Ethernet and USB connection

DVI connection

Multi optional interface (e.g. RS232, PROFIBUS, CANopen)

Status LEDs
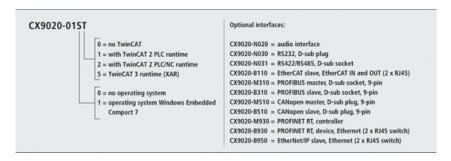
Battery compartment (behind the flap)

2 x MicroSD

ⓘ CX9020 | Basic CPU module

The CX9020 is a compact, DIN rail-mountable Ethernet control system with 1 GHz ARM Cortex™-A8 CPU. The connection for the Beckhoff I/O systems is directly integrated into the CPU module. The unit offers automatic bus system identification (K-bus or E-bus) and independently switches in the corresponding mode. The CX9020 comprises the CPU with two microSD card slots, the internal RAM and 128 kB NOVRAM as non-volatile memory. The basic configuration also includes two switched Ethernet RJ45 interfaces, four USB 2.0 interfaces and a DVI-D interface. The RJ45 interfaces are connected to an internal switch and offer a simple option for creating a line topology without the need for additional Ethernet switches. The operating system is Microsoft Windows Embedded Compact 7. TwinCAT automation software transforms a CX9020 system into a powerful PLC and Motion Control system that can be operated with or without visualisation. Optionally, the unit can be ordered with a fieldbus, serial or audio interface.

The extended operating temperature range between -25 and +60 °C enables application in climatically demanding situations.

Order identifier

The order identifier is derived as follows:

CX9020-01ST

0 = no TwinCAT
1 = with TwinCAT 2 PLC runtime
2 = with TwinCAT 2 PLC/NC runtime
5 = TwinCAT 3 runtime (XAR)

0 = no operating system
1 = operating system Windows Embedded Compact 7

Optional interfaces:
CX9020-N020 = audio interface
CX9020-N030 = RS232, D-sub plug
CX9020-N031 = RS422/RS485, D-sub socket
CX9020-B110 = EtherCAT slave, EtherCAT IN and OUT (2 x RJ45)
CX9020-M310 = PROFIBUS master, D-sub socket, 9-pin
CX9020-B310 = PROFIBUS slave, D-sub socket, 9-pin
CX9020-M510 = CANopen master, D-sub plug, 9-pin
CX9020-B510 = CANopen slave, D-sub plug, 9-pin
CX9020-M930 = PROFINET RT, controller
CX9020-B930 = PROFINET RT, device, Ethernet (2 x RJ45 switch)
CX9020-B950 = EtherNet/IP slave, Ethernet (2 x RJ45 switch)

Technical data	CX9020
Processor	ARM Cortex™-A8, 1 GHz
Number of cores	1
Flash memory	2 x slot for microSD card, 512 MB included (expandable)
Main memory	1 GB DDR3 RAM (not expandable)
Persistent memory	128 KB NOVRAM integrated
Interfaces	2 x RJ45 10/100 Mbit/s (internal switch), 1 x DVI-D, 4 x USB 2.0, 1 x optional interface
Diagnostics LED	1 x power, 1 x TC status, 2 x flash access, 2 x bus status
Clock	internal battery-backed clock for time and date (battery exchangeable)
Operating system	Microsoft Windows Embedded Compact 7, English
Control software	TwinCAT 2 runtime TwinCAT 3 runtime (XAR)
I/O connection	E-bus or K-bus, automatic recognition
Power supply	24 V DC (-15 %/+20 %)
Current supply E-bus/K-bus	2 A
Max. power loss	5 W (including the system interfaces)
Dimensions (W x H x D)	84 mm x 99 mm x 91 mm
Weight	approx. 590 g
Operating/storage temperature	-25…+60 °C/-40…+85 °C

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
Protection class	IP 20
Approvals/markings	CE, UL, ATEX, GL, IECEx
Ex-Marking	II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIC T135 °C Dc Ex nA IIC T4 Gc Ex tc IIIC T135 °C Dc
TC3 performance class	Economy Plus (30); please see here for an overview of all the TwinCAT 3 performance classes

Ordering information	no operating system	Windows Embedded Compact 7	no TwinCAT	TwinCAT 2 PLC runtime	TwinCAT 2 NC PTP runtime	TwinCAT 3 runtime (XAR)
CX9020-0100	x*	–	x	–	–	–
CX9020-0110	–	x	x	–	–	–
CX9020-0111	–	x	–	x	–	–
CX9020-0112	–	x	–	–	x	–
CX9020-0115	–	x	–	–	–	x

*only suitable for Linux (no Windows CE is possible)

Accessories	
CX9020-U900	internal, capacitive 1-second UPS to ensure secure backup of persistent application data on the microSD card
CX2900-0107	Device modification for CX5120, CX5130, CX5140 and CX9020 Embedded PCs according to the requirements for ATEX and IECEx certification. The modification is mandatory for the usage of CX5120, CX5130, CX5140 and CX9020 in hazardous areas, Zone 2/22. It includes the modification and repositioning of the device label as well as a mounting bracket installed ex works for mechanical locking of the connectors. Product labeling: ATEX: II 3 G Ex nA IIC T4 Gc and II 3 D Ex tc IIIC T135 °C Dc IECEx: Ex nA IIC T4 Gc and Ex tc IIIC T135 °C Dc Read the device documentation for use in hazardous areas carefully.

Optional interfaces	
CX9020-N020	audio interface, 3 x 3.5 mm jack sockets, Line In, Mic In, Line Out
CX9020-N030	RS232 interface, D-sub plug, 9-pin
CX9020-N031	RS485 interface, D-sub socket, 9-pin, configuration as an end point, without echo, termination on
CX9020-N031-0001	RS485 interface, D-sub socket, 9-pin, configuration as an end point, with echo, termination on
CX9020-N031-0002	RS485 interface, D-sub socket, 9-pin, configuration as drop point, without echo, termination off
CX9020-N031-0003	RS485 interface, D-sub socket, 9-pin, configuration as drop point, with echo, termination off
CX9020-N031-0004	RS422 interface, D-sub socket, 9-pin, configuration as full duplex end point, termination on
CX9020-B110	EtherCAT slave interface, EtherCAT IN and OUT (2 x RJ45)
CX9020-M310	PROFIBUS master interface, D-sub socket, 9-pin
CX9020-B310	PROFIBUS slave interface, D-sub socket, 9-pin
CX9020-M510	CANopen master interface, D-sub plug, 9-pin
CX9020-B510	CANopen slave interface, D-sub plug, 9-pin
CX9020-M930	PROFINET RT, controller interface, Ethernet (2 x RJ45)
CX9020-B930	PROFINET RT, device interface, Ethernet (2 x RJ45 switched)
CX9020-B950	EtherNet/IP slave interface, Ethernet (2 x RJ45 switched)

i Product announcement	CX9020-011T, CX9020-N0xx, CX9020-x310, CX9020-x510, CX9020-x930, CX9020-B110: available CX9020-B950: estimated market release on request