# Axiomatic Delivers Dual Gigabit Automotive Ethernet Converters

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Axiomatic Technologies Corporation provides two gigabit automotive Ethernet to gigabit Ethernet converters designed for both on-highway and off-highway vehicle applications. Headlined by the AX141560 and AX141560A, these converters enable seamless communication between automotive Ethernet networks operating on single unshielded twisted pair cabling and standard gigabit Ethernet infrastructure, addressing a critical connectivity requirement across commercial transportation, construction, agriculture, and mining industries.

Modern vehicles and heavy equipment increasingly rely on high-speed in-vehicle networking to support advanced driver-assistance systems, telematics, fleet management platforms, and diagnostic interfaces. Automotive Ethernet (1000BASE-T1) interfaces with cameras, lidar as well as radar and transmits data at gigabit speeds over a single twisted pair of copper wire, reducing cable weight and simplifying vehicle wiring harnesses. However, connecting these automotive networks to conventional Ethernet-based networks requires protocol conversion that maintains data integrity and throughput at full line rate.

The two Gigabit converters offered by Axiomatic address distinct deployment scenarios within the vehicle

connectivity ecosystem. Each unit supports gigabit data rates in both directions, providing transparent physical layer conversion between the 1000BASE-T1 automotive Ethernet physical layer and the standard 1000BASE-T Ethernet interface familiar to IT and fleet management professionals. The AX141560 features X-coded and A-coded M12 connectors, while the AX141560A offers a dedicated D-coded power connector to suit different wiring harness requirements.

Axiomatic has built its converter technology around ruggedized, laser-welded, and injection-molded enclosures rated for extended temperature ranges (-40 to 85 °C), vibration, and IP67 ingress protection consistent with the operating conditions found in mining haul trucks, agricultural harvesters, and Class 8 highway tractors.

Amanda Wilkins, Chief Marketing Officer of Axiomatic Technologies Corporation, stated that the converters fill a practical gap in vehicle network architecture. "OEM equipment designers and system integrators need reliable, straightforward solutions for accessing automotive Ethernet data streams for autonomous applications and interface with standard networking equipment," Wilkins said. "These converters handle the physical layer translation transparently so that engineers can focus on the application rather than the interface."

The on-highway variant supports applications including long-haul trucking diagnostics, emergency vehicle communication systems, and transit bus safety networks. Commercial fleet operators use the converter to bridge onboard automotive Ethernet sensors and cameras to standard Ethernet switches, enabling real-time data extraction for predictive maintenance and route optimization platforms. OEM system designers can use Axiomatic converters to develop collision avoidance or autonomous driving systems.

The off-highway variant is engineered for the more demanding environmental conditions encountered in mining, forestry, and agricultural operations. Exposure to wider temperature extremes, higher shock and vibration loads, and dust or moisture intrusion requires additional design considerations in both the electronics and the connector interfaces. The off-highway converter maintains full gigabit throughput under these conditions, supporting precision agriculture guidance systems, autonomous haul truck networks, and heavy equipment telematics installations.

Both converters are easily configured as a Master or Slave for the automotive Ethernet link via an integrated RS-232 port. This ensures the link is established quickly by matching the transceiver mode of the connected device. Power input ranges of 9 V to 36 V accommodate the nominal battery voltages found in both twelve-volt and twenty-four-volt vehicle electrical systems while protecting against surge and reverse polarity.

Wilkins noted that the growth of in-vehicle Ethernet adoption across multiple industries reinforces the importance of interoperable conversion solutions. "As automotive Ethernet becomes the backbone of

autonomous vehicle data networks, the ability to interface cleanly with existing vehicle Ethernet architecture is not optional," Wilkins said. "It is a fundamental requirement for any organization designing autonomy into their vehicles, managing connected fleets or developing next-generation vehicle systems."

Axiomatic Technologies Corporation has served the mobile equipment and commercial vehicle sectors for over three decades, supplying electronic controllers, power converters, and communication modules to original equipment manufacturers and aftermarket integrators worldwide. The company maintains engineering and manufacturing operations that support custom and catalog product lines across hydraulic control, CAN bus communication, and Ethernet networking applications.

Additional technical specifications and application guidance for the gigabit automotive Ethernet converters are available through the Axiomatic product catalog. Interested parties may visit the company website for detailed datasheets, wiring diagrams, and ordering information

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**Axiomatic Technologies Corporation**

*Axiomatic creates compact and efficient electronic control designs for machines working in harsh operating environments*

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