
5	C104, 10K 0.5W	10K 0.5W	10K 0.5W	OK	
6	C105, 10K 0.5W	10K 0.5W	10K 0.5W	OK	
7	C3, 10K 0.5W	10K 0.5W	10K 0.5W	OK	
8	C4, 10K 0.5W	10K 0.5W	10K 0.5W	OK	
9	C5, 10K 0.5W	10K 0.5W	10K 0.5W	OK	

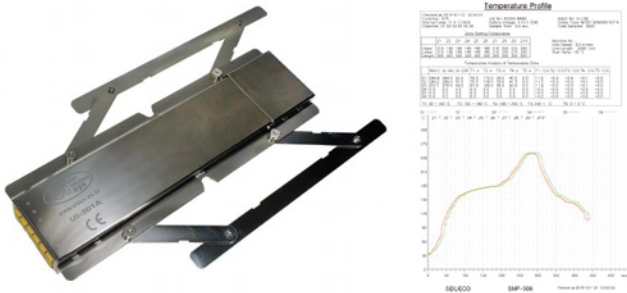


Characteristics and Advantages of the measuring instruments

■ SMT Reflow Profiler

SEILIECO SMP-306

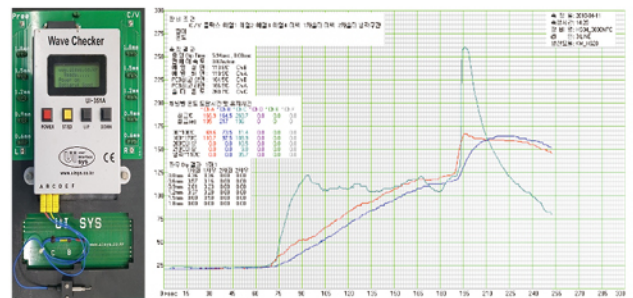
- Temperature measuring range : 1~380℃
- This is a system that can measure the suitable temperature that fits to the product when PCB is hardened and converts them to the data



■ WAVE Soldering Profiler

WAVE Profile

- Model name : UI-351A
- Temperature measuring range : 1~400℃



■ X-RAY checking machine

X-eye 5100

- You can check the short circuit between the leads and leads of certain materials that the leads are not visible, such as BGA IC, etc. Lead amount can be verified. Void can be verified.
- Fine pitch BGA IC can be verified immediately during production.



■ Power Torque Meter

EDAR CD-10M

- Measuring range : 0.10~10kgf.cm
- Damages caused by less insertion or over insertion of the screw can be prevented by managing the torque of the power driver



■ O2 concentration Profiler

concentration Profiler : UISYS

This is a system that can check the concentration of O2 inside of the Reflow on a real time basis and convert them into the data



■ Iron temperature measuring instrument

HAKKO FG-100

- Operators can secure the reliability by measuring the temperature of the iron.
- Operators can prevent the cold soldering due to the low heat of iron, heat breakage of the PCB, heat damages of element, etc.



■ Surface resistance measuring instrument

METRISO 2000

- High performance surface resistance.
 - Test applied voltage : 10V, 100V, 250 & 500V.
 - Test range : 10E2 ~ 10E12 ohms.
- This device can measure the ESD of the surface of the antistatic mats, antistatic tiles, antistatic chairs, antistatic clothes, etc.



Measuring the resistance of surface of the antistatic mats



Measuring the energization resistance of antistatic chair and antistatic tile

■ Human body static electricity measuring & removing device (MS-350H)

MS-350H

- Electric potential can be measured by touching the detecting plate with left hand (voltage will be increased up to 100V ~ 19.99kV and then reduced slowly)
- Remove the left-over static electricity by touching the discharging plate with the right hand.
- This system can be installed on the entrance of the site and remove the static electricity on the human body before entering into the site..

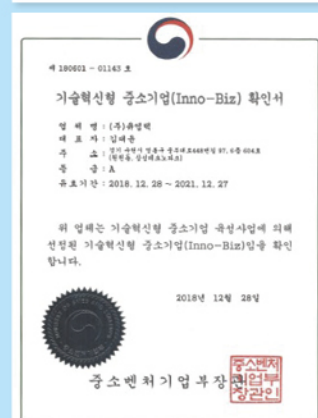
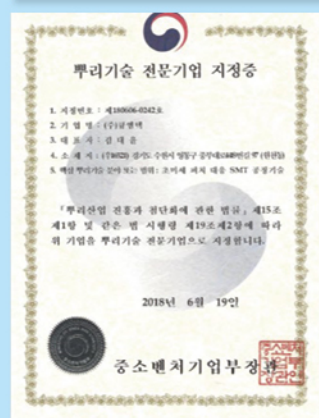


• Measured value of human static electricity detected from the detecting plate: 3.89kV



• Measured value of human static electricity detected from the discharging plate: 0.02kV

Important Certificates



Company View



ke korea-ems Co., Ltd.

184, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, 16648 Korea

SMT Manufacturing (Clean Room)



IQC / OQC (Clean Room)



Circuit Material Room (Clean Room)



Machine / Packaging Material Room



수납 Line (Clean Room)



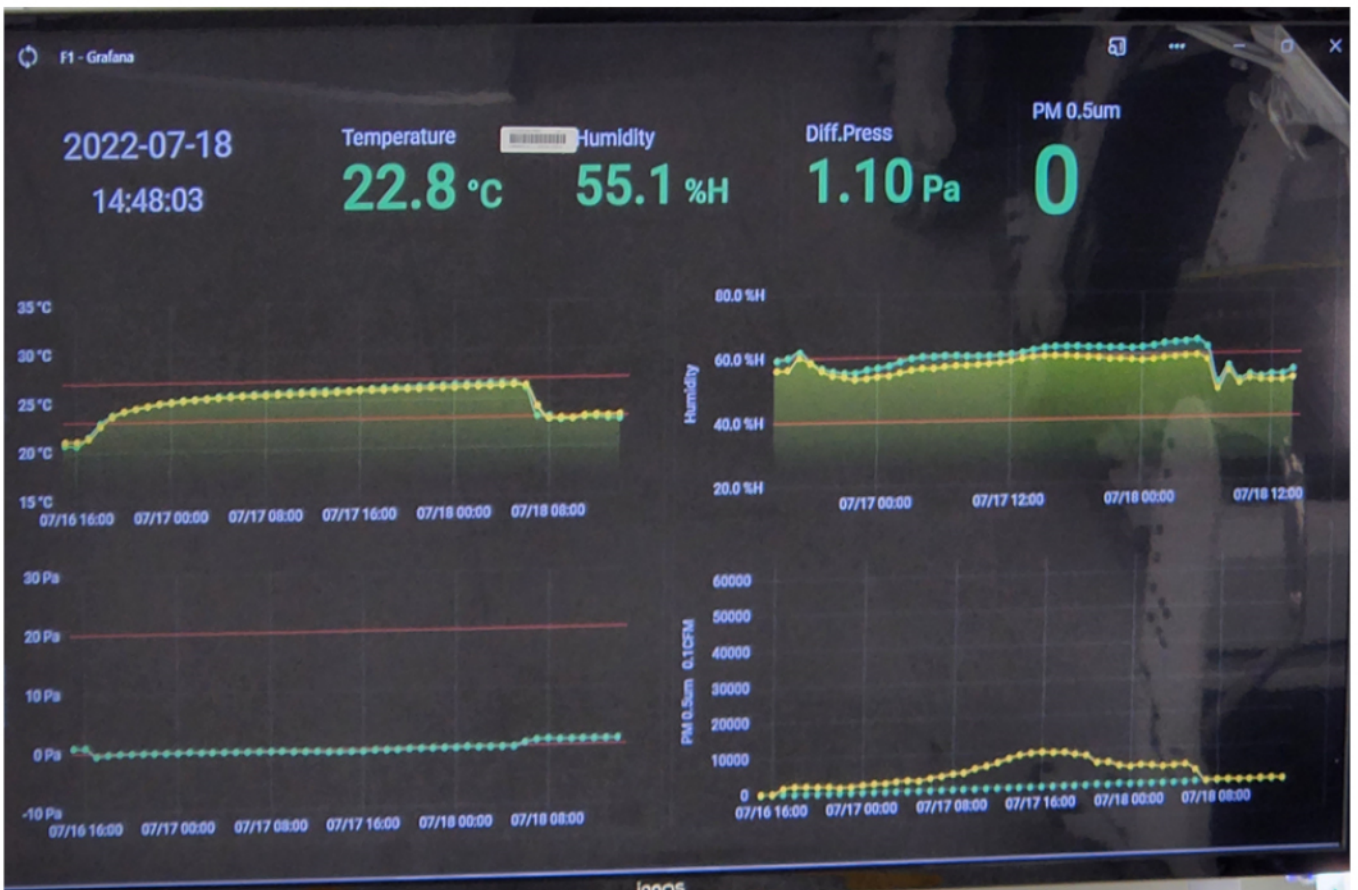
TEST / Assembly Line (Clean Room)



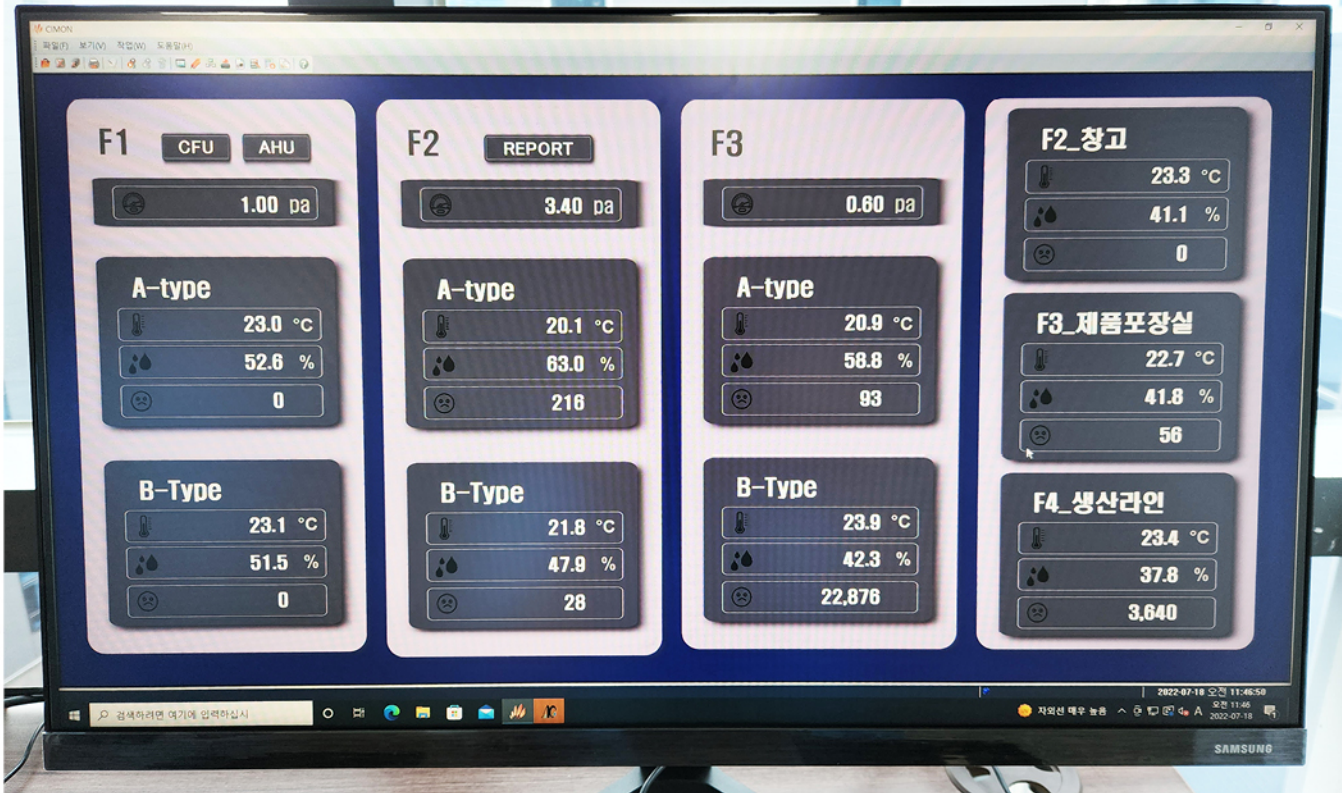
Electrostatic Discharge Gate



Clean Room Status Display



Clean Room Monitoring



Smart Power Monitoring



ke korea-ems Co., Ltd.

We will become a company doing our best all the time.

Thank you!

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