Golden Award Robotic & Drones

Integrated Ethernet Switch

Realtek Semiconductor Corp.
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Winning Reason

Setting a new industry benchmark, this solution is the first to introduce automotive-grade ASIL-D safety standards and MACsec security into the commercial robotics sector. By bridging the gap between conventional robotics and rigorous automotive safety protocols, it provides the highest level of personal protection, effectively preventing system malfunctions or 'runaway' scenarios. Leveraging Single Pair Ethernet (SPE) technology and streamlined component design, the solution achieves a remarkable 75% reduction in PCB footprint and a 30% decrease in cable weight.
By leveraging PoDL (Power over Data Line) technology, the system couples power directly onto the network cable, enabling direct power supply to end nodes and eliminating complex, bulky power harnesses. As the industry' s only solution to integrate up to six 1G/100MBASE-T1 transceivers, it is specifically engineered for the highly constrained internal spaces of robots and drones, ensuring peak performance even in the most demanding operational environments.

Product Feature

Available in 12 port and 10 port configurations, the solution integrates six 100/1000BASE T1 PHYs, up to four 10G XFI ports, and built in 1000BASE T/100BASE TX PHY, reducing external PHYs and BOM cost for robotics, automotive Ethernet, and general networking. Single pair SPE cabling with compact SMD common mode chokes replaces bulky four pair 1000BASE T and RJ45 magnetics, cutting harness diameter, weight, and PCB footprint—ideal for robot joints, limbs, and UAV interiors. It is the first in its class to achieve ASIL D functional safety, offering full fault detection and diagnostics. RTL9072DC has been adopted by global AI leading brands in humanoid robot as well as automotive SoC reference designs, proving technical leadership and global market confidence.