CONNECTED MOBILITY SOLUTIONS ›
ENABLING TOMORROW'S AUTONOMOUS AND CONNECTED VEHICLES

molex

ENGINEERING TOMORROW'S VEHICLES›

THE FOUNDATION FOR AUTOMOTIVE OEMs IN THEIR DRIVE TOWARDS THE FULLY AUTONOMOUS VEHICLE

Redefining the Connected Car

Established in 1938, Molex is one of the world's largest manufacturers of interconnect products and system solutions for cables, connectors, media modules, Ethernet switches and gateways.

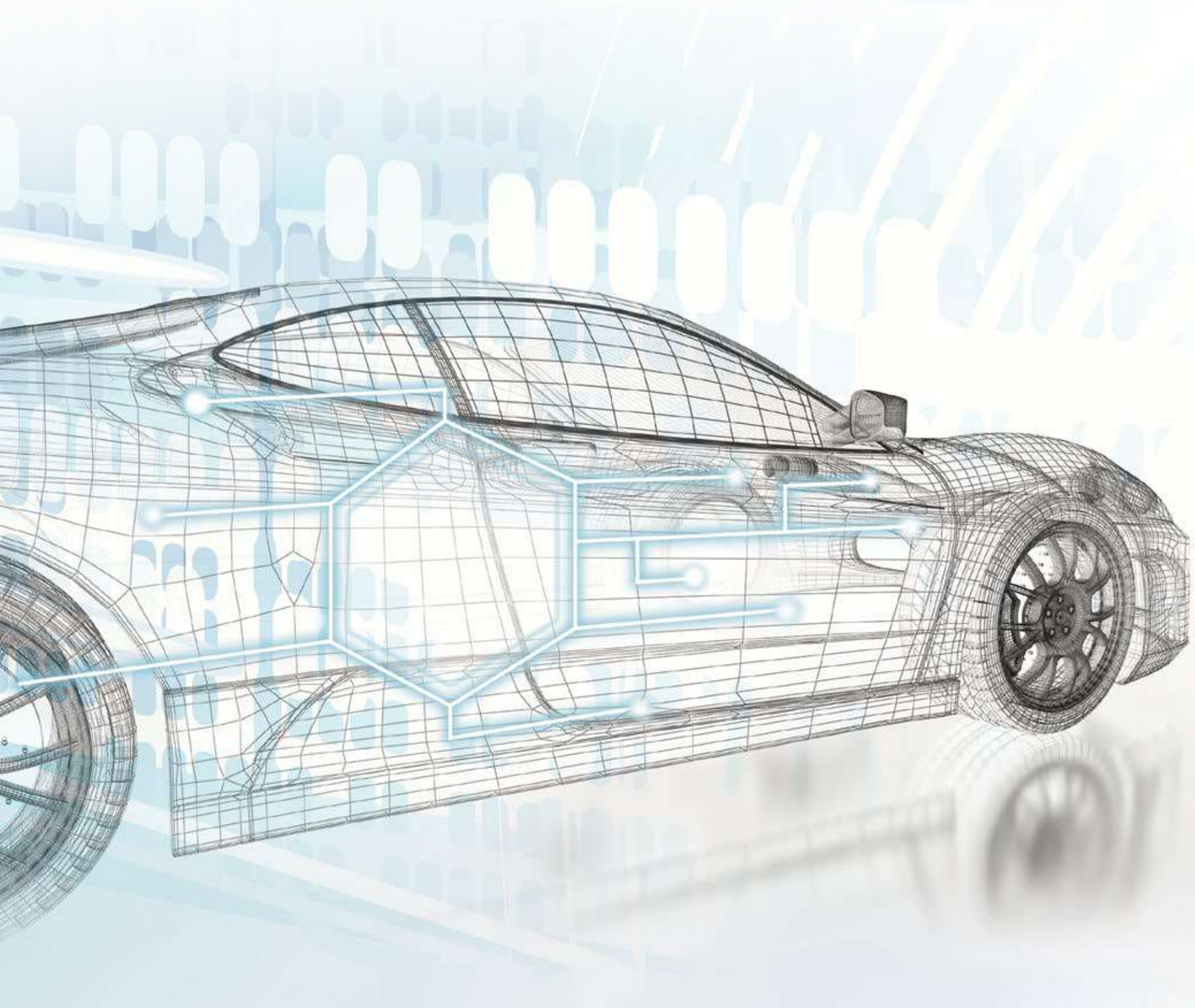
Our expertise and deep experience in high-speed networking, datacom, rugged industrial and automotive solutions enable OEMs and Tier 1 manufacturers to incorporate next-generation vehicle architecture and develop the intelligent vehicles of the future.

COMPLETE SOLUTIONS TO ACHIEVE YOUR VISION

Our capabilities are constantly evolving to meet the demanding requirements for autonomous driving, infotainment and connectivity. We take a holistic solutions mentality to achieve end-to-end connectivity and optimal performance.

END-TO-END DATA CONNECTIVITY

We believe that complete end-to-end signal integrity within a full-vehicle network architecture can be achieved. To accomplish this, we are developing groundbreaking solutions, establishing an ecosystem, investing in key technologies and working alongside industry-leading suppliers and collaborators who share our vision.



ADAS/AD (Advanced Driver Assist Systems/ Autonomous Driving)

Molex develops connectivity solutions that enable vehicle-to-vehicle and vehicle-to-infrastructure communication. The center of our solutions is the Molex Gateway, a secure hub that gathers and processes data from all components and zones, then routes it to a functional domain. The Molex Gateway seamlessly integrates multiple hardware and software systems as well as legacy automotive protocols.

In-Vehicle Infotainment

Molex solutions provide the in-vehicle processing power and connectivity needed for effective communication within an intelligent vehicle network. Our cutting-edge connectivity solutions enable high-speed data and content transmission to vehicle displays and user interfaces, creating an optimal user experience.

Connectivity

With our expertise in high-speed data transmission, prioritization, scalability and security, Molex is enabling faster, more streamlined vehicle connectivity than ever before. Our Ethernet Automotive Network delivers end-to-end data integration and prioritization for a range of vehicle profiles. The network allows for OTA updates, diagnostics, telematics and analytic smart learning integration, with seamless communication between the vehicle and the cloud.

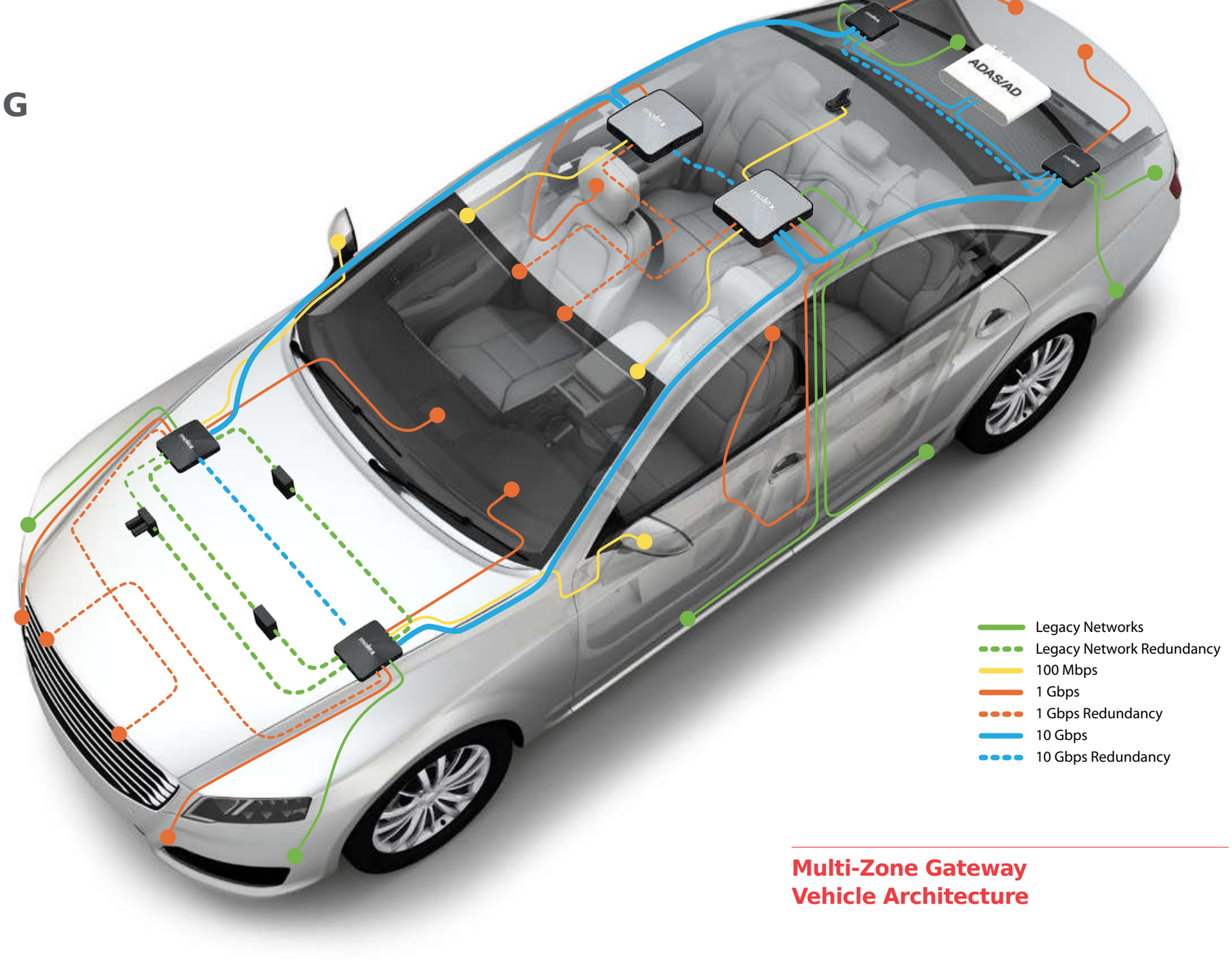
ETHERNET-BASED VEHICLE ARCHITECTURE › APPROACHING FULL VEHICLE AUTONOMY

Molex's award-winning Automotive Ethernet Network Platform addresses the needs of automotive OEMs for a safe and safe-operational vehicle. We are translating automakers' needs for a secure, reliable and connected vehicle foundation into a high-performance computing network platform on wheels.

This future-ready, Ethernet-based vehicle architecture delivers seamless multi-zone integration across multiple hardware and software systems — with the flexibility to incorporate legacy automotive protocols. With the 10 Gbps automotive Ethernet platform from Molex, the fully autonomous vehicle is one step closer.

ETHERNET GATEWAY AND SWITCH SOLUTIONS

Driving the transformation of in-vehicle networks.



Multi-Zone Gateway Vehicle Architecture

Key Capabilities	Key Interface	Next Generation
Automotive Ethernet Connectivity Legacy Automotive Connectivity PKI Authentication Certificate Multi-Zone Fail Operational Machine Learning Integration Firewalls and VLAN Routing Diagnostics: BiST, DIOP, Link QoS AUTOSAR Classic Time Sensitive Network (TSN) - AVB	10 Gbps 10GBase-TX Ethernet Ports 2.5 Gbps Base-TX Ethernet Port 1 Gbps 1000Base-T1 Ethernet Ports 100MBps 100Base-T1 Ethernet Ports USB 2.0 OTG CAN-FD Ports LIN Ports	USB 3.1 Gen1 (5 Gbps) LVDS Inputs HDBase-T Port Most, FlexRay

HIGH-SPEED NETWORKING SOLUTIONS
BEST-IN-CLASS DATA SPEEDS FOR SEAMLESS CONNECTIVITY

Molex is a leading supplier of high-speed networking cables supporting OEMs in the development of in-vehicle networks that are secure, reliable and provide high bandwidth. We are addressing the increased demand for in-vehicle processing power by providing an end-to-end Ethernet-based solution that operates at high bandwidths across multiple hardware and software components. This allows us to seamlessly connect high-speed sensor, sensor clusters and Ethernet network platforms.

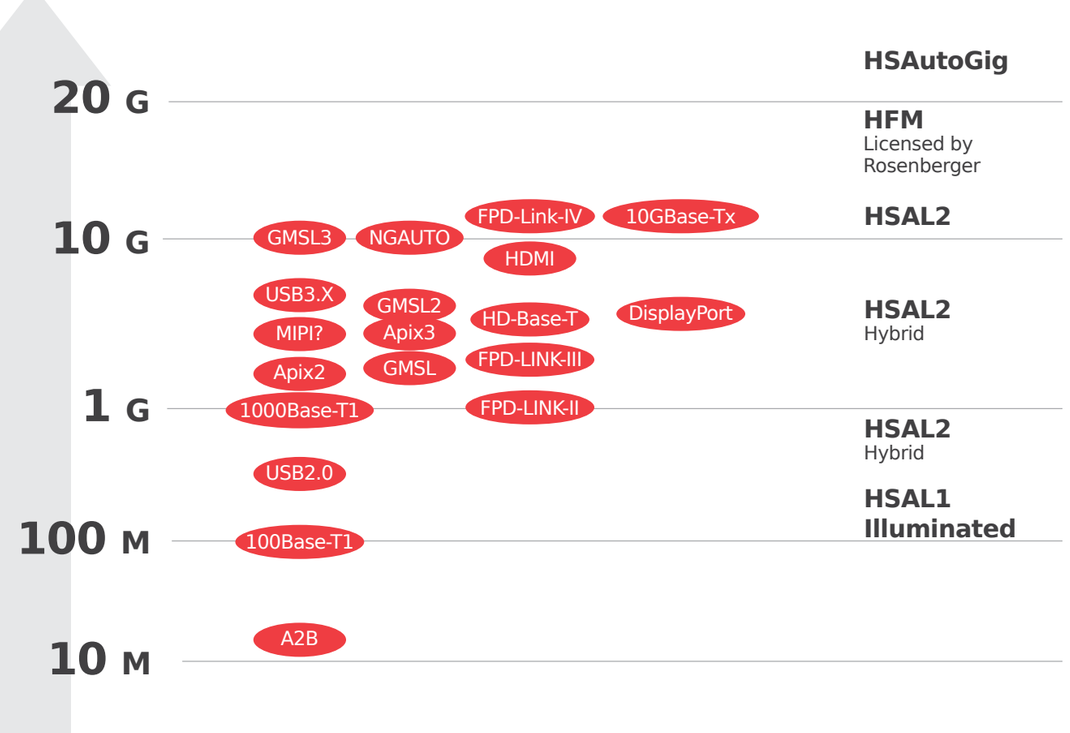
Molex High-Speed Networking Cable Solutions are offered at a variety of data rates to meet the needs of ADAS and AD, in-vehicle infotainment or connectivity applications while running at different protocols to transmit the data.

Application Based on Data Speed Performance

Data Speed	Applications			Product
20 Gbps+	ADAS/AD sensor data Autonomous driving instrument cluster ADAS Modules	Camera Antenna GPS Gateway/switch 4K displays Infotainment	Internet Navigation NextGen wireless LAN Sensors Surround view	**HSAutoGig**
20 Gbps				**HFM** Licensed by Rosenberger
13 Gbps	ADAS/AD sensor data Autonomous driving Camera sensor based Camera	Controller Diagnostics/data upload Infotainment Navigation	Telematics ADAS 4K screens	**HSAL2**
6 Gbps	Connected vehicle services Diagnostics/data upload Infotainment	Navigation Telematics Camera Display	Controller 2K screens	**HSAL2** Hybrid
2 Gbps	Connected vehicle services Diagnostics/data upload	Infotainment Navigation Telematics Display		**HSAL1**
480 Mbps+	In-vehicle networks Charging Media modules			**Illuminated**

ADAS/AD · In-vehicle Infotainment · Connectivity

Protocols by Data Speed Performance



Automotive Connectivity Solutions
Reference Guide

As a leading supplier of high-speed networking solutions, Molex is supporting OEMs in the development of in-vehicle networks that are secure, prioritized, reliable and high bandwidth. Building upon its strength in cables, connectors, media modules and signal integrity innovations, Molex is addressing the increased demand for in-vehicle processing power.

HSAUTOLINK I

	Speed	Protocol	Cable type	Application
	2 Gbps	Up to 100 Base, USB 2.0	UTP, STP	Connected vehicle services, Diagnostics/Data upload, Infotainment, Navigation, Telematics, Display

HSAUTOLINK II

	Speed	Protocol	Cable type	Application
   	13 Gbps	Up to 1000 Base, USB 2.0/ USB 3.0, DisplayPort, FTP	UTP, STP, TwinAx	Camera sensor based, Camera, Controller, Diagnostics/Data upload, Infotainment, Navigation, Telematics, ADAS

HSAutolink II Hybrid

	Speed	Protocol	Cable type	Application
	6 Gbps	Up to 1000 Base	UTP, STP, TwinAx	Camera sensor based, Camera, Controller, Diagnostics/Data upload, Infotainment, Navigation, Telematics, ADAS

High-Speed Fakra Mini

	Speed	Protocol	Cable type	Application
	20 Gbps	Up to MultiGig Ethernet	Coax	Instrument cluster, ADAS, Modules, Camera, Antenna, GPS, Gateway/Switch, 4K displays, Infotainment, Internet, Navigation, NextGen wireless LAN, Sensors, Surround view

HSAutoGig

	Speed	Protocol	Cable type	Application
 	20 Gbps+	Up to MultiGig Ethernet	STP, TwinAx	Instrument cluster, ADAS, Modules, Camera, Antenna, GPS, Gateway/Switch, 4K displays, Infotainment, Internet, Navigation, NextGen wireless LAN, Sensors, Surround view. Buses, Trucks, Taxi, Self driving

USB Illuminated

	Speed	Protocol	Cable type	Application
 *Type A*	480 Mbps	USB 2.0	STP	Infotainment, Navigation, Media modules
 *Type C*	480+ Mbps	USB 2.0/USB 3.0	STP	

Media Modules & Smart Charger Solutions

	Smart Charger Solutions	Features & Benefits
	Dual and Single Port USB Smart Chargers	USB-A, Type C interfaces and BC 1.2, MFI and Type C charging protocols, LED back lighting Optional covers

	USB Power Delivery Module	Features & Benefits
	9-16V Battery Operating Voltage, -40°C to 75°C Operating temp	Supports up to: 60W charging on two USB-C devices simultaneously at 75°C and 12V Supports up to 45W charging on two USB-C devices simultaneously at 75°C and 9V Supports up to 60W charging on single USB-C Device at 55°C and 9V Surface-mount solution with compact package size (75x65x28) Molex Mega-Fit power connector on the rear

	Media Hub Solutions	Features & Benefits
	Multi Port Media Hubs with Smart Charging support	USB-A and Type C interface, USB 2.0 support, BC 1.2, MFI and Type C charging protocols, Apple CarPlay, Android Auto and CarLife host sharing support, SD card and digital and analog Aux Jack support, LED back lighting

Ethernet Gateway/Switch Solutions

	Gateway Solutions	Features & Benefits
	1G Ethernet Gateway	100 Base T1 Ethernet ports with PoDL, 1000 Base T1 ports, 1G Tx diagnostic port, CAN ports, USB ports, Power ports
	10G Ethernet Gateway	10G Ethernet ports, 2.5G Ethernet port, 100 Base T1 Ethernet ports with PoDL, 1000 Base T1 ports, 1G Tx diagnostic port, CAN ports, USB ports: Power ports, Software stack

Discover the future of connected mobility at:
www.molex.com/connected-mobility

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one company › a world of innovation

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