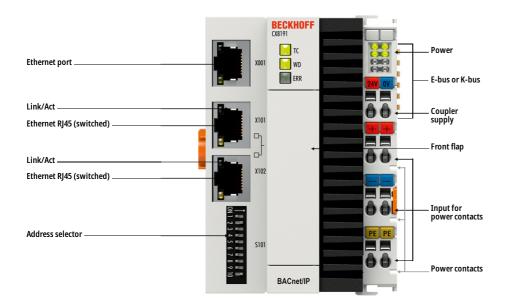
CX8191 https://www.beckhoff.com/cx8191

## CX8191 | Embedded PC with Arm® Cortex®-A9 and BACnet/IP





(i) Image similar, may contain optional accessories

Product status: regular delivery

The CX8191 is a control system with a switched Ethernet port. It supports the BACnet protocol. E-bus or K-bus terminals can be attached as required; the CX8191 automatically recognizes the type of I/O system connected during the start-up phase.

The control system is programmed with TwinCAT 3 via the fieldbus interface or the additional Ethernet interface. TwinCAT 3 licenses must be ordered via the TwinCAT 3 price list. The BACnet license is already installed on the device and does not need to be ordered separately.

BACnet (Building Automation Control Network) is a standardized, manufacturer-independent communication protocol for <u>building automation</u>. Areas of application include HVAC, lighting control, safety and fire alarm technology.

In conjunction with the EL6861 BACnet-MS/TP terminals, the CX8191 can act as a router to MS/TP networks including support for several MS/TP networks.

Further TwinCAT 3 functions and protocols are available for the CX8191, for example OPC UA, MQTT, Modbus TCP or Modbus RTU. All functions and protocols can be found in the <u>TwinCAT product finder</u> if you set the filter under TwinCAT 3 platform level to P20.

The CX8191 is a virtually universal device that can be used very flexibly, from control tasks through to gateway functions.

## **Product information**

Technical data



CX8191 https://www.beckhoff.com/cx8191

Processor         Arm% Cortex®.A9, 800 MHz           Number of cores         1           Flash memory         slot for microSD card, 512 MB included (optionally expandable)           Main memory         512 MB DDR3 RAM (not expandable)           1-second UPS         integrated (1 MB on microSD card)           Interfaces         1 x R/45 10/100 Mbit/s, 1 x bus interface           Cooling         passive           Bus interface         2 x R/45 (switched)           Data transferrates         100 Mbit/s           Clock         internal battery-backed clock for time and date (battery behind the front flap, exchangeable)           Operating system         Windows Embedded Compact 7           Control software         TwinCAT 3 runtime (XAR)           I/O connection         E-bus or K-bus, automatic recognition           Ower supply E-bus/K-bus         2 A           Max. power consumption (with loading UPS)         9 W           Max. power consumption (with loading UPS)         10 W (5 V/max. 2 A)           Dimensions (W x H x D)         7 1 mm x 100 mm x 73 mm           Weight         approx. 230 g           Operating temperature         40+85°C           Storage temperature         40+85°C           Relative humidity         95%, no condensation           Vibration/s	Technical data	CX8191
Number of cores         1           Flash memory         slot for microSD card, 512 MB included (optionally expandable)           Main memory         512 MB DDR3 RAM (not expandable)           1-second UPS         integrated (1 MB on microSD card)           Interfaces         1 x RJ45 10/100 Mbit/s, 1 x bus interface           Cooling         passive           Bus interface         2 x RJ45 (switched)           Data transferrates         100 Mbit/s           Diagnostics LED         1 x TC status, 1 x WD, 1 x error           Clock         internal battery-backed clock for time and date (battery behind the front flap, exchangeable)           Operating system         Windows Embedded Compact 7           Control software         TwinCAT 3 runtime (XAR)           VO connection         E-bus or K-bus, automatic recognition           Power supply         2 4 V DC (-15%/+20%)           Current supply E-bus/K-bus         2 A           Max power consumption (with loading UPS)         3 W           Max power consumption E-bus/K-bus         10 W (5 V/max. 2 A)           Dimensions (W xH x D)         7 1 mm x 100 mm x 73 mm           Weight         approx. 230 g           Operating temperature         4 0+85°C           Storage temperature         95%, no condensation <th< td=""><td></td><td></td></th<>		
Flash memory         slot for microSD card, 512 MB Included (optionally expandable)           Main memory         512 MB DDR3 RAM (not expandable)           1-second UPS         integrated (1 MB on microSD card)           Interfaces         1 x RJ45 10/100 Mbit/s, 1 x bus interface           Cooling         2 x RJ45 (switched)           Bus interface         2 x RJ45 (switched)           Data transfer rates         100 Mbit/s           Diagnostics LED         1 x TC status, 1 x WD, 1 x error           Clock         cknangeable)           Operating system         Windows Embedded Compact 7           Control software         TwinCAT 3 runtime (XAR)           VO connection         Ebus or K-bus, automatic recognition           Power supply         2 4 V DC (-15%/+20%)           Current supply E-bus/K-bus         2 A           Max power consumption (with loading UPS)         9 W           Max power consumption E-bus/K-bus         10 W (5 V/max. 2 A)           Dimensions (W x H x D)         7 1 mm x 100 mm x 73 mm           Weight         approx. 230 g           Operating temperature         -25+60°C           Storage temperature         40+85°C           Relative humidity         95%, no condensation           Vibration/shock resistance         conforms to		
Main memory         512 MB DR3 RAM (not expandable)           1-second UPS         integrated (1 MB on microSD card)           Interfaces         1 x RJ45 10/100 Mbit/s, 1 x bus interface           Cooling         passive           Bus interface         2 x RJ45 (switched)           Data transferrates         100 Mbit/s           Diagnostics LED         1 x TC status, 1 x WD, 1 x error           Clock         internal battery-backed clock for time and date (battery behind the front flap, each can geable)           Operating system         Windows Embedded Compact 7           Control software         TwinCAT3 runtime (XAR)           I/O connection         E-bus or K-bus, automatic recognition           Power supply         2 4 V DC (-15%/+20%)           Current supply E-bus/K-bus         2 A           Max. power consumption (with loading)         9 W           Max. power consumption (with loading)         9 W           Max. power consumption (with loading)         10 W (5 V/max. 2 A)           Dimensions (W x H x D)         71 mm x 100 mm x 73 mm           Weight         approx. 230 g           Operating temperature         40+85°C           Storage temperature         40+85°C           Relative humidity         95%, no condensation           Vibration/shock resi		
1-second UPS         integrated (1 MB on microSD card)           Interfaces         1 x RJ45 10/100 Mbit/s, 1 x bus interface           Cooling         passive           Bus interface         2 x RJ45 (switched)           Data transferrates         100 Mbit/s           Diagnostics LED         1 x TC status, 1 x WD, 1 x error           Clock         internal battery-backed clock for time and date (battery behind the front flap, exchangeable)           Operating system         Windows Embedded Compact 7           Control software         TwinCAT3 runtime (XAR)           I/O connection         E-bus or K-bus, automatic recognition           Power supply         2 4 V DC (-15%/+20%)           Current supply E-bus/K-bus         2 A           Max. power consumption (with loading purples)         9 W           Max. power consumption (with loading purples)         9 W           Max. power consumption (with loading purples)         10 W (5 V/max. 2 A)           Dimensions (W x H x D)         71 mm x 100 mm x 73 mm           Weight         approx. 230 g           Operating temperature         40+85°C           Storage temperature         40+85°C           Relative humidity         95%, no condensation           Vibration/shock resistance         conforms to EN 60068-2-6/EN 60068-2-27 <td>Flash memory</td> <td>slot for microSD card, 512 MB included (optionally expandable)</td>	Flash memory	slot for microSD card, 512 MB included (optionally expandable)
Interfaces 1 x RJ45 10/100 Mbit/s, 1 x bus interface  Cooling passive  Bus interface 2 x RJ45 (switched)  Data transfer rates 100 Mbit/s  Diagnostics LED 1 x TC status, 1 x WD, 1 x error  Clock internal battery-backed clock for time and date (battery behind the front flap, exchangeable)  Operating system Windows Embedded Compact 7  Control software TwinCAT 3 runtime (XAR)  1/O connection E-bus or K-bus, automatic recognition  Power supply E-bus/K-bus 2 A  Max. power consumption 4 W  Max. power consumption (with loading UPS)  Max. power consumption (with loading UPS)  Max. power consumption E-bus/K-bus 10 W (5 V/max. 2 A)  Dimensions (W x H x D) 7 t mm x 100 mm x 73 mm  Weight approx. 230 g  Operating temperature 25+60°C  Storage temperature 40+85°C  Relative humidity 59%, no condensation  Wibration/shock resistance conforms to EN 60068-2-6/EN 60068-2-27  EMC immunity/emission 1P20  Approvals/markings CE, UL	Main memory	512 MB DDR3 RAM (not expandable)
CoolingpassiveBus interface2 x RJ45 (switched)Data transfer rates100 Mbit/sDiagnostics LED1 x TC status, 1 x WD, 1 x errorClockinternal battery-backed clock for time and date (battery behind the front flap, exchangeable)Operating systemWindows Embedded Compact 7Control softwareTwinCAT 3 runtime (XAR)L/O connectionE-bus or K-bus, automatic recognitionPower supply24 V DC (-15%/+20%)Current supply E-bus/K-bus2 AMax. power consumption4 WMax. power consumption (with loading UPS)9 WMax. power consumption E-bus/K-bus10 W (5 V/max. 2 A)Dimensions (W x Hx D)71 mm x 100 mm x 73 mmWeightapprox. 230 gOperating temperature-25+60°CStorage temperature-40+85°CRelative humidity95%, no condensationVibration/shock resistanceconforms to EN 60068-2-6/EN 60068-2-27EMC immunity/emissionconforms to EN 60068-2-6/EN 60068-2-27Fortection ratingIP20Approvals/markingsCE, UL	1-second UPS	integrated (1 MB on microSD card)
Bus interface         2 x RJ45 (switched)           Data transfer rates         100 Mbit/s           Diagnostics LED         1 x TC status, 1 x WD, 1 x error           Clock         internal battery-backed clock for time and date (battery behind the front flap, exchangeable)           Operating system         Windows Embedded Compact 7           Control software         TwinCAT 3 runtime (XAR)           I/O connection         E-bus or K-bus, automatic recognition           Power supply         2 4 V DC (-15%/+20%)           Current supply E-bus/K-bus         2 A           Max. power consumption         4 W           Max. power consumption (with loading UPS)         9 W           Max. power consumption E-bus/K-bus         10 W (5 V/max. 2 A)           Dimensions (W x H x D)         71 mm x 100 mm x 73 mm           Weight         approx. 230 g           Operating temperature         40+85°C           Storage temperature         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 600068-2-(EN 61000-6-4)           Protection rating         1P20           Approvals/markings         CE, UL	Interfaces	1 x RJ45 10/100 Mbit/s, 1 x bus interface
Data transfer rates         10 0 Mbit/s           Diagnostics LED         1 x TC status, 1 x WD, 1 x error           Clock         internal battery-backed clock for time and date (battery behind the front flap, exchangeable)           Operating system         Windows Embedded Compact 7           Control software         TwinCAT 3 runtime (WAR)           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         4 W           Max. power consumption (with loading UPS)         9 W           Max. power consumption E-bus/K-bus         10 W (5 V/max. 2 A)           Dimensions (W x H x D)         71 mm x 100 mm x 73 mm           Weight         approx. 230 g           Operating temperature         -25+60°C           Storage temperature         -40+85°C           Relative humidity         95%, no condensation           Vibration/shock resistance         conforms to EN 60068-2-6/EN 60068-2-7           EMC immunity/emission         conforms to EN 60068-2-6/EN 60066-2-4/EN 60066-2-	Cooling	passive
Diagnostics LED  1 x TC status, 1 x WD, 1 x error  Clock  internal battery-backed clock for time and date (battery behind the front flap, exchangeable)  Operating system  Windows Embedded Compact 7  Control software  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  Awax. power consumption  Wax. power consumption  Wax. power consumption (with loading UPS)  Max. power consumption (with loading UPS)  Max. power consumption E-bus/K-bus  10 W (5 V/max. 2 A)  Dimensions (W x H x D)  71 mm x 100 mm x 73 mm  Weight  Approx. 230 g  Operating temperature  -25+60°C  Storage temperature  -40+85°C  Relative humidity  95%, no condensation  Vibration/shock resistance  conforms to EN 60068-2-6/EN 60068-2-27  EMC immunity/emission  protection rating  IP20  Approvals/markings  LE ULL  I m x 100 max 2 A  LE ULL  I m x 1	Bus interface	2 x RJ45 (switched)
Clock       internal battery-backed clock for time and date (battery behind the front flap, exchangeable)         Operating system       Windows Embedded Compact 7         Control software       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       4 W         Max. power consumption (with loading UPS)       9 W         Max. power consumption E-bus/K-bus       10 W (5 V/max. 2 A)         Dimensions (W x H x D)       71 mm x 100 mm x 73 mm         Weight       approx. 230 g         Operating temperature       -25+60°C         Storage temperature       -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 rating       IP20         Approvals/markings       CE, UL	Data transfer rates	100 Mbit/s
Clockexchangeable)Operating systemWindows Embedded Compact 7Control softwareTwinCAT 3 runtime (XAR)I/O connectionE-bus or K-bus, automatic recognitionPower supply24 V DC (-15%/+20%)Current supply E-bus/K-bus2 AMax. power consumption4 WMax. power consumption (with loading UPS)9 WDimensions (W x H x D)71 mm x 100 mm x 73 mmWeightapprox. 230 gOperating temperature-25+60°CStorage temperature40+85°CRelative humidity95%, no condensationVibration/shock resistanceconforms to EN 60068-2-6/EN 60068-2-27EMC immunity/emissionconforms to EN 61000-6-2/EN 61000-6-4Protection ratingIP20Approvals/markingsCE, UL	Diagnostics LED	1 x TC status, 1 x WD, 1 x error
Control software  I/O connection  E-bus or K-bus, automatic recognition  Power supply  24 V DC (-15%/+20%)  Current supply E-bus/K-bus  Awx. power consumption  Max. power consumption (with loading UPS)  Max. power consumption E-bus/K-bus  10 W (5 V/max. 2 A)  Dimensions (W x H x D)  71 mm x 100 mm x 73 mm  Weight  approx. 230 g  Operating temperature  -25+60°C  Storage temperature  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 rating  Approvals/markings  TwinCAT 3 runtime (XAR)  E-bus or K-bus, automatic recognition  10 W (5 V/max. 2 A)  10 W (5	Clock	
I/O connection  Power supply  24 V DC (-15%/+20%)  Current supply E-bus/K-bus  Awx. power consumption  4 W  Max. power consumption (with loading UPS)  Max. power consumption E-bus/K-bus  10 W (5 V/max. 2 A)  Dimensions (W x H x D)  71 mm x 100 mm x 73 mm  Weight  approx. 230 g  Operating temperature  25+60°C  Storage temperature  4-0+85°C  Relative humidity  95%, no condensation  Vibration/shock resistance  conforms to EN 60068-2-6/EN 60068-2-27  EMC immunity/emission  Protection rating  H20  Approvals/markings  Ebus or K-bus, automatic recognition  4 W DC (-15%/+20%)  A W DC (-15%/+20%)  A W C (-15%/+20%)	Operating system	Windows Embedded Compact 7
Power supply 24 V DC (-15%/+20%) Current supply E-bus/K-bus 2 A  Max. power consumption 4 W  Max. power consumption (with loading UPS)  Max. power consumption E-bus/K-bus 10 W (5 V/max. 2 A)  Dimensions (W x H x D) 7 1 mm x 100 mm x 73 mm  Weight approx. 230 g  Operating temperature 2-5+60°C  Relative humidity 95%, no condensation  Vibration/shock resistance conforms to EN 60068-2-6/EN 60068-2-27  EMC immunity/emission Protection rating 1P20  Approvals/markings  24 V DC (-15%/+20%) 1 A  Weight 10 W (5 V/max. 2 A) 10 W (5 V/max. 2 A) 11 mm x 100 mm x 73 mm 12 mm x 1	Control software	TwinCAT 3 runtime (XAR)
Current supply E-bus/K-bus 2 A  Max. power consumption (with loading VPS) 9W  Max. power consumption E-bus/K-bus 10 W (5 V/max. 2 A)  Dimensions (W x H x D) 71 mm x 100 mm x 73 mm  Weight approx. 230 g  Operating temperature -25+60°C  Storage temperature -40+85°C  Relative humidity 95%, no condensation  Vibration/shock resistance conforms to EN 60068-2-6/EN 60068-2-27  EMC immunity/emission 1P20  Approvals/markings CE, UL	I/O connection	E-bus or K-bus, automatic recognition
Max. power consumption4 WMax. power consumption (with loading UPS)9 WMax. power consumption E-bus/K-bus10 W (5 V/max. 2 A)Dimensions (W x H x D)71 mm x 100 mm x 73 mmWeightapprox. 230 gOperating temperature-25+60°CStorage temperature-40+85°CRelative humidity95%, no condensationVibration/shock resistanceconforms to EN 60068-2-6/EN 60068-2-27EMC immunity/emissionconforms to EN 61000-6-2/EN 61000-6-4Protection ratingIP20Approvals/markingsCE, UL	Powersupply	24 V DC (-15%/+20%)
Max. power consumption (with loading UPS)9 WMax. power consumption E-bus/K-bus10 W (5 V/max. 2 A)Dimensions (W x H x D)71 mm x 100 mm x 73 mmWeightapprox. 230 gOperating temperature-25+60°CStorage temperature-40+85°CRelative humidity95%, no condensationVibration/shock resistanceconforms to EN 60068-2-6/EN 60068-2-27EMC immunity/emissionconforms to EN 61000-6-2/EN 61000-6-4Protection ratingIP20Approvals/markingsCE, UL	Current supply E-bus/K-bus	2 A
Max. power consumption E-bus/K-bus 10 W (5 V/max. 2 A)  Dimensions (W x H x D) 71 mm x 100 mm x 73 mm  Weight approx. 230 g  Operating temperature -25+60°C  Storage temperature -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 rating IP20  Approvals/markings CE, UL	Max. power consumption	4 W
Dimensions (W x H x D) 71 mm x 100 mm x 73 mm  Weight approx. 230 g  Operating temperature -25+60°C  Storage temperature -40+85°C  Relative humidity 95%, no condensation  Vibration/shock resistance conforms to EN 60068-2-6/EN 60068-2-27  EMC immunity/emission protection rating IP20  Approvals/markings  71 mm x 100 mm x 73 mm  71 mm x 100 mm x 73 mm  Approx. 230 g  Conforms x 230 g  Approx. 25+60°C  Approx. 25		9 W
Weightapprox. 230 gOperating temperature-25+60°CStorage temperature-40+85°CRelative humidity95%, no condensationVibration/shock resistanceconforms to EN 60068-2-6/EN 60068-2-27EMC immunity/emissionconforms to EN 61000-6-2/EN 61000-6-4Protection ratingIP20Approvals/markingsCE, UL	Max. power consumption E-bus/K-bus	10 W (5 V/max. 2 A)
Operating temperature -25+60°C  Storage temperature -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 rating IP20  Approvals/markings CE, UL	Dimensions (W x H x D)	71 mm x 100 mm x 73 mm
Storage temperature -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 rating IP20  Approvals/markings CE, UL	Weight	approx. 230 g
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 rating IP20  Approvals/markings CE, UL	Operating temperature	-25+60°C
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 rating IP20  Approvals/markings CE, UL	Storage temperature	-40+85°C
EMC immunity/emission conforms to EN 61000-6-2/EN 61000-6-4  Protection rating IP20 Approvals/markings CE, UL	Relative humidity	95%, no condensation
Protection rating IP20 Approvals/markings CE, UL	Vibration/shock resistance	conforms to EN 60068-2-6/EN 60068-2-27
Approvals/markings CE, UL	EMC immunity/emission	conforms to EN 61000-6-2/EN 61000-6-4
	Protection rating	IP20
	Approvals/markings	CE, UL
<b>TwinCAT 3 platform level</b> Economy (20); please see <a href="here">here</a> for an overview of all the TwinCAT 3 platform level	TwinCAT 3 platform level	Economy (20); please see <a href="here">here</a> for an overview of all the TwinCAT 3 platform level

The end date of the extended support for the operating system Microsoft Windows Embedded Compact 7 has already passed. Up-to-date security updates can no longer be provided. TwinCAT is only supported up to build 4024.

## Options



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Options	
CX1900-0123	1 GB microSD card, instead of 512 MB microSD card*
CX1900-0125	2 GB microSD card, instead of 512 MB microSD card*
CX1900-0131	16 GB microSD card, instead of 512 MB microSD card*

<sup>\*</sup>Only available as flash memory extension in combination with a CX CPU module on order. Suitable for CX7xxx, CX80xx, CX81xx, CX9020.

## Accessories

Accessories	
CX1900-0122	512 MB microSD card
CX1900-0124	1 GB microSD card
CX1900-0126	2 GB microSD card
CX1900-0132	16 GB microSD card
ZK1090-9191-0xxx	RJ45, plug, straight, male, 8-pin – RJ45, plug, straight, male, 8-pin
ZK1093-9191-0xxx	RJ45, plug, straight, male, 8-pin – RJ45, plug, straight, male, 8-pin
BZ1xxx	100 contact labels, various colors, pre-printed
BZ2xxx	100 contact labels, various colors, blank