Beckhoff — EK EtherCAT Couplers

# EK1501-0100




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The **EK1501-0100** is a fiber-optic EtherCAT coupler produced by Beckhoff within the EK EtherCAT Couplers series. It forms the network head for a string of EtherCAT Terminals and converts optical frames into the electrical backplane format used by the I/O slices. By translating light signals directly to the terminal bus, the unit allows controllers to place high-density I/O clusters at remote machine sections while maintaining deterministic timing on the industrial Ethernet backbone.

An SC duplex connector receives the inbound fiber, while an RJ45 jack forwards the electrical segment; this dual bus connection simplifies daisy-chain layouts. The multimode link uses **50/125 µm multimode fiber** and a transmitter centered at **1310 nm**, supporting communication over the optical connection. Inside the coupler, a Fast Ethernet PHY handles the EtherCAT protocol at **100 Mbit/s**. Signal isolation between field wiring and logic is rated at **500 V**, protecting the industrial PC or PLC from ground potential shifts. The logic electronics draw 24 V DC, while the power contacts can deliver **10 A** at 24 V DC, supporting sensors, valves, and small actuators without extra wiring. The optical receiver remains operational down to -31 dBm, enabling communication when attenuation approaches the permitted limit.

Addressing resources inside the device support up to **65,535 EtherCAT Terminals**, and the internal memory map provides up to **4.2 GB of addressable I/O space** for process data. During live operation, the HotConnect mechanism assigns up to **4,096 IDs**, allowing complete terminal strands to be connected without stopping the network. The housing has a protection rating of **IP20**, indicating finger-safe openings suited for installation in a

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closed control cabinet. Optical isolation is maintained between the fiber and copper segments, allowing the coupler to link the controller and field wiring without an external media converter. Its compact housing also helps conserve rail space when the coupler is installed beside EtherCAT Terminals in a densely populated cabinet.

## Specifications

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| **Bus Connection:** | 1 x SC Duplex; 1 x RJ45 OUT | **Fiber Type:** | 50/125 µm Multi-Mode | **Hotconnect Ids:** | 4096 |
| **Isolation Voltage:** | 500 V | **Max Ethercat Terminals:** | 65535 | **Max I/o Points:** | 4.2 GB Addressable I/O Points |
| **Optical Sensitivity:** | -31 dBm | **Power Contact Current:** | 10 A | **Power Contact Voltage:** | 24 VDC |
| **Power Supply:** | 24 VDC | **Protection Rating:** | IP20 | **Protocol Rate:** | 100 Mbit/s |
| **Transceiver Wavelength:** | 1310 nm | **Last Verified:** | 11/22/2026 4:36 AM | | |

## Contact Us


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### Shipping Options

### Payment Methods


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