# BK9105 | EtherNet/IP Bus Coupler

The BK9105 Bus Coupler connects EtherNet/IP with the modular, extendable electronic terminal blocks. One unit consists of one Bus Coupler, any number from 1 to 64 terminals (255 with K-bus extension) and one end terminal.

The Bus Coupler recognizes the terminals to which it is connected, and performs the assignment of the inputs and outputs to the words of the process image automatically. The BK9105 Bus Coupler supports 10 Mbit/s and 100 Mbit/s Ethernet. Connection is through normal RJ45 connectors. The IP address is set on the DIP switch (offset to a freely selectable start address). In networks with DHCP (a service for the allocation of the logical IP address to the physical node address [MAC-ID]) the Bus Coupler obtains its IP address from the DHCP server.

The BK9105 contains a 3-port switch. Two ports operate external on RJ45 connectors and can be utilized. The I/O stations can thus be configured with a line topology, instead of the classic star topology. In many applications this significantly reduces the wiring effort and the cabling costs. The maximum distance between two couplers is 100 m. Up to 20 BK9105 Bus Couplers are cascadable, so that a maximum line length of 2 km can be achieved.

Ethernet/IP is the Industrial Ethernet standard of ODVA (Open DeviceNet Vendor Association). Ethernet/IP is based on Ethernet TCP/IP and UDP/IP – IP stands for Industrial Protocol. Essentially, the CIP (Common Industrial Protocol) used in ControlNet and DeviceNet was ported to Ethernet TCP/IP and UDP/IP.
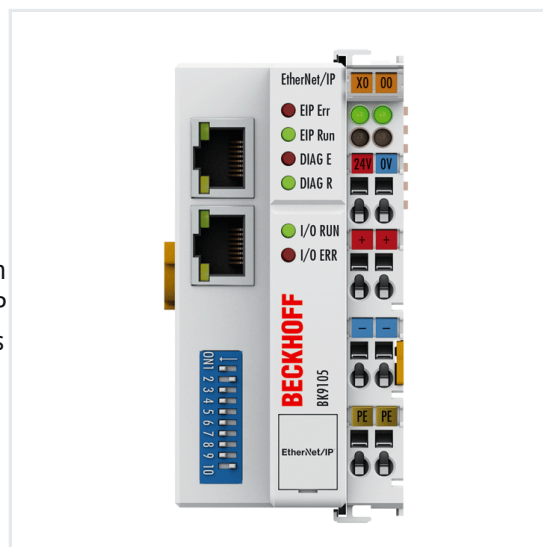
Product status: Regular delivery

Product information

System data	EtherNet/IP	BK9105
Number of I/O stations	only limited by IP addresses
Number of I/O points	depending on controller
Data transfer medium	4 x 2 twisted pair copper cable; category 3 (10 Mbit/s), category 5 (100 Mbit/s)
Distance between stations	100 m between hub/switch and Bus Coupler or between Bus Coupler and Bus Coupler
Data transfer rates	100 Mbit/s
Topology	line or star wiring
Cascading	up to 20 BK9105 or max. line length 2 km

Technical data	BK9105
Number of Bus Terminals	64 (255 with K-bus extension)
Max. number of bytes fieldbus	492 byte input and 492 byte output
Digital peripheral signals	3,936 inputs/outputs
Analog peripheral signals	122 inputs/outputs
Protocol	EtherNet/IP
Configuration possibility	via KS2000
Data transfer rates	10/100 Mbit/s, automatic recognition of the transmission rate
Bus interface	2 x RJ45 (2-channel switch)
Power supply	24 V DC (-15 %/+20 %)
Input current	70 mA + (total K-bus current)/4, 500 mA max.
Starting current	2.5 x continuous current
Recommended fuse	≤ 10 A
Current supply K-bus	1750 mA
Power contacts	max. 24 V DC/max. 10 A
Electrical isolation	500 V (power contact/supply voltage/fieldbus)
Weight	approx. 170 g
Operating/storage temperature	-25...+60 °C/-40...+85 °C

Technical data	BK9105
Relative humidity	95 %, no condensation
Vibration/shock resistance	conforms to EN 60068-2-6/EN 60068-2-27
EMC immunity/emission	conforms to EN 61000-6-2/EN 61000-6-4
Protect. class/installation pos.	IP 20/variable
Approvals/markings	CE, UL, ATEX, DNV GL
Ex marking	II 3 G Ex nA IIC T4 Gc

Housing data	BKxxxx, BCxxxx
Design form	compact terminal housing with signal LEDs
Material	polycarbonate
Dimensions (W x H x D)	49 mm x 100 mm x 68 mm
Installation	on 35 mm DIN rail, conforming to EN 60715 with lock
Side by side mounting by means of	double slot and key connection
Marking	Labeling of the BZxxx series
Wiring	solid conductor (e), flexible conductor (f) and ferrule (a): spring actuation by screwdriver
Connection cross-section	s*: 0.08...2.5 mm^2, st*: 0.08...2.5 mm^2, f*: 0.14...1.5 mm^2
Stripping length	8...9 mm
Current load power contacts	I_{max}: 10 A

*s: solid wire; st: stranded wire; f: with ferrule

Ordering information	Description
BK9105	EtherNet/IP Bus Coupler for up to 64 Bus Terminals (255 with K-bus extension)
BK9105-1000	EtherNet/IP Bus Coupler for up to 64 Bus Terminals (255 with K-bus extension), default IP address: 192.168.1.xxx