



E&F TECHCONSULT
YR RELIABLE PARTNER



EMS TECHNOLOGIES CO., LTD

EMS Technologies Co., Limited

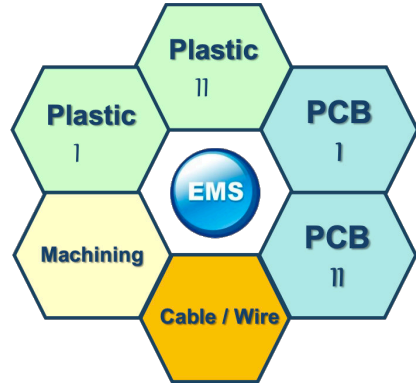
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About EMS Company

Megafactories vs EMS Group



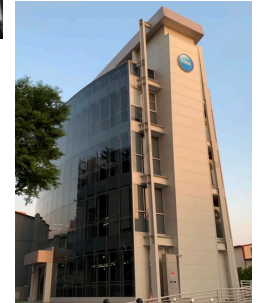
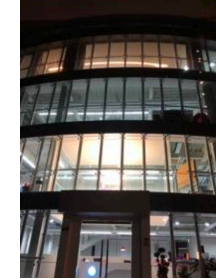
About EMS Group

EMS Group Headquarter.

- Total Sales Revenue in 2024: US\$60 million
- Workers : 250 people
- Facilities : 42,500 square meters (All facilities)

Our facilities are located in central Taichung.

- Workers : 250 people
- Facilities : Total 22,000 square meters
- Taiwan Capabilities Include:
 - Tight Tolerance Machined Parts
 - Metal Stampings
 - Printed Circuit Board Assemblies
 - Injection Molded Plastics
 - Turnkey Assemblies



How we work

Product Quality Planning Stage	Check Data / Output Document	PCB(A)		Plastic		Metal	
		MOT	QC	MOT	QC	MOT	QC
Introduction	A-1. RFQ-Feasibility in New Project Development evaluation	✓	✓	✓	✓	✓	✓
	A-2. BOM List	✓	✓	✓	✓	✓	✓
	A-3. PCB Spec & Gerber	✓	✓	✓	✓	✓	✓
	A-4. Assy picture - 2D/3D drawing (Tolerance Criteria)	✓	✓	✓	✓	✓	✓
	A-5. Material Specification - Cosmetic/Surfacor Finish - Packaging...etc.	✓	✓	✓	✓	✓	✓
	A-6. Drawing CC (Critical Characteristic) & SC (Special Characteristic) study	✓	✓	✓	✓	✓	✓
	A-7. Golden Sample	✓	✓	✓	✓	✓	✓
	A-8. Assy Procedure (SOP or WI)	✓	✓	✓	✓	✓	✓
	A-9. Function Test requirement review	✓	✓	✓	✓	✓	✓
	A-10. Ensure inspection requirement and quality level of the new project.	✓	✓	✓	✓	✓	✓
A. RFQ Evaluation Stage	B-1. Final BOM List	✓	✓	✓	✓	✓	✓
	B-2. Final PCB Spec & Gerber	✓	✓	✓	✓	✓	✓
	B-3. Final Assy picture - 2D/3D drawing (Tolerance Criteria)	✓	✓	✓	✓	✓	✓
	B-5. Final Material Specification - Cosmetic/Surfacor Finish - Packaging...etc.	✓	✓	✓	✓	✓	✓
	B-5. CC & SC (Drawing) confirmation	✓	✓	✓	✓	✓	✓
	B-6. Final Assy Procedure (SOP)	✓	✓	✓	✓	✓	✓
	B-7. Final Quality Standard Inspection Procedure (SIP)	✓	✓	✓	✓	✓	✓
	B-8. Assy & Test Fixture confirmation	✓	✓	✓	✓	✓	✓
	B-9. Firmware - Test Procedure confirmation	✓	✓	✓	✓	✓	✓
	B-10. Circuit Schematic (Only for function test or debug requirement)	✓	✓	✓	✓	✓	✓
	B-11. Final Control Plan	✓	✓	✓	✓	✓	✓
B. PO Checking (Engineering SPEC Confirmation) Stage	C-1. Meeting for Preproduction	✓	✓	✓	✓	✓	✓
	C-2. Initial Sample Inspection Report (SIR) released	✓	✓	✓	✓	✓	✓
	C-3. Standard Inspection Procedure (SIP) validated	✓	✓	✓	✓	✓	✓
	C-4. PSW submit and approval (PPAP related doc requested from customer)	✓	✓	✓	✓	✓	✓
	C-5. Production Flow Chart and SOP release	✓	✓	✓	✓	✓	✓
	C-6. Components Approval for IQC	✓	✓	✓	✓	✓	✓
	C-7. Pilot Run review meeting (Quality / Yield Rate / Defect analysis...etc.)	✓	✓	✓	✓	✓	✓
C. Pilot Run (Initial Sample Production) Stage	D-1. First article inspection report	✓	✓	✓	✓	✓	✓
	D-2. On site inspection record and checking report	✓	✓	✓	✓	✓	✓
	D-3. Standard Inspection Procedure (SIP) review	✓	✓	✓	✓	✓	✓
	D-4. Flow Chart review	✓	✓	✓	✓	✓	✓
	D-5. Facility Control (OQC) check list and inspection	✓	✓	✓	✓	✓	✓
	D-6. EMS-IQC/OQC report released and put on file	✓	✓	✓	✓	✓	✓
D. Mass Production Stage	E-1. Regular on site inspection record and check report	✓	✓	✓	✓	✓	✓
	E-2. Product SIP and production SOP revised after ECN released	✓	✓	✓	✓	✓	✓
	E-3. After ECN, re-check the First article inspection report, or On site inspection record	✓	✓	✓	✓	✓	✓
	E-4. Customer Complaint Handling (RMA) flow definition and execution	✓	✓	✓	✓	✓	✓
	E-5. Update to (SOP/SIP/PPM/Flow Chart) after 8D report	✓	✓	✓	✓	✓	✓
	E-6. Verification to (First article inspection / PPM monitor / On site inspection...etc.) of corrective action after execute the corrective action of 8D report.	✓	✓	✓	✓	✓	✓
	E-7. Facility (OQC) check list and inspection	✓	✓	✓	✓	✓	✓
	E-8. EMS-IQC/OQC report release and put on file	✓	✓	✓	✓	✓	✓
E. Continuous Feedback, Improvement and Corrective Action							

Remarks: ✓ = Must, ▲ = Optional, ⊕ = Double Check

EMS PCB Capabilities

SMT Capabilities:

- PCB Size (MAX) : 510mm × 460mm.
- PCB Thickness (MIN) : 0.1mm.
- Chip Size (MIN) : 0201 / 0402
- BGA Size (MAX) : 50mm × 50mm
- Min. μ - BGA Pitch : 0.3 mm

Equipment:

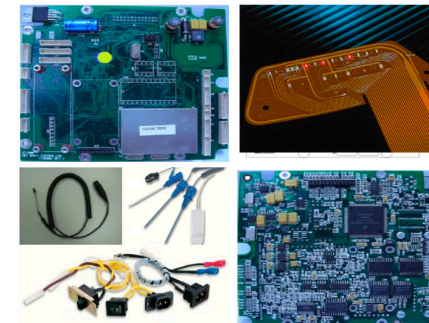
- High speed RoHS SMT lines x 6
- N2 SMT RoHS reflow lines x 2
- DIP components insert lines x 2
- Final assembly / Testing lines x 3
- Special process line x 1

(Silicon / Plastic mold potting, conformal coating, etc.)



Industries we served:

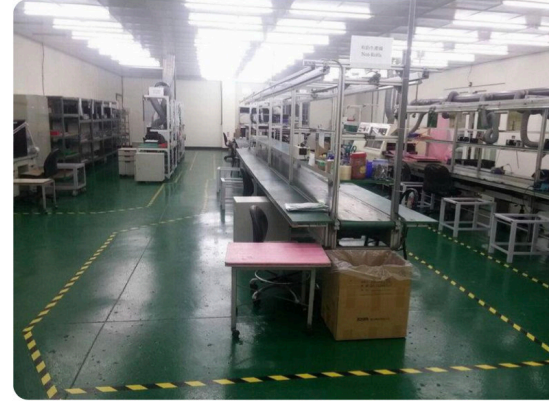
- Industrial Control Board
- Marine Control System
- Fitness Equipment Control Board
- Automotive LED Module
- Telecommunications
- Reverse engineer
- Turnkey (PCBA + Enclosure + cable)



EMS PCB Facilities (I & II)



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EMS Assembling Facilities (Assembling & Coating)



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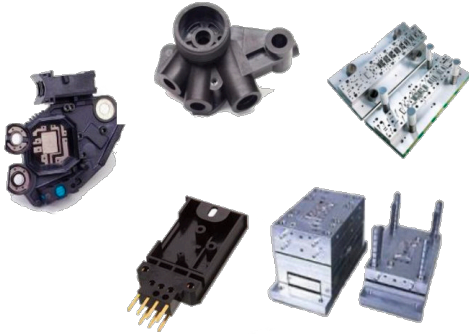
EMS Plastic Injection Capabilities



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Plastic Injection Capabilities:

- Mold Design
- Precise Mold Making
- 2-shot Molding
- Insert Molding
- Over Molding
- Peek Molding



Industries we served:

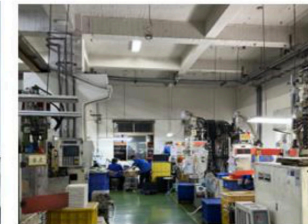
- Medical Parts
- Industrial Parts
- Precision Gear Parts
- Components for Optics
- 2-Shot Molding Parts



Equipment:

- AGIE Charmless CNC EDM x 2
- AGIE Charmless/ Sodick CNC Wire cut x 2
- Horizontal Injection Machine 35-350 Tons x 33
- Vertical Injection Machine 35-55 Tons x 7
- Mold Temperature Control Machine x 6
- Central Material Feed & Drying System x 1
- OKAMOTO CNC Grinder x 1
- TATUNG/ SEEDTEC Grinder x 5
- MAKINO Milling Machine x 3
- 3 MM Projector MICRO VU/TOKYO SEIMTUS x 3

- The new facility already finished in Q3, 2024.
- The land for the facility will be 2,500 square feet + current 1,650 square feet



EMS Machining Facilities



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Machining Capabilities:

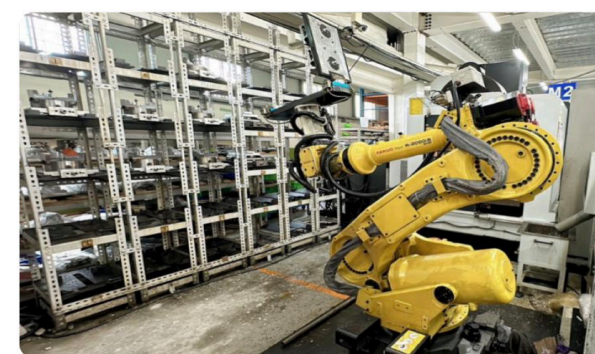
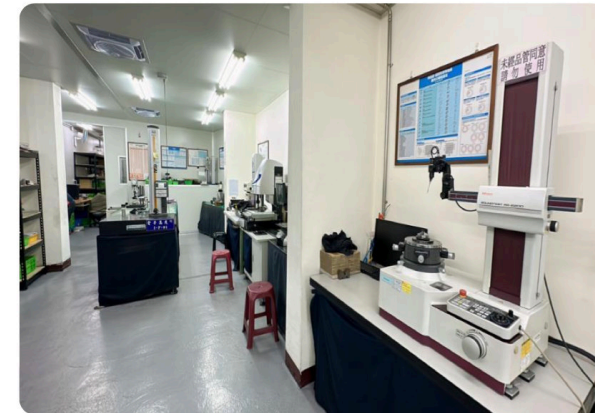
- CNC Lathes
Max. Part size- $\phi 300\text{mm} \times 600\text{mm}$
- CNC Machining Centers
Max. working size- $1100\text{mm} \times 500\text{mm}$
- CNC External Cylindrical Grinders
(Accuracy, 0.001mm; Max. size- $280\text{mm} \times 520\text{mm}$)
- CNC Inner Cylindrical Grinders
Accuracy, 0.001mm for geometric dimensions
- Surface Grinders

Equipment:

- CNC Lathes13
- CNC Machining Centers.....8
- CNC Machining Center + Robot.....6
- 4 Axis Machining Center.....3
- 5 Axis Machining Center.....3
- Cylinder Grinding Machine.....3
- Surface Grinding Machine.....2
- CMM (TESA).....2

Industries we served:

- Automobile parts
- Industrial parts
- Parts for optics molds
- Bicycle industry



EMS Stamping Facilities



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Stamping Capabilities:

- Stamping Mold
- Metal Stamping
- Precision Stamping
- Secondary Production Service

Industries we served

- Cabinet Parts
- Hand Tool Products
- Food Industry
- Electronics Parts
- Bicycle Parts



Equipment:

Continuous Die Punching Machining

- Stamping Machine 400ton.....1
- Stamping Machine 200ton.....2
- Stamping Machine 120ton.....2
- Stamping Machine 110ton.....1
- Stamping Machine 80ton.....2
- Stamping Machine 45ton.....2

Single Die Punching Machining

- Stamping Machine 80ton.....2
- Stamping Machine 60ton.....3
- Stamping Machine 35ton.....2



40 years experience in stamping industry



EMS Die Casting Facilities



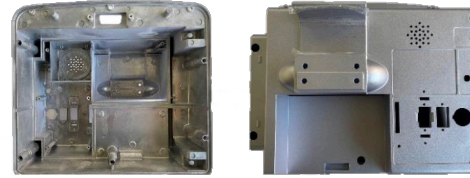
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Die Casting Capabilities:

- Mold Design
- Precise Die Casting
- Aluminum Alloy Die Casting
- Zinc Alloy Die Casting
- Airproof Die Casting
- Precise Machining

Industries we served:

- Automobile & Motorcycle parts
- Light & Lamp parts
- Hand Tool Products
- Medical Parts



Equipment:

- Die Casting Machine 150ton.....1
- Die Casting Machine 180ton.....2
- Die Casting Machine 250ton.....2
- Die Casting Machine 350ton.....1
- Die Casting Machine 420ton.....1
- CNC Lathes.....9
- Punching Machine.....12
- CNC Tapping Center.....3
- Surface Grinding Machine.....7
- Drilling and tapping machine.....58....

- 40 years experience in Die Casting industry
- Airtight testing requirement
- Secondary operation

Heat treatment

Tumbling, Sand-blasting, Polishing

Coating : Powder / Liquid / Electrolytic Coating / Lacquering

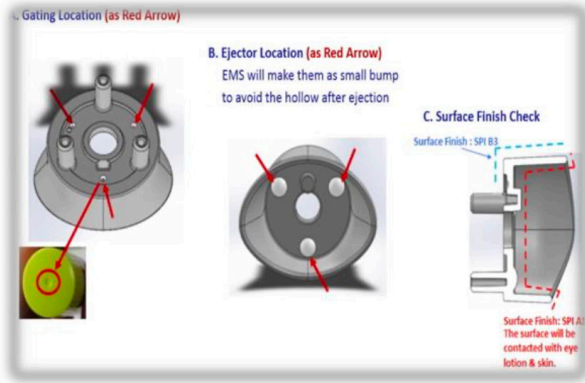
Anodizing : Ordinary / Semi-Hard / Hard / Super Hard

Plating : Vacuum Plating / Chrome Plating / Nickel Plating

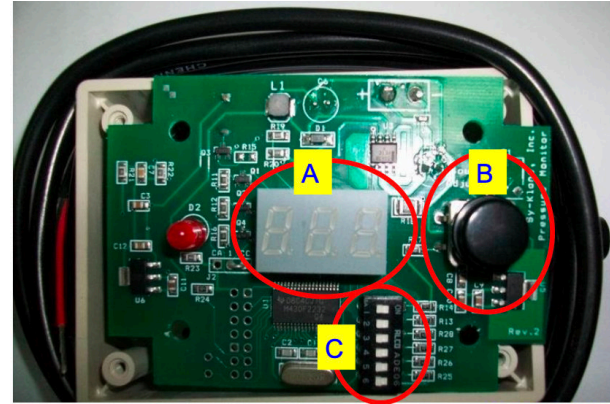


EMS Engineering Support

1. Design for Mfg & Assy (DFM/DFA)

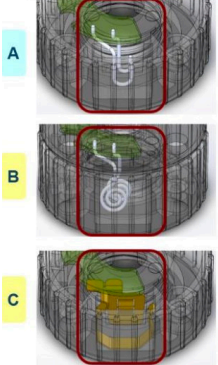


1. Qualified equivalent parts for cost saving



2. Design suggestions for customers

4. Battery Contact Suggestion

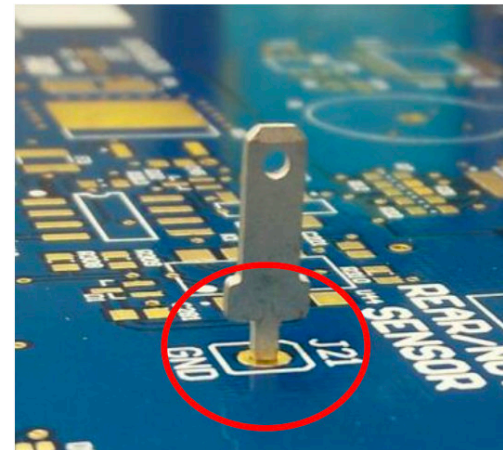


- A. Original Design**
 - High Labor Cost
 - Battery Contact performance might be an issue.

For the long term, EMS won't suggest this design.
- B. EMS Suggested Design - 1**
 - High labor cost
 - Improve the Battery Contact
- C. EMS Suggested Design - 2**
 - Lower Labor Cost
 - Enhance the Battery Contact for bigger range by brass.
 - Extra Tooling Cost of Brass

For the long term, EMS strongly suggested this design for better reliability.

2. Efficient & Effective Manufacturing



Weekly Report Provided During the Tooling Build

Housekeepers for your project!!!



Tooling (Product) Scheduling 模具(產品)時程進度規劃

General Information 基本資訊										專案序號 NPDR#	NY01001							
For Client 客戶名稱						Project Name 專案名稱	Board Cover & Lens Tooling (1+1 Cavity Mold)					PO/Contract 訂單合約序	600697	Initiat'n Date 啟動日期	2011/2/17			
Print # 專案編號	TA-MC-02-NY01001-01	Rev	↓	Sp1 Requests 特殊要求	NAK 80 steel for 1+1 cav. family tooling w/ SPI-A2; PC clear material										PM 專案負責人	Ryan		
No.	Tasks/Operations 工作任務	Start D. 啟始日	Finish D. 預完日	Plan Schedule & Actual Progress 計畫進度與實際進度												Reprd. 排基者	Actual FD 實際完成日	Remarks 備註
1	Tooling Design 模具設計	2011/2/28	2011/3/7	[Gantt chart showing progress from 18 to 27]												EMS	Mar.07	NA
2	Mold Base Machining 模座加工	2011/3/8	2011/3/14	[Gantt chart showing progress from 19 to 21]												EMS	Mar.14	NA
3	Mold Core Machining 模仁加工	2011/3/3	2011/3/11	[Gantt chart showing progress from 22 to 24]												EMS	Mar.11	NA
4	NC Machining CNC加工	2011/3/11	2011/3/21	[Gantt chart showing progress from 25 to 27]												EMS	Mar.21	NA
5	Wire-Cutting Machining 線切割	2011/3/18	2011/3/23	[Gantt chart showing progress from 28 to 30]												EMS	Mar.24	NA
6	Electrical Discharge Machining 放電加工	2011/3/22	2011/3/31	[Gantt chart showing progress from 31 to 3]												EMS	Mar.31	NA
7	Polishing+Clamping 仕上(合模)	2011/3/30	2011/4/8	[Gantt chart showing progress from 4 to 6]												EMS	Apr.08	Including polishing
8	T1 Trial T-1試模	2011/4/11	2011/4/12	[Gantt chart showing progress from 7 to 8]												EMS	Apr.12	T1 samples
9																		

Notes 說明: Plan 計畫進度, ——— Executed 執行進度, * By Day/Month/Year, Mark milestone date 依長短以日/月/年, 標示里程碑日期

ADDENDUM 附件



- Offer the tooling drawing before tooling started
- Weekly report of the tooling status provided
- Offer the photos for each stage of the tooling



PCBA Case study I for Climate control System

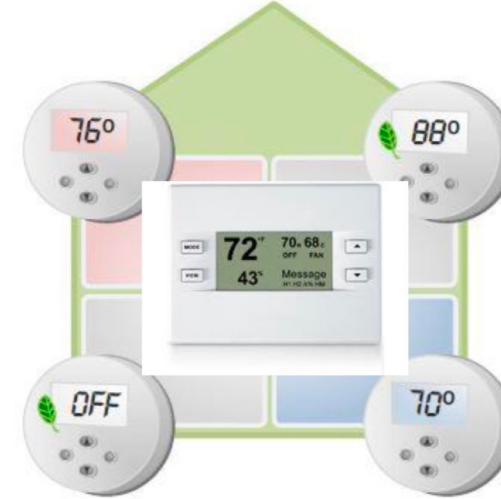
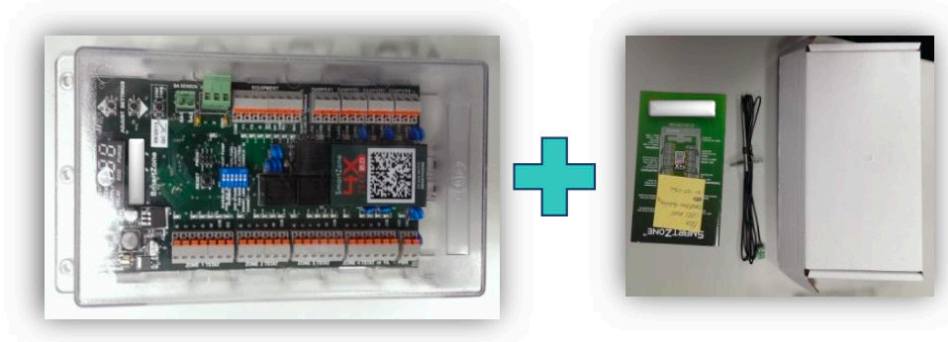


1. Application :

The control board for the residential climate system, which makes every room “Comfortable living and energy saving”

2. Business Scale :

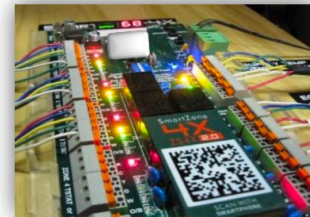
EAU : 75,000 pcs



Feature:

- PCBA assembly
- Plastic housing
- Final assembly & functional testing
- Retail packaging.

(Including User manual + Sticker + Temperature Probe + Carton)



Benefit:

- BOM list review and provide equivalent components suggestion.
- The equivalent components EMS suggested includes:
 - Better cost or L/T components
 - EOL (End of Life) components
 - RoHS requirement
- EMS implements 100% function test = 100% Quality assurance
- Provide 13% cost reduction and 3 weeks production L/T.

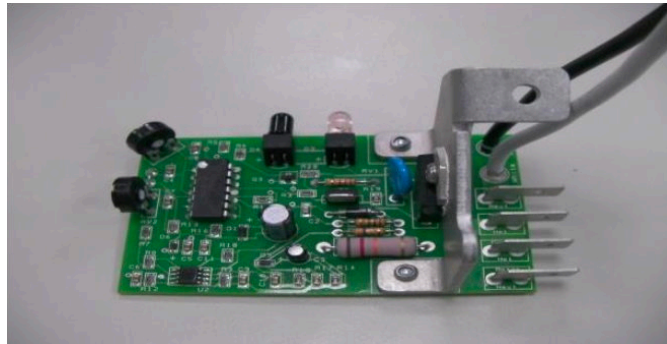


PCBA Case study II for Hand Dryer Control Board



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- 1.Application :
The control board for Hand Dryers
- 2. Business Scale :
EAU : 20,000 pcs

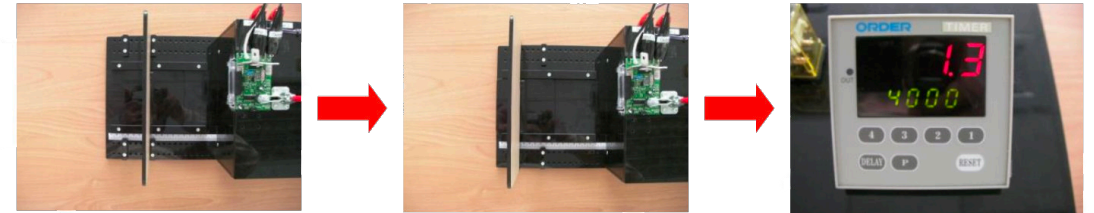


Feature:

- SMT + DIP process
- Heat sink / Wire assembly
- 100% functional test by EMS customized test fixture.
- Conformal coating process. (IP-65)

Benefit:

- a. Provide customer great quality & cost saving.
- b. The customer removed their IQC test after 3 shipments received from EMS.



The sensor must turn off in about 1 second. Otherwise, the unit is a failure. (**Tolerance time:+- 0.5 second**)



