

#### XC300 Small Modular Programmable Logic Controllers



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#### Product Description

The XC300 device series incorporates powerful and flexible PLCs (small controllers) with functional levels that can be modularly expanded via the I/O components of the XN300 system. This enables equipment and systems engineering to implement customized PLC solutions using a minimum amount of space.

The devices have extensive features such as visualization servers (HTML5) and OPC-UA servers. Integrated CAN and Ethernet interfaces enable the segmented access to the most varied of networks, while focusing operations by serving as equipment data nodes. PLC performance and communications requirements can be adapted individually to a given system.

#### Application Description

The XC300 PLC uses a high level of performance for its class, thereby improving equipment productivity. The available interfaces enable communication in various networks, which means that XC300 can be used in a wide range of systems. In addition, the PLC can be simply and flexibly expanded with components of the XN300 I/O system.

As a PLC and a data node, the XC300 allows a flexible, bespoke automation solution for equipment, systems and switch cabinet engineering. With respect to modular machine engineering, this provides a compact solution requiring only a minimum amount of space.

The XC300 has optional three independent Ethernet interfaces that enable the use of different network addresses. Segmenting, encoding and certificate-based transfer secure the equipment against unauthorized access. Additional on-board CAN interfaces and IO channels supplement the functions allowing for universal use.

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#### Features

Programming and web visualization are carried out using CODESYS 3. The communication protocol OPC-UA (OPC Unified Architecture) is used for data exchange with other devices (M2M communication) or the cloud. This allows remote operation and maintenance.

- Operating system: LINUX
- Processor: ARM CORTEX A7 Dual Core at 960 MHz
- Internal memory: 512 MB RAM/ 128 MB flash/ 12 kB NV-RAM
- External memory: SD card
- Programming: CODESYS V3 (PLC and web visualization)
- Real-time clock: available (CAP buffered)
- RUN-/STOP-switch: available

#### Standards and Certifications

- cULus
- CE



**Product Overview**

**XC300 Small Modular Programmable Logic Controllers**



Catalog Number	XC-303-C32-002	XC-303-C21-001	XC-303-C11-000
Operating system	LINUX / NXP / 960 MHz	LINUX / NXP / 960 MHz	LINUX / NXP / 960 MHz
Memory (internal)	512 MB RAM / 128 MB flash / 128 kB NV-RAM	512 MB RAM / 128 MB flash / 128 kB NV-RAM	512 MB RAM / 128 MB flash / 128 kB NV-RAM
Memory (external)	Micro SD (maximum 32 GB)	Micro SD (maximum 32 GB)	Micro SD (maximum 32 GB)
EtherNet/IP	1 x 10/100/1000 MBit/s 2 x 10/100 MBit/s	1 x 10/100/1000 MBit/s 1 x 10/100 MBit/s	— 1 x 10/100 MBit/s
Interface	1 x CANopen (M/S) (iso) 1 x CANopen (M/S) 1 x RS-485 (iso)	1 x CANopen (M/S) (iso) — 1 x RS-485 (iso)	— 1 x CANopen (M/S) —
USB 2.0	1 x USB 2.0 Host (A)	1 x USB 2.0 Host (A)	—
Digital input/output	4 x 24 Vdc / 24 Vdc, 0.5 A	—	—
Real-time clock (RTC)	CAP (buffered)	CAP (buffered)	CAP (buffered)
Backplane	32 modules	32 modules	32 modules

**Product Selection**

The following variants are available:

**XC0-303-C\_ XC300 Small Modular Programmable Logic Controllers**



Description	Catalog Number
CAN1, CAN2, RS-485, ETH0, ETH1, ETH2, USB host, 4 input/output channels (24 Vdc, 0.5 A)	<b>XC-303-C32-002</b>
CAN1, RS-485, ETH1, ETH2, USB host	<b>XC-303-C21-001</b>
CAN2, ETH1	<b>XC-303-C11-000</b>

# 4.1

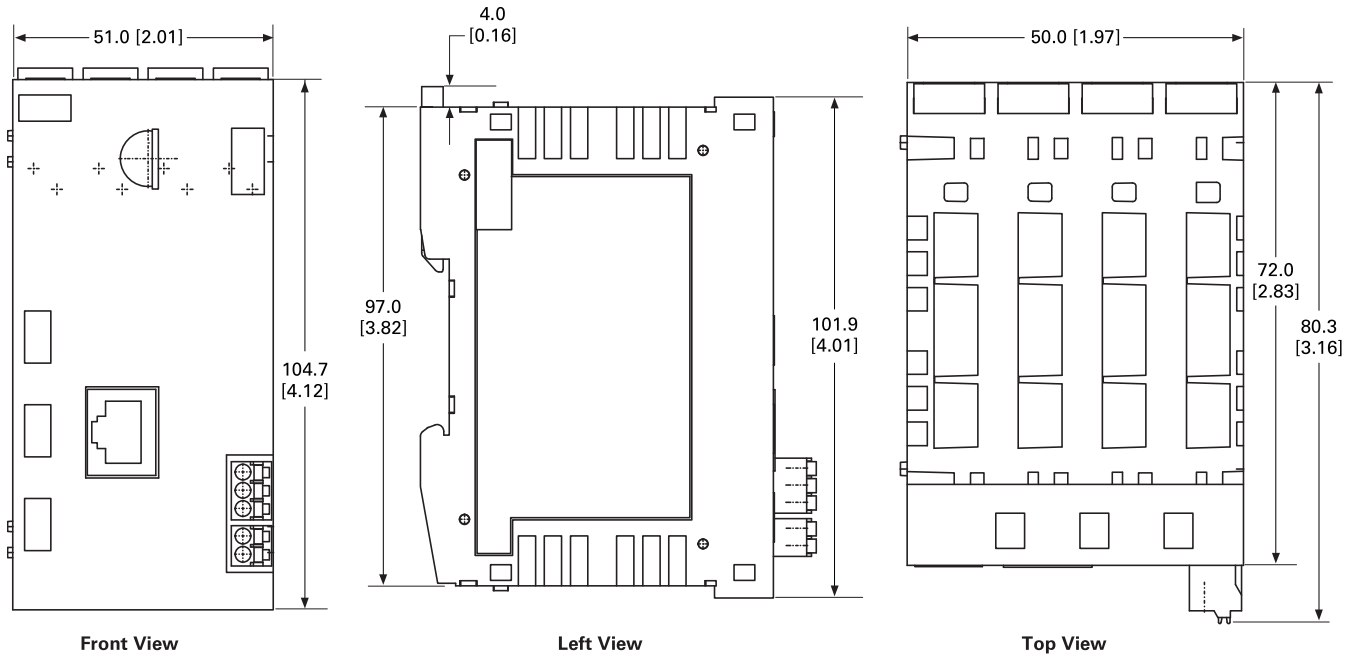
## PLCs, PLC Software and I/O Products

### Programmable Logic Controllers

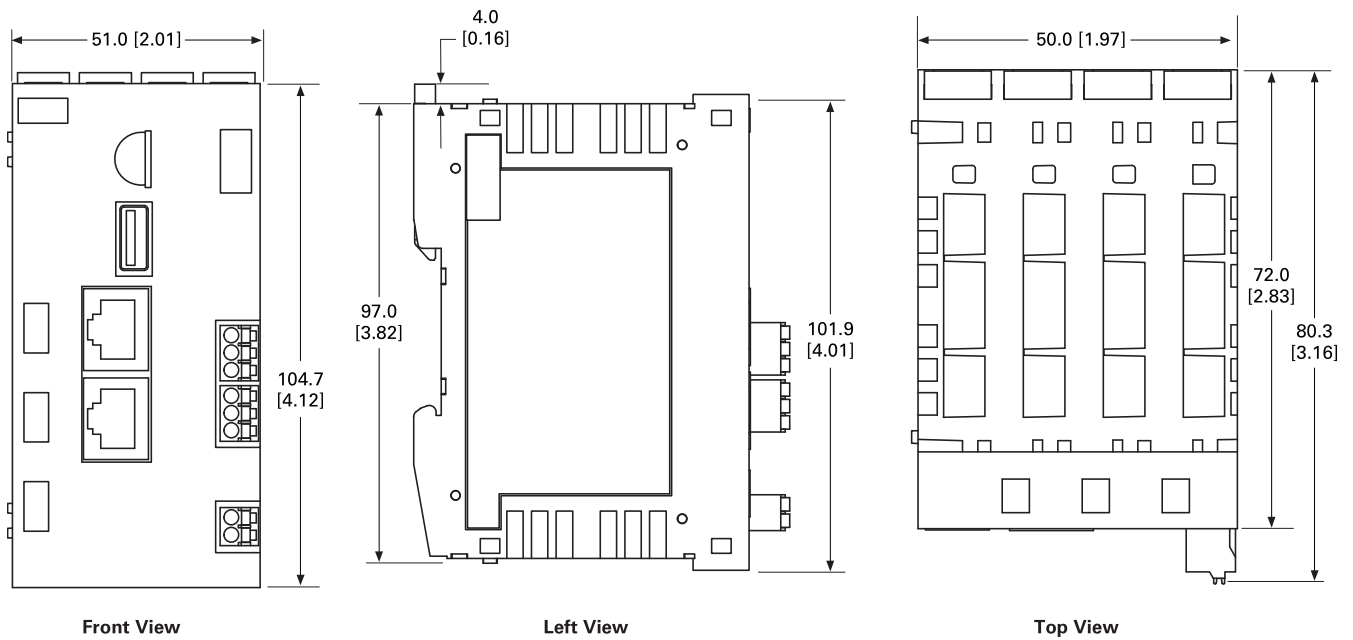
#### Dimensions

Approximate Dimensions in mm [Inches]

#### XC-303-C11-000\_191082

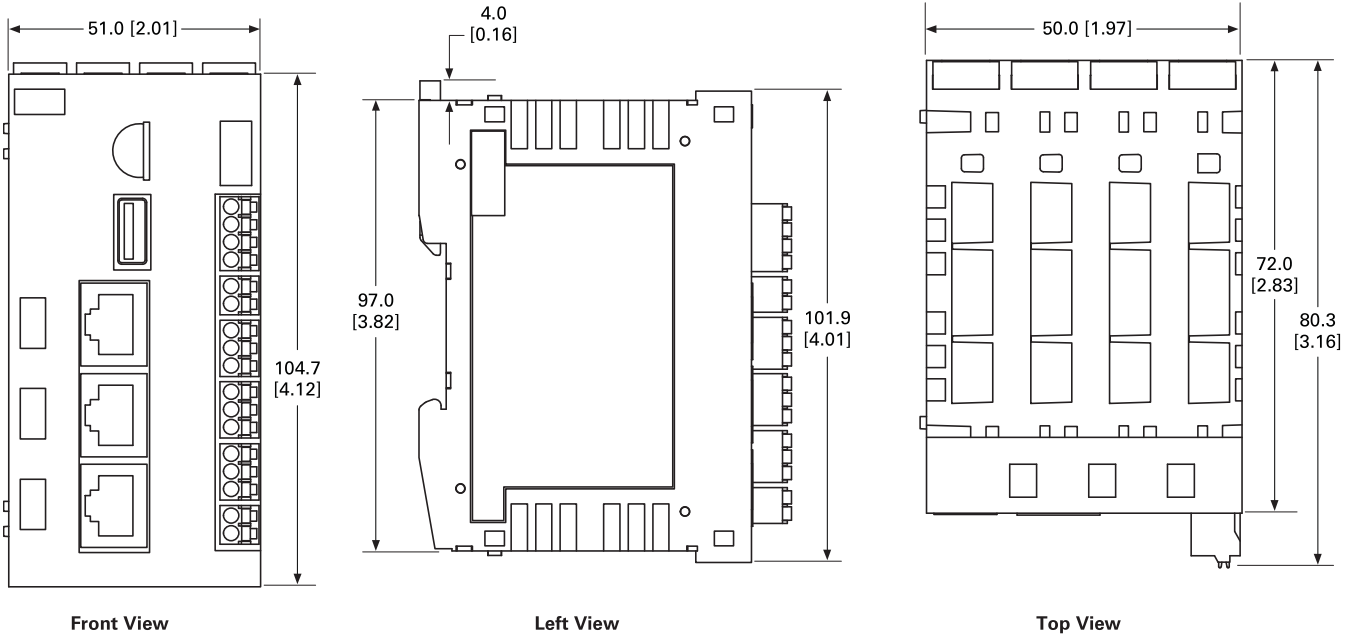


#### XC-303-C21-001\_191081

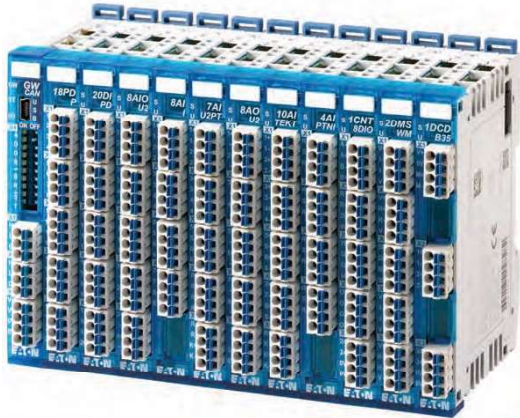


Approximate Dimensions in mm [Inches]

**XC-303-C32-002\_191080**



XN300 Series Remote I/O



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### XN300 Modular and Remote I/O

#### Product Description

The XN300 family of slice I/O modules offers the highest density I/O available on the market today. With a very cost-effective price per I/O point, it meets the needs of machinery OEMs for high-speed, low-cost and compact I/O systems. The CANopen Gateway provides a remote I/O connection that can connect to all Eaton XC PLCs and XV HMI-PLCs as well as many third-party PLCs. The tool-less assembly saves time in connecting modules on a DIN rail and the PUSH-IN technology makes wiring up the I/O a breeze. Status LEDs on all I/O points make it easy to quickly identify any wiring errors and to determine current signal conditions. The free XN300 Assist programming tool helps you to generate and check the I/O configuration and produce both electronic documentation and EDS files to simplify PLC configuration of XN300 I/O.

Coupled with the new XV-300 HMI-PLC, the XN300 I/O products provide a high-powered low-cost system solution for MOEMs. Bundled with Visual Designer and CODESYS 3 on an XV-300 HMI-PLC, you get the smallest, most cost-effective and powerful HMI-PLC and SCADA system available on the market. This industry-leading combination of compact I/O solutions and HMI-PLCs can significantly reduce the overall control panel size, helping MOEMs in the never-ending quest to reduce the size and cost of their machinery.

#### Features

- Efficient—a wide range of discrete and analog input and output modules along with specialty modules focused on solving application needs
- Compact—up to 20 channels per slice (12.5 x 102 mm) helps reduce installation space and cost
- Simple—tool-free assembly with PUSH-IN & plug connection, with simple dismounting of plug connectors
- Fast identification of errors and signal conditions via LED status displays for all points
- Application specific, free, programmable module status LED
- CANopen Gateway connects up to 32 slices per block to connect I/O to both Eaton PLCs and HMI-PLCs and many third-party PLCs. Mini USB port to connect to XN300 Assist
- XN300 Assist software tool to generate electronic documentation and EDS files for PLC configuration

#### Standards and Certifications

- CE Mark
- UL/cUL
- RoHS



## Product Selection

## XN-300



## XN300

Description	Catalog Number
<b>Gateway/Interface</b>	
Gateway to bus system CANopen	XN-312-GW-CAN
<b>Digital Input</b>	
8 inputs, P, 24 Vdc, 5.0 ms	XN-322-8DI-PD
16 inputs, P, 24 Vdc, 5.0 ms	XN-322-16DI-PD
20 inputs, P, 24 Vdc, 5.0 ms	XN-322-20DI-PD
20 inputs, P, 24 Vdc, 0.5 ms	XN-322-20DI-PF
20 inputs, P, 24 Vdc, 2/4 CNT, 25 kHz	XN-322-20DI-PCNT
20 inputs, N, 24 Vdc, 5.0 ms	XN-322-20DI-ND
<b>Digital Output</b>	
4 outputs, relay, N/O	XN-322-4DO-RNO
8 outputs, P, 24 Vdc, 0.5 A, sp	XN-322-8DO-P05
12 outputs, P, 24 Vdc, 1.7 A, sp	XN-322-12DO-P17
16 outputs, P, 24 Vdc, 0.5 A, sp	XN-322-16DO-P05
<b>Digital Input / Output</b>	
4 inputs, 4 outputs, P, 24 Vdc	XN-322-8DIO-PD05
8 inputs, 8 outputs, P, 24 Vdc	XN-322-16DIO-PD05
8 inputs, 8 outputs, P, 24 Vdc, CNT	XN-322-16DIO-PC05
<b>Analog Input</b>	
4 inputs, PT/NI/KTY/R, 2/3 cable	XN-322-4AI-PTNI
6 inputs, $\pm 10$ V, 1 PT/KTY, $U_{ref}$	XN-322-7AI-U2PT
8 inputs, 0/4–20 mA	XN-322-8AI-I
8 inputs, thermocouple, 2 KTY	XN-322-10AI-TEKT
<b>Analog Output</b>	
8 outputs, $\pm 10$ V	XN-322-8AO-U2
<b>Analog Input/Output</b>	
2 inputs, 2 outputs, $\pm 10$ V, $U_{ref}$	XN-322-4AIO-U2
4 inputs, 4 outputs, $\pm 10$ V, $U_{ref}$	XN-322-8AIO-U2
2 inputs, 2 outputs, 0/4–20 mA	XN-322-4AIO-I
4 inputs, 4 outputs, 0/4–20 mA	XN-322-8AIO-I
<b>Technology Modules</b>	
Weigh module, 2 DMS, 24 bit	XN-322-2DMS-WM
DC motor driver, 12–30 V, brushed, 3.5 A	XN-322-1DCD-B35
Counter, 1 CNT, 125 kHz, 16 bit, 4 DO, 4 DI	XN-322-1CNT-8DIO
Serial, 2 SSI, RS-422, 32 bit	XN-322-2SSI
<b>Power Supply Modules</b>	
Power supply, 4 x 24 Vdc/2 A, sp	XN-322-4PS-20
<b>Passive Field Potential Distributors</b>	
Power distribution, 18 channels, GND	XN-322-18PD-M
Power distribution, 18 channels, VCC	XN-322-18PD-P

XN-322



### XN300 Series Remote I/O

Description	Style Number	Catalog Number
<b>Digital Inputs</b>		
Digital, 20 input, P, 24 Vdc, 5.0 ms	178786	<b>XN-322-20DI-PD</b>
Digital, 20 input, P, 24 Vdc, 0.5 ms	178768	<b>XN-322-20DI-PF</b>
Digital, 20 input, P, 24 Vdc, 2/4 cnt, 25 kHz	178767	<b>XN-322-20DI-PCNT</b>
<b>Counters</b>		
Counter, 1 cnt, 125 kHz, 16 bit, 4 DO, 4 DI	178795	<b>XN-322-1CNT-8DIO</b>
<b>Digital Outputs</b>		
Digital, 16 output, P, 24 Vdc, 0.5 A, sp	178787	<b>XN-322-16DO-P05</b>
Digital, 12 output, P, 24 Vdc, 1.7 A, sp	178788	<b>XN-322-12DO-P17</b>
<b>Analog</b>		
Analog, 6 input, $\pm 10$ V, 1 PT/KTY, $U_{ref}$	178789	<b>XN-322-7AI-U2PT</b>
Analog, 8 input, 0/4–20 mA	179288	<b>XN-322-8AI-I</b>
Analog, 8 input, thermo element, 2 KTY	178792	<b>XN-322-10AI-TEKT</b>
Analog, 4 input, PT/Ni/KTY/R, 2/3 wire	178772	<b>XN-322-4AI-PTNI</b>
Analog, 8 output, $\pm 10$ V	178790	<b>XN-322-8AO-U2</b>
Analog, 4 In-/4 output, $\pm 10$ V, $U_{ref}$	178791	<b>XN-322-8AIO-U2</b>
<b>Specialty</b>		
Weigh module, 2 DMS, 24 bit	178793	<b>XN-322-2DMS-WM</b>
DC-motor driver, 12–30 V, brush, 3.5 A	178794	<b>XN-322-1DCD-B35</b>
<b>Power</b>		
Power supply, 4 x 24 Vdc / 2 A, sp	178796	<b>XN-322-4PS-20</b>
Power distribution, 18 channel, GND	178769	<b>XN-322-18PD-M</b>
Power distribution, 18 channel, VCC	178770	<b>XN-322-18PD-P</b>
<b>Serial and SSI</b>		
Serial, 2 SSI, RS-422, 32 bit	178773	<b>XN-322-2SSI</b>
<b>Gateways</b>		
CANopen Gateway module (supports 32 slices)	178782	<b>XN-312-GW-CAN</b>

easySoft 7



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**easySoft 7 Software**

**Product Description**

The easySoft software is used to program the easy programmable logic controllers and MFD-Titan displays. The Windows®-based software provides straightforward circuit diagram input and editing, and the diagrams can be displayed in the format desired. It supports users who are configuring, programming and defining parameters for the easy nano PLCs. Selection menus and drag and drop functions simplify circuit diagram creation. easySoft 7 is only compatible with the easyE4 nano programmable logic controller.

**Application Description**

- Logic programming
- Ladder Diagram (LD)
- Structured Text (ST)
- Function Block Diagram (FBD)
- easy Device Programming (EDP)

**Features**

**User function blocks**

There is a library with user function blocks already defined. Function blocks include:

- Weekly timer
- Year time switch
- Alarm function block
- Data logger
- Interrupt function blocks: counter-controller, timer-controller and edge-controlled

**User-defined function blocks**

The user creates the code for this subprogram and can reuse it as often as they want. The user-defined function blocks are added to the library. Different programming languages can be mixed by writing the user function block in a different language than the main program.

**Simulation**

Users can also test the application when the easyE4 is not connected to the process. easySoft includes an integrated offline simulation tool that allows users to test a circuit diagram before commissioning.

**System Requirements**

- Windows XP and Windows 7 32-bit systems

**Product Selection**

**easyE4 Starter Sets**

<b>Description</b>	<b>Catalog Number</b>
Basic device, UC, patch cable, easySoft license code, easyE4 flyer	<b>EASY-BOX-E4-UC1</b>
Basic device, DC, patch cable, easySoft license code, easyE4 flyer	<b>EASY-BOX-E4-DC1</b>

**Accessories**

<b>Description</b>	<b>Connector</b>	<b>Caps</b>	<b>Catalog Number</b>
Spare parts package, easyConnect	3	3	<b>EASY-E4-CONNECT</b>

**Software**

<b>Description</b>	<b>Catalog Number</b>
Programming software, easySoft, easyE4 range	<b>EASYSOFT-SWLIC</b>