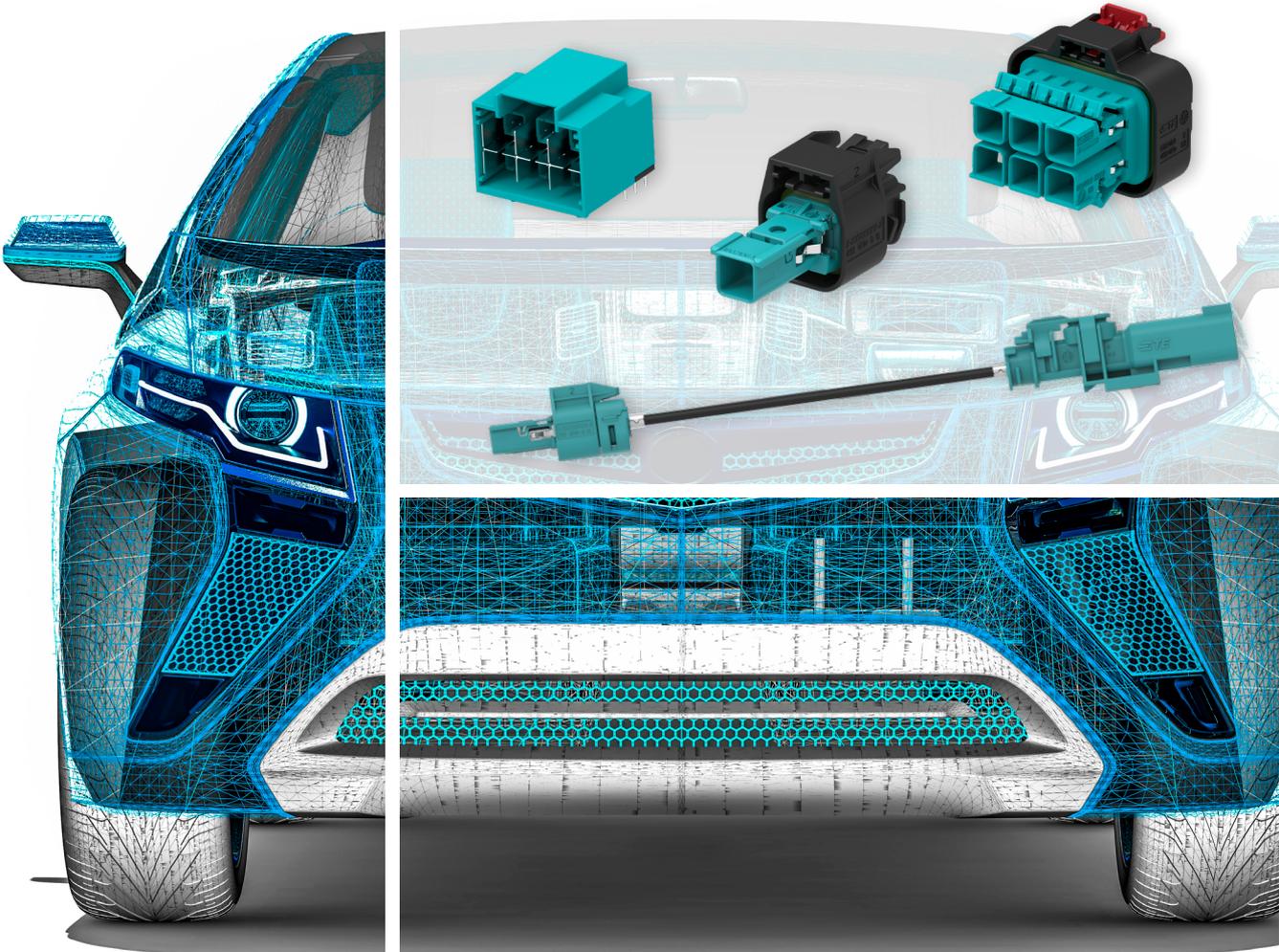


# MATenet Modular and Scalable Connectors

Miniaturized Automotive Ethernet Connector System



## MATenet Modular and Scalable Connectors

### Miniaturized Automotive Ethernet Connector System

A growth in Advanced Driver Assistance Systems (ADAS) and infotainment technologies within vehicles is leading to an increased requirement for complex high-speed data networking architectures based on the IEEE Automotive Ethernet standard. This complexity is driving the need for economical cabling solutions for physical link technologies that can be seamlessly integrated into existing engine control unit (ECU) interfaces.

**Supports up to 1 Gbps  
(with potential for 4 Gbps  
with alternative technologies)**

#### FEATURES/ADVANTAGES

##### Automotive Robustness and reliability

- Based on proven NanoMQS terminals system, designed to meet automotive OEM specifications. MATenet connector system delivers reliable performance in harsh automotive environments.

##### High performance

- Supports speeds up to 1 Gbps (potential for 4 Gbps with alternative technologies)

##### Modular and Scalable solution

- The standardized core module (terminal and plastic together) can be assembly into various housing frames, ranging from 1 to 6 ports, with an option for double rows

##### Extensive portfolio for diverse applications and installation needs

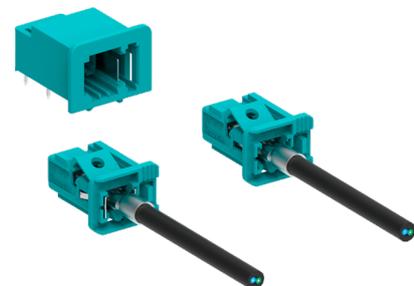
- Available in both unshielded and shielded twisted pair versions, providing varying levels of protection against EMI
- Sealed variants are also offered for water-resistant applications
- 180°/90° orientations for flexible installation
- 1,2,3,4,5 and 6 frames, with double rows option available to fulfill different application requirements

##### Global manufacturing footprint ensures reliable supply and support

MATenet connector system is TE Connectivity's (TE) modular and scalable connector system, developed for the latest generation of vehicle architectures. Based on proven NanoMQS terminals system, designed to meet automotive OEM specifications, MATenet connector system offers automotive grade robustness, ensuring reliable performance in the harsh automotive environments. Both Unshielded Twisted Pair (UTP) and Shielded Twisted Pair (STP) cables are available, MATenet connector system provides varying levels of protection against electromagnetic interference (EMI). MATenet connector system can transmit up to 1 Gbps according to the 100BASE-T1 and 1000BASE-T1 standard. Featuring a standardized core module that can be easily assembled into housing frames with 1 to 6 ports, including a double-row option. This modular design provides flexibility to meet diverse application needs and installation environments.

#### MARKET COMPATIBILITY

- IEEE conformance: 100BASE-T1 (100Mbps - IEEE802.3bw) and 1000BASE-T1 (1 Gbps - IEEE802.3bp PoDL / Class 3-48 Volt)
- A2B
- HDBaseT



Single port MATenet PCB header (above), compatible for both STP (left) and UTP (right) connectors.

#### APPLICATIONS

##### Autonomous driving

- LiDAR
- Radar

##### Connected vehicles

- High performance computer
- Domain ECU (ADAS, infotainment)
- Zonal controller

##### Infotainment

- Display: 4k screens, heads-up displays

## MATenet Modular and Scalable Connectors

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#### TECHNICAL DATA

Mechanical Load		Limit Value
Mating Cycles		min. 20
Mating Force	1-port Connector Sealed and Multi-port Connector (max. 6-port) Connector for STP >4-port	max. 20 N max. 75 N max. 100 N
Unmating Force	Unmating Force 1-port Connector Multi-port Connector (max. 6-port)	min. 5 N max. 20 N max. 50 N
Retention Force Connector Lock	1 Locking Latch (1/2-port) 2 Locking Latches (3/6-port)	min. 80 N min. 100 N
Actuation Force	Actuation Force of housing latch/lock (per locking latch)	min. 3 N min. 15 N
Actuation Forces for Secondary Lock (per Bracket)	Open Close	< 50 N < 50 N
Keying Efficiency	1/2-port Connector 3/6-port Connector	min. 80 N min. 130 N
Polarizing Efficiency	1/2-port Connector 3/6-port Connector	min. 80 N min. 130 N
Cable Holding Force		min. 120 N
Contact Overlapping	Signal Contact Ground Contact (STP)	> 1.0 mm > 0.45 mm
Contact Retention Force	1. Locking 2. Locking	F Prim. > 25 N F Sek. > 50 N

Application Specification: 108-94568

**MATenet Modular and Scalable Connectors**  
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**MATenet CONNECTOR SYSTEM HEADERS**

	Description	Degree	Sealed / Unsealed	Part Number	Coding
	1-Port	90°	Unsealed	2304372	A, B, C
	1-Port, Top Latch	90°	Unsealed	2349217	A, B
	1-Port	180°	Unsealed	2308956	A, B, C
	2-Port	180°	Unsealed	2415492	A, B, C
	1-Port	90°	Sealed	1802162	A, B, C
	1-Port	90°	Sealed	2415723	A, B, C
	1-Port, Low Profile	90°	Unsealed	2320201	A
	2-Port	90°	Unsealed	2305987	A, B, C
	3-Port	90°	Unsealed	2333982	A, B, C, J, Z
	2x2-Port	90°	Unsealed	2391079	A, B
	2x2-Port	180°	Unsealed	2415727	A, B, C
	5-Port	90°	Unsealed	2305390	A, B, C
	5-Port	180°	Unsealed	2315530	A
	2x3-Port	180°	Unsealed	2330116	A, B, C, J, Z
	2x3-Port	90°	Unsealed	2339800	A, B, C, J, Z
	2x3-Port	90°	Sealed	2351577	A, B, C
	Hybrid Connector, 2 Cavities	180°	Sealed	2376765	A
	Hybrid connector 1 Cavity	180°	Sealed	2387351	A

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**MATenet Modular and Scalable Connectors**  
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**MATenet CONNECTOR SYSTEM HOUSINGS**

	Description	Degree	Sealed / Unsealed	Part Number	Coding
	1-Port Inline Coupler, UTP	180°	Sealed	2354957	A
	1-Port Inline Coupler, STP	180°	Sealed	2403850	A
	1-Port Inline Coupler	180°	Unsealed	2302461	A, B, C, Z
	1-Port Inline Coupler with clip slot	180°	Unsealed	2394145	A,B
	2-Port Inline Coupler with clip slot	180°	Unsealed	2390608	A,B
	1-Port Frame (UTP)	180°	Unsealed	2302454	A, B, C, J, Z
	1-Port Frame (STP)	180°	Unsealed	2302510	A, B, C, J, Z
	1-Port Frame (UTP), Top Latch	180°	Unsealed	2349433	A,B
	1-Port Frame (STP), Top Latch	180°	Unsealed	2349531	A,B
	1-Port Frame (UTP)	180°	Sealed	1802105	A, B, C, J, Z
	1-Port Frame (STP)	180°	Sealed	1802113	A, B, C, J, Z
	2-Port Frame (UTP)	180°	Unsealed	2305974	A, B, C, J, Z
	2-Port Frame (STP)	180°	Unsealed	2307961	A, B, C, J, Z
	3-Port Frame (UTP)	180°	Unsealed	2324309	A, B, C, J, Z
	3-Port Frame (STP)	180°	Unsealed	2324319	A, B, C, J, Z
	2x2-Port Frame (UTP)	180°	Unsealed	2370473	A, B, C, J, Z
	2x2-Port Frame (STP)	180°	Unsealed	2394102	A, B, C, J, Z

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**MATenet Modular and Scalable Connectors**  
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**MATenet CONNECTOR SYSTEM HOUSINGS** (continued)

	Description	Degree	Sealed / Unsealed	Part Number	Coding
	5-Port Frame (UTP)	180°	Unsealed	2302455	A, B, C, J, Z
	5-Port Frame (STP)	180°	Unsealed	2302515	A, B, C, J, Z
	6-Port Frame (UTP)	180°	Unsealed	2302456	A, B, C, J, Z
	2x3-Port Frame (UTP)	180°	Unsealed	2334013	A, B, C, J, Z
	2x3-Port Frame (STP)	180°	Unsealed	2333538	A, B, C, J, Z
	2x3-Port Frame (STP)	180°	Sealed	2351636	-
	Hybrid Connector 1 Cavity Housing	180°	Sealed	2387380	A
	Hybrid Connector 1 Cavity Housing, Side Latch	180°	Sealed	2397144	A
	Hybrid Connector 1 Cavity Housing, Side Latch	90°	Sealed	2413280	A

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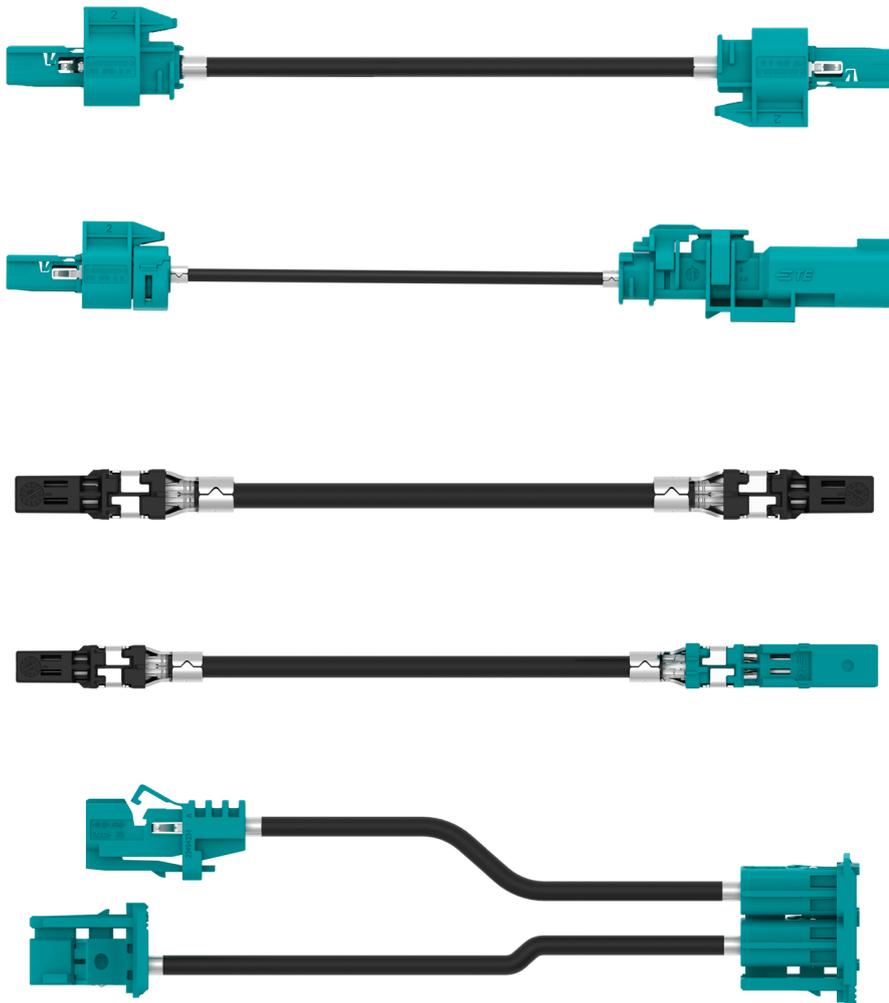
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**MATenet CONNECTOR SYSTEM TERMINALS**

	Type	Description	Degree	Sealed / Unsealed	Part Number
	Kit for STP Plug	2 pos Insert Module, Female	180°	Unsealed	2302450
		Fixation Element (STP)	180°	Unsealed	2302452
		NanoMQS Female Contact	180°	Unsealed	1703930
		Shield Barrel	180°	Unsealed	2141360
	Kit for UTP Plug	2 pos Insert Module, Female	180°	Unsealed	2302450
		Fixation Element (UTP)	180°	Unsealed	2302452
		NanoMQS Female Contact	180°	Unsealed	1703930
	Kit for STP Inline	NanoMQS Male Insert	180°	Unsealed	2302451
		Fixation Element (STP)	180°	Unsealed	2302452
		NanoMQS Male Contact	180°	Unsealed	2236905
		Shield Barrel	180°	Unsealed	2141360
	Kit for UTP Inline	NanoMQS Male Insert	180°	Unsealed	2302451
		Fixation Element (UTP)	180°	Unsealed	2302452
		NanoMQS Male Contact	180°	Unsealed	2236905

Application Specification: 108-94568

**MATenet CONNECTOR SYSTEM CABLE ASSEMBLY (UTP/STP)**



**Possible Configurations:**

- 1 port Frame - 1 port Frame
- 1 port Frame - 1 port Inline Coupler
- Female Insert - Female Insert
- Female Insert - Male Insert
- 1 port Frame - 2 port Frame

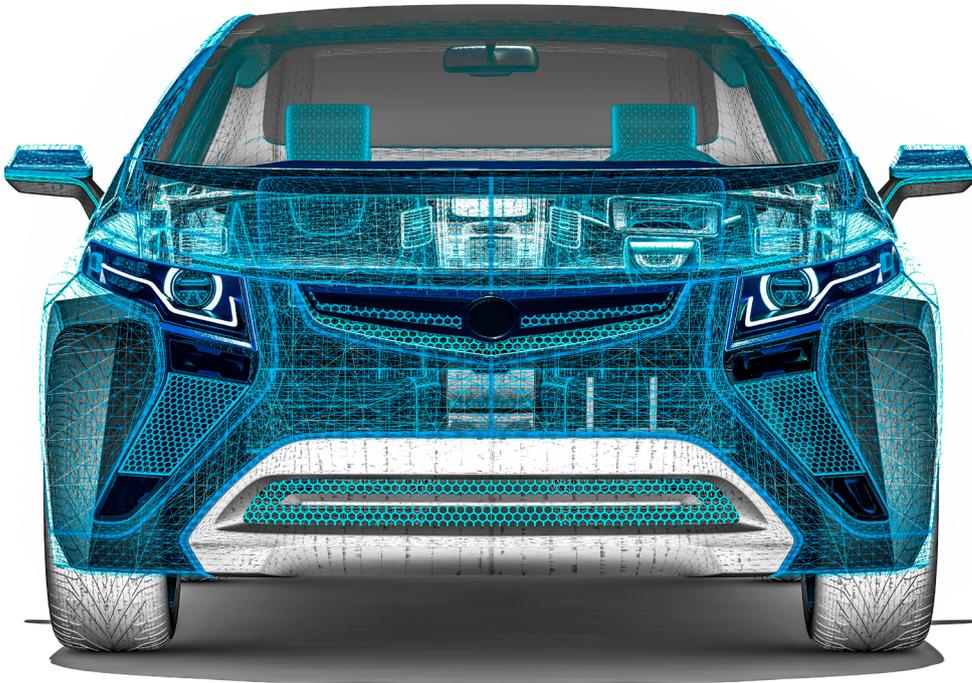
**Available Cable Types:**

UTP 100 Mbps / UTP 1Gbps,  
and STP 1Gbps

**MATenet CONNECTOR SYSTEM APPLICATION TOOLING**

Component	Part Numbers	
	Housing	Applicator
x-2302452-1	2302450 (female)	2382219-2
x-2302452-1	2302451 (male)	2382220-2
x-2302452-2	2302450 (female)	2382221-2
x-2302452-2	2302451 (male)	2382222-2
x-2302452-3	2302450 (female)	2381607-2
x-2302452-3	2302451 (male)	2381609-2
1-1703930-x	2302450 (female)	2151332-2
0-2236905-x	2302451 (male)	2266620-2
2-1703930-x	2302450 (female)	2151523 or 2151524
1-2236905-x	2302451 (male)	2266621-2
0-2141360-1		2836365-2





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