easyE4
The fastest path to success
easyE4 control relay
More time for the really important things

Whether it’s about temperature control in the food industry, simple control tasks in the machine building sector or lighting control in buildings—the easyE4 from the Moeller™ series, Eaton’s next generation of control relays, makes implementing control tasks even easier, more convenient and faster. Experience the many advantages of this new technology, which allows you to free up valuable time for what’s really important.

“*The easyE4 significantly reduces the time and effort involved in programming.*”

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**Interrupt features** enable fast event recognition and rapid response times.

**The 188 available inputs/outputs in one easyE4 system provide coverage for a broad range of applications.**

**Mixed connection of AC/DC/UC modules allows flexibility in the application.**

**The virtually unlimited combination options of base units and expansion modules make the handling of the easyE4 devices extremely easy.**

**The Ethernet connection enables a wide range of enhanced communication options.**

**Four programming languages are available: easySoft speaks your language!**

**Various visualization options are available, via the integrated displays, web server as well as the Ethernet options.**

**DCF77 synchronization as well as Ethernet services enable highly precise date and time indication.**

**The devices are suitable for global use and come with all the necessary approvals.**
From planning to maintenance
Consistently simple

The easyE4 supports you every step of the way—starting with the planning phase, thanks to the optimized size of the assortment. Enjoy greater flexibility, more transparency and time savings that will allow you to devote yourself to other tasks.

Everything at a glance during maintenance
The various available display options allow you to gain a quick and comprehensive overview of your projects:

- A base-unit display that’s easy to use
- Remote visualization and access are also possible, for example via a smartphone or tablet
- Easy data logging of operating states and evaluation of events

Quick and easy implementation during operation
The full advantages of this powerful control relay reveal themselves during operation:

- Rapid response times of less than 2 milliseconds
- DCF77 synchronization for high accuracy in time-dependent applications
- Rapid detection of the operating states of both the base units and the expansion modules thanks to the integrated display
- The application-specific parameters can be manually adjusted directly on the device

Multifunctionality ensures simplified planning
The easy relay takes on various command and control tasks in a single device:

- Logic functions
- Timing relay and counter functions
- Time switch functions
- Arithmetic functions
- PID controller
- Operating and display functions

This simplifies the planning process:

- Up to 11 expansions can be connected
- The AC, DC and UC expansions can be used together in any combination (12/24 V DC, 24 V AC, 100-240 V AC)

Installation and commissioning made easy
The number of inputs/outputs can be easily extended with the addition of expansion modules:

- The expansion modules are connected via a unique plug connector
- It is easy to install programming on brand-new devices via the SD card. This considerably simplifies, for example, the commissioning of series production

Programming options that are suited to your needs
The easyE4 offers flexible programming options, either directly on the device, or via the easySoft software:

- Circuit diagrams can be created directly on the base unit, using the input keypad and text display
- Programming the devices is highly user-friendly, thanks to the four available programming languages
- The display texts, background colors and start graphics can be individually designed, for example, by adding your company’s own graphics

“The easyE4 simplifies every step of the process!”

EATON easyE4 Control Relay
**easySoft 7**
Simple, intuitive and convenient

With the user-friendly easySoft software, programming the devices is quick and easy. Circuit diagrams can be easily created and adapted via a PC or directly on the device. The easy-to-navigate selection menus, as well as the simulation, online communications and documentation options, make easySoft the ideal companion for the easyE4 devices. Four different programming languages are available (ST, FBD, LD, EDP)—in other words, the right programming environment for all of your needs.

- **Ladder diagram (LD)** for transferring existing easySoft programs
- **easy programming (EDP)** enables the creation and adaptation of programs on the devices
- **Function block diagram (FBD)** provides a quick overview of the various features
- **Structured text (ST)** for professionals, to facilitate efficient programming

The system is backward compatible
- With easySoft 7, existing programs that were created for the easy series 500/700/800 can simply be transferred.
- Automatic conversion of visualizations from the previous easy series to the new easyE4.

The multi-level password protection protects your application and process know-how against unauthorized access.

Unique IDs for each easyE4 and program ensure that the correct programs are uploaded to the intended hardware (pairing).

- The integrated oscilloscope feature can be used both in simulation mode and during operation
- Direct analysis of switching operations, based on the curve characteristics
- Pre-set analytics allow quick commissioning

```
IF I01 = TRUE THEN
  // Configuration of Block
  DL01  (
    EN := TRUE,
    T1 := FALSE,
    T2 := TRUE,
    T3 := FALSE,
    T4 := FALSE,
    I1 := 01,
    I2 := 02,
    I3 := 03,
    I4 := 04,
    RY => Q01,
    BY => Q02,
    E1 => Q03,
  );
END_IF;
```
Visualization for every need
Simply versatile

The easyE4 also offers a variety of visualization options to optimally adapt the solution to your individual needs and requirements. Texts and data can be easily displayed or changed using the easyE4 base unit display. Thanks to the integrated web server, the data can also be accessed via all Internet-enabled devices, such as smartphones or tablets. In addition, visualization through HMIs is also possible. The access to the data can be individually defined.

easyE4 display
Use the display of the base unit for convenient visualization on site.

Visualization via Ethernet
Any HMI, like an XV100, can be connected to the easyE4, for example via Modbus TCP.

Wireless visualization
Any standard browser can access the easyE4 web server via a WLAN router, a repeater or dLan.

• An individual user list ensures secure remote access to the web browser
• Efficient service and maintenance, thanks to the reliable online services in easySoft
• The web server is password protected
• Automatic email notifications will promptly inform you of any deviations to ensure maximum availability of your application

Application check - Visualization
In combination with the XV-102..E4 touch panel, easyE4 users benefit from a powerful and cost-effective visualization solution inside or outside the control cabinet.

“With the easyE4, I never lose sight of the big picture.”
**easyE4 solutions**

**Ready for the future**

The optimal design of your system architecture

**LEVEL 1:** Eaton ‘easy’ stand-alone solution

The easyE4 allows for a wide range of clever applications of varying complexity. The control of simple tasks is performed by the base unit via the integrated inputs/outputs. The system can be tailored to the task at hand by means of the existing expansions. To this end, various expansion modules are available, which can be connected via a simple plug connector.

**LEVEL 2** Eaton ‘easy’ system solution

For more complex tasks, additional devices can be connected to the base unit and the expansions via the network. Via the Ethernet and NET interfaces, up to eight easyE4 devices can communicate with each other within the same network cluster.

For larger networks, the easyE4 series offers the possibility of operating up to ten clusters—each with eight individual easyE4 devices—in parallel.

With the Modbus TCP protocol, it is even possible to use Eaton’s XC300 as the central master-level control system for the easyE4 devices. And by connecting an Eaton HMI (e.g. the XV300), even the most demanding visualizations can be realized.

**LEVEL 3** Eaton ‘easy’ system solution with connection to the cloud

Industry 4.0 is already a reality in many companies. In addition to enhancements in data availability, it also facilitates process optimization along the entire value chain. Implementation requires intelligent, networked system components—also known as the Industrial Internet of Things (IIoT).

easyE4 enables integration into IIoT architectures via the built-in Ethernet interface. You can therefore transfer your data to the cloud via a router and then access it whenever you need it, from anywhere in the world.

Smart control relay as an alternative to PLC control

In our whitepaper you will find more information about the question whether the latest generation of smart control relays can be a future-proof and cost-effective alternative to PLC controls for machines of low to medium complexity.

**Download WhitePaper**
Implementing system architectures with Eaton’s easyE4

The easyE4 control relays can be used within many different projects meeting your requirements for a flexible, modular system. If used in conjunction with the other components from the Eaton portfolio, such as our pilot devices or motor starters, the devices allow you to implement integrated system architectures that can be easily expanded.

Our example shows three different areas of application: Operation and visualization, motor start and controls, and sensor technology. The easyE4 control relay serves as an important interface between the individual components of the system architecture.

Since the in-/outputs in the easyE4 system can be easily extended, it is possible to integrate a wide variety of devices, such as those from our RMQ-Titan range. In addition, you can also connect motor starters, variable speed starters or sensors to the easyE4. The devices within each easyE4 network (cluster) communicate via NET. The XV100, which can be easily connected via Modbus TCP, is used for visualization.

A Modbus gateway is used to integrate additional modules, such as those from our SmartWire-DT range. Modbus TCP is also used to transmit the system-level data, which can then be visualized on a master-level control system using Codesys. With the easyE4, the operating status of the entire application can also be conveniently displayed on any mobile device.

Flexible visualization options

In addition to HMI visualization via Modbus TCP, the easyE4’s integrated web server also makes it possible to display the application content on tablets and smartphones. The web server is accessed by means of a wireless router. A number of built-in functions ensure secure access to the server.

Tailor-made programming options

From easy device programming (EDP) to the ladder diagram (LD), the function block diagram (FBD), and structured text (ST) for more advanced users — easySoft gives users the option to select their preferred programming language. This not only provides flexibility but also saves time.
## Technical data

### Operating ambient temperature (°C)
-25 - +55

### Dimensions (L x H x D)
- Base unit: 71.5 x 90 x 58
- Expansion unit: 35.5 x 90 x 58

### Weight (kg)
- 0.2

### Relay
- 4

### Transistor
- -

### Outputs
- Type of device: Base unit, Base unit, Expansion unit, Expansion unit, Base unit, Base unit, Expansion unit, Expansion unit
- Article no.: 19721, 197217, 197218, 197223, 197213, 197214, 197219, 197220

### 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 acc. to UL 61010, CSA C22.2 No.61010

## Ordering data

### easyE4 base units

<table>
<thead>
<tr>
<th>Description</th>
<th>Input</th>
<th>Output</th>
<th>Features</th>
<th>Power supply</th>
<th>Type</th>
<th>Article no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base unit 120/24V DC, 24V AC, Display, Keypad</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>10 - 16 V DC</td>
<td>EASY - E4 - UC1X1P</td>
</tr>
<tr>
<td>Base unit 120/24V DC, 24V AC</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>10 - 16 V DC</td>
<td>EASY - E4 - UC1X1P</td>
</tr>
<tr>
<td>Base unit 24V DC, Display, Keypad</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>10 - 16 V DC</td>
<td>EASY - E4 - UC1X1P</td>
</tr>
<tr>
<td>Base unit 24V DC</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>10 - 16 V DC</td>
<td>EASY - E4 - UC1X1P</td>
</tr>
<tr>
<td>Base unit 100 - 240V AC/DC Display, Keypad</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>100 - 240 V AC/DC</td>
<td>EASY - E4 - UC1X1P</td>
</tr>
<tr>
<td>Base unit 120 - 240V AC/DC</td>
<td>4</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>100 - 240 V AC/DC</td>
<td>EASY - E4 - UC1X1P</td>
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### Expansion devices

<table>
<thead>
<tr>
<th>Description</th>
<th>Input</th>
<th>Output</th>
<th>Power supply</th>
<th>Type</th>
<th>Article no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital input/output 120/24V DC, 24V AC</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10 - 16 V DC</td>
</tr>
<tr>
<td>Digital input/output 120/24V DC, 24V AC</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>10 - 16 V DC</td>
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<tr>
<td>Transistor input/output, 0.5 A</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Transistor input/output, 0.5 A</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Digital input/output 100/100V DC, 24V AC</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Digital input/output 100/100V DC, 24V AC</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Analog input/output: 0 - 10V DC, 25mA, 12 bit, each channel configurable</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Temperature input, 2 and 3 Wire, PT100/1000/Ni1000, 12 bit, *</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Visualization

- Touch panel for easyE4 control relay
- Modbus TCP interface

### Accessories (optional)

- Micro SD memory card, 32GB, with adapter
- Switching power supply, 100-240/230VAC/DC/12VDC, 5.5A/36W
- Switching power supply, 90-240/230VAC/DC, 100mA, regulated

### Software

- Programming software EASYSoft 5.0 SP5

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**Dimensions**

- **Base unit with display**: 71.5 x 90 x 58
- **Base unit without display**: 35.5 x 90 x 58
- **Slim expansion module**: 24 x 35 x 18
- **Large expansion module**: 48 x 110 x 30

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**Visualization**

- Touch panel for easyE4 control relay
- Modbus TCP interface

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**Accessories (optional)**

- Micro SD memory card, 32GB, with adapter
- Switching power supply, 100-240/230VAC/DC/12VDC, 5.5A/36W
- Switching power supply, 90-240/230VAC/DC, 100mA, regulated
- Programming software EASYSoft 5.0 SP5

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**Software**

- Programming software EASYSoft 5.0 SP5
Order your starter set now!

### easyE4 Starter sets

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASY-BOX-E4-UC1</td>
<td>easyE4 base unit EASYE4-UC-12RC1, 24 V AC, 12/24 V DC, 8 digital inputs, 4 outputs (Relay 8 A)</td>
<td>197227</td>
</tr>
<tr>
<td></td>
<td>License code for easySoft V7</td>
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<tr>
<td></td>
<td>Patch cable RJ45</td>
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</tr>
<tr>
<td></td>
<td>Flyer easyE4</td>
<td></td>
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<tr>
<td>Order no.:</td>
<td>197227</td>
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<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>EASY-BOX-E4-DC1</td>
<td>easyE4 base unit EASYE4-DC-12TC1, 24 V DC, 8 digital inputs, 4 outputs (Transistor 0.5 A)</td>
<td>197228</td>
</tr>
<tr>
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<td>License code for easySoft V7</td>
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<td></td>
<td>Patch cable RJ45</td>
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<tr>
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<td>Flyer easyE4</td>
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<tr>
<td>Order no.:</td>
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</table>

### easyE4 starter sets with visualization device

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XV100-BOX-E4-UC1</td>
<td>easyE4 base unit EASYE4-UC-12RC1, 24 V AC, 12/24 V DC, 8 digital inputs, 4 outputs (Relay 8 A)</td>
<td>198515</td>
</tr>
<tr>
<td></td>
<td>XV-102-A0-35TQRB-1E4 touch panel, 3.5”</td>
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<td></td>
<td>License code for easySoft V7</td>
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<tr>
<td></td>
<td>Ethernet-switch, 5-Port</td>
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</tr>
<tr>
<td></td>
<td>Patch cable RJ45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flyer easyE4 and XV-102</td>
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</tr>
<tr>
<td>Order no.:</td>
<td>198515</td>
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</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order no.</th>
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<tbody>
<tr>
<td>XV100-BOX-E4-DC1</td>
<td>easyE4 base unit EASYE4-DC-12TC1, 24 V DC, 8 digital inputs, 4 outputs (Transistor 0.5 A)</td>
<td>198514</td>
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<tr>
<td></td>
<td>XV-102-A0-35TQRB-1E4 touch panel, 3.5”</td>
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<td></td>
<td>Patch cable RJ45</td>
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<td></td>
<td>Flyer easyE4 and XV-102</td>
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