

# PLCs, PLC Software and I/O Products

easyE4 Nano PLCs



## 4.1 Programmable Logic Controllers

easyE4 Nano Programmable Logic Controllers .....	V7-T4-2
XC152 Micro Programmable Logic Controllers .....	V7-T4-8
XC300 Small Modular Programmable Logic Controllers .....	V7-T4-12
XN300 Modular and Remote I/O .....	V7-T4-16

## 4.2 PLC Software

easySoft 7 Software .....	V7-T4-18
XSoft-CODESYS-3 Software .....	V7-T4-19

XC152 Series PLCs



XC300 Small Modular PLCs



XN300 Series Remote I/O



#### easyE4 Nano Programmable Logic Controllers



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#### easyE4 Nano Programmable Logic Controllers

##### Product Description

The easyE4 nano programmable logic controllers combine timers, relays, counters, special functions, inputs and outputs into one compact device that is easily programmed. It provides an exceptional level of flexibility together with a substantial savings of commissioning time and effort.

The easyE4 is available in six styles with 12 I/O that can be expanded to 188 I/O points, which provides the ideal solution for material handling, HVAC, pump control, irrigation, lighting, energy management, industrial control, and home automation.

After installation, changes are easily accomplished through front panel programming, which eliminates the need to change wiring and minimize downtime. Programming is easier with the ability to transfer existing programs onto other easyE4 devices via micro SD card.

##### Application Description

The easyE4 nano programmable logic controller excels in traditional applications where multiple relays, timers and pushbuttons are used.

Applications span residential, commercial and industrial installations.

Typical control applications are:

- Lighting controls
- Duplex pump controls
- Water fountain controls
- Parking garage access controls
- Refrigeration control system
- Greenhouse temperature and ventilation controls
- Booster pump controls

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##### Features and Benefits

There are six basic devices that make up the easyE4 nano programmable logic controller family.

- The models come with or without display
- DIN rail mounted
- The easyE4 is for controlling small and medium sized applications with up to 12 I/O points (expandable to 188 I/O points)
- Connectable to Ethernet and bus systems
- Modbus<sup>®</sup>TCP Master and Slave

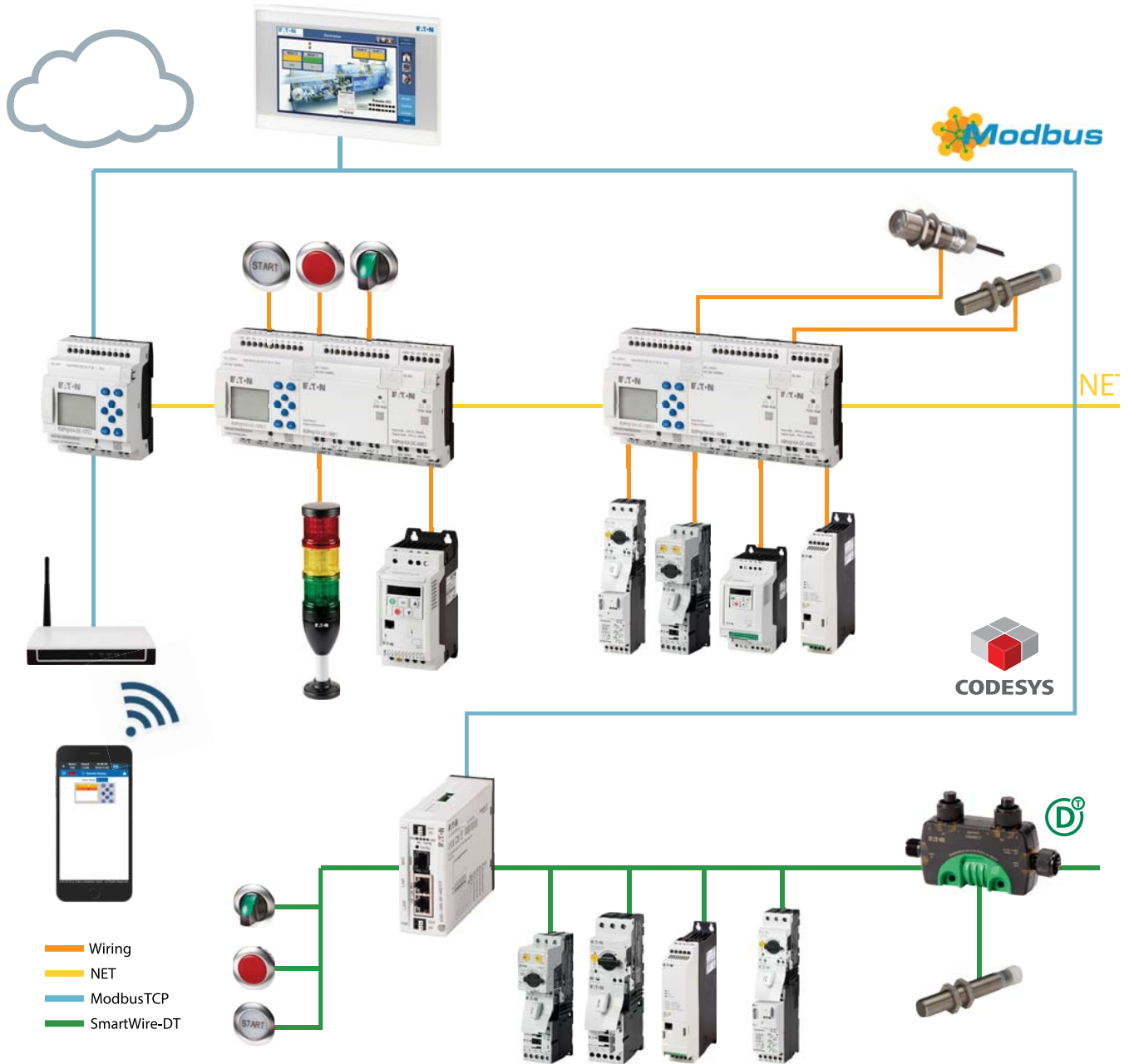
##### Standards and Certifications

- EN 61000-6-2
- EN 61000-6-3
- IEC 60068-2-6
- IEC 60068-2-27
- IEC 60068-2-30
- IEC 61131-2
- EN 61010 EN 50178
- cULus acc. to UL<sup>®</sup> 61010
- CSA<sup>®</sup> C22.2 No.61010



System Overview

easyE4

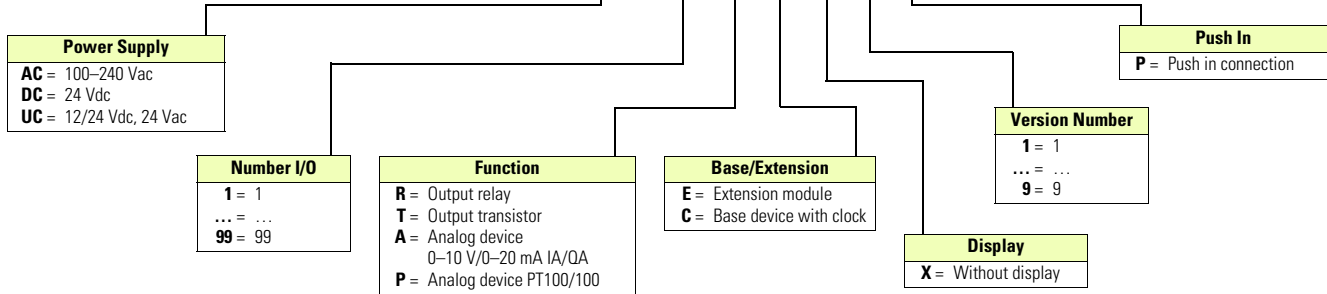


#### Catalog Number Selection

##### easyE4 Nano Programmable Logic Controllers

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### EASY-E4 - AC - 12 R C X 1 P



#### Product Selection

##### Base Devices

##### EASY-E4-UC-12\_



##### easyE4 Base Devices

Description	Input		Output		Features			Power Supply	Catalog Number		
	Digital	Analog	Digital	Transistor	Relay (8 A)	Display + Keypad	Real-time Clock		Ethernet	Screw Terminal	Push-in Clamp
12/24 Vdc, 24 Vac, display, keypad	4	4	—	—	4	■	■	■	12/24 Vdc/24 Vac	EASY-E4-UC-12RC1	EASY-E4-UC-12RC1P
12/24 Vdc, 24 Vac	4	4	—	—	4	—	■	■	12/24 Vdc/24 Vac	EASY-E4-UC-12RCX1	EASY-E4-UC-12RCX1P
24 Vdc, display, keypad	4	4	4	—	—	■	■	■	24 Vdc	EASY-E4-DC-12TC1	EASY-E4-UC-12TC1P
24 Vdc	4	4	4	—	—	—	■	■	24 Vdc	EASY-E4-DC-12TCX1	EASY-E4-DC-12TCX1P
100–240 Vac/Vdc, display, keypad	8	—	—	—	4	■	■	■	100–240 Vac/Vdc	EASY-E4-AC-12RC1	EASY-E4-AC-12RC1P
100–240 Vac/Vdc	8	—	—	—	4	—	■	■	100–240 Vac/Vdc	EASY-E4-AC-12RCX1	EASY-E4-AC-12RCX1P

##### Expansion Devices

Expansion modules are available for increasing the inputs and outputs of the easyE4 nano programmable logic controller. Expansion modules can be easily mounted directly to the easyE4 basic device by plug-in connector.

##### EASY-E4\_



##### easyE4 Expansion Devices

Description	Input		Output		Power Supply	Catalog Number	
	Digital	Analog	Relay (5 A)	Transistor		Screw Terminal	Push-in Clamp
Digital input/output 12/24 Vdc, 24 Vac	4	—	4	—	12/24 Vdc/24 Vac	EASY-E4-UC-8RE1	EASY-E4-UC-8RE1P
	8	—	8	—	12/24 Vdc/24 Vac	EASY-E4-UC-16RE1	EASY-E4-UC-16RE1P
Transistor input/output, 0.5 A	4	—	—	4	24 Vdc	EASY-E4-DC-8TE1	EASY-E4-DC-8TE1P
	8	—	—	8	24 Vdc	EASY-E4-DC-16TE1	EASY-E4-DC-16TE1P
Digital input/output 100/110/230/240 Vac	4	—	4	—	100–240 Vac/Vdc	EASY-E4-AC-8RE1	EASY-E4-AC-8RE1P
	8	—	8	—	100–240 Vac/Vdc	EASY-E4-AC-16RE1	EASY-E4-AC-16RE1P
Analog input/output; 0–10 V / 0/4–20 mA, 12 bit, each channel configurable	—	4	—	—	24 Vdc	EASY-E4-DC-6AE1	EASY-E4-DC-6AE1P
Temperature input, 2- and 3-wire, Pt100/1000/Ni1000, ① 12 bit (1) [°C] or [°F], scaling, 12 bit, in 0.1°, in 1°, 0–4095, 0–65535	—	4	—	—	24 Vdc	EASY-E4-DC-4PE1	EASY-E4-DC-4PE1P

##### Note

① Measurement range selectable PT100, PT1000: –100 to +200 °C (–148 to 392 °F), –100 to +400 °C (–148 to 752 °F), –100 to +800 °C (–148 to +1472 °F); Ni1000: –50 to +100 °C (–58 to +212 °F), –50 to +250 °C (–58 to 482 °F).

**Accessories**

**Starter Sets**

Starter sets include a basic device with display, patch cable, easySoft license code and easyE4 flyer.

There are three starter sets available for purchase—they both include a basic device with display, patch cable, easySoft license code, and easyE4 flyer.

**easyE4 Starter Sets**

Description	Catalog Number
Basic device—UC power supply (12/24 Vdc, 24 Vac), patch cable, easySoft license code, easyE4 flyer	<b>EASY-BOX-E4-UC1</b>
Basic device—DC power supply (24 Vdc), patch cable, easySoft license code, easyE4 flyer	<b>EASY-BOX-E4-DC1</b>
Basic device—AC power supply (100–240 Vac/Vdc), patch cable, easySoft license code, easyE4 flyer	<b>EASY-BOX-E4-AC1</b>

**Memory Cards and Spare Parts**

Memory cards and spare parts package are available to complete your automation solutions.

**Memory Cards and Spare Parts**

Description	Catalog Number
easyConnect—spare parts package	<b>EASY-E4-CONNECT1</b>
Memory card —2 GB, industrial-rated micro SD card	<b>MEMORY-SDU-A1</b>

**Software**

The easySoft software is used to program all of 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. easySoft includes

an integrated offline simulation tool that allows users to test a circuit diagram before commissioning. easySoft 7 must be used with the easyE4 nano programmable logic controller. Software is available for download from the easySoft web page at [www.eaton.com/easysoft](http://www.eaton.com/easysoft)

**Software**

Description	Catalog Number
Programming software license easySoft easyE range	<b>EASYSOFT-SWLIC</b>

**Visualization**

The XV-102-A0-35TQRB-1E4 and XV-102-A3-57TVRB-1E4 HMIs are used to display projects created with the easyE4 nano PLC conveniently and clearly. Users get a clear overview of the machine or system status and can adjust the according parameters conveniently on the touch display. The powerful XV-102 device is available with a 3.5-inch and 5.7-inch resistive touch surface.

Visualization is supported by Eaton’s intuitive Galileo software. Simple and fast project planning is achieved through the exchange of variables between easySoft and Galileo. Via the integrated communication interfaces (Modbus TCP) of the XV-102 HMI, compact and powerful automation solutions can be implemented in conjunction with the easyE4 nano PLC.

The easyE4 Remote Touch Display offers a simple and cost-effective option for displaying easyE4 status information and text outside the control cabinet. The 4.3-inch display can be easily connected via a standard RJ45 Ethernet cable. Once the remote touch display has been connected, all that remains to be done is to select the respective nano PLC and the display integrated in the easyE4 can then be mirrored. No programming required—the display is immediately ready for use. In addition, the physical keypad of the easyE4 can also be displayed digitally, so that the resistive touch display can be used to modify values and navigate through the menus.

**XV-102-A0-35TQRB-1E4 Visualization**

Description	Catalog Number
Touch display for easyE4 nano PLC 3.5-inch resistive touch, Modbus TCP interface	<b>XV-102-A0-35TQRB-1E4</b>
Touch display for easyE4 nano PLC 5.7-inch resistive touch, Modbus TCP interface	<b>XV-102-A3-57TVRB-1E4</b>
Remote Touch Display for easyE4 4.3-inch resistive touch	<b>EASY-RTD-DC-43-03B1</b>

**Power Supplies—PSL**

Eaton’s single-phase low profile DIN rail power supply series offers double-isolated input with no earth connection required, resulting in low leakage current and a longer lifespan.

**PSL10E24RP**



**PSL Series Power Supplies**

Power/description	Catalog Number
24 Vdc output, single-phase power supplies (100–240 Vac nominal input)—	
10 W, 0.42 A output, plastic housing	<b>PSL10E24RP</b>
30 W, 1.25 A output, plastic housing	<b>PSL30E24RP</b>
60 W, 2.5 A output, plastic housing	<b>PSL60E24RP</b>
100 W, 3.8 A output, plastic housing	<b>PSL100E24RP</b>

## Technical Data and Specifications

### easyE4 Basic Devices

Description	EASY-E4-UC-12RC1(P)	EASY-E4-UC-12RCX1(P)	EASY-E4-UC-8RE1(P)	EASY-E4-UC-16RE1(P)	EASY-E4-DC-6AE1(P)
Type of Device	Base unit	Base unit	Expansion unit	Expansion unit	Expansion unit
Inputs					
Digital	8	8	4	8	—
Can be used as analog inputs	4	4	—	—	6
Outputs					
Transistor	—	—	—	—	—
Relay	4	4	4	8	—
Can be used as analog inputs	—	—	—	—	2
Display	With display	Without display	Without display	Without display	Without display
Rated operational voltage	12/24 Vdc, 24 Vac	12/24 Vdc, 24 Vac	12/24 Vdc, 24 Vac	12/24 Vdc, 24 Vac	24 Vdc
Operating ambient temperature (°C)	–25 to +55	–25 to +55	–25 to +55	–25 to +55	–25 to +55
Dimensions (L x H x D) mm	71.5 x 90 x 58	71.5 x 90 x 58	35.5 x 90 x 58	71.5 x 90 x 58	35.5 x 90 x 58
Weight (kg)	0.2	0.2	0.2	0.2	0.2
Degree of protection	IP20	IP20	IP20	IP20	IP20
Standards	EN 61000-6-2, EN 61000-6-3, IEC 60068-2-6, IEC 60068-2-27, IEC 60068-2-30, IEC 61131-2, EN 61010, EN 50178, cULus according to UL 61010, CSA C22.2 No. 61010				

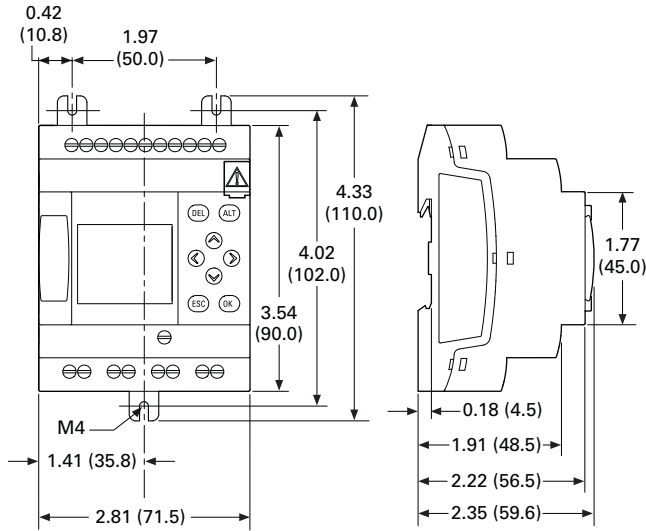
### easyE4 Basic Devices, continued

Description	EASY-E4-DC-12TC1(P)	EASY-E4-DC-12TCX1(P)	EASY-E4-DC-8TE1(P)	EASY-E4-DC-16TE1(P)
Type of Device	Base unit	Base unit	Expansion unit	Expansion unit
Inputs				
Digital	8	8	4	8
Can be used as analog inputs	4	4	—	—
Outputs				
Transistor	4	4	4	8
Relay	—	—	—	—
Can be used as analog inputs	—	—	—	—
Display	With display	Without display	Without display	Without display
Rated operational voltage	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Operating ambient temperature (°C)	–25 to +55	–25 to +55	–25 to +55	–25 to +55
Dimensions (L x H x D) mm	71.5 x 90 x 58	71.5 x 90 x 58	35.5 x 90 x 58	71.5 x 90 x 58
Weight (kg)	0.2	0.2	0.2	0.2
Degree of protection	IP20	IP20	IP20	IP20
Standards	EN 61000-6-2, EN 61000-6-3, IEC 60068-2-6, IEC 60068-2-27, IEC 60068-2-30, IEC 61131-2, EN 61010, EN 50178, cULus according to UL 61010, CSA C22.2 No. 61010			

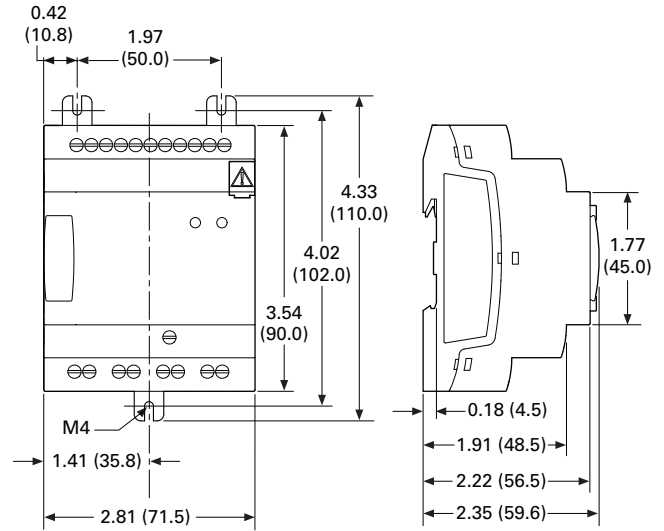
**Dimensions**

Approximate Dimensions in Inches (mm)

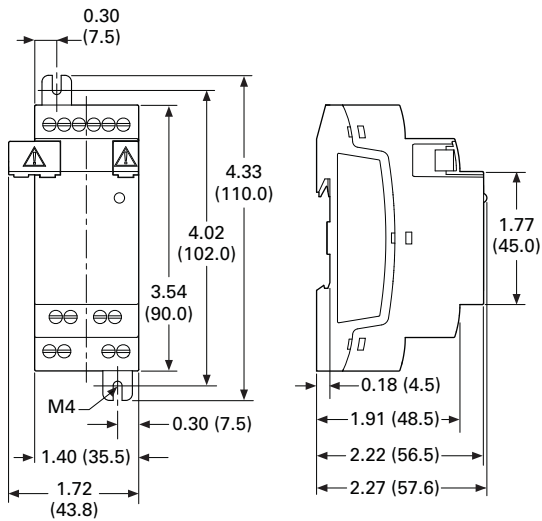
**Base Devices – With Display**



**Base Devices – Without Display**



**Slim Expansion Module**



**Large Expansion Module**

