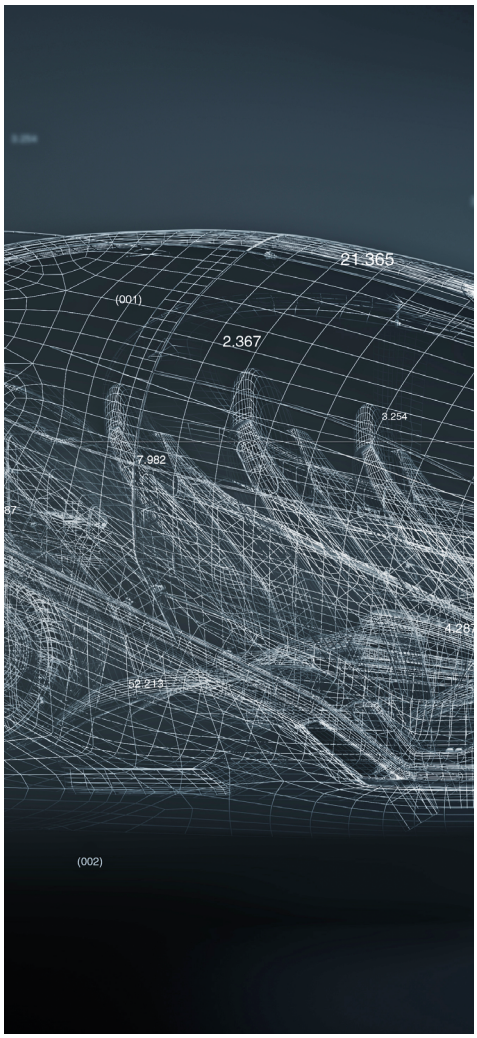
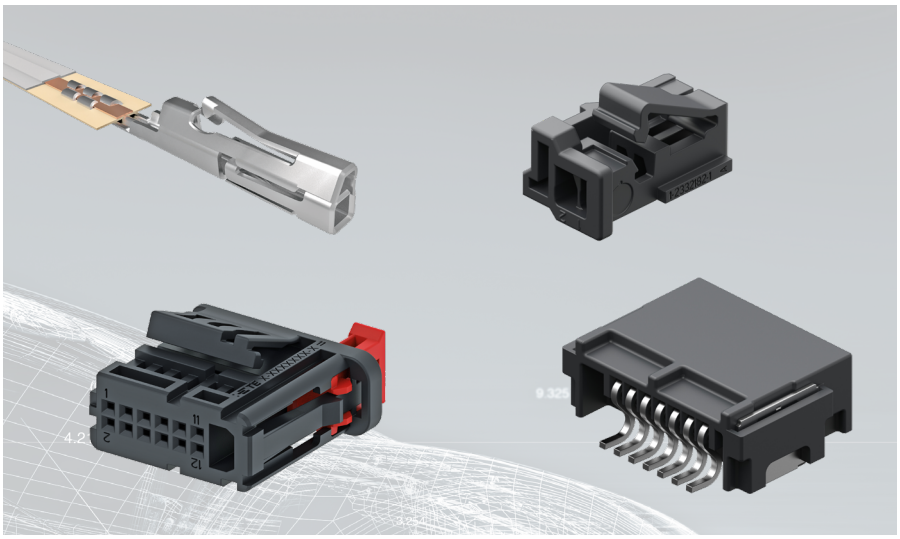
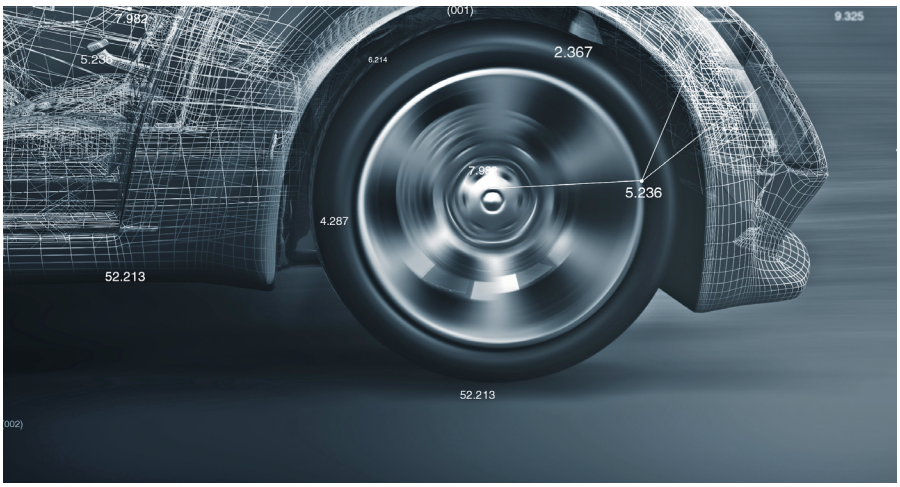
MINIATURIZED CONNECTOR SOLUTIONS

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, CO_2 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.

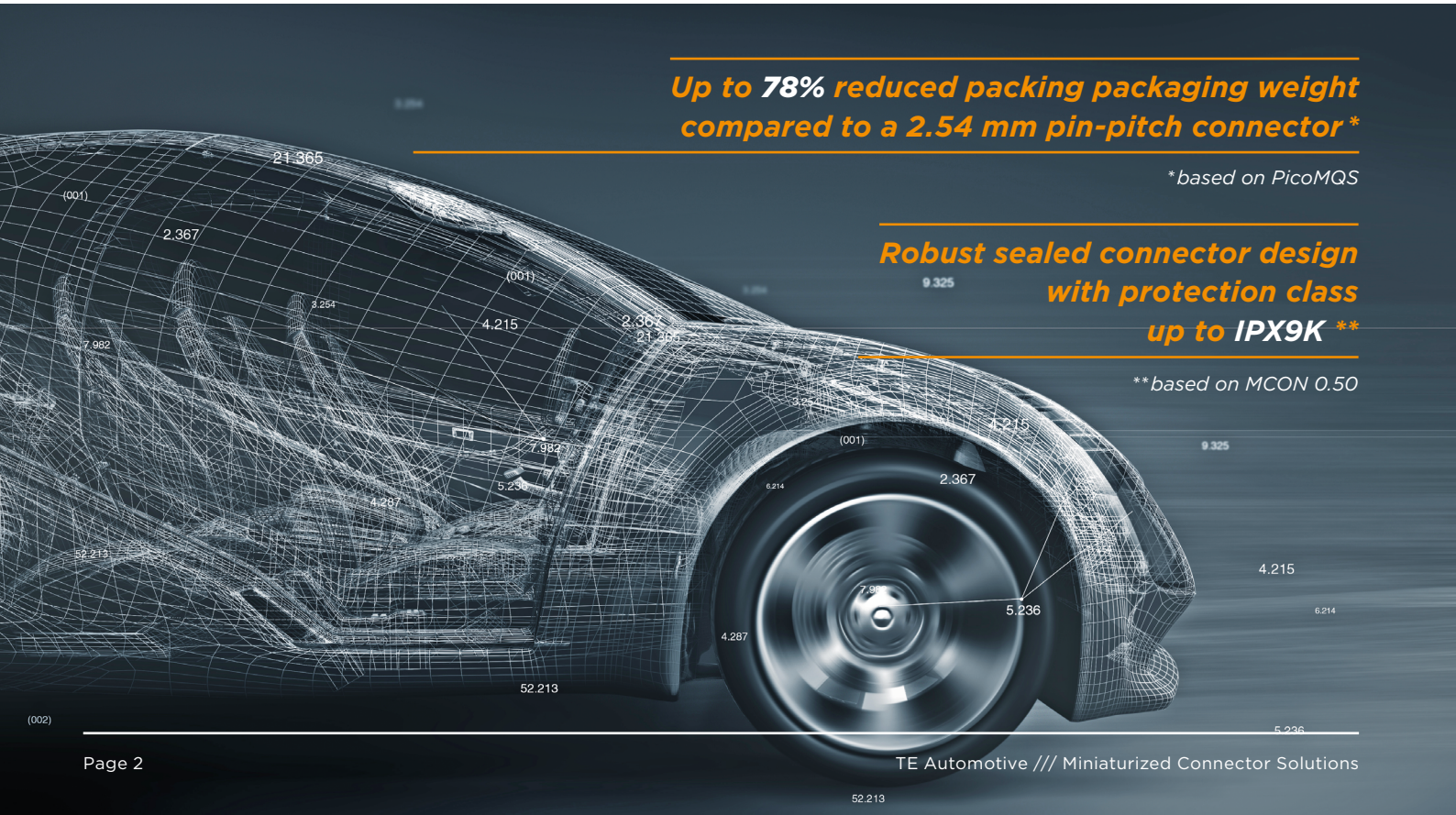
TE Connectivity Miniaturized Connector Solutions

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.

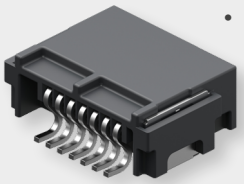
In addition, options for click-audible connector position assurance (CPA), PCB mounting clips and anti-scooping features all contribute to the LV 214 compliant automotive levels of robustness. The availability of through-hole technology (THT) and surface-mounted technology (SMT) headers, hybrid connectors,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



PicoMQS Connector System

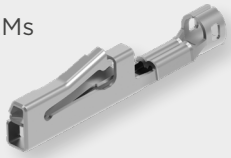
Dimensions

- 1.27 mm pin-to-pin pitch
- 0.22 mm^2 FLU & FLR wire range
- Mating for 0.5 x 0.4 blade size
- 0.014 to 0.42 mm^2 foil cross section



Performance

- 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



Position Assurance

- Locking Lance design
- Primary and secondary contact locking
- Click-audible connector position assurance (CPA) possible

Applications

- Blackbox applications (headlamps and steering wheel controls)
- Battery management

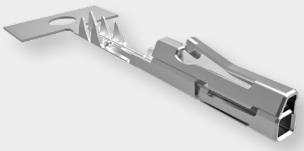
NanoMQS Connector System

Dimensions

- 1.8 mm pin-to-pin
- 0.13 mm^2 to 0.35 mm^2 wire range
- Mating for 0.5 mm x 0.4 mm blade size

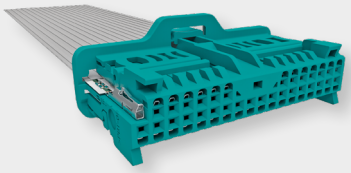
Performance

- Current capacity: 6A (90°C)
- Max. temperature 170°C (Ag)
- SG4 vibration Grade (Ag)
- European automotive standard compliant (LV 214)
- USCAR validation in process



Position Assurance

- Locking lance design
- Primary and secondary contact locking
- Click-audible connector position assurance (CPA)
- Click-audible mating



MCON 0.50 Connector System

Dimensions

- 1.8 mm pin-to-pin
- 0.13 mm^2 to 0.35 mm^2 wire range
- Mating for 0.5 mm x 0.4 mm blade size

Performance

- Current capacity: 3A (90°C)
- Temperature range: -40°C to +170°C
- Vibration grade class SG4 (Ag)
- Sealing class IPx9k
- LV 214, VW 75174

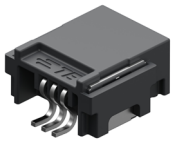
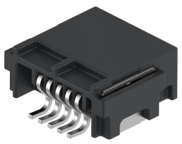
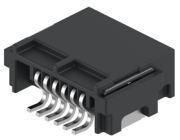
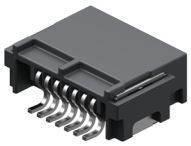
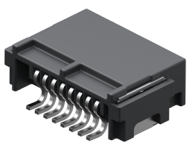
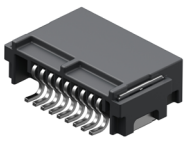
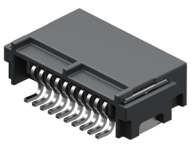
Position Assurance

- Clean body design
- Primary and secondary contact locking
- Click-audible mating
- Connector position assurance (CPA)

PicoMQS Connector System
Housing Portfolio

1.27 mm pin pitch / 1 row	Positions	TE PN
	2	1-2332182-1
	3	1-2332183-1
	4	1-2332184-1
	5	1-2301920-1
	6	1-2332186-1
	7	1-2301968-1
	8	1-2301969-1
	9	1-2332189-1
	10	1-2332190-1

PicoMQS Connector System
Header Portfolio

90° SMD	Positions	TE PN
	2	2339202-2
	3	2339203-3
	4	2339204-4
	5	2323101-5
	6	2339206-6
	7	2323102-7
	8	2323103-8
	9	2339209-9
	10	1-2339210-0

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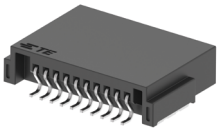
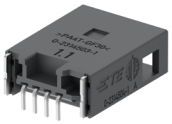
NanoMQS Connector System
Header Portfolio

90° Headers 1 row



Number of Positions	TE PN
2	2315401 *)
3	2315403 *)
4	2315405
5	2315407
6	2311714
7	2315409
8	2315411
9	2315413 *)
10	2315415
11	2315417 *)

180° Headers 1 row

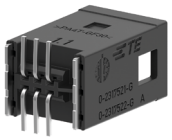


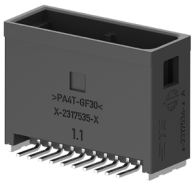
Number of Positions	TE PN
2	2314389 *)
3	2314501 *)
4	2314503
5	2314505
6	2314507
7	2314509 *)
8	2311396
9	2314511 *)
10	2314513
11	2314515 *)

90° Headers 2 row

Number of Positions	TE PN
4	tbd *)
6	2317501 *)
8	2317503 *)
10	2317505 *)
12	2317507
14	2317509
16	2317511
18	2317513 *)
20	2317515
22	2317517 *)

180° Headers 2 row





Number of Positions	TE PN
4	tbd *)
6	2317521 *)
8	2317523
10	2317525
12	2317527
14	2317529 *)
16	2317531
18	2317533 *)
20	2317535 *)
22	2317537

*) Please contact your account manager / customer service center for information on availability.
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NanoMQS Connector System
Plug Portfolio (Side Latch)

1 row without CPA

Number of Positions	TE PN
2	2282150
3	2282151
4	2282152
5	2282153
6	2282154
7	2282155
8	2282267
9	2282156
10	2282268
11	2282157

2 row without CPA

Number of Positions	TE PN
4	2320004
6	2302501
8	2320008
10	2302475
12	2312212
14	2320014
16	2320016
18	2312218
20	2320020

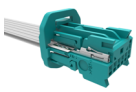
1 row with CPA

Number of Positions	TE PN
2	2333102
3	2333103
4	2333104
5	2333105
6	2309873
7	2333107 *)
8	2333108
9	2333109 *)

2 row with CPA

Number of Positions	TE PN
4	2345104
6	2312106
8	2312108
10	2312110
12	2312112
14	2312114
16	2312116
18	2312118
20	2312120

NanoMQS Connector System FFC/FPC Portfolio

	Description	TE PN
	FFC/FPC Receptacle Terminal	1-2291853-1
	8pos Plug	2303089

	Description	TE PN
	20pos Plug	2365086
	32pos Plug	2303088

*) Please contact your account manager / customer service center for information on availability.
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MCON 0.50 Connector System
Plug Portfolio

	Description	TE PN
	3pos MCON 0.50 Plug, sealed	2316210-1/-2
	4pos MCON 0.50 Plug, sealed	2316284-1/-2
	6pos MCON 0.50 Plug, sealed	2316218-1/-2
	2x2pos MCON 0.50 Plug, sealed	2318200-1/-2
	2x3pos MCON 0.50 Plug, sealed	2318300-1/-2
	2x4pos MCON 0.50 Plug, sealed	2318400-1/-2
	2x5pos MCON 0.50 Plug, sealed	2318935-1/-2
	2x6pos MCON 0.50 Plug, sealed	2318600-1/-2

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Features and Benefits

Miniaturization Innovation

- 1.27 mm up to 1.8 mm pin spacing
- Wire size range: 0.13 mm^2 to 0.35 mm^2 thin wall
- Surface Mount Technology (SMT) headers available
- Automotive grade FFC connectors (NanoMQS)

Automotive Grade Robustness

- Robust anti-scooping features
- Header to PCB mounting clips
- USCAR-2 (coming soon)
- Primary and secondary locking system
- Koshiri connector design
- Loud click-audible mating (NanoMQS)
- SG2 vibration grade

Design Flexibility

- Clean body/ locking lance terminals
- THT/ SMT headers
- Flexible Flat Cables (FFC / NanoMQS)
- Flexible Printed Cables (FPC / NanoMQS)
- CPA option
- Wide range of terminal variants and surfaces
- Wide range of circuit counts
- S-bended pins header design to allow optical inspection instead of X-ray (PicoMQS)

Configurator

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

https://te-configurator.com

FOR FURTHER INFORMATION
PLEASE CONTACT US

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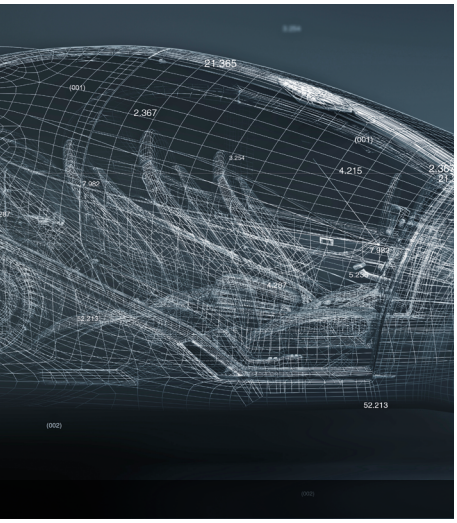

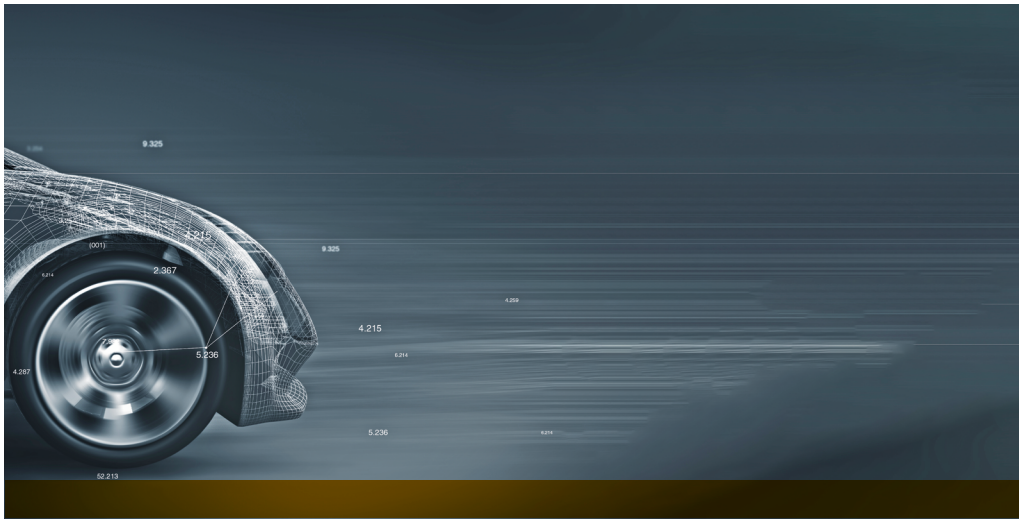

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