Beckhoff — BK EtherCAT Bus Couplers

BK9100



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The **BK9100** coupler is produced by Beckhoff within the BK Ethernet TCP/IP Bus Couplers series. It functions as a protocol bridge that links a stack of modular I/O terminals to an industrial Ethernet network in machine control systems. By hosting both the network interface and the K-bus backplane, the unit allows controllers to gather process signals from connected terminals and forward them to PLCs or motion processors. This arrangement supports distributed input and output stations in automated production equipment without requiring separate network interfaces for each terminal.

Network connectivity is provided through **two RJ45 ports** that support line and daisy-chain topologies. Each port automatically negotiates a communication rate of **10/100 Mbaud**, enabling the coupler to transfer up to 512 bytes of process data in each direction. The internal K-bus supplies a maximum current of 1,750 mA to the attached terminals, while the logic electronics draw no more than 500 mA from the primary supply. The coupler provides dielectric strength of 500 V between the field and logic sections. It operates from a field supply of **24 VDC**, which also feeds the power contacts. A fully populated terminal block can accommodate **128 analog inputs and outputs** and **512 digital inputs and outputs**, allowing mixed-signal devices to operate through a single network node.

Up to **64 terminals** may be attached directly to the K-bus. Adjacent couplers can be connected in sequence so that as many as **20 stations** share one network path. The total cable run must remain below 2 km, and the distance between two connected units must not exceed **100 m**. Power throughput on the spring-clamp contacts is limited to

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10 A, which establishes the maximum current available to terminal power contacts. The incoming feed should be protected by a fuse rated for the permitted contact current. Proper cable sizing and branch protection help control voltage drop and heating when sensors, actuators, and other field devices draw power through the terminal assembly.

Specifications

Analog peripheral signals:	128 Inputs/Outputs	**Bus Connection:**	2 x RJ45	**Bus interface:**	2× RJ45, 2-channel switch
Cable:	4×2 twisted-pair copper (Cat 3/5)	**Configuration:**	via KS2000	**Data transfer rate:**	10/100 Mbaud
Dielectric Strength:	500 V	**Digital peripheral signals:**	512 Inputs/Outputs	**Fieldbus data bytes:**	512 B input, 512 B output
Input current:	70 mA + (K-bus current)/4, <= 500 mA	**K-bus Supply Current:**	1750 mA	**Max Cascade Length:**	2 km
Max Cascaded Units:	20	**Max Input Current:**	4500 mA	**Max Module Distance:**	100 m
Max Power Contact Current:	10 A	**Max Power Contact Voltage:**	24 VDC	**Max Process Data:**	512 B In / 512 B Out
Number of bus terminals:	64	**Operating temperature:**	-25 to +60 °C	**Power supply:**	24 V DC (-15%/+20%)
Protocol:	TwinCAT ADS, Modbus TCP, Beckhoff RT Ethernet	**Recommended fuse:**	<= 10 A	**Recommended Fuse Max:**	10 A
Storage temperature:	-40 to +85 °C	**Supply Voltage:**	24 VDC	**Last Verified:**	11/08/2026 6:19 PM

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