SIMULA - Medical & Wearable Solutions
November 2018
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SIMULA TECHNOLOGY

- 8 Facts About Simula
- Global Support
- Core Competencies
- Solution Overview
8 Facts About Simula

- **IPO in Taiwan (2009)**
- **27 years experience**
- **Established 1990**
- **On site sales and FAE**
- **Global logistic**
- **High speed development**
- **Integrated solution provider**
- **Development team list**
- **USB Superspeed certified**
- **www.simulatechnology.com**
Global Support

United States  ●●
Fremont, California

European Union  ●●
Munich, Germany

Shenzhen Facility  ●●●

Taiwan Headquarters  ●●●

- Manufacturing
- Research & Development
- Sales (FAE service for ESI support)
Solution Overview

- Waterproof
- Magnetic Pogo Solution
- Customized IO
- Audio Jack
- DC Jack
- Cable
- High-Frequency
- Dongle/Adaptor
- USB / HDMI / RJ IO
- Certificate
  - ISO9000/14000/13485
  - TS16949
  - OHSAS18001

Consumer  Industrial  Medical  Automotive  Marine Electronics
Quality Systems

- ISO9001:2005
- IATF 16949:2016
- ISO13485:2003
- ISO14001:2005
- OHSAS18001:2007
- QC080000:2012
General Overview: Product Solutions

- Industrial & Outdoor Solutions
- Automotive Solutions
- Consumer Product Solutions
- Medical & Healthcare Solutions
- Others & Turn-Key Solutions
CORE COMPETENCIES

- Engineering Integration
- Design Integration
- Manufacturing Integration
- Tooling Competitiveness
- Cable Assembly Competitiveness
- Laboratory Equipment
Core Competencies

Engineering Integration
- Mechanical Analysis
- Injection Analysis
- Thermal analysis
- High Frequency analysis

Design Integration
- Receptacle & plug design
- Component verification
- Raw cable design
- Variety ways for cable manufacturing

Manufacturing Integration
- In-House Tooling
- High precision stamping
- Precision injection
- Different ways for assembly
Core Competencies - Engineering Integration

(1) 63 R&D (24 TPE /39 CN) and 3 FAE for the Worldwide team (1 EE/ 2 ME).
(2) Over 50% of R&D has more than 10 years of experience.
(3) Taipei: New project development, Advanced technology;
(4) Shenzhen: MP, process engineers, cable development.
Core Competencies - Engineering Integration

- Injection Analysis
- High Frequency
- Stress Analysis
- Durability
- Molding Simulation
- Force Analysis
- Engineering Integration

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Core Competencies - Design Integration

Sub-System Design

Component Development

Component Verification

PCB Design

Cable Process

Passive Active

Raw Cable Development

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Core Competencies – Manufacturing Integration

- High Precision Stamping
  - 16set 20~80 ton Aida, Kyori, etc...

- Precision Injection
  - Capable of different ways for assembly.
  - Capable for manual, semi-auto, fully auto, and module automation.

- Tooling Shop

- Verification Lab

- CCD Inspection
- Function Test
- Packing
- Assembly
Tooling Competitiveness

- Vertical integration in tooling. Precision tool design and process.

- Wire Cutting
  - Seibu (±0.002mm)
  - Sodick (±0.003mm)
  - 泰州 (±0.03mm)

- EDM
  - Sodick (±0.003mm)
  - 亚特 (±0.02mm)

- Optical Grinding
  - Waida (±0.001mm)
Cable Assembly Competitiveness

Auto - removing the cable jacket
- Laser cutting because of the cable diameter only 36~40 gauge

Auto - soldering process
- Hot bar for HDMI D fine pitch 0.80 mm

Cabapble to remove cable jacket above 36 gauge by using Laser Technology
Cable Assembly Competitiveness

Automatic Wire Cutting, Stripping Machines

Automatic Soldering Machine (Hot Bar)

Automatic Welding Machine

Automatic Cutting Laser Machine
Cable Assembly Competitiveness

Soldering Process

Manual Soldering

IR Soldering

Hot Bar Soldering
Cable Assembly Competitiveness

Automation
(wire cutting, pressing and soldering)

Low Pressure Molding

Laser Machine

Waterproof Tester

Ultrasonic Drilling Machine
### Lab Equipment - Electrical & Environment

#### Electrical Performance

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spring Force / Contact Resistance Tester</strong></td>
<td>Measure and record spring force and contact resistance of each spring at specific working height.</td>
<td>• Function: Spring Force Test (彈力測試)&lt;br&gt;• Contact Resistance Test (阻抗測試)</td>
</tr>
<tr>
<td><strong>AC Source</strong></td>
<td>Make sure connector work successfully under the particular range of voltage and current</td>
<td>• Function: High Current Test (大電流測試)</td>
</tr>
<tr>
<td><strong>64-Pin Contact Resistance/Lifetime Tester</strong></td>
<td>Life cycle testing for whole series products. Monitor the change of contact resistance during compression.</td>
<td>• Function: Life Cycle Test (壽命測試)&lt;br&gt;• Contact Resistance Test (阻抗測試)</td>
</tr>
<tr>
<td><strong>Single-Pin Contact Resistance/Lifetime Tester</strong></td>
<td>Life cycle testing for single pin. Monitor the change of contact resistance during compression.</td>
<td>• Function: Life Cycle Test (壽命測試)&lt;br&gt;• Contact Resistance Test (阻抗測試)</td>
</tr>
</tbody>
</table>

#### Environmental Testing

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Function</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Thermal Shock Tester</strong></td>
<td>Continuous environmental testing under the flashy cycle of extremely high and low temperature. To make sure the qualified electrical performance of material.</td>
<td>• Function: Highest and lowest temperature Test (高低溫檢測)</td>
</tr>
<tr>
<td><strong>Salt Spray Tester</strong></td>
<td>Checking corrosion resistance of gold-plated product. We can predict the suitability in use as a protective finish.</td>
<td>• Function: Oxidation Resistance Test (抗氧化測試)</td>
</tr>
<tr>
<td><strong>Temperature &amp; Humidity Chamber</strong></td>
<td>To create repeatable environmental conditions for numerous product lines.</td>
<td>• Function: Environmental Test (環境測試)</td>
</tr>
<tr>
<td><strong>Hot-Air Reflow Machine</strong></td>
<td>Simulate SMT process. Make sure gold-plated products and plastic materials keep same electrical performance and physical appearance. Do side force test for the pins mounted on PCB after Reflow machine.</td>
<td></td>
</tr>
</tbody>
</table>
Lab Equipment – Mechanical

Profile Projector
立式光学投影机

Measure the length, width, angle of products
• Function: Physical Inspection (外觀檢驗)

30X to 350X Measuring Microscope
30X至350X工具顯微鏡

Enlargement, photo, and high precision measurement. Enlarge one part of product to check physical situation and provide effective analysis.
• Function: Physical Inspection (外觀檢驗)

X-Ray Plating Thickness Tester
螢光膜厚測試儀

Measure the thickness of plating and check the data fitting customer demand.
• Function: Plating Thickness Inspection (電鍍膜厚檢驗)

X-ray fluorescence spectrometer (ROHS)
X射線螢光光譜儀 (ROHS)

Analyze or measure element kinds and content, to test the content of poisonous and harmful substances
• Function: ROHS Compliance

X-ray Inspection System

• Non-destructive investigation
• Dimension characterization for assembly

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Lab Equipment – Static/Dynamic

**Static/Dynamic Performance**

- **Arbitrary Wave Form Generator**
- **Networking Analyzer**
- **Package Loss Test Machine**
- **Scope Machine**

**Efficient Technical Support**

**Static Function**
- Insertion Loss
- Return Loss
- Cross Talk
- CMRR
- Inductance
- Capacitance
- Hi-pot/IR Test

**Dynamic Function**
- EMI
- IEEE
- ISN
- Surge/ESD
SIMULA TECHNOLOGY Product Solutions

MEDICAL & WEARABLE SOLUTIONS

- Medical Product Solutions
- Wearable Product Solutions
  Pogo Series, Pogo Charging Cables,
  Micro-D-sub, Customs Cables
Medical & Wearable Product Solutions

Magnetic Design Basic Model

**Option 1**
- N on one side,
- S on mating Side

**Option 2**
- N/S on one side,
- S/N on mating Side

**Option 3**
- Magnet on one side,
- Metal on mating Side

- Magnetic and pogo synergy knowhow
- Simulation capacity
- Custom Design and rapid sample verification

*ps. More variation for different magnet/metal combination*
Medical Product Solutions

Micro D-Sub Series
• Reverse contact design
• Flex pin contact

POGO Series
• Magnetic
• High stability contact
• Customized Design

Medical

- Easy & Fast Connection
- Reversible
- High Mating Cycles

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Wearable Product Solutions

POGO Series
• Magnetic
• High stability contact
• Customized Design

Power Charging Cable

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Why Simula?

- Design Capability
- Design Process
- Simulation Analysis
- Manufacturing Competitiveness
- Comprehensive & Advance Tester
- Superior Technology Solution Partner
Thank you