Beckhoff — EK EtherCAT Couplers

EK1960-0008



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The **EK1960-0008** is a safety-rated EtherCAT coupler designed and manufactured by Beckhoff within the EK EtherCAT Couplers series. It serves as the head station for modular I/O terminals, translating field-level signals into the EtherCAT protocol so that PLCs can execute decentralized safety logic alongside standard process data. By combining safe and non-safe channels in one node, the unit reduces cabinet space and wiring complexity in industrial automation systems.

The coupler operates from a nominal supply of **24 V DC** delivered through an internal power bus that can source up to **500 mA** on the E-bus for downstream terminals. Each output channel can switch loads drawing as much as **2 A**, permitting direct actuation of contactors or indicator lamps. Field wiring enters through a compact **M8** EtherCAT connector, and signal conductors follow the 1-Wire technology scheme to minimize conductor count. Mechanically, the housing spans **230.5 mm** in width, 100 mm in height, and 58.6 mm in depth; these dimensions fit DIN-rail enclosures arranged in the specified horizontal installation position. An **IP20** protection rating confines the device to ventilated control cabinets where ingress from dust or liquids is limited.

Functional safety is handled by the TwinSAFE protocol that rides on Safety over EtherCAT, enabling deterministic exchange of 20 safe digital inputs and 24 safe digital outputs without extra fieldbus hardware. The internal architecture supports up to **128** safe connections, allowing complex interlocks between drives, valves, and emergency stop circuits. A simultaneity factor of **50 %** governs how many outputs may be activated together to keep thermal dissipation inside design limits, and up to **40** users-such as dedicated function blocks or logic tasks-

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can be configured in the safety project without exceeding controller resources.

Specifications

Depth:	58.6 mm	**Ethercat Connector:**	M8	**Height:**	100 mm
Installation Position:	Horizontal	**Max E-bus Supply Current:**	500 mA	**Max Output Current Per Channel:**	2 A
Max Safe Connections:	128	**Max Users:**	40	**Nominal Supply Voltage:**	24 V DC
Output Simultaneity Factor:	50 %	**Protection Rating:**	IP20	**Safe Digital Inputs:**	20
Safe Digital Outputs:	24	**Safety Protocol:**	TwinSAFE/Safety over EtherCAT	**Width:**	230.5 mm
Wiring Technology:	1-Wire	**Last Verified:**	11/22/2026 9:45 PM		

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