MINIATURIZED CONNECTOR SOLUTIONS

Based on PicoMQS, NanoMQS, and MCON 0.50 Connector Systems
Miniaturized Connector Solutions
Based on PicoMQS, NanoMQS, and MCON 0.50 Connector Systems

The automotive industry innovation roadmap is often characterized by the acronym ACES, meaning **Automated, Connected, Electrified and Smart.**

Each area of innovation is driving an increasing number of electronic components within the vehicle. However, as the size of cars is not increasing, and, at the same time, automotive manufacturers are under pressure to reduce their vehicle fuel consumption, CO₂ emissions, component footprint and packaging space.

Component miniaturization is therefore a key enabler of automotive innovation, particularly in relation to connector technology that transports electrical power, signaling and data to these new electronic devices.

**Miniaturized Connector Requirements**

The challenge, facing automotive manufacturers is not just about the reduction of component footprint and packaging space it is also about achieving the necessary robustness and packaging, reliability when deployed in harsh high-vibration, high-temperature automotive environments.

Automotive engineers also need connector component suppliers to offer extensive portfolios that address the geometric and robustness challenges as well as the varying levels of complexity presented by applications around the vehicle.

**TE Connectivity**

**Miniaturized Connector Solutions**

Based on our PicoMQS, NanoMQS, and MCON 0.50 connector portfolios, TE Connectivity (TE) offers a comprehensive range of miniaturized connector solutions for applications throughout the vehicle.

Supporting a pin-pitch of 1.27 mm up to 1.8 mm and based on locking lance and clean body terminals, our connector systems offer both 1 and 2 row options, that can be hand-mated up to 32 positions (NanoMQS and MCON 0.50).

Our portfolio offers outstanding savings in packaging weight (up to 78% reduction) while ensuring the highest levels of automotive reliability and robustness. For example, compared to a standard connector with a 2.54 mm pin-pitch, NanoMQS offers an almost 50% reduction in PCB footprint while our surface-mounted headers connectors offer superior PCB retention forces of >80N.

In addition, options for click-audible connector position assurance (CPA), PCB mounting clips and anti-scoop features all contribute to the LV 214 compliant automotive levels of robustness. The availability of through-hole technology (THT) and surface-mounted technology (SMT) headers, hybrid connectors, supporting different terminal sizes, and solutions for flat flexible cables (FFC) provide additional flexibility for innovative miniaturized connectivity solutions.

**Up to 78% reduced packaging weight compared to a 2.54 mm pin-pitch connector**

*Based on PicoMQS

**Robust sealed connector design with protection class up to IPX9K**

**Based on MCON 0.50**
## Miniaturized Connector Solutions

Based on PicoMQS, NanoMQS, and MCON 0.50 Connector Systems

### PicoMQS Connector System

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Performance</th>
<th>Position Assurance</th>
</tr>
</thead>
</table>
| • 1.27 mm pin-to-pin pitch  
• 0.22 mm² FLU & FLR wire range  
• Mating for 0.5 x 0.4 blade size  
• 0.014 to 0.42 mm² foil cross section | • Current capacity: 4A (90°C) / 1A FFC  
• Max. Temperature 130°C (Sn) / 105°C FFC  
• SG2 vibration grade, unsealed (Sn)  
• LV214 European automotive standard compliant  
• Present in various European OEMs | • Locking Lance design  
• Primary and secondary contact locking  
• Click-audible connector position assurance (CPA) possible |

### NanoMQS Connector System

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Performance</th>
<th>Position Assurance</th>
</tr>
</thead>
</table>
| • 1.8 mm pin-to-pin  
• 0.13 mm² to 0.35 mm² wire range  
• Mating for 0.5 mm x 0.4 mm blade size | • Current capacity: 6A (90°C)  
• Max. temperature 170°C (Ag)  
• SG4 vibration Grade (Ag)  
• European automotive standard compliant (LV214)  
• USCAR validation in process | • Locking lance design  
• Primary and secondary contact locking  
• Click-audible connector position assurance (CPA)  
• Click-audible mating |

### MCON 0.50 Connector System

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Performance</th>
<th>Position Assurance</th>
</tr>
</thead>
</table>
| • 1.8 mm pin-to-pin  
• 0.13 mm² to 0.35 mm² wire range  
• Mating for 0.5 mm x 0.4 mm blade size | • Current capacity: 3A (90°C)  
• Temperature range: -40°C to +170°C  
• Vibration grade class SG4 (Ag)  
• Sealing class IPx9k  
• LV214, VW 75174 | • Clean body design  
• Primary and secondary contact locking  
• Click-audible mating  
• Connector position assurance (CPA) |

All specifications subject to change. Consult TE Connectivity for latest specifications.
### PicoMQS Connector System
#### Housing Portfolio

<table>
<thead>
<tr>
<th>1.27 mm pin pitch / 1 row</th>
<th>Positions</th>
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#### 90° SMD

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### Miniaturized Connector Solutions
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#### NanoMQS Connector System
Header Portfolio

##### 90° Headers

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##### 180° Headers

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##### 180° Headers

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*) Please contact your account manager / customer service center for information on availability. If the product you are searching for is not listed, you can design your own product quick and easy with our configurator, [https://te-configurator.com](https://te-configurator.com)

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## NanoMQS Connector System
**Plug Portfolio (Side Latch)**

### 1 row without CPA

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### 1 row with CPA

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### 2 row with CPA

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</tbody>
</table>

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**NanoMQS Connector System**  
**FFC/FPC Portfolio**

<table>
<thead>
<tr>
<th>Description</th>
<th>TE PN</th>
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<tbody>
<tr>
<td>FFC/FPC Receptacle Terminal</td>
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<tr>
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**FFC/FPC Portfolio**

<table>
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<td>32pos Plug</td>
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</table>
## MCON 0.50 Connector System

### Plug Portfolio

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<th>TE PN</th>
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<tbody>
<tr>
<td>3pos MCON 0.50 Plug, sealed</td>
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</tr>
<tr>
<td>4pos MCON 0.50 Plug, sealed</td>
<td>2316284-1/-2</td>
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<td>2316218-1/-2</td>
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<td>2x2pos MCON 0.50 Plug, sealed</td>
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<td>2x3pos MCON 0.50 Plug, sealed</td>
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<td>2x6pos MCON 0.50 Plug, sealed</td>
<td>2318600-1/-2</td>
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</table>

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**Miniaturized Connector Solutions**

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### Features and Benefits

<table>
<thead>
<tr>
<th>Miniaturization Innovation</th>
<th>Automotive Grade Robustness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 1.27 mm up to 1.8 mm pin spacing</td>
<td>• Surface Mount Technology (SMT) headers available</td>
</tr>
<tr>
<td>• Wire size range: 0.13 mm² to 0.35 mm² thin wall</td>
<td>• Automotive grade FFC connectors (NanoMQS)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Automotive Grade Robustness</th>
<th>Design Flexibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Robust anti-scooping features</td>
<td>• Clean body/ locking lance terminals</td>
</tr>
<tr>
<td>• Header to PCB mounting clips</td>
<td>• THT/ SMT headers</td>
</tr>
<tr>
<td>• USCAR-2 (coming soon)</td>
<td>• Flexible Flat Cables (FFC / NanoMQS)</td>
</tr>
<tr>
<td>• Primary and secondary locking system</td>
<td>• Flexible Printed Cables (FPC / NanoMQS)</td>
</tr>
<tr>
<td></td>
<td>• CPA option</td>
</tr>
<tr>
<td></td>
<td>• Wide range of terminal variants and surfaces</td>
</tr>
<tr>
<td></td>
<td>• Wide range of circuit counts</td>
</tr>
<tr>
<td></td>
<td>• S-bended pins header design to allow optical</td>
</tr>
<tr>
<td></td>
<td>inspection instead of X-ray (PicoMQS)</td>
</tr>
</tbody>
</table>

**Configurator**

Configure your own Miniaturized Connector with our **new TE Configurator**

[https://te-configurator.com](https://te-configurator.com)

**FOR FURTHER INFORMATION PLEASE CONTACT US**

**EUROPE**

Germany

Product Information Center:
Phone: +800 0440-5100
Fax: +49 6251-133-1988
Email: [ConnectedSales@te.com](mailto:ConnectedSales@te.com)