



## i 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.

The order identifier of the basic CPU module is derived as follows:

<p><b>CX9020-01ST</b></p> <ul style="list-style-type: none"> <li>0 = no TwinCAT</li> <li>1 = with TwinCAT 2 PLC runtime</li> <li>2 = with TwinCAT 2 PLC/NC runtime</li> <li>5 = TwinCAT 3 runtime (XAR)</li> </ul> <ul style="list-style-type: none"> <li>0 = no operating system</li> <li>1 = operating system Windows Embedded Compact 7</li> </ul>	<p><b>Optional interfaces:</b></p> <ul style="list-style-type: none"> <li>CX9020-N020 = audio interface</li> <li>CX9020-N030 = RS232, D-sub plug</li> <li>CX9020-N031 = RS422/RS485, D-sub socket</li> <li>CX9020-B110 = EtherCAT slave, EtherCAT IN and OUT (2 x RJ45)</li> <li>CX9020-M310 = PROFIBUS master, D-sub socket, 9-pin</li> <li>CX9020-B310 = PROFIBUS slave, D-sub socket, 9-pin</li> <li>CX9020-M510 = CANopen master, D-sub plug, 9-pin</li> <li>CX9020-B510 = CANopen slave, D-sub plug, 9-pin</li> <li>CX9020-M930 = PROFINET RT, controller</li> <li>CX9020-B930 = PROFINET RT, device, Ethernet (2 x RJ45 switch)</li> <li>CX9020-B950 = EtherNet/IP slave, Ethernet (2 x RJ45 switch)</li> </ul>
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Technical data	CX9020
Processor	ARM Cortex™-A8, 1 GHz
Number of cores	1
Flash memory	512 MB microSD (optionally expandable), 2 x microSD card slot
Internal main memory	1 GB DDR3 RAM
Persistent memory	128 KB NOVRAM integrated
Interfaces	2 x RJ45 (Ethernet, internal switch), 10/100 Mbit/s, 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 3, TwinCAT 2 PLC runtime, NC PTP runtime
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	CE, UL, Ex, GL, IECEx
TC3 performance class	economy plus (30); please see <a href="#">here</a> 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

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 fulfillment of ATEX Certification II 3 G Ex nA II T4 Gc and II 3 D Ex tc IIIC T135 °C Dc for CX5120, CX5130, CX5140 and CX9020: This option includes the modification and repositioning of the device label as well as a pre-mounted wire bow. The modification is a mandatory prerequisite for usage in hazardous areas as covered by the before mentioned certificate for ATEX Zone 2/22. Please also read the 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)

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