Masterlink International Ltd.

Your Connection Solution Partner

www.master-link.com.tw
Index

1. 歷史沿革  History & Introduction
2. 經營場所  Location & Function
3. 公司組織  Organization
4. 主要客戶  Market Territory/ Customer
5. 產品簡介  Products
6. 應用市場  Applications
7. 核心能力  Core Value
8. 未來規劃  Future Plan
History & Instruction

Masterlink International Ltd. was established in 2012, with decades-experienced staffs in connector and cable field, provides leading-edge connector and ODM/OEM cable assembly. Its principle is to support global customers with full satisfied products and services, and its vision is to be the most innovative, reliable and sustainable operation partner in the field.

Its connector range includes Card connector, I/O connector, PCB connector, and Water-proof connector in a wide range, like USB C type connector/USB 3.0 connector/SIM socket/RJ45 Jack/Board to Board connector/FPC connector/M2 connector/RF connector and so on; cable assembly range includes signal transfer cable assembly and wire harnesses that designed and produced according to the various usage on different applications.
History & Instruction

2012  Masterlink International Ltd. Founded

2013  Card Connector Product Line Launched

2014  I/O Connector Product Line Launched

2015  Cable Assembly Product Line Launched

2016  RF Connector Product Line Launched

2017  USB Type C Product Line Launched
Location

• Headquarter
  Office Location: Taipei, Taiwan
  Tel: 886-2-2648-6512
  Fax: 886-2-2648-6479
  Website: www.master-link.com.tw
  www.masterlink-international.com
  E-Mail: info@master-link.com.tw

• Production Site
  Location: Shenzhen, China
  Space: 20,000 Square Meter
  Number of employees: 500 people
  Facility: In house Tooling, Stamping, Injection, and Assembly
Organization

General Manager

SALES/MARKETING DEPT.
- Sales - Domestic
  - International
- PM
- Marketing
- FAE

PRODUCTION DEPT.
- Production Control
- Procurement
- Logistic

ENGINEERING DEPT.
- Quality Assurance
- Production Engineering
- Product Design

ADMINISTRATE DEPT.
- General Affairs
- Human Resource
- Accounting
- Finance
Market Territory / Customer

Territory Distribution

Europe 35.15%
North US 42.49%
Asia 22.31%
Oceania 0.06%
Market Territory / Customer

Main Customers

- COMPAL
- LCFC
- SAMSUNG
- JAE
- malata
- AOC
- TCL
- Qisda
- Hisense
- FOXCONN
- tyco
- CHIMEI
## Product

<table>
<thead>
<tr>
<th>Connector</th>
<th>Cable Assembly</th>
<th>Antenna</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Passive connectors for below range</strong></td>
<td><strong>Signal transfer/ power transfer</strong></td>
<td><strong>From 125KHz to 5.85GHz</strong></td>
</tr>
<tr>
<td>- Card Connector</td>
<td>- USB Cable Assembly</td>
<td>- GPS</td>
</tr>
<tr>
<td>- I/O Connector</td>
<td>- RJ45 Cable Assembly</td>
<td>- Keyless</td>
</tr>
<tr>
<td>- PCB Connector</td>
<td>- USB Type C Cable Assembly</td>
<td>- LTE</td>
</tr>
<tr>
<td>- Water-Proof Connector</td>
<td>- LVDS</td>
<td>- WiFi</td>
</tr>
<tr>
<td></td>
<td>- Wire Harness</td>
<td>- WiMAX</td>
</tr>
<tr>
<td></td>
<td>- Car DVR Cable Assembly</td>
<td>- MIMO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- RFID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Bluetooth</td>
</tr>
</tbody>
</table>
Product

CONNECTOR

Pass Durability tests, Environmental tests, Electrical tests, RoHS/ HF Compliant

Product Category=>

- **I/O Connector**: Waterproof connector, USB C type, RJ45, HDMI, USB 2.0, USB 3.0 DC Jack, Tact Switch
- **Card Connector**: SIM Skt, Smart Card Skt, Mini PCI Express Cnt, M.2 Cnt, Micro SD Skt, CF skt
- **PCB Connector**: FPC CNT, Pogo Pin, Board to Board CNT, Wire to Board CNT
Product

CABLE ASSEMBLY

Customized Cable Assembly, Join design,
Product Category=> Signal Cable Assembly: USB Type C to C Cable assy’, Ethernet Cable Assy’,, Optic Cable Assy’, LVDS, FAKRA Cable Assy’, Car DVR Wire to Wire, RF Cable, Wire Harness

FPC/ FFC: OEM FPC  cable, FFC Cable
Product

ANTENNA

ODM/ OEM customized Antennas / high value/ low PIM/ Competitive price/
Application : GPS, Keyless, LTE, WiFi, , WiMAX, MIMO, RFID, Bluetooth
Frequency range : 125KHz to 5.85GHz
Structures : PIFA / DIPO / RF CABLE / FAKRA CABLE / PCB / RFID
**Applicat**ion

**Smart Home**

**PRODUCT:** Mini PCI Express Socket, M.2 connector, SIM socket, FPC connector, USB C type, FFC Cable

**Application:** Smart Lighting System/ Smart Meter/ Smart Refrigerator/ Clean Robot
Application

PRODUCT: CF card socket, SIM socket, Smart Card connector, Wire Harness

Application: Auto Vending Machine, Subway/MRT Auto-Pay, Parking Meter, ATM, POS
Application

Entertainment

PRODUCT: HDMI cnt, HDMI Cable, CF card socket, RJ45 Jack, USB C type, USB A type, Ethernet Cable

Application: VR/AR, Set-Top Box, Gaming Machine, Wire & Wireless Speaker
Application

Automotive

PRODUCT: MicroSD socket, FPC connector, USB A type, USB C type, FFC, LVDS
Application: Vehicle Tracking System/ Car DVR/ Car Camera/ Fleece Control
**Application**

**Portable Device**

**PRODUCT:** MicroSD socket, FPC connector, FFC, Board to Board cnt

**Application:** Smart Watch, Tablet PC, Smart Phone, Headset, Wireless Microphone
Core Value

- Product Process
- Quality Assurance
- Manufacture Capability
- R&D Capability
Core Value – Product Process

Product Process

- Insert Molding Technology
- Deep Draw Process
- Automatic outlook detect
- Automatic assembly production line
Core Value – Product Process

Insert-Molding Technology

For USB 3.1 Type C connector

All connectors were designed according to USB-IF standards

- Product central length (CL) is optional from 0.25mm~1.71mm
- Height above PCBA is from 2.00mm~2.71mm
Core Value – Product Process

Insert-Molding Technology

For USB 3.0

Advantage:
1. Excellent co-planarity
2. No retention force releasing issue in soldering process
3. Well protection for contact (ex.)
4. Flux prevented
5. Easy process with less mistake
Core Value – Product Process

Insert-Molding Technology

For HDMI connector

Raw contact before molding
After insert-molding
Contacts are protected inside plastic

HDMI A type series
HDMI C type series
**Core Value – Product Process**

**Insert-Molding Technology**

For HDMI connector - Anti Contact-jumping Solution

<table>
<thead>
<tr>
<th>Others design</th>
<th>Masterlink design</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assembly type, contact appearance</strong></td>
<td><strong>Insert-molding prevent contact jumping different from current type</strong></td>
</tr>
<tr>
<td><strong>Contact damage caused by male inserting</strong></td>
<td><strong>Contact won’t be possible damage inside plastic</strong></td>
</tr>
</tbody>
</table>

Most of HDMI connector in market now faces a critical issue - contact pin jumping out. This problem not only cause HDMI function fail but also get the risk of machine fail. The reason makes pin-jumping is major happened in connector assembly which can not make sure all the contacts lay on plastic well and will make pin damage while mating.

**Masterlink** applies insert-molding technology in HDMI connector, which has contact molded inside plastic and prevent the contact from damage while inserting male one.
<table>
<thead>
<tr>
<th>Product feature</th>
<th>Technology Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact pin Reliability</td>
<td><strong>Insert-molding</strong> contact pins with plastic housing to avoid pins deformed or backward during insertion-extraction of standard plugs</td>
</tr>
<tr>
<td>Contact pin Co-planarity</td>
<td><strong>Insert-molding</strong> contact pins with plastic housing is with pins come in a raw before insert molded, and ensure their co-planarity and accuracy of positions</td>
</tr>
<tr>
<td>Central plate Strength</td>
<td><strong>Insert-molding</strong> the contact pins with plastic housing avoids the central plate broken during normal insertion-extraction of standard plugs</td>
</tr>
<tr>
<td>Metal shell Strength</td>
<td><strong>Deep-draw</strong> the metal raw material into one-piece metal shell to enhance its strength and avoid metal shell broken or malfunction during regular plug-in by standard cables.</td>
</tr>
<tr>
<td>Connector Shielding</td>
<td><strong>Deep-draw</strong> metal shell is one-piece without open hole, and offers great effect on shielding for high frequency features of USB 3.1 standard</td>
</tr>
</tbody>
</table>

Ensure SMT tail co-planarity
Ensure DIP tail true position

Central Plate strengthened

Deep-draw inner metal shell

Molding contact
## Contact Pins Assembly Method

<table>
<thead>
<tr>
<th>Masterlink</th>
<th>Other (Jxx, Fxxx, Mxx, …)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Insert-molding technology is applied to ensure contact pins stable without pin crash or backward issues.</td>
<td>1. Assemble each pins into the plastic body piece by piece. Contact pins front part is without protection. Pin lifted and backward issues happen due to it.</td>
</tr>
<tr>
<td>2. Central plate strengthened and not easy to bend or deformed</td>
<td>2. Central plate is hollow to assembly the pins. This structure is weak and cause it easy broken.</td>
</tr>
<tr>
<td>3. Production process stable and reliable. Avoid potential quality issues.</td>
<td>3. Assembly process cause complicate procedures and not easy to control. At the end of processes products are easy deformed on shapes.</td>
</tr>
</tbody>
</table>

![Molding contacts](image1.png)

![Molding housing](image2.png)

1. The front side of contacts is open so contacts are easy to be lifted or crashed
2. The central plate is hollow and cause weak structure and easy broken.
## Core Value – Product Process

### Deep Draw Technology

<table>
<thead>
<tr>
<th>Solder Tail Assembly Method</th>
<th>Masterlink</th>
<th>Other (Jxx, Fxxx, Mxx, ...)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Insert-molding technology is applied to ensure the co-planarity of SMT solder tails and orthogonality of DIP solder tails. This avoid the no solder or poor solder cause by poor co-planarity.</td>
<td>1. Assemble each pins into the plastic body piece by piece. Too many steps cause the tolerance enlarged and product is poor co-planarity on SMT solder tails. Easy to cause no solder and poor solder issues.</td>
</tr>
<tr>
<td></td>
<td>2. Production process stable and reliable and efficiently. Avoid potential quality issues and increase the production capability.</td>
<td>2. DIP solder tails are often crooked and cause poor efficiency or quality to put it on PCBA 3. Difficult on Quality control; Poor efficiency</td>
</tr>
</tbody>
</table>

* Ensure the co-planarity of SMT solder tails
* Ensure orthogonality

![Diagram of Solder Tail Assembly Method](image-url)
## Core Value – Product Process

### Deep Draw Technology

<table>
<thead>
<tr>
<th>Metal Shell Production Method</th>
<th>Masterlink</th>
<th>Other (Jxx, Fxxx, Mxx, ...)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Masterlink</strong></td>
<td>1. Deep-draw technology is applied on our metal shell production. It come out as one-piece shell without any open holes on it.</td>
<td>1. Metal shell is stamping and shaped with binding line on it. This structure is weak and could be broken during regular use.</td>
</tr>
<tr>
<td></td>
<td>2. The metal shell will not be deformed or broken by the insertion of standard cables during frequently use</td>
<td>2. By stamping process the metal shell is with more openings and cause poor shielding.</td>
</tr>
<tr>
<td></td>
<td>3. The metal shell is in one piece and offer good features on shielding to fulfill high frequency USB 3.1 standard</td>
<td>3. Poor shielding could not meet to USB 3.1 high frequency standards.</td>
</tr>
</tbody>
</table>

- No binding line on top or bottom surface of the metal shell
- Binding line on metal shell cause weakness of structure.
- Side of metal shell opens for soldering legs and cause poor shielding.
Core Value – Product Process

Deep Draw Technology

1. No protection in front of contact pins and easy lifted or crashed.
2. Central Plate is hollow and cause weak structure and easy broken.
3. 2 rows assembly on pins causes tolerances on procedures and poor co-planarity and orthonality.

1. The metal shell is shaped by the binding line. This structure is weak and easy to be broken during regular use.
2. The side of metal shell is stamped open and become solder legs. This cause metal shell with open holes and poor shielding.
Core Value – Product Process

Automatic Outlook Detect

Automatic machine inspect plastic housing outlook

- LCD Panel
- Inspect Result
- Inspect Pool
- NG item fall out
- OK item fall in
Core Value – Product Process

Automatic Assembly Production Line

Automatic Cutter & Bender & Former
Automatic Assembly Production Line

Automatic CCD machine (inspect solder tail)
Core Value – Quality Assurance

- Quality Policy
- QA System
- System Classify
- Duty
- Equipment of Inspection
Meet and exceed customer demand is the goal for all of our staff to achieve!
Core Value – Quality Assurance

QA System

V.P
Mr. Li

Quality Supervisor

QC

IQC
IPQC
FQC OQC

QA

QE
SQE
FAE

QS

LAB
<table>
<thead>
<tr>
<th>Title</th>
<th>Work detail</th>
<th>Use tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQE/IQC</td>
<td>● Incoming material 入料</td>
<td>MTBF, QSA</td>
</tr>
<tr>
<td></td>
<td>● Treat with Material defect 处理材料不良</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Suppliers technique support 供应商技术支援</td>
<td></td>
</tr>
<tr>
<td>PQE/QC</td>
<td>● Control Plan 控制计划</td>
<td>CPK, SPC,</td>
</tr>
<tr>
<td></td>
<td>● Process control 制程控制</td>
<td>QPA, PFMEA</td>
</tr>
<tr>
<td></td>
<td>● Finish product / shipment inspection 成品及出货检验</td>
<td></td>
</tr>
<tr>
<td>DQE/DQA</td>
<td>● Participate RD and pilot run phase 参与研发试产</td>
<td>DFMEA, FTA,</td>
</tr>
<tr>
<td></td>
<td>● Reliability test 可靠度测试</td>
<td>DOE</td>
</tr>
<tr>
<td></td>
<td>● Production improve 产品改善</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Production preparatory 不良预防</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● GP control 环保产品管控</td>
<td></td>
</tr>
<tr>
<td>QS/SQM</td>
<td>● ISO system maintenance 系统维护</td>
<td>System &amp; VQA</td>
</tr>
<tr>
<td></td>
<td>● Files accept and dispense 文件收发管理</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Suppliers evaluate and manage 供应商评鉴与稽核</td>
<td></td>
</tr>
<tr>
<td>LAB</td>
<td>● Yearly calibration plan 年度校验计划</td>
<td>MSA</td>
</tr>
<tr>
<td></td>
<td>● Calibration control 校验管控</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Calibration failure evaluate 校验不良分析</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Inside calibration actualization 内校</td>
<td></td>
</tr>
<tr>
<td>FAE</td>
<td>● Treat with customer complaint and service 客诉与客服</td>
<td>8D Report</td>
</tr>
<tr>
<td></td>
<td>● CAR improve action track 改善行动跟踪</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● To provide correction action that belong to product’s issue 产品问题不良改善对策</td>
<td></td>
</tr>
</tbody>
</table>
Core Value – Quality Assurance

Equipment of Inspection

CCD co-planarity Check
Electric check
Contact Resistance meter

Image observe system
Salty spray Test system
Hi-pot & Insulation meter
Core Value – Quality Assurance

Equipment of Inspection

- Automatic insertion force tester
- X-Ray Tester
- RoHS Tester
- IR Reflow
- Video measurement system
- Durability Tester
Core Value – Manufacture Capability

Stamping & Injection

Injection

Working Shop

Stamping

Assembly
Core Value – Manufacture Capability

Connector & Module

- Insert Molding
- Detail view
- Assembly line
- Auto assembly machine
- Auto Project mark machine
- Auto packing machine
Core Value – Manufacture Capability

Cable Assembly & Adaptor
Core Value – R&D Capability

Prototyping

Customer Request → Design concept/cost/tooling proposal → 2D/3D spec proposal → Propose Result/Customer discuss → Assembly/Test/Calibration on prototype → Mold tooling/PCBA manufacture → Production: - workstation planning - Make custom jigs → Production
Core Value – R&D Capability

Lab. Equipment


- Digital Micro OHM Meter
- Dielectric Withstanding Voltage
- XRF Test Machine
- Moisture Analyzer
- Contact Temp Humidity Chamber
- High & Low Temp. Chamber
- Salt Spray Tester
- Polishing Slicer
- Push-Off Adhesion Test
- oven
- Insulation Resistance Tester
- XRF Test Machine
- 2D Projector
- 3D Projector
- Hardness Testing Machine
- automatic insertion Force testing machine
Core Value – R&D Capability

Patent List

USB 3.0 patent
Muti. card in one connector patent
HDMI patent
SD card conn Push lock patent
## Future Plan

### Production

<table>
<thead>
<tr>
<th>Item</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td></td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
</tr>
<tr>
<td></td>
<td>Q1</td>
<td>Q2</td>
<td></td>
</tr>
<tr>
<td>Waterproof product</td>
<td>USB type C</td>
<td>Micro USB</td>
<td></td>
</tr>
<tr>
<td>Cable Ass’y</td>
<td>USB type C cable.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile phone Peripheral product</td>
<td>Microscope</td>
<td>Wireless charging</td>
<td></td>
</tr>
</tbody>
</table>
Address:
Taipei ➔ 2F., No.90, Sec. 2, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

Phone:
Tel: +886-2-26486512  FAX: +886-2-26486479

E-mail
info@master-link.com.tw

Website
http://www.master-link.com.tw
http://www.masterlink-international.com