



BC9120 | Ethernet TCP/IP “Economy plus” Bus Terminal Controller

Ethernet TCP/IP The BC9120 Bus Terminal Controller is a Bus Coupler with integrated PLC functionality and has a bus interface for Ethernet. It is an intelligent slave and can be used as decentralised intelligence in the Ethernet system. In conjunction with the K-bus extension, the “Economy plus” controller enables connection of up to 255 Bus Terminals to a controller.

In terms of performance, the BC9120 Bus Terminal Controller lies between the BC9050 and the BX9000. The BX series Bus Terminal Controllers have a larger memory and additional interfaces for the integration of further peripheral devices.

The BC9120 has an additional RJ45 port. Both Ethernet ports operate as 2-channel switches. 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/controllers is 100 m. Up to 20 BC9120 Bus Controllers are cascable, resulting in a maximum line length of 2 km.

The Bus Terminal Controller is programmed using the TwinCAT programming system according to IEC 61131-3. The configuration/programming interface on the BC9120 is used to load the PLC program. If the software PLC TwinCAT is in use, the PLC program can also be loaded via Ethernet.

The inputs and outputs of the connected Bus Terminals are allocated to the mini PLC in the default settings. Each Bus Terminal can be configured in such a way that it exchanges data directly through the fieldbus with the higher-level automation device.

Controller for distributed signal processing

The BC9020 and BC9120 Bus Terminal Controllers support the operation of all Bus Terminal types. As far as the user is concerned, the inputs and outputs are not handled any differently from the way they are by other coupler series. The information is made available for use as a byte array in the process image of the automation device.

The analog and multi-functional Bus Terminals can be adapted to each specific application using the KS2000 configuration set. Depending on the type, the analog Bus Terminals’ registers contain temperature ranges, gain values and linearisation characteristics. With the KS2000, the required parameters can be set on a PC. The Bus Terminals store settings permanently and in a fail-safe manner.

Having the controller (PLC, IPC) carry out the configuration of the Bus Terminals is a further option. The PLC or IPC uses function blocks (FB) to take care of the configuration of all the peripherals during the start-up phase. The controller can, if required, upload the non-centrally generated configuration data in order to manage and store them centrally. This means that it is not necessary to carry out the setting procedure again if a Bus Terminal is exchanged. The controller carries out the desired setting automatically after switching on.

PLC data	Ethernet TCP/IP BC9120
Programming	via TwinCAT and programming interface or Ethernet
Program memory	128 kbytes
Data memory	128 kbytes
Remanent data	2 kbytes
Persistent data	1 kbyte
Runtime system	1 PLC task
PLC cycle time	approx. 1 ms for 1,000 instructions (without I/O cycle, K-bus)
Programming languages	IEC 61131-3 (IL, LD, FBD, SFC, ST)
Online change	yes
Up/down load code	yes/yes

Technical data	BC9120
Number of Bus Terminals	64 (255 with K-bus extension)
Max. number of bytes fieldbus	512 byte input and 512 byte output
Digital peripheral signals	2,040 inputs/outputs
Analog peripheral signals	512 inputs/outputs
Protocol	TwinCAT ADS, Modbus TCP
Configuration possibility	via KS2000 or Ethernet
Data transfer rates	10/100 Mbaud, automatic recognition of the transmission rate
Bus interface	2 x RJ45 (2-channel switch)
Power supply	24 V DC (-15 %/+20 %)
Input current	90 mA + (total K-bus current)/4
Starting current	approx. 2.5 x continuous current
Recommended fuse	≤ 10 A
Current supply K-bus	1750 mA
Power contacts	24 V DC max./10 A max.
Electrical isolation	500 V (power contact/supply voltage/fieldbus)
Weight	approx. 170 g
Operating/storage temperature	-25...+60 °C/-40...+85 °C
Protect. class/installation pos.	IP 20/variable
Approvals	CE, UL, Ex, GL

Accessories	
KS2000	configuration software for extended parameterisation
TwinCAT PLC	programming system conforms to IEC 61131-3
Cordsets	cordsets and connectors
FC9001-0010 FC9011	Ethernet PCI fieldbus cards

Related products	
BC9020	Ethernet TCP/IP "Economy plus" Bus Terminal Controller for up to 64 Bus Terminals (255 with K-bus extension)
BC9000	Ethernet Bus Terminal Controller for up to 64 Bus Terminals
BC9050	Ethernet "Compact" Bus Terminal Controller for up to 64 Bus Terminals (255 with K-bus extension)
BC9100	Ethernet TCP/IP Bus Terminal Controller for up to 64 Bus Terminals (with integrated 2-channel switch)
BK9000	Ethernet TCP/IP Bus Coupler for up to 64 Bus Terminals
BK9050	Ethernet TCP/IP "Compact" Bus Coupler for up to 64 Bus Terminals (255 with K-bus extension)
CX8090	Ethernet Embedded PC

System	
Ethernet TCP/IP	For further Ethernet TCP/IP products please see the system overview