easyE4
The fastest path to success

EATON
Powering Business Worldwide

easyE4 control relay

More time for the really important things

Whether it's for temperature control in the food industry, simple control tasks in machine-building applications or controlling the lighting in a building—the easyE4 control relay from Eaton's Moeller™ series can be used to implement a wide range of control and regulation tasks even more easily, conveniently and quickly. Experience the many advantages of this new technology, which allows you to free up valuable time for what's really important.

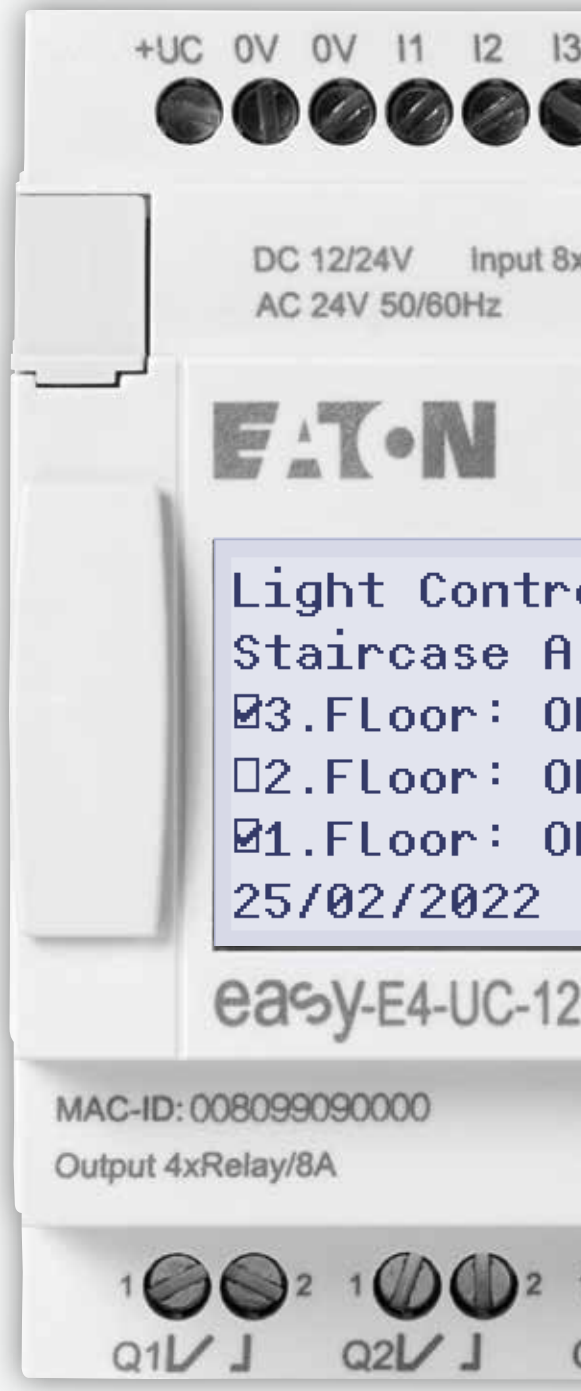
Various display and visualization options are available using either the integrated display on the base device, our Remote Touch Display or the XV series touch display.

The Ethernet interface provides the easyE4 **with a variety of communication connections** via either easyNET or Modbus TCP (client/server). Communication modules also allow for connection to Modbus RTU (master or slave) or SmartWire-DT (coordinator).

Via the **integrated JSON API interface**, a number of (home) automation systems can be used to control or exchange data with the easyE4.

The **integrated web server** can be used for visualization, automatic notifications via email and control of your system.

The **astronomical clock** enables precise system control, for example, based on sunrise and sunset times.



"The easyE4 is simple to install and quick and easy to configure and parameterize, which means that small, but complex projects can be realized quickly."

Hellbernd Elektrotechnik GmbH & Co. KG

Four programming languages are available: easy device programming (EDP), ladder diagram (LD), function block diagram (FBD) and structured text (ST).

One base device can be expanded with one communication module and up to 11 I/O modules for maximum flexibility in line with your requirements.

The option to use a mix of AC/DC/UC modules allows for highly flexible applications.

The 188 available inputs/outputs in one easyE4 system cover a broad range of applications.

The virtually unlimited amount of combinations of the base device and expansion modules makes handling easier than ever.

From planning to maintenance
Consistently simple

The easyE4 supports you every step of the way—and this starts at the planning phase, thanks to the optimized device selection process. Enjoy greater flexibility, more transparency and increased time savings that will allow you to devote yourself to other tasks.

The multi-functional design simplifies planning

The easyE4 covers a variety of control and regulation tasks in a single device:

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

This simplifies the planning process:

- The base device can be easily expanded with one communication module and up to 11 I/O modules
- All AC, DC and UC expansions can be freely combined as required

Programming options that are suited to your needs

Circuit diagrams can be created directly on the base device by using the input keyboard and text display:

- The easyE4 offers flexible programming options, either directly on the device or using the convenient easySoft software
- The four available programming languages make programming the device a user-friendly experience
- Display texts, background colors and start graphics can be customized, for example, using your company logo

Comprehensive maintenance overviews

The various display options available provide a quick and comprehensive overview of your projects:

- The base device features an easy-to-use integrated display
- Remote visualization and access, for example, via a smartphone or tablet
- Easy data logging of operating states and evaluation of events
- Simplified diagnostics and troubleshooting, for example, using status information from all communication devices and expansion modules

Installation and commissioning made easy

The number of inputs/outputs can be easily adjusted with 'easy' expansion modules:

- The communication and expansion modules are connected via an intelligent plug connection system
- A micro SD card can be used to transfer the programming to new devices, which simplifies the commissioning of standardized machinery, for example
- The easyE4 devices can be wired using established screw terminal or time-saving push-in terminal technology
- Modbus RTU and SmartWire-DT modules can be quickly and easily connected to the easyE4 via the communication module

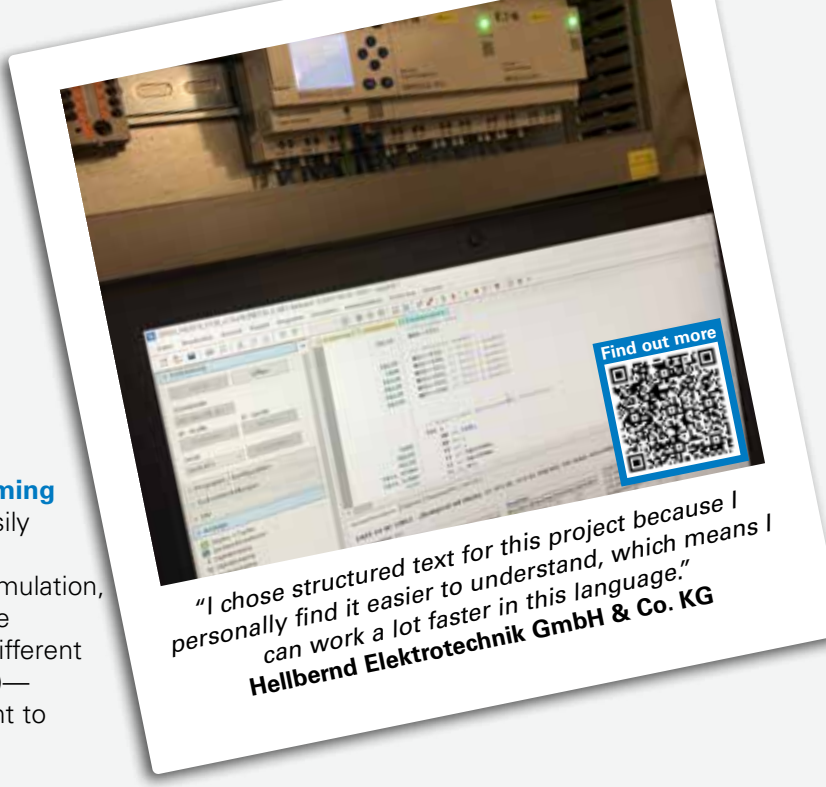
Quick and easy implementation during operation

The full advantages of this powerful control relay are clear to see during operation:

- Rapid event response times thanks to the interrupt function block
- Radio clock synchronization (DCF77) for highly accurate processes in applications where time is critical
- Rapid detection of the operating states of the base device and the communication and expansion modules using the integrated display
- Application-specific parameters can be manually adjusted directly on the device

easySoft 7

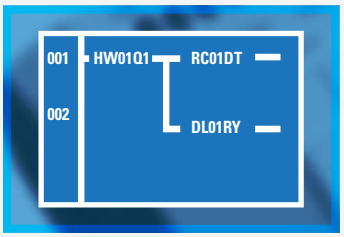
Simple, intuitive and convenient



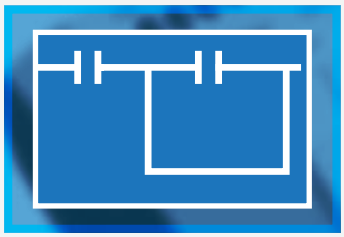
The user-friendly easySoft software makes programming the device quick and easy. Circuit diagrams can be easily created and adjusted via a PC or directly on the device. The easy-to-navigate selection menus combined with simulation, online communication and documentation options make easySoft the ideal addition to any easyE4 device. Four different programming languages are available (EDP, FBD, LD, ST)— providing a simple yet optimal programming environment to suit any need.

- **easy device programming(EDP)** allows you to create and adjust programs on your devices
- **Ladder diagram (LD)** can be used to transfer existing easySoft programs
- **Function block diagram (FBD)** provides a quick overview of the various functions
- **Structured text (ST)** for professionals facilitates efficient programming

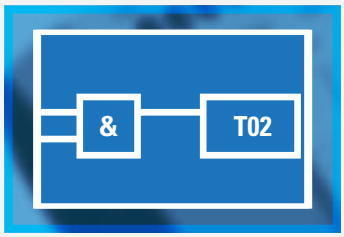
EDP



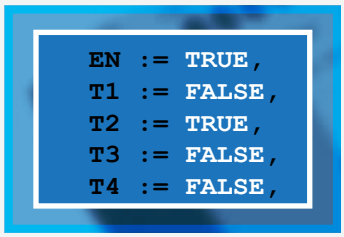
KOP

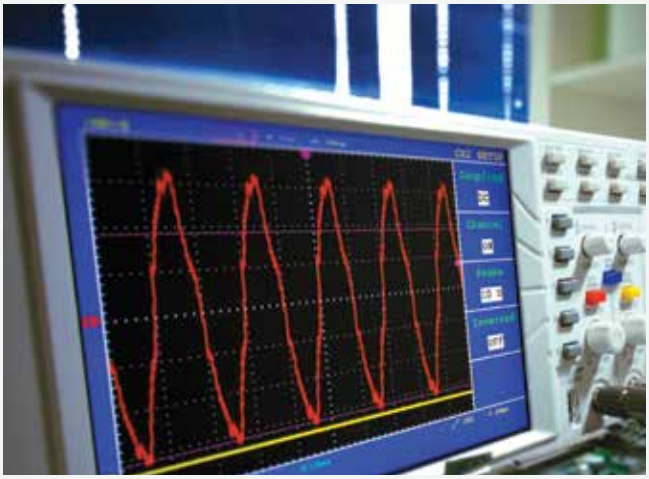


FBS



ST





The integrated oscilloscope function

- Can be used both in **simulation mode** and **during** operation
- **Direct analysis of switching operations** based on the curve characteristics
- **Quick commissioning** using pre-set analytics functions (operand lists)

- **Multi-level password protection** protects your application and process knowledge against unauthorized access.
- **Unique IDs for each easyE4 and program** ensure that the correct programs are uploaded to your selected hardware (pairing).

easy

Download easySoft

Video Tutorials

Visualization to suit all needs
Simply versatile

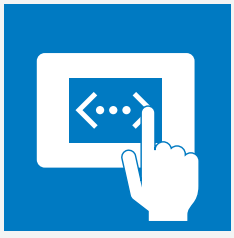
The easyE4 also offers a variety of visualization options to optimally adapt solutions to your individual requirements. Texts and data can be easily displayed or changed using the integrated display on the base device. Thanks to the integrated web server, the data can also be accessed on any mobile device, such as smartphones or tablets. Visualization is also available on Eaton's touch displays.

"Thanks to Eaton's devices, we are now able to offer our end customers intuitive and convenient operation, allowing us to clearly set ourselves apart from the competition."
Howatherm air-conditioning technology

easy Remote Touch Display (RTD)
The 4.3-inch Remote Touch Display mirrors the content of the easyE4 in color and allows operation of the base device — all without programming the RTD!

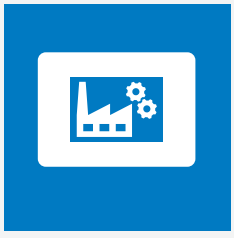
XV-102 'easy' touch display
Galileo visualization software is included free of charge when using the XV-102 'easy' touch display. This software offers you everything you need to customize your user interface: Diagrams, icons and images make operation and the visualization of information easier.

✓ Intuitive operation



- Easy to operate
- Easy implementation of visualizations

✓ Convenient display



- Clear visualization of the application
- Appealing interface design

✓ Resistive touch

- Easy to operate even while wearing gloves
- Fully laminated protective film

✓ Robust design

- IP65 degree of protection for use in harsh environments
- Flat front surface for easy cleaning

Multiple communication options

The smarter way to implement automation

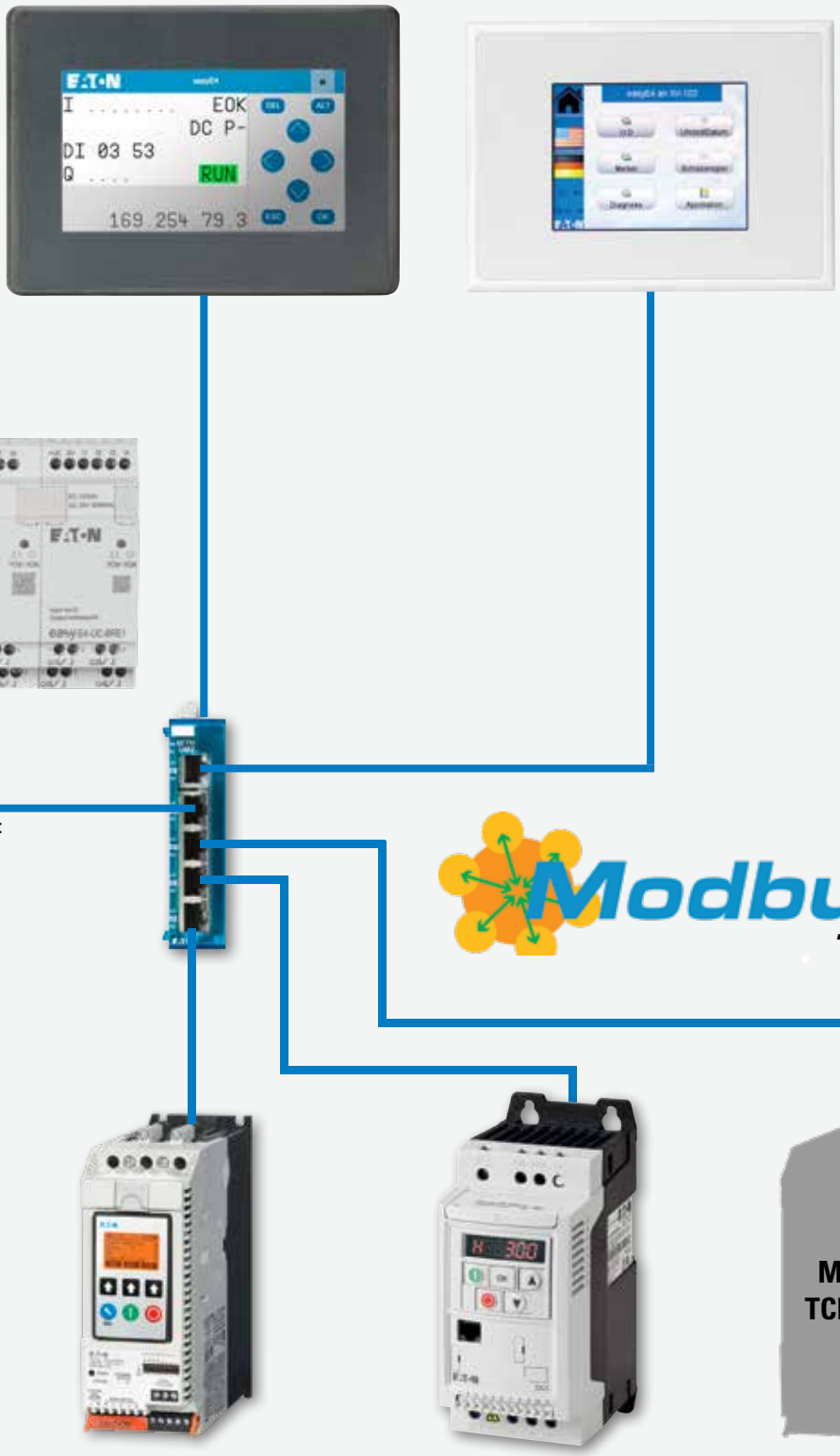
The 'easy' communication module for SmartWire-DT (SWD) allows you to combine the advantages of this powerful control relay with those of our intelligent wiring system. The easyE4 can therefore evaluate status information from all connected modules, for example, motor frequencies and switching states, which simplifies diagnostics and troubleshooting. Components in the field can also be configured and programmed without hassle. **In addition, the integrated Modbus TCP functionality and the expansion with the Modbus RTU communication module allow for the connection of components at different levels, with the easyE4 acting as either client and server resp. master or slave.**

Use the control relay as a Modbus RTU master or slave

- Quick and simple implementation of industrial networks
- The communication module is easy to connect to the base device using the plug connector
- Configuration is carried out using easySoft V7
- Transmit data even over cable lengths of several hundred meters

Create an intelligent system with SmartWire-DT

- Monitoring motor frequencies and power measurements allows deviations to be detected early on to help prevent failures
- Thanks to the availability of diagnostic information for each component, application errors can be quickly located
- Parameters such as threshold and desired values for the SWD modules can be easily configured and adjusted using the easyE4 or the integrated web server



Integrated Modbus TCP client and server functionality

- Modbus TCP functionality is covered by the integrated Ethernet interface on the base device — no need for an external gateway!
- Open integration of Modbus TCP modules using the communication standard
- The easyE4 can function as a client or pass data to higher-level control solutions as a server

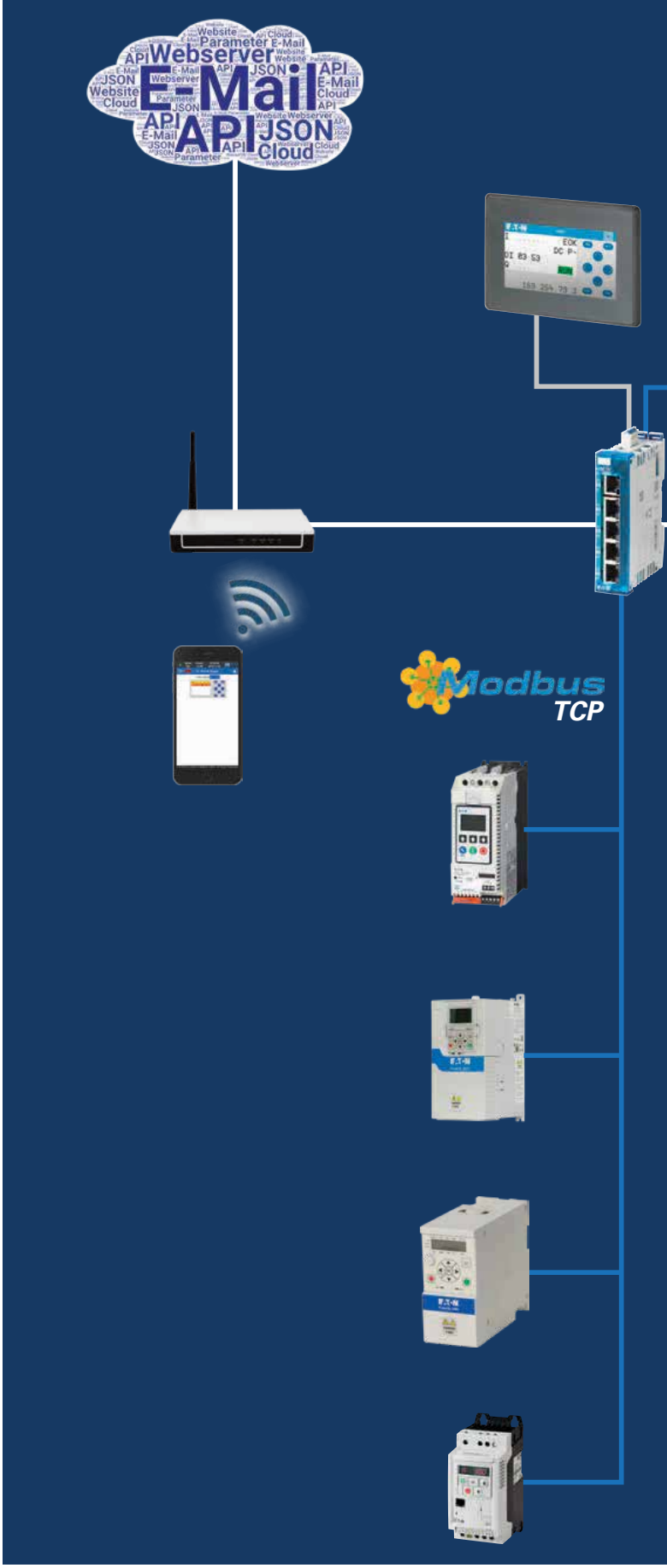
easyE4 System architecture

The easyE4 meets the requirements for a flexible, modular system that can be used within many different projects. When used in conjunction with other components from the Eaton portfolio, such as pilot devices, variable frequency drives or motor starters, the device allows you to implement integrated system solutions with flexible expansion options.

The easyE4 control relay can be flexibly integrated into a range of communication structures: In addition to an easyNet interface, the base device provides Modbus TCP client and server functionality. This means the integrated Modbus TCP interface can also be used when a Modbus RTU module is connected in parallel. As a result, the easyE4 can easily collect data from field-level measuring devices via Modbus RTU and relay the data to higher-level control solutions via Modbus TCP.

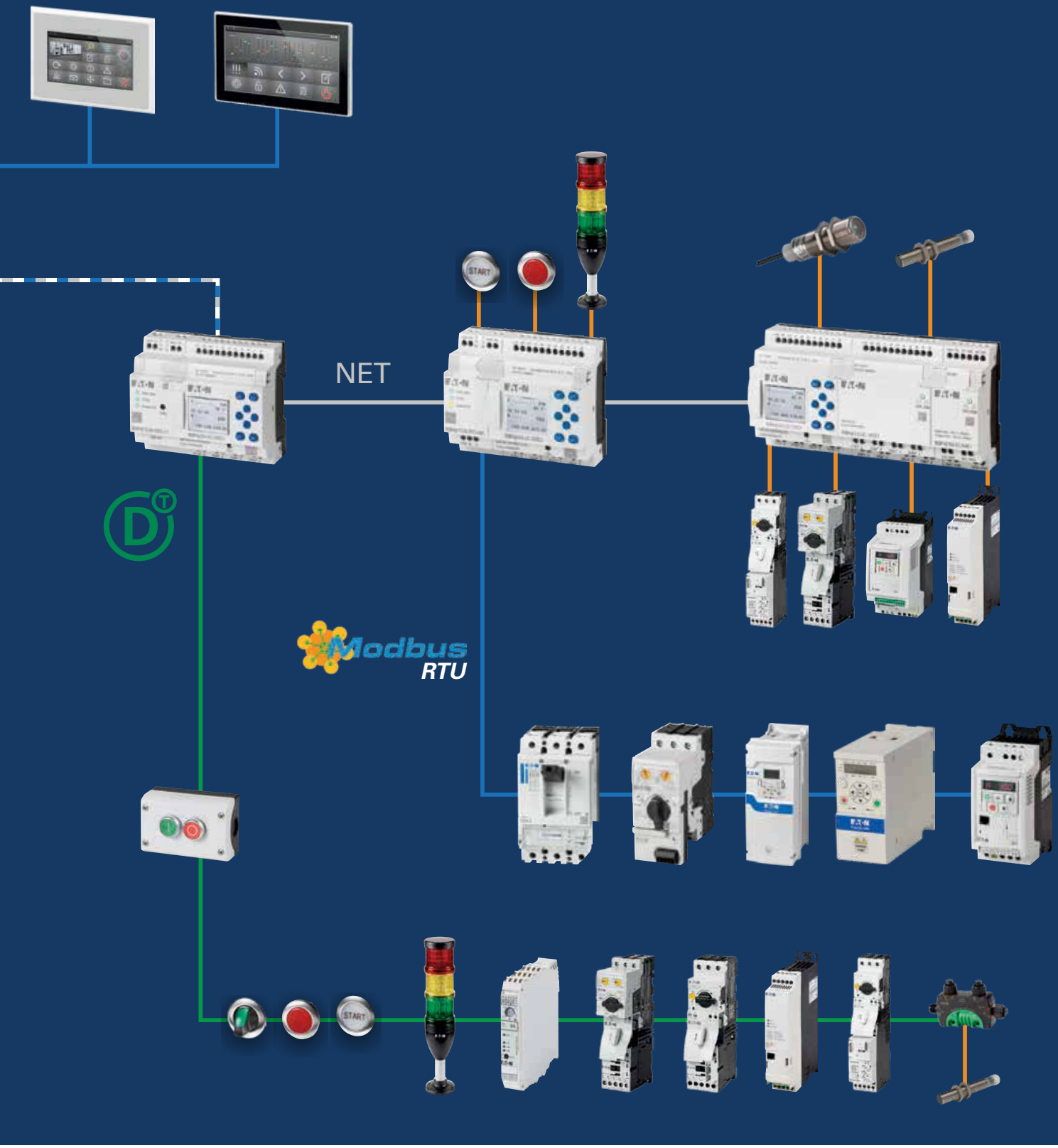
When set up as a Modbus RTU master unit, the easyE4 can access process data, status information and parameter settings used by connected Modbus RTU modules. Data acquisition and programming can be carried out regardless of the brand, meaning third-party Modbus RTU devices can also be integrated.

The easy module for SmartWire-DT allows another way for devices to communicate: It provides the control relay with field-level information on the status of SmartWire-DT components, such as pilot devices or motor starters, which provides a simple way to monitor machines and systems, alongside the ability to configure and control all connected SmartWire modules.



Flexible visualization

Text and data can be easily displayed or changed directly on the easyE4 base device. Alternatively, the convenient 'easy' Remote Touch Display can also be used to mirror the content of the text display, directly and without any additional software. To visualize projects inside and outside the control cabinet, an HMI from the XV100 or XV300 series can be easily connected to the easyE4 via the Modbus TCP.



Flexible handling

The integrated web server makes it possible to display application content in internet browsers and on smartphones and tablets. In addition, the easyE4 can send emails and use the integrated JSON API to communicate with various systems, for example, Node-RED or (home) automation systems such as Alexa or Siri. This grants access to read and write specific data and parameters on the easyE4 and enables the creation of visualizations.

easyE4 solutions

Applications with maximum flexibility

The easyE4's web server functionality allows you to visualize your system and control the relay remotely with minimal effort. If development environments such as Node-RED are used, the easyE4 can also be synchronized with smart home devices. In conjunction with the JSON API, the easyE4 can also be combined and controlled via all common virtual assistants. The possibilities are unlimited.

easyE4 in connection with API and Node-RED

More and more of the controllers in small to mediumsized systems are not autonomous. Nowadays, they often feature one or several interfaces connected to other systems. It is therefore becoming increasingly important to prevent these systems from communicating via a proprietary interface. This not only reduces system integration costs but also significantly simplifies maintenance tasks.As a result, more and more web development interfaces are being used, for example, API (application programming interface).

Application programming interface (API)

Using a standardized infrastructure, namely the easyE4's built-in Ethernet connection, the API facilitates the exchange of JSON objects between the easyE4 and connected web modules. This data format is very common and popular in web programming. Ultimately, these are data structures that can be easily embedded in many systems and are also easy for humans to read. However, it is not always necessary for the easyE4 to be connected to the internet in order to take advantage of its range of capabilities.

Node-RED

https://nodered.org/

Node-RED is a free and widely available programming environment for the IoT. It was originally developed by IBM. Node-RED uses a simple web editor to connect various devices and systems in order to create flows.

API

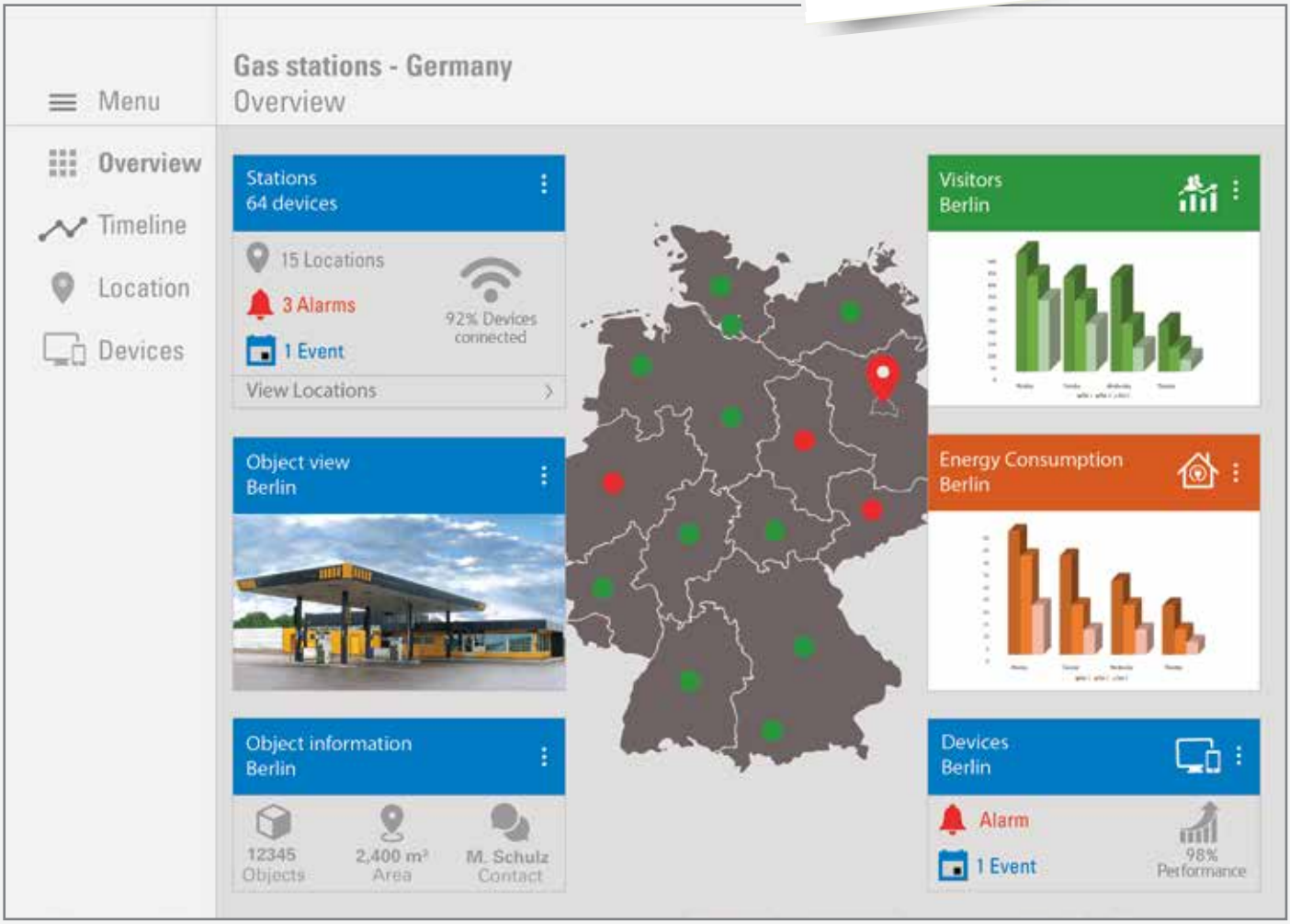
https://www.eaton.com/easy-jsonapi

API steht für ein sog. Application P"application programming interface". Programming interfaces are frequently used in the development of smart home applications, web applications or IoT systems and are therefore integrated in many devices. The easyE4 also comes with an API, which is accessed via the specified link.

This example of a dashboard shows what the easyE4 can do in combination with the API:

- Automatic email notifications in the event of increased power consumption
- Remote troubleshooting of fans
- Configuration of all devices
- Overview of all sub-stations across the country
- Astronomical clock for sunrise and sunset times

"100 % humidity, temperatures around 50 degrees Celsius and the vibration of 1.5 kilowatt pumps—in this kind of environment, PLCs can be rather unpredictable. On the other hand, the easyE4 has not let us down so far"
Hanle Car Wash Center

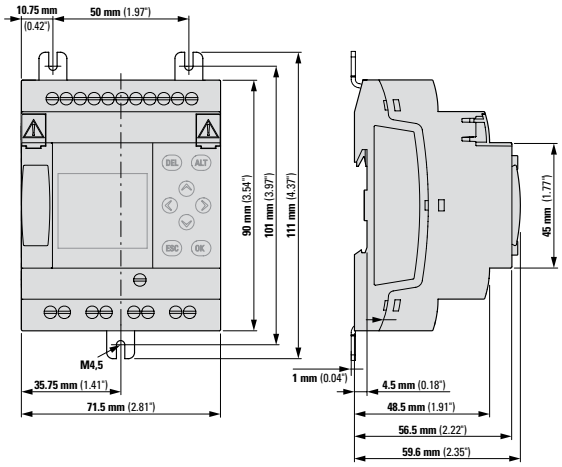


The easyE4 can not only be easily integrated into local websites, but also exchange data and information with their web servers via the integrated API. This allows you to manage your own dashboard, which is also available offline.

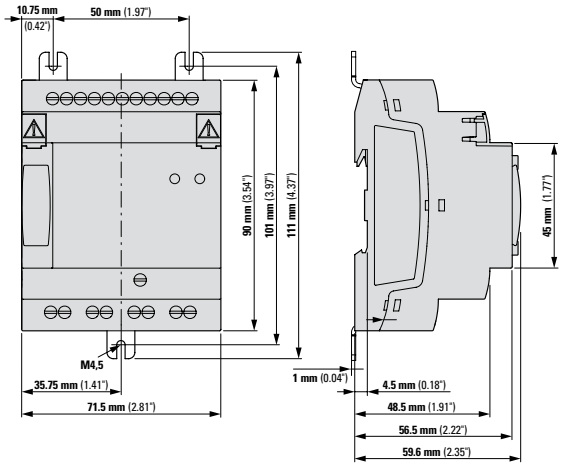
In combination with the API, this provides an overview of the status of all connected devices, allowing you to keep track of the entire system.

Dimensions

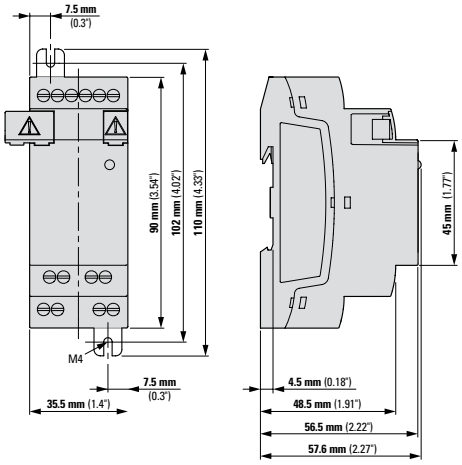
Base device with display



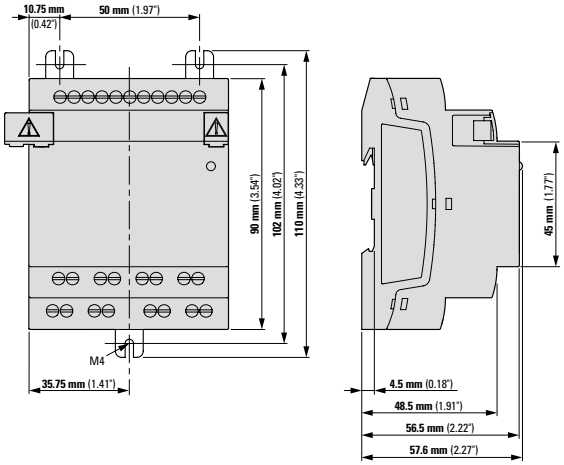
Base device without display



Slim expansion module, communication module



Wide expansion module



Ordering information

easyE4 base devices

Description	Input		Output		Features			Supply voltage	Part no. Article no.	
	Digital	Digital analog	Transistor	Relay (8 A)	Display + Keypad	Real-time clock	Ethernet		Screw terminal	Push-in terminal
Base device, 12/24 V DC, 24 V AC, display, keypad	4	4	-	4	•	•	•	12/ 24 V DC 24 V AC	EASY-E4-UC-12RC1 197211	EASY-E4-UC-12RC1P 197504
Base device, 12/24 V DC,24 V AC	4	4	-	4	-	•	•	12/ 24 V DC 24 V AC	EASY-E4-UC-12RCX1 197212	EASY-E4-UC-12RCX1P 197505
Base device, 24 V DC, display, keypad	4	4	4	-	•	•	•	24 V DC	EASY-E4-DC-12TC1 197213	EASY-E4-DC-12TC1P 197506
Base device, 24 V DC	4	4	4	-	-	•	•	24 V DC	EASY-E4-DC-12TCX1 197214	EASY-E4-DC-12TCX1P 197507
Base device, 100 - 240 V AC/DC, display, keypad	8	-	-	4	•	•	•	100- 240 V AC/DC	EASY-E4-AC-12RC1 197215	EASY-E4-AC-12RC1P 197508
Base device, 100-240 V AC/DC	8	-	-	4	-	•	•	100- 240 V AC/DC	EASY-E4-AC-12RCX1 197216	EASY-E4-AC-12RCX1P 197509

Expansion modules

Description	Input		Output			Supply voltage	Part no. Article no.	
	Digital	Analog	Relay (5 A)	Transistor	Analog		Screw terminal	Push-in terminal
Digital input/output, 12/24 V DC, 24 V AC	4	-	4	-	-	12/ 24 V DC 24 V AC	EASY-E4-UC-8RE1 197217	EASY-E4-UC-8RE1P 197510
Digital input/output, 12/24 V DC, 24 V AC	8	-	8	-	-	12/ 24 V DC 24 V AC	EASY-E4-UC-16RE1 197218	EASY-E4-UC-16RE1P 197511
Transistor input/output, 0,5 A	4	-	-	4	-	24 V DC	EASY-E4-DC-8TE1 197219	EASY-E4-DC-8TE1P 197512
Transistor input/output, 0,5 A	8	-	-	8	-	24 V DC	EASY-E4-DC-16TE1 197220	EASY-E4-DC-16TE1P 197513
Digital input/output, 100/110/230/ 240 V AC/DC	4	-	4	-	-	100-240 V AC/DC	EASY-E4-AC-8RE1 197221	EASY-E4-AC-8RE1P 197514
Digital input/output, 100/110/230/ 240 V AC/DC	8	-	8	-	-	100-240 V AC/DC	EASY-E4-AC-16RE1 197222	EASY-E4-AC-16RE1P 197515
Analog input/output, 0–10 V / 0/4–20 mA, 12 bit, all channels are configurable	-	4	-	-	2	24 V DC	EASY-E4-DC-6AE1 197223	EASY-E4-DC-6AE1P 197516
Temperature input, 3-wire, Pt100/1000/Ni1000, 12 Bit, * [°C] oder [°F], Skalierung, 12 Bit, in 0,1 °, in 1°, 0 - 4095, 0 - 65535	-	4	-	-	-	24 V DC	EASY-E4-DC-4PE1 197224	EASY-E4-DC-4PE1P 197517

Temperature range can be selected PT100, PT1000 -100–+200°C, -100–+400°C,-100–+800°C, Ni1000 -50–+100°C, -50–+200°C

Communication modules

Description	Part no. Article no.
easyE communication module for Modbus RTU	EASY-COM-RTU-M1 199453
easyE communication module for SmartWire-DT	EASY-COM-SWD-C1 199452

Visualization

Description	Part no. Article no.
Remote Touch Display for the easyE4 control relay 4.3", resistive touch	EASY-RTD-DC-43-03B1-00 199740
Touch display for the easyE4 control relay 3.5", resistive touch, Modbus TCP interface	XV-102-A0-35TQRB-1E4 198513
Touch display for the easyE4 control relay 5.7", resistive touch, Modbus TCP interface	XV-102-A3-57TVRB-1E4 199734

Software

Description	Part no. Article no.
easySoft programming software for the easyE series	EASYSOFT-SWLIC 197226

easyE4 SmartWire-DT bundles

Description	Part no. Article no.
easyE4 base device EASY-E4-UC-12RC1, easy SmartWire-DT communication module EASY-COM-SWD-C1, license code for easySoft V7, RJ45 patch cord	EASY-BOX-E4-UC-SWD1 199507
easyE4 base device EASY-E4-UC-12RCX1, easy SmartWire-DT communication module EASY-COM-SWD-C1, license code for easySoft V7, RJ45 patch cord	EASY-BOX-E4-UCX-SWD1 199508
easyE4 base device EASY-E4-DC-12TC1, easy SmartWire-DT communication module EASY-COM-SWD-C1, license code for easySoft V7, RJ45 patch cord	EASY-BOX-E4-DC-SWD1 199509
easyE4 base device EASY-E4-DC-12TCX1, easy SmartWire-DT communication module EASY-COM-SWD-C1, license code for easySoft V7, RJ45 patch cord	EASY-BOX-E4-DCX-SWD1 199510
easyE4 base device EASY-E4-AC-12RC1, easy SmartWire-DT communication module EASY-COM-SWD-C1, license code for easySoft V7, RJ45 patch cord	EASY-BOX-E4-AC-SWD1 199511
easyE4 base device EASY-E4-AC-12RCX1, easy SmartWire-DT communication module EASY-COM-SWD-C1, license code for easySoft V7, RJ45 patch cord	EASY-BOX-E4-ACX-SWD1 199512

For detailed information about our products, please visit **ecat.eaton.com**

Optional accessories

Description	Part no. Article no.
MicroSD memory card, 2 GB, with adapter	MEMORY-SDU-A1 191087
Switching power supply, 100–240 V AC/24 V DC/12 V DC, 0.35 A/0.02 A, 1-phase, regulated	EASY200-POW 229424
Switching power supply, 100–240 V AC/24 V DC, 1.25 A, 1-phase, regulated	EASY400-POW 212319
easyConnect spare parts package for expansion modules 3 x plug connectors, 3 x cover caps	EASY-E4-CONNECT1 197225
easyConnect spare parts package for communication modules 3 x plug connectors, 3 x cover caps	EASY-E4-CONNECT1-COM1 199513
Industrial switch, 5-port, 100 Mbit/s	XN-332-5ETH-UMS 199711
Hinged inspection window for 4HP	SKF-FF4 233780
Hinged inspection window for 6HP	SKF-FF6 233781
Mounting bracket for hinged inspection window	SKF-HA 233782
DIN rail—suitable for 4HP	TS-CI-K3 206903
DIN rail—suitable for 6HP	TS-CI-K4 206904

The 4 HP and 6 HP hinged inspection windows also allow the easyE4 to be installed in the switch cabinet door or the CI housing.

Order your starter set today!

easyE4 starter sets

EASY-BOX-E4-UC1

Article no.: 197227

- Base device EASY-E4-UC-12RC1, 24 V AC, 12/24 V DC, 8 digital inputs, 4 outputs (relay, 8 A)
- License code for easySoft V7 programming software
- RJ45 patch cable
- easyE4 flyer

EASY-BOX-E4-DC1

Article no.: 197228

- Base device EASY-E4-DC-12TC1, 24 V DC, 8 digital inputs, 4 outputs (transistor)
- License code for easySoft V7 programming software
- RJ45 patch cable
- easyE4 flyer

EASY-BOX-E4-AC1

Article no.: 197229

- Base device EASY-E4-AC-12RC1 base device, 100–240 V AC/DC, 8 digital inputs, 4 outputs (relay, 8 A)
- License code for easySoft V7 programming software
- RJ45 patch cable
- easyE4 flyer

"We have been working successfully with Eaton for over 12 years and are very happy with our partnership."

Zabag Security Engineering GmbH

easyE4 starter sets with visualization device

RTD-BOX-E4-UC1

Article no.: 199785

- Base device EASY-E4-UC-12RC1, 24 V AC, 12/24 V DC, 8 digital inputs, 4 outputs (relay, 8 A)
- easy Remote Touch Display EASY-RTD-DC-43-03B1-00
- License code for easySoft V7 programming software
- RJ45 patch cable
- easyE4 flyer

RTD-BOX-E4-DC1

Article no.: 199786

- Base device EASY-E4-DC-12TC1, 24 V DC, 8 digital inputs, 4 outputs (transistor)
- easy Remote Touch Display EASY-RTD-DC-43-03B1-00
- License code for easySoft V7 programming software
- RJ45 patch cable
- easyE4 flyer

XV100-BOX-E4-UC1

Article no.: 198515

- Base device EASY-E4-UC-12RC1, 24 V AC, 12/24 V DC, 8 digital inputs, 4 outputs (relay, 8 A)
- Touch display XV-102-A0-35TQRB-1E4, 3.5"
- License code for easySoft V7 programming software
- Ethernet switch, 5-port
- RJ45 patch cable
- easyE4 flyer

XV100-BOX-E4-DC1

Article no.: 198514

- Base device EASY-E4-DC-12TC1, 24 V DC, 8 digital inputs, 4 outputs (transistor)
- Touch display XV-102-A0-35TQRB-1E4, 3.5"
- License code for easySoft V7 programming software
- Ethernet switch, 5-port
- RJ45 patch cable
- easyE4 flyer

Powering Business Worldwide

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