Beckhoff — CX Embedded PC Systems

CX8190



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The **CX8190** is an Embedded PC manufactured by Beckhoff within the CX Embedded PC Systems series. It combines a compact controller, I/O interface, and power supply in one unit so that it can execute PLC logic and HMI tasks while handling fieldbus communication on a DIN rail. In industrial automation, it replaces separate CPU and gateway modules by executing deterministic user programs directly next to the K-bus or E-bus terminal rows and forwarding process data to higher-level networks.

An Arm Cortex-A9 processor operates at **800 MHz** and uses a single core, enabling control cycles for machines that do not require multithreaded execution. The main memory is **512 MB DDR3 RAM**; volatile data are stored in fast SDRAM, while configuration files reside on a **512 MB microSD** flash card. Passive cooling removes heat without fans, and the housing measures 71 × 100 × 73 mm. The controller accepts a **24 VDC** supply and draws only **4 W** during normal operation, rising to 9 W when the integrated UPS is active. Up to 2 A passes through the internal I/O rail, and 10 W at 5 V and 2 A is available for E-bus or K-bus terminals. A single RJ45 socket and the built-in Ethernet fieldbus interface connect the unit to the plant network, while bus selection occurs automatically according to the terminal coupler detected at startup.

The minimum PLC task time is **500 µs**, allowing tight control loops through RT-Ethernet, ADS UDP, ADS TCP, EAP, and Web Services. An enclosure rating of **IP20** suits protected cabinets, and the Ethernet port supports communication at **10/100 Mbit/s**. Programming follows the IEC 61131-3 standard, so ladder logic, function block, and structured text languages can be used. The UPS supports the control logic for one second and stores 1 MB of

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process data on the same microSD card, protecting state variables during brownouts. The unit has a total mass of **230 g**, which keeps the load on the DIN rail low while passive convection removes operating heat.

Specifications

Cooling:	Passive	**Cpu Clock:**	800 MHz	**Cpu Cores:**	1
Dimensions (w X H X D):	71 x 100 x 73 mm	**Ethernet Port:**	1 x RJ45	**Ethernet Rate:**	10/100 Mbit/s
Fieldbus Interface:	Ethernet	**Fieldbus Protocols:**	RT-Ethernet, ADS UDP, ADS TCP, EAP, Web Services	**Flash Memory:**	512 MB microSD
I/o Supply:	2 A	**Main Memory:**	512 MB DDR3-RAM	**Max E-bus/k-bus Power:**	10 W (5 V/max. 2 A)
Max Power Consumption:	4 W	**Max Power Draw:**	4 W	**Max Power Draw With Ups:**	9 W
Minimum Task Time:	500 µs	**Power Supply:**	24 VDC	**Processor:**	Arm Cortex-A9
Programming Standard:	IEC 61131-3	**Protection Rating:**	IP20	**Terminal Bus:**	K-bus or E-bus
Ups Buffer Time:	1 s	**Ups Memory:**	Integrated, 1 MB on microSD card	**Ups Storage:**	1 MB on microSD
Weight:	230 g	**Last Verified:**	11/20/2026 10:28 AM		

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