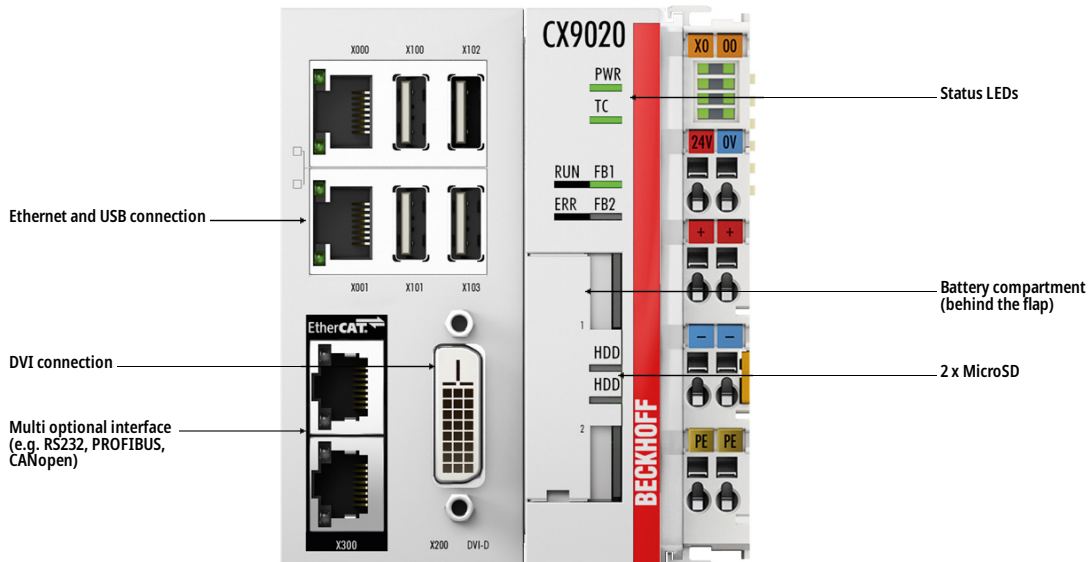


# CX9020 | Basic CPU module



**i Product status:** Regular delivery

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 (E-bus or K-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.

## Product information

### Technical Data

| 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                          | Windows Embedded Compact 7, English                                                                                                                                                                            |
| Control software                          | TwinCAT 2 runtime<br>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 consumption                    | 5 W                                                                                                                                                                                                            |
| Max. power consumption (with loading UPS) | 9 W                                                                                                                                                                                                            |
| 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, DNV GL, IECEx, cFMus                                                                                                                                                                             |
| Ex marking                                | ATEX:<br>II 3 G Ex nA IIC T4 Gc<br>II 3 D Ex tc IIIC T135 °C Dc<br>IECEx:<br>Ex nA IIC T4 Gc<br>Ex tc IIIC T135 °C Dc<br>cFMus:<br>Class I, Division 2, Groups A, B, C, D<br>Class I, Zone 2, AEx ec IIC T4 Gc |
| TwinCAT 3 platform level                  | Economy Plus (30); please see <a href="#">here</a> for an overview of all the TwinCAT 3 platform level                                                                                                         |

## Ordering Information

| Ordering information |                                                      |
|----------------------|------------------------------------------------------|
| CX9020-0100          | no TwinCAT                                           |
| CX9020-0110          | Windows Embedded Compact 7, no TwinCAT               |
| CX9020-0111          | Windows Embedded Compact 7, TwinCAT 2 PLC runtime    |
| CX9020-0112          | Windows Embedded Compact 7, TwinCAT 2 NC PTP runtime |
| CX9020-0115          | Windows Embedded Compact 7, TwinCAT 3 runtime (XAR)  |

CX9020-0100: only suitable for Linux (no Windows CE is possible), for further information see <http://github.com/beckhoff>

TwinCAT 3 runtime (XAR) is preinstalled, without licenses. Please order TwinCAT 3 licenses separately from the TwinCAT 3 Price List.

## Options

| Options     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CX9020-U900 | internal, capacitive 1-second UPS to ensure secure backup of persistent application data on the microSD card                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| CX1900-0123 | 1 GB microSD card, instead of 512 MB microSD card                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| CX1900-0125 | 2 GB microSD card, instead of 512 MB microSD card                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| CX1900-0127 | 4 GB microSD card, instead of 512 MB microSD card                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| CX1900-0129 | 8 GB microSD card, instead of 512 MB microSD card                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| CX2900-0107 | <p>Device modification for CX5120, CX5130, CX5140 and CX9020 Embedded PCs according to the requirements for ATEX, IECEx and FM certification. The modification is mandatory for the usage of CX5120, CX5130, CX5140 and CX9020 in hazardous areas, Zone 2/22 respectively Class I, Div. 2.</p> <p>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.</p> <p>Product labeling:<br/>           ATEX: II 3 G Ex nA IIC T4 Gc and II 3 D Ex tc IIIC T135 °C Dc<br/>           IECEx: Ex nA IIC T4 Gc and Ex tc IIIC T135 °C Dc<br/>           cFMus: CL I, DIV 2. GP A, B, C, D und CL I, Zn 2 AEx/Ex ec IIC T4 Gc<br/>           Read the device documentation for use in hazardous areas carefully.</p> |

| 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 (RXD, TXD, RTS, CTS)                                           |
| 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 switch)                                     |
| CX9020-B930         | PROFINET RT, device interface, Ethernet (2 x RJ45 switched)                                       |

CX9020-B950

EtherNet/IP adapter interface, Ethernet (2 x RJ45 switched)  
Availability: on request

## Accessories

| Accessories |                                                                                                                                                                         |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CX1900-0102 | Spare battery suitable for CX10x0, CX81x0, CX50x0, CX51x0, CX52x0, CX90x0, CX20xx<br>– lithium button cell type CR2032, 3V/225 mAh<br>– follow polarity when installing |
| CX1900-0122 | 512 MB microSD card                                                                                                                                                     |
| CX1900-0124 | 1 GB microSD card                                                                                                                                                       |
| CX1900-0126 | 2 GB microSD card                                                                                                                                                       |
| CX1900-0128 | 4 GB microSD card                                                                                                                                                       |
| CX1900-0130 | 8 GB microSD card                                                                                                                                                       |