KEL places the utmost importance on the communication with customers. KEL contributes to solving customer’s tasks with substantial communication and abundant connection technology cultivated over many years. Established in 1962, KEL has been a professional manufacturer of industrial connectors business. It is also the history that KEL continued pursuing excellent connection reliability and high functionality while electronics equipment became miniaturized and advanced functions. Through substantial communication, KEL has clarified the issues that customers must solve and demands that will lead to the next generation. KEL has continued to offer new products that always go one step ahead by continuing its own research and development. KEL intends to offer cutting-edge technical proposals and high-function products in the area of connection technology for the brilliant future developed by electronics. KEL will responds to intense progress technology and market environment with creativity. Please keep expecting KEL's advanced technology and product development in the future.
KEL Corporate Profile

Trade Name: KEL CORPORATION
Established: July 23, 1962
Total Capital: 1,617 Million Yen
President: Etsuro Doi
Head Office Address: 6-17-7 Nagayama, Tama-shi, Tokyo 206-0025, Japan
URL: www.kel.jp

Manufacturing Locations
Yamanashi Factory / Nishi-Yatsushiro-gun, Yamanashi, Japan
Nagano Factory / Kita-Azumi-gun, Nagano, Japan
Minami-Alps Factory / Minami-Alps-shi, Yamanashi, Japan

Overseas Locations
KEL Europe GmbH / Dusseldorf, Germany
KEL Connectors, Inc. / California, U.S.A.
KEL Shanghai Co., Ltd. / Shanghai, China
KEL Taiwan Co., Ltd. / Taipei Hsien, Taiwan
KEL Electronics (Hong Kong) Ltd. / Kowloon, Hong Kong

Manufacturing Locations
Yamanashi Factory
Nagano Factory
Minami-Alps Factory

Overseas Locations
KEL Europe GmbH
KEL Connectors, Inc.
KEL Shanghai Co., Ltd.
KEL Taiwan Co., Ltd.
KEL Electronics (Hong Kong) Ltd.

CONTENTS

Corporate Profile .................................................. 2-3
Product Line Up ..................................................... 4-5
Application .......................................................... 6-7
Floating Connectors ............................................... 8
Crimp Connectors .................................................. 9
Micro Coaxial Cable Connectors .............................. 10-11
1.27mm Pitch Connectors ....................................... 12-13
0.635mm Pitch Connectors .................................. 14
Board to Board Connectors ................................... 15
Sockets & Switches / Battery Connectors .................. 16
Customized Harness ............................................. 17
Bus Rack ......................................................... 18-19
<table>
<thead>
<tr>
<th>Series</th>
<th>Pitch (mm)</th>
<th>Contact No. (No. Available)</th>
<th>No. of Pins</th>
<th>Connection Type</th>
<th>Harness Type</th>
<th>Other Specifications</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DU</td>
<td>0.4</td>
<td>80 ~ 200</td>
<td>4</td>
<td>SMT</td>
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<td>-</td>
<td>Floating</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DT</td>
<td>0.5</td>
<td>30 ~ 240</td>
<td>7</td>
<td>SMT</td>
<td>10</td>
<td>-</td>
<td>High Transmission Floating</td>
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<tr>
<td>DY</td>
<td>0.5</td>
<td>30 ~ 140</td>
<td>8</td>
<td>SMT</td>
<td>5 ~ 14</td>
<td>-</td>
<td>Floating</td>
</tr>
<tr>
<td>8600</td>
<td>0.635</td>
<td>40 ~ 200</td>
<td>9</td>
<td>SMT</td>
<td>8 ~ 16 (With Lock)</td>
<td>-</td>
<td>IDC</td>
</tr>
<tr>
<td>87</td>
<td>1</td>
<td>30 ~ 120</td>
<td>5</td>
<td>SMT</td>
<td>5</td>
<td>-</td>
<td>-</td>
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<tr>
<td>DJ</td>
<td>1</td>
<td>40 ~ 80</td>
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<td>-</td>
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<tr>
<td>8800</td>
<td>1.27</td>
<td>20 ~ 120</td>
<td>18</td>
<td>DIP</td>
<td>14.1 ~ 30</td>
<td>-</td>
<td>IDC</td>
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<tr>
<td>8900</td>
<td>1.27</td>
<td>20 ~ 120</td>
<td>9</td>
<td>SMT DIP</td>
<td>7 ~ 32.1</td>
<td>-</td>
<td>IDC</td>
</tr>
<tr>
<td>8300/8400</td>
<td>2.54</td>
<td>32 ~ 100</td>
<td>8</td>
<td>DIP Wire-Wrap</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Card Edge Connector</td>
<td>2.54 ~ 4</td>
<td>10 ~ 120</td>
<td>21</td>
<td>DIP Wire-Wrap</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>XSL</td>
<td>0.25</td>
<td>48</td>
<td>1</td>
<td>SMT</td>
<td>-</td>
<td>-</td>
<td>Soldering</td>
</tr>
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<td>XSLS</td>
<td>0.25</td>
<td>30, 40</td>
<td>2</td>
<td>SMT</td>
<td>-</td>
<td>-</td>
<td>Soldering</td>
</tr>
<tr>
<td>USL</td>
<td>0.4</td>
<td>20 ~ 40</td>
<td>3</td>
<td>SMT</td>
<td>-</td>
<td>-</td>
<td>IDC</td>
</tr>
<tr>
<td>USLS</td>
<td>0.4</td>
<td>20 ~ 40</td>
<td>3</td>
<td>SMT</td>
<td>-</td>
<td>-</td>
<td>IDC</td>
</tr>
<tr>
<td>USLS21</td>
<td>0.4</td>
<td>34</td>
<td>1</td>
<td>SMT</td>
<td>-</td>
<td>-</td>
<td>Soldering</td>
</tr>
<tr>
<td>SSL</td>
<td>0.5</td>
<td>10 ~ 40</td>
<td>4</td>
<td>SMT</td>
<td>-</td>
<td>-</td>
<td>IDC</td>
</tr>
<tr>
<td>TMC</td>
<td>0.5</td>
<td>51</td>
<td>1</td>
<td>SMT</td>
<td>-</td>
<td>-</td>
<td>Soldering</td>
</tr>
</tbody>
</table>

※ 1 8600/8800/8900 series are also available for Board to Cable Connectors.
※ 2 IDC = Insulation Displacement Connector
※ 3 Regarding the rated current of the DU/DT/DY series, it is possible to design a current capacity exceeding the standard 0.4 A / pin. i.e. 0.5 A / pin.
※ 4 1A per terminal is possible under certain conditions limiting the number of pins to be used.
### Category

#### Board to Cable Connectors

<table>
<thead>
<tr>
<th>Series</th>
<th>Pitch (mm)</th>
<th>Contact Number of Pins</th>
<th>Contact Spacing</th>
<th>Material Type</th>
<th>Connection Type</th>
<th>Harness Type</th>
<th>Harness Processing</th>
<th>Harness Type</th>
<th>Other Specifications</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAS</td>
<td>1.5</td>
<td>4 ~ 40</td>
<td>7 DIP</td>
<td>-</td>
<td>-</td>
<td>○</td>
<td>Crimping</td>
<td>AWG#24/26/28</td>
<td>Discrete</td>
<td>2.5A</td>
</tr>
<tr>
<td>FC</td>
<td>2.5</td>
<td>4 ~ 40</td>
<td>18 DIP</td>
<td>-</td>
<td>-</td>
<td>○</td>
<td>Crimping</td>
<td>AWG#22/24/26/28</td>
<td>Discrete</td>
<td>3A</td>
</tr>
<tr>
<td>FTC</td>
<td>2</td>
<td>26 ~ 40</td>
<td>3 DIP</td>
<td>-</td>
<td>-</td>
<td>○</td>
<td>Crimping</td>
<td>AWG#22/24/28</td>
<td>Discrete</td>
<td>3A</td>
</tr>
<tr>
<td>FTC</td>
<td>5.08</td>
<td>12</td>
<td>1 DIP</td>
<td>-</td>
<td>-</td>
<td>○</td>
<td>Crimping</td>
<td>AWG#14/18/20</td>
<td>Discrete</td>
<td>8.5A/7.5A/7A</td>
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</table>

#### Sockets & Switches

<table>
<thead>
<tr>
<th>Series</th>
<th>Pitch (mm)</th>
<th>Contact Number of Pins</th>
<th>Contact Spacing</th>
<th>Material Type</th>
<th>Connection Type</th>
<th>Harness Type</th>
<th>Harness Processing</th>
<th>Harness Type</th>
<th>Other Specifications</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIC01</td>
<td>1.778</td>
<td>28 ~ 64</td>
<td>5 DIP</td>
<td>IC Connector</td>
<td>-</td>
<td>-</td>
<td>SDIP</td>
<td>-</td>
<td>Pipe</td>
<td>1A</td>
</tr>
<tr>
<td>ICC05</td>
<td>2.54</td>
<td>8 ~ 42</td>
<td>11 DIP</td>
<td>IC Connector</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Pipe</td>
<td>1A</td>
</tr>
<tr>
<td>DM03/04</td>
<td>0.8</td>
<td>144</td>
<td>1 SMT</td>
<td>IC Connector</td>
<td>-</td>
<td>-</td>
<td>144-Lead DIMM</td>
<td>-</td>
<td>Tray</td>
<td>0.5A</td>
</tr>
<tr>
<td>SOC01</td>
<td>1.27</td>
<td>44</td>
<td>1 SMT</td>
<td>IC Connector</td>
<td>-</td>
<td>-</td>
<td>SDP44P</td>
<td>-</td>
<td>Reel</td>
<td>0.5A</td>
</tr>
<tr>
<td>SSC02</td>
<td>0.8</td>
<td>70</td>
<td>1 SMT</td>
<td>IC Connector</td>
<td>-</td>
<td>-</td>
<td>SSDP</td>
<td>-</td>
<td>Tray/Reel</td>
<td>0.5A</td>
</tr>
<tr>
<td>LGC</td>
<td>0.8</td>
<td>54 ~ 140</td>
<td>3 SMT</td>
<td>IC Connector</td>
<td>-</td>
<td>-</td>
<td>FLGA</td>
<td>-</td>
<td>Reel</td>
<td>0.5A</td>
</tr>
<tr>
<td>ISC</td>
<td>2.54</td>
<td>8</td>
<td>1 SMT DIP</td>
<td>Card Connector</td>
<td>-</td>
<td>-</td>
<td>ISO/IEC7816</td>
<td>-</td>
<td>Tray</td>
<td>1A</td>
</tr>
<tr>
<td>KDS</td>
<td>2.54</td>
<td>5</td>
<td>1 DIP</td>
<td>Switch/Others</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Pipe</td>
<td>-</td>
</tr>
<tr>
<td>DSP</td>
<td>2.54</td>
<td>2 ~ 60</td>
<td>14 DIP</td>
<td>Switch/Others</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Other</td>
<td>1A</td>
</tr>
<tr>
<td>DIS</td>
<td>2.54</td>
<td>16</td>
<td>1 DIP</td>
<td>Switch/Others</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Other</td>
<td>1A</td>
</tr>
</tbody>
</table>

#### Battery Connectors

<table>
<thead>
<tr>
<th>Series</th>
<th>Pitch (mm)</th>
<th>Contact Number of Pins</th>
<th>Contact Spacing</th>
<th>Material Type</th>
<th>Connection Type</th>
<th>Harness Type</th>
<th>Harness Processing</th>
<th>Harness Type</th>
<th>Other Specifications</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7010/7011/7030/7040</td>
<td>9/10.16</td>
<td>12 ~ 36</td>
<td>3 DIP</td>
<td>○</td>
<td>-</td>
<td>○</td>
<td>-</td>
<td>-</td>
<td>Battery Connector</td>
<td>-</td>
</tr>
<tr>
<td>GC</td>
<td>5</td>
<td>3 ~ 10</td>
<td>6 SMT</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Battery Connector</td>
<td>5A (2 contacts)</td>
</tr>
<tr>
<td>GD</td>
<td>3</td>
<td>4 ~ 10</td>
<td>5 SMT</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Battery Connector</td>
<td>5A (2 contacts)</td>
</tr>
<tr>
<td>GF</td>
<td>2</td>
<td>8 ~ 10</td>
<td>2 SMT DIP</td>
<td>-</td>
<td>○</td>
<td>-</td>
<td>○</td>
<td>-</td>
<td>Battery Connector</td>
<td>-</td>
</tr>
</tbody>
</table>
Application

Image Equipment
KEL micro coaxial cable connector realizes the ultra miniaturization and high-speed transmission characteristics for the latest connection technology of imaging equipment.

Automotive Equipment
KEL floating connector and micro coax cable connector support the latest infotainment of in-vehicle equipment.

Infrastructure Equipment
KEL industrial connectors and racks comply with high quality standards of infrastructure equipment that requires high reliability and environmental durability.
**Production Equipment**

KEL Industrial Connector has proven experience since its establishment in production equipment requiring high reliability.

![ATM](image1.png) ![FA Machinery](image2.png) ![Semiconductor Manufacturing Device](image3.png)

**Medical device**

KEL connector and rack support the latest technology of medical devices with high reliability and excellent transmission characteristics.

![Ultrasound Machine](image4.png) ![MRI](image5.png) ![Endoscope](image6.png)

**Amusement machine**

KEL IC sockets, Board to Board & Wire to Board connector series are widely designed for Amusement machines.

![Slot Machine](image7.png) ![Gaming Equipment](image8.png)
Floating Connectors

The floating connector is provided with a floating mechanism for absorbing longitudinal and lateral errors generated when the connector is mounted to the board. By the floating mechanism, errors and misalignment at the time of mating can be absorbed, and breakage of the substrate itself can be prevented. When mounting multiple connectors on the same board, it is possible to mount multiple connectors by using floating connectors.

DT Series
0.5mm pitch floating connector for high speed transmission

DT series has a floating mechanism and supports high-speed serial signal transmission of the SATA standard. Since both plug side and receptacle side have straight type and right angle type, it is possible to implement three dimensional mounting of stack, horizontal and vertical connection. There are also product variation of high stack type and shield attached type.

Specifications

<table>
<thead>
<tr>
<th>Current rating</th>
<th>0.4A per contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact resistance</td>
<td>80mΩ max.</td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>200V AC for 1 minute</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>100MΩmin. At 250V DC</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40˚C to +105˚C</td>
</tr>
</tbody>
</table>

DU Series
0.4mm pitch floating connector

The floating amount of DU series is ± 0.4 mm in X and Y directions and has a stable contact with an effective mating length of 1.2 mm. Compared with the 0.5mm pitch DY series, space saving of 31% can be realized.

Specifications

<table>
<thead>
<tr>
<th>Current rating</th>
<th>0.4A per contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact resistance</td>
<td>100mΩ max.</td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>200V AC for 1 minute</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>100MΩmin. At 250V DC</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40˚C to +85˚C</td>
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</tbody>
</table>

DY Series
0.5mm pitch floating connector

The floating amount of the DY series is ± 0.5 mm in X and Y directions, and has a stable contact with an effective mating length of 1.25 mm. Mating variations are stack connection and vertical connection.

Specifications

<table>
<thead>
<tr>
<th>Current rating</th>
<th>0.4A per contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact resistance</td>
<td>80mΩ max.</td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>200V AC for 1 minute</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>100MΩmin. At 250V DC</td>
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<tr>
<td>Operating temperature</td>
<td>-40˚C to +85˚C</td>
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</table>

DY Series Product Line up

<table>
<thead>
<tr>
<th>Stacking Height</th>
<th>30pin</th>
<th>40pin</th>
<th>50pin</th>
<th>60pin</th>
<th>80pin</th>
<th>100pin</th>
<th>120pin</th>
<th>140pin</th>
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</thead>
<tbody>
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<td>○</td>
<td>○</td>
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<td>○</td>
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<td>○</td>
</tr>
<tr>
<td>6mm</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>7mm</td>
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<td>8mm</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>9mm</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>-</td>
<td>-</td>
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<tr>
<td>11mm</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>12mm</td>
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<td>○</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>13mm</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14mm</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</table>

<table>
<thead>
<tr>
<th>Horizontal Mating</th>
<th>30pin</th>
<th>40pin</th>
<th>50pin</th>
<th>60pin</th>
<th>80pin</th>
<th>100pin</th>
<th>120pin</th>
<th>140pin</th>
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<tbody>
<tr>
<td>Plug/Right Angle Type</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<table>
<thead>
<tr>
<th>Straight Type</th>
<th>30pin</th>
<th>40pin</th>
<th>50pin</th>
<th>60pin</th>
<th>80pin</th>
<th>100pin</th>
<th>120pin</th>
<th>140pin</th>
</tr>
</thead>
</table>

※ Regarding the rated current of the DU/DT/DY series, it is possible to design a current capacity exceeding the standard 0.4 A / pin, i.e. 0.5 A / pin.
Over the years, crimp connectors have contributed to the electronics industry as the connecting electronic equipment. KEL has developed a new type of crimp connectors that responds to customer's needs, such as drawer type, cable lateral extension type (E-lock mechanism) and two cables crimp type.

**FBC Series**

**2mm pitch connector for discrete cable / crimp type**

FBC series are crimp connectors with side cable-entry type by stack connection. The connector removal is detachable with one hand without excessive stress on the cable assemble mechanism by the KEL original "E-lock mechanism".

**Specifications**
- Current rating: 3A per contact
- Contact resistance: 40mΩ max.
- Withstand voltage: 650V AC for 1 minute
- Insulation resistance: 1000MΩ min. At 500V DC
- Operating temperature: -40°C to +85°C
- Recommended cable: AWG #22/24/26/28

**FAS Series**

**1.5mm pitch drawer connector**

The FAS series is a 1.5 mm pitch small drawer connector. The main features of FAS series are, Pin buckling prevention, mating adjustment, mating stress reduction, and high contact reliability. FAS series can reduce board occupied area of 30% compared with the FA series. The FAS series has twin leaf two-point contact structure.

**Specifications**
- Current rating: 2.5A per contact
- Contact resistance: 30mΩ max.
- Withstand voltage: 650V AC for 1 minute
- Insulation resistance: 1000MΩ min. At 500V DC
- Operating temperature: -40°C to +85°C
- Recommended cable: AWG #24/26/28

**FTC Series**

**5.08mm pitch drawer connector two cable crimpable crimp type**

FTC series is a drawer connector that can crimp two cables to one contact. One cable crimping is also possible. By two cable crimping, it is possible to reduce the number of connector pin and downsize the connector width. It is possible to eliminate the terminal block by passing power between connectors. Simultaneous mating of multiple connectors is also possible.

**Specifications**
- Current rating: 7A to 8.5A per contact (Depends on cable size to be used)
- Contact resistance: 10mΩ max.
- Withstand voltage: 2200V AC for 1 minute
- Insulation resistance: 1000MΩ min. At 500V DC
- Operating temperature: -55°C to +105°C
- Recommended cable: AWG #14/16/18/20 Discrete Cables
Micro Coaxial Cable Connectors

Micro coaxial cable is very thin and it is excellent in bending resistance and twist resistance. KEL provide a number of micro-coaxial cable connectors excellent in high-speed transmission and noise suppression. KEL micro coaxial cable connector series has been evaluated for its excellent transmission characteristics and contributing to miniaturization of devices.

Micro Coaxial Cable Connector Product List [XSL/XSLS/USL/USLS/SSL/TMC Series]

<table>
<thead>
<tr>
<th>Series Name</th>
<th>Number of Pines</th>
<th>Corresponding Cable</th>
<th>Product Type</th>
<th>Mounting Process Type</th>
<th>Plug/Receptacle</th>
<th>Pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>XSLS00</td>
<td>30, 40</td>
<td>-</td>
<td>Straight Type</td>
<td>SMT</td>
<td>Receptacle</td>
<td>0.25mm</td>
</tr>
<tr>
<td>XSLS20</td>
<td>-</td>
<td>AWG#42/44/46</td>
<td>Right Angle Type</td>
<td>Soldering</td>
<td>Plug</td>
<td></td>
</tr>
<tr>
<td>XSLO0</td>
<td>48</td>
<td>-</td>
<td>Right Angle Type</td>
<td>SMT</td>
<td>Receptacle</td>
<td></td>
</tr>
<tr>
<td>XSLO2</td>
<td>20, 30, 34, 40</td>
<td>-</td>
<td>Straight Type</td>
<td>SMT</td>
<td>Receptacle</td>
<td></td>
</tr>
<tr>
<td>USLS00</td>
<td>20, 30, 40</td>
<td>AWG#44/46</td>
<td>Right Angle Type</td>
<td>Soldering</td>
<td>Plug</td>
<td>0.4mm</td>
</tr>
<tr>
<td>USLS20</td>
<td>20, 30, 40</td>
<td>AWG#42</td>
<td>Right Angle Type</td>
<td>IDC</td>
<td>Plug</td>
<td></td>
</tr>
<tr>
<td>USLS21</td>
<td>34</td>
<td>AWG#40/42/44/46</td>
<td>Right Angle Type</td>
<td>Soldering</td>
<td>Plug</td>
<td></td>
</tr>
<tr>
<td>USLO0</td>
<td>20, 30, 40</td>
<td>AWG#42</td>
<td>Right Angle Type</td>
<td>SMT</td>
<td>Receptacle</td>
<td></td>
</tr>
<tr>
<td>USLO2</td>
<td>20, 30, 40</td>
<td>AWG#42</td>
<td>Straight Type</td>
<td>IDC</td>
<td>Plug</td>
<td></td>
</tr>
<tr>
<td>SSL00</td>
<td>10, 20, 30, 40</td>
<td>-</td>
<td>Straight Type</td>
<td>SMT</td>
<td>Receptacle</td>
<td>0.5mm</td>
</tr>
<tr>
<td>SSL20</td>
<td>-</td>
<td>AWG#40</td>
<td>Right Angle Type</td>
<td>IDC</td>
<td>Plug</td>
<td></td>
</tr>
<tr>
<td>TMC01</td>
<td>51</td>
<td>-</td>
<td>Right Angle Type</td>
<td>SMT</td>
<td>Receptacle</td>
<td></td>
</tr>
<tr>
<td>TMC21</td>
<td>-</td>
<td>AWG#40</td>
<td>Straight Type</td>
<td>Soldering</td>
<td>Plug</td>
<td></td>
</tr>
</tbody>
</table>

KEL micro coaxial cable connector series ensure the noise countermeasures and product strength by the box structure of the metal shell cover and the bottom shell cover. The multi ground terminal contributes the excellent noise characteristics.
**XSL Series**

0.25mm pitch micro coaxial cable connector

The XSL series is very small 0.25 mm pitch micro coaxial cable connector. The mating height is 1.0 mm.

**XSLS Series**

0.25mm pitch micro coaxial cable connector stacking type

XSLS series is the very small 0.25 mm pitch stacked mating connector for micro coaxial cable. By stack connection, space saving of 56% of board area is realized compared with XSL series.

**Specifications**

<table>
<thead>
<tr>
<th>Current rating</th>
<th>0.25A per contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact resistance</td>
<td>100mΩ max.</td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>90V AC for 1 minute</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>50Ωmin. At 100V DC</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40˚C to +85˚C</td>
</tr>
<tr>
<td>Recommended cable</td>
<td>AWG #44/46 Micro Coaxial Cables</td>
</tr>
</tbody>
</table>

**USLS Series**

0.4mm pitch micro coaxial cable connector stacking type

USLS series is 0.4 mm pitch stack connection type micro coaxial cable connector. By stack connection, space saving of 60% of board area is realized compared with USL.

The USLS 21 series is a cable solder connection type. Recommended Micro coax cables are AWG #40/42/44/46.

**Specifications**

<table>
<thead>
<tr>
<th>Current rating</th>
<th>0.25A per contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact resistance</td>
<td>100mΩ max.</td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>200V AC for 1 minute</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>100Ωmin. At 250V DC</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40˚C to +85˚C</td>
</tr>
<tr>
<td>Recommended cable</td>
<td>AWG #42 Micro Coaxial Cables</td>
</tr>
</tbody>
</table>

**USL Series**

0.4mm pitch micro coaxial cable connector

USL series is 0.4mm pitch connector for micro coaxial cable. It is a low profile design with a mating height of 1.0 mm.

**Specifications**

<table>
<thead>
<tr>
<th>Current rating</th>
<th>0.25A per contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact resistance</td>
<td>100mΩ max.</td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>200V AC for 1 minute</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>50Ωmin. At 250V DC</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40˚C to +85˚C</td>
</tr>
<tr>
<td>Recommended cable</td>
<td>AWG #40 Micro Coaxial Cables</td>
</tr>
</tbody>
</table>

**SSL Series**

0.5mm pitch micro coaxial cable connector

SSL series is 0.5 mm pitch connector for micro coaxial cable connector. SSL series board connectors has straight type and right angle type. SSL series pin variation has 4 kinds, 10, 20 30 and 40 pins.

**Specifications**

<table>
<thead>
<tr>
<th>Current rating</th>
<th>0.3A per contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact resistance</td>
<td>100mΩ max.</td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>200V AC for 1 minute</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>100Ωmin. At 250V DC</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40˚C to +85˚C</td>
</tr>
<tr>
<td>Recommended cable</td>
<td>AWG #40 Micro Coaxial Cables</td>
</tr>
</tbody>
</table>

**TMC Series**

0.5mm pitch micro coaxial cable connector for high speed transmission

TMC series is 0.5 mm pitch micro coaxial cable connector. It is suitable for high-speed differential transmission (TMDS, LVDS) applications. TMC cable connector has a locking mechanism.

**Specifications**

<table>
<thead>
<tr>
<th>Current rating</th>
<th>0.3A per contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact resistance</td>
<td>50mΩ max.</td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>200V AC for 1 minute</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>100Ωmin. At 250V DC</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40˚C to +85˚C</td>
</tr>
<tr>
<td>Recommended cable</td>
<td>AWG #40 Micro Coaxial Cables</td>
</tr>
</tbody>
</table>

**High-speed transmission analysis**

KEL responds to the high-speed transmission solution by measuring with its own high-speed transmission analysis and circuit simulation equipment.

If you have inquiries about high-speed transmission, please contact your local KEL sales office.
1.27mm Pitch Connectors

KEL 1.27 mm pitch connector has been designed for the latest electronic equipment for over 30 years since its launch.
KEL 1.27 mm pitch has 8800 series with plug and receptacle contacts in the same shape, and 8900 series with low profile type.
KEL 1.27 mm pitch connector will continue to contribute to future new designs with high contact reliability and various product variations.

8800 Series

8800 series maintains stable contact pressure by "completely independent 2 point contact". 8800 Board-to-board connector series can be mated in three independent 2 point contact".
8800 series maintains stable contact pressure by "completely independent 2 point contact".

8800 Board-to-board connector series can be mated in three independent 2 point contact".
8800 series maintains stable contact pressure by "completely independent 2 point contact".

8800 Series (8800/8801/8802/8803/8810/8811/8812/8813)
Board to board connector
1.27 mm pitch board-to-board connector. There are straight and right angle type. With mounting brackets type and power contact type are also available.

8832E-FS Series
Board to board connector flexible straight type
1.27mm pitch board to board high stack type connector
The stack height is selectable from 20 mm to 30 mm.

8840/8850/8855 Series
Interface connector
1.27 mm pitch interface connector.
Die-cast cover ensures sufficient EMI measures and robustness.
Board to cable and cable relay type are available.

8800 Series Mating Matrix
Number of pins: 20, 26, 30, 32, 34, 36, 40, 50, 52, 60, 68, 80, 100

8822/8822E/8825E/8830/8831/8830E/8831E Series
Board to cable connector
1.27 mm pitch board to cable connector. Flat cable of AWG #28 and 30 are applicable. One touch eject lock type is also available.

8806/8807/8816/8817 Series
Board to board connector multi-pin type
1.27 mm pitch board to board multi-pin type. Number of contact is available from 120, 140, 160, 180 and 200pin. Receptacle has two kind, Straight and Right-angle type are available.

Specifications
Current rating: [8803/13] Power contact: 2A per contact [8825/8822/8840/850/55] 30mA max.
Contact resistance: 0.5A to 1A per contact
Withstand voltage: 650V AC for 1 minute [8825/8830V DC for 1 minute
Insulation resistance: 1000MΩmin. At 500V DC [8825/1000MΩmin. At 250V DC
Operating temperature: -65°C to +80°C

※1A per terminal is possible under certain conditions limiting the number of pins to be used. For more details, please contact your local KEL sales office.
8900 Series
Downsized 1.27 mm pitch connector. High contact reliability is ensured by single point contact of spring contact shape. There are variations of board to board connector for stack, horizontal and vertical mating types, board to cable connector for flat cable type and crimp type. SMT type connector is also available.

8900 Series (8901/8903/8911/8913)  
Board to board connector  
1.27 mm pitch Low profile type for board to board connectors. Straight and right angle type are available. Stack height can be selected 7, 8, 9, 10, and 12 mm. With metal hook type is also available.

8903MS/8913MS Series  
Board to board connector SMT type  
1.27 mm pitch low profile type board to board connectors by SMT soldering. Mating with the 8900 series DIP type is also possible.

8903N-FS Series  
Board to board connector flexible straight type  
1.27 mm pitch board to board high stack type connector. Stack height can be selected from 20 mm to 30 mm.

8900 Series Mating Matrix  
Number of pins: 20, 30, 40, 50, 60, 68, 80, 100, 120

<table>
<thead>
<tr>
<th>With Flanges 8901-F</th>
<th>Without Flanges 8903-F</th>
<th>Flexible Straight Type 8903N-FS-F</th>
<th>SMT Type 8905/8915/8910/8915/8910-F</th>
<th>Cable Side 8925/8925/8925-F</th>
<th>Cable Side 8932/8932/8932-F</th>
<th>8929E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stack, Horizontal Vertical (Stack: 7 ~ 12mm)</td>
<td>Stack, Vertical (Stack: 7 ~ 12mm)</td>
<td>Stack (Stack: 7 ~ 10mm)</td>
<td>Stack (Stack: 7 ~ 8mm)</td>
<td>Stack (Mating: 15 ~ 17mm)</td>
<td>Stack (Mating: 15 ~ 17mm)</td>
<td>Stack (Mating: 11.9 ~ 12.1mm)</td>
</tr>
</tbody>
</table>

Specifications
- Current rating: 0.5A per contact [8929E] 0.5A per contact
- Contact resistance: 10mΩ max. [8929E] 10mΩ max.
- Withstand voltage: 650V AC for 1 minute [8929E] 650V AC for 1 minute
- Insulation resistance: 1000MΩ min. At 500V DC [8929E] 1000MΩ min. At 250V DC
- Operating temperature: -55°C to +85°C [8929E] -40°C to +85°C

8925E/8925R/8925E/8930E/8931E Series  
Board to cable connector for 0.635mm pitch flat cable  
1.27 mm pitch board to cable connector. Applicable flat cable is AWG # 30. The lock mechanism can be selected with eject lock or without lock.

8929E/8930E/8931E Series  
Board to cable connector for discrete cable / crimp type  
1.27 mm pitch board to cable connector. Applicable to discrete cables of AWG # 26/28/30. Cable connection is crimp type.

8925E-179-F  
- With Flanges 8925E-179-F  
- Without Flanges 8925E-179-F  
- SMT Type 8925E-179-F  
- PCB Side 8925E-179-F  
- PCB Side SMT Type 8925E-179MS-F

8929E/8930E/8931E Series  
Board to cable connector for discrete cable / crimp type  
1.27 mm pitch board to cable connector. Applicable to discrete cables of AWG # 26/28/30. Cable connection is crimp type.

8900 Series (8901/8903/8911/8913)  
Board to board connector  
1.27 mm pitch Low profile type for board to board connectors. Straight and right angle type are available. Stack height can be selected 7, 8, 9, 10, and 12 mm. With metal hook type is also available.

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Tel: (+39) 0536 811161 - Fax: (+39) 0536 811560  
e-mail: bce@bce.it - Website: www.bce.it

※ 1A per terminal is possible under certain conditions limiting the number of pins to be used. For more details, please contact your local KEL sales office.
KEL has developed 0.635 mm pitch connector for the demand of miniaturization of next generation industrial connector equipment. 8600 series ensures the contact reliability with effective mating length 2 mm. SMT solder joint for high density mounting. Pin variation is from 52 to 200 pin. Product variations has Board-to-board for stack, horizontal and vertical connection are possible, board to board eject lock type and board to cable type.

### 8600 Series Mating Matrix

<table>
<thead>
<tr>
<th>Receptacle</th>
<th>8601□□□□□L (Right Angle)</th>
<th>8601□□□□□□□ (Flexible Straight)</th>
<th>8601□□□□□□□L (Right Angle)</th>
<th>8602E□□□□□ (Straight with Eject Lock)</th>
<th>8622□□□□□ (Cable side)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical</td>
<td>Vertical Mating</td>
<td>Stack Mating 8mm, 12mm, 16mm</td>
<td>Vertical Mating</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Horizontal Offset Mating</td>
<td>Horizontal Offset Mating Vertical Mating</td>
<td>Vertical Mating</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Vertical Mating</td>
<td>Vertical Mating 8mm, 12mm, 16mm</td>
<td>Vertical Mating</td>
<td>Stack Mating 8mm</td>
<td>Board to Cable Mating</td>
<td></td>
</tr>
</tbody>
</table>

### 8600 Series

**Board to board connector**

0.635mm pitch Board-to-board connector. Three-dimensional mating of vertical, horizontal and stack connection types are available. Effective mating length is 2 mm.

### 8602E Series

**Board to board connector eject lock type**

0.635mm Pitch Board to board connector with one touch eject lock mechanism.

### 8622E Series

**Board to cable connector for 0.635mm pitch flat cable**

0.635 mm pitch flat cable connector. Adopted one-touch eject lock mechanism. Board side connector can also be mated with board to board connector, so it is possible to combine board to board and board to cable combination.

---

**Specifications**

- **Current rating**: 0.5A per contact
- **Contact resistance**: 50mΩ max.
- **Withstand voltage**: 200V AC for 1 minute
- **Insulation resistance**: 100MΩ min. At 250V DC
- **Operating temperature**: -40°C to +85°C
- **Recommended cable**: AWG #30 Flat ribbon cable
### Board to Board Connectors

#### 87 Series
1mm pitch connector

![Image of 87 Series connector]

**Specifications**
- **Current rating:** 0.5A per contact
- **Contact resistance:** 50mΩ max.
- **Withstand voltage:** 315V AC for 1 minute
- **Insulation resistance:** 1000MΩ min. at 500V DC
- **Operating temperature:** -40°C to +85°C

#### DJ Series
1mm pitch connector for removable media device

![Image of DJ Series connector]

**Specifications**
- **Current rating:** 0.5A per contact
- **Contact resistance:** 40mΩ max per Signal contact
- **Withstand voltage:** 300V AC for 1 minute
- **Insulation resistance:** 1000MΩ min. at 250V DC
- **Operating temperature:** -55°C to +85°C

#### Card Edge connector

![Image of Card Edge connector]

**Specifications**
- **Current rating:**
  - [1168/1150N/3250] 2A per contact
  - [4630/4649/406/937/4810/4820/1150N/3250] 3A per contact
  - [4630/4649/936/937/4810/4820/1150N/3250] 16mΩ max.
  - [1168] 15mΩ max.
  - [1168/1150N/3205/3305] 10mΩ max.
- **Withstand voltage:**
  - [4630/4649/936/937] 800V AC for 1 minute
  - [1186] 1550V AC for 1 minute
  - [4810/4820/1150N/3205/3305] 1800V AC for 1 minute
- **Insulation resistance:** 5000MΩ min. at 500V DC
- **Operating temperature:**
  - -55°C to +85°C
  - 30°C to +80°C
  - 30°C to +125°C

#### 8300/8400 Series
2.54mm pitch connector
Conforms to DIN Standard

![Image of 8300/8400 Series connector]

**Specifications**
- **Current rating:**
  - [8300/8301/8304/8400/8401] 2A per contact
  - [8330/8331/8334/8431/8440] 1A per contact
- **Contact resistance:** 20mΩ max.
- **Withstand voltage:** 1000V AC for 1 minute
- **Insulation resistance:** 1000000MΩ min. at 500V DC
- **Operating temperature:** -55°C to +85°C
Sockets & Switches

**SIC01 Series**
Shrink IC Connector

**Specifications**
- **Current rating**: 1A per contact
- **Contact resistance**: 20mΩ max.
- **Withstand voltage**: 500V DC for 1 minute
- **Insulation resistance**: 500MΩ min. At 500V DC
- **Operating temperature**: -25°C to +70°C

**SSC02 Series**
SSOP Connector

**Specifications**
- **Current rating**: 0.5A per contact
- **Contact resistance**: 50mΩ max.
- **Withstand voltage**: 250V DC for 1 minute
- **Insulation resistance**: 500MΩ min. At 250V DC
- **Operating temperature**: -40°C to +85°C

**KDS Series**
Rotary DIP Code Switch

**Specifications**
- **Current rating and voltage**: Non switching 125mA (DC30V) Switching 125mA (DC30V)
- **Contact resistance**: 100mΩ max.
- **Withstand voltage**: 250V AC for 1 minute
- **Insulation resistance**: 1000MΩ min. At 250V DC
- **Operating temperature**: -25°C to +85°C

**Battery Connectors**

**7010 / 7011 / 7030 / 7040 Series**
Terminal Block Connector

**Specifications**
- **Current rating**: 5A per contact (7040) 10A per contact
- **Contact resistance**: 16mΩ max.
- **Withstand voltage**: 2000V AC for 1 minute
- **Insulation resistance**: 5000MΩ min. At 500V DC
- **Recommended cable**: Stranded Wire: 2.0mm² max. Single Wire: 1.6mm MAX [7040] 4.0 ~ 2.0mm (With Crimp Terminal)
KEL provides wire harnesses that assemble cable connectors and cables. KEL harness specialist designs the whole harness, and KEL procures cable components. Therefore, customers just place an order with harness part number to KEL. KEL also makes quality assurance of harness goods. For KEL standard specification harness products, KEL easy order system is maintained. KEL provides customers with harness products with the merits of connector makers and abundant know-how of harness business.

**Customized Harness**

Custom Harness Process

Customer Request → Summarization Of Request → Design / Prototyping → Mass Production

**Custom Harness Examples**

- **[Noise Suppression]**
  - Ferrite Core (8822E Series)
  - Metal Shell (8840 Series)

- **[Sheilding]**
  - Removal of Sheath (8822E Series)
  - Drain Wire (8822E Series)

- **[Cable Protection]**
  - Braided Sleeve (8925E Series)
  - Shrinkable Tube (8925E Series)

- **[Cable Bundling]**
  - Shrinkable Tube (XSLS Series)
  - Spiral Tube (8925E Series)
  - Cable Tie (FA Series)

For inquiries about customized harness solutions, please contact your local KEL sales office.
**Bus Rack**

KEL rack products have over 40 years of experience, and we have a consistent system of design, development, manufacturing and evaluation. KEL design and manufacture VME, CPCI, industrial buses, various backplanes, bus racks, peripheral equipment and parts.

**Bus Rack Standard Products**

We have a large range of standard products consisting from CPCI, VME etc, standards compliant bus as well as bus rack, back plane, option unit and option parts.

**KEL Custom Rack** *(Customized Product)*

KEL develops custom-made products of KCR (KEL CUSTOM RACK) that make full use of know-how in the market. Custom-made products can handle a wide range from standard change to full custom design. It is also possible to process special orders such as backplanes and bus racks alone.

KCR system manages not only the rack design but also the procurement of related equipment and parts mounted on the rack, it can reduce customer's processing time as a result.

**Customized Product Examples**

**Bus Rack**

*Single Unit Rack*

**Back Plane**

*Single Unit Back Plane*

**Option Unit**

*Single Unit Option Unit*

**Bus Rack**

*Connection example*

**Bus Rack**

*Rack + Back Plane*

**Bus Rack**

*Rack + Back Plane + Option Unit*

**Evaluation Jig**

*Extension Boards*

**All-In-One**

*Rack + Back Plane + Option Unit + Connection, Accessories*
Customization Flow Chart

Summarization of required specifications
Upon the meeting with customer, we will summarize the size, specification, and conditions.

Design · Design Verification
According to our customers’ design images, we will actually use 3D CAD for designing. In each steps of the design phase we check if the design is appropriate according to the drawing and try to realize our customer images as much as possible. If necessary, thermal simulation, transmission characteristics confirmation can be conducted.

Finalizing the specifications · Ordering
When the final specifications are fixed, we will have our customers place their order. KEL will procure all of the necessary parts (electrical parts / mechanical parts), and will also set up all processes such as board mounting · rack assembly.

Production · Assembly · Build In
According to our process, board mounting, rack assembly, building in of various units to wire connection will be executed to complete the system rack.

Inspection · Packaging · Shipment
Electrical testing, unit adjustment, various inspections will be conducted and finalized with packaging and shipment, to deliver our products to our customer.

Evaluation and Testing facilities
Environment for electrical and mechanical evaluations are accommodated in our own facility.
