

'easy' control relay
easyE4

MOELLER
SERIES

easyE4

The fastest path to success



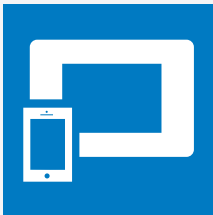
EAT•N

Powering Business Worldwide

easyE4 Control relays

More time for the really important things

Whether it's about temperature control in the food industry, simple control tasks in machine-building applications or lighting control in buildings – the easyE4, the next-generation control relay from the Eaton Moeller™ series, 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.



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



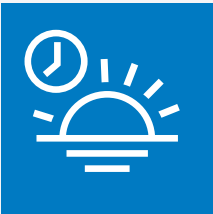
The easyE4 comes with various communication options, either via the integrated Ethernet interface using easyNET or Modbus TCP (as client or server) or via the communication module, and it can also be used as a SmartWire-DT master.



Via the integrated JSON API interface, (home) automation systems can control or exchange data with the easyE4.



The integrated web server can be used for visualization and control. In addition, it provides automatic notifications via email.



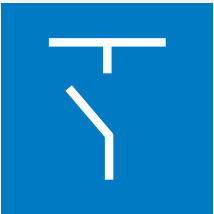
The astronomical clock enables precise system control, for example based on sunrise and sunset times.



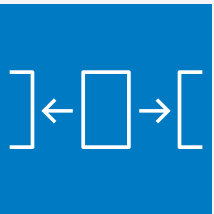
"The easyE4 significantly reduces the time and effort involved in programming."



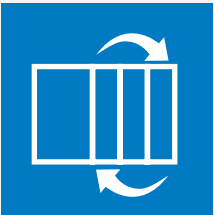
Four programming languages are available: the 'easy' device programming (EDP), ladder diagram (LD), function block diagram (FBD) and structured text (ST).



The 188 available inputs/outputs within a single easyE4 system cover a broad range of applications.



One easyE4 device can be expanded by means of one communication module and up to 11 I/O modules for maximum flexibility in line with your requirements.



The virtually unlimited combination options of the easyE4 devices and the available expansion modules simplify handling.



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

From planning to maintenance

Consistently simple

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



The multi-functional design simplifies planning

The easyE4 covers different control and regulation tasks in one device:

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

This simplifies the planning process:

- The easyE4 can be easily expanded by means of one communication module and up to 11 I/O modules
- All AC, DC and UC expansions can be mixed and combined as required



Programming options that are suited to your needs

Circuit diagrams can be created directly on the easyE4, via the input keyboard and the text display:

- The easyE4 offers flexible programming options, either directly on the device or via the easySoft software
- Programming the devices is highly user-friendly, thanks to the four available programming languages
- Display texts, background colors and start graphics can be customized, for example using your company logo

Everything at a glance during maintenance

The various available display options allow you to gain a quick and comprehensive overview of your projects:

- An integrated display that's easy to use
- 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 with status information from all connected SmartWire-DT modules



Installation and commissioning made easy

The number of inputs/outputs can be easily adjusted via expansion modules:

- The expansion modules are connected via an intelligent plug connector
- 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 standard screw terminals or the time-saving Push-in terminal technology
- SmartWire-DT participants 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 reveal themselves during operation:

- Rapid response times of less than 2 milliseconds
- DCF77 synchronization for maximum accuracy in applications where time is critical
- Rapid detection of the operating states of both the easyE4 and the expansion modules via the integrated display
- Application-specific parameters can be manually adjusted directly on the device

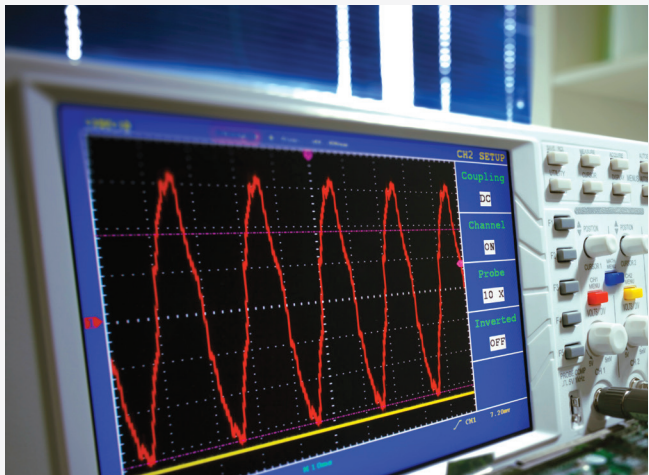
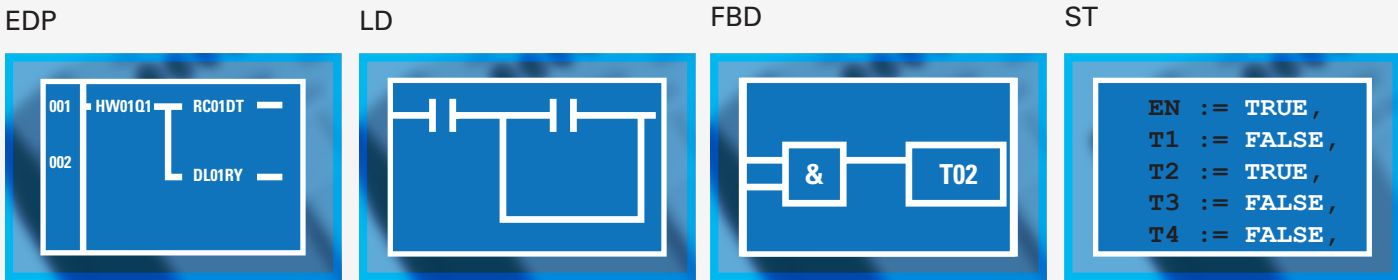


easySoft 7

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 (EDP, LD, FBD, ST) – in other words, the easyE4 offers the right programming environment for all of your needs.

- **The 'easy' device programming (EDP)** enables the creation and adaptation of programs on the devices
- **The ladder diagram (LD)** can be used to transfer existing easySoft programs
- **The function block diagram (FBD)** provides a quick overview of the various features
- **Structured text (ST) for professionals** facilitates efficient programming



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

- **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 your hardware (pairing).



Download
easySoft



Video
tutorials



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 integrated display. Thanks to the integrated web server, the data can also be accessed via any mobile device, such as smartphones or tablets. In addition, visualization via industrial displays is also possible.

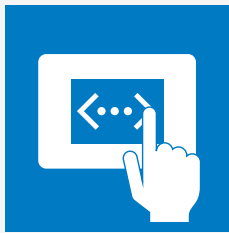


easy Remote Touch Display (RTD)
The Remote Touch Display mirrors the contents of the easyE4 in color and can be used to operate the device – without any programming!



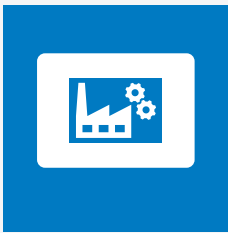
XV-102 'easy' touch display
Thanks to the pre-installed Galileo visualization software, the XV-102 touch display offers you everything you need to customize the user interface. Diagrams, icons and images simplify operation and the visualization of information.

✓ Intuitive operation



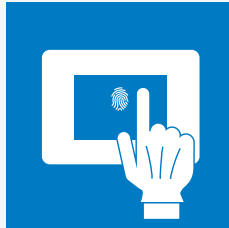
- Easy to operate
- Easy implementation of visualizations

✓ Convenient display



- Clear visualization of the application
- Appealing interface design

✓ Resistive touch



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

✓ Rugged design



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

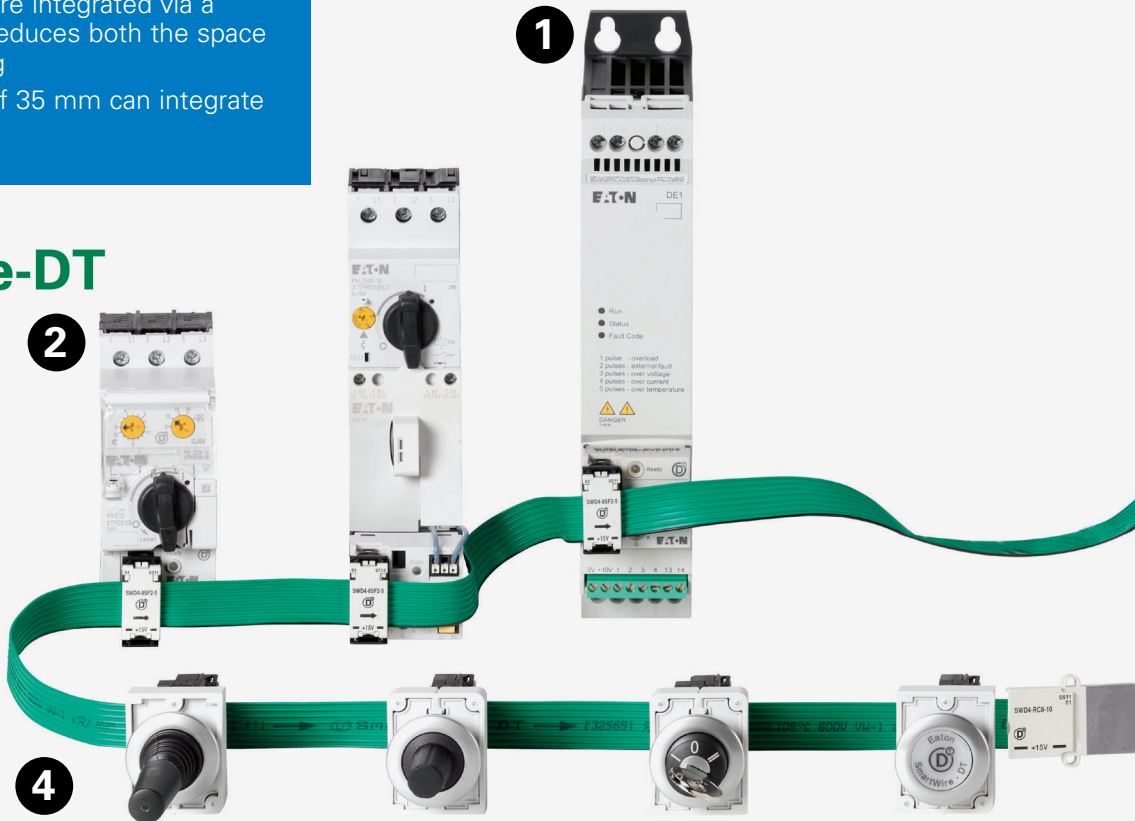
Multiple communication options

The smarter way to implement automation

The 'easy' communication module for SmartWire-DT allows you to combine the advantages of this powerful control relay with those of our intelligent wiring system. The easyE4 can thus evaluate status information from all connected devices, for example their motor frequencies and switching states, which simplifies diagnostics and troubleshooting. Components in the field can also be easily configured and programmed. In addition, the integrated Modbus TCP functionality of the easyE4 enables the connection of components at different levels, with the easyE4 acting either as client or server.

Compact design

- All SmartWire-DT participants are integrated via a single cable, which drastically reduces both the space and the time required for wiring
- A single module with a width of 35 mm can integrate up to 99 components



Remote configuration

Settings, such as threshold and setpoint values for the SWD modules, can be easily configured and adapted via the easyE4 or the integrated web server.

Data, data, data!

- The monitoring of motor frequencies and current measurements allows for early detection of anomalies and the prevention of failures.
- Thanks to the availability of diagnostic information for each component, application errors can be quickly located, which reduces downtime.

Control and monitoring of the following parameters:

1 DE1 variable speed starter

- Actual / target speed
- Speed monitoring and adjustment
- Operation monitoring
- Error code/type

2 PKE motor-protective circuit breaker

- Trip reason
- Motor current
- Switching state
- Operating mode

3 NCM circuit breaker

- Energy meter
- Fault diagnostics
- Efficiency rating
- Situational circuit control

Configurable parameters:

4 RMQ-Titan pilot devices

- Count value
- Reset value
- On/off
- Flashing ratio / frequency and brightness
- Color



"The easyE4 allows me to be even more flexible!"



Integrated Modbus TCP client & server functionality

- No need for an external gateway
- Open communication standard
- Integration of multiple automation components at various levels



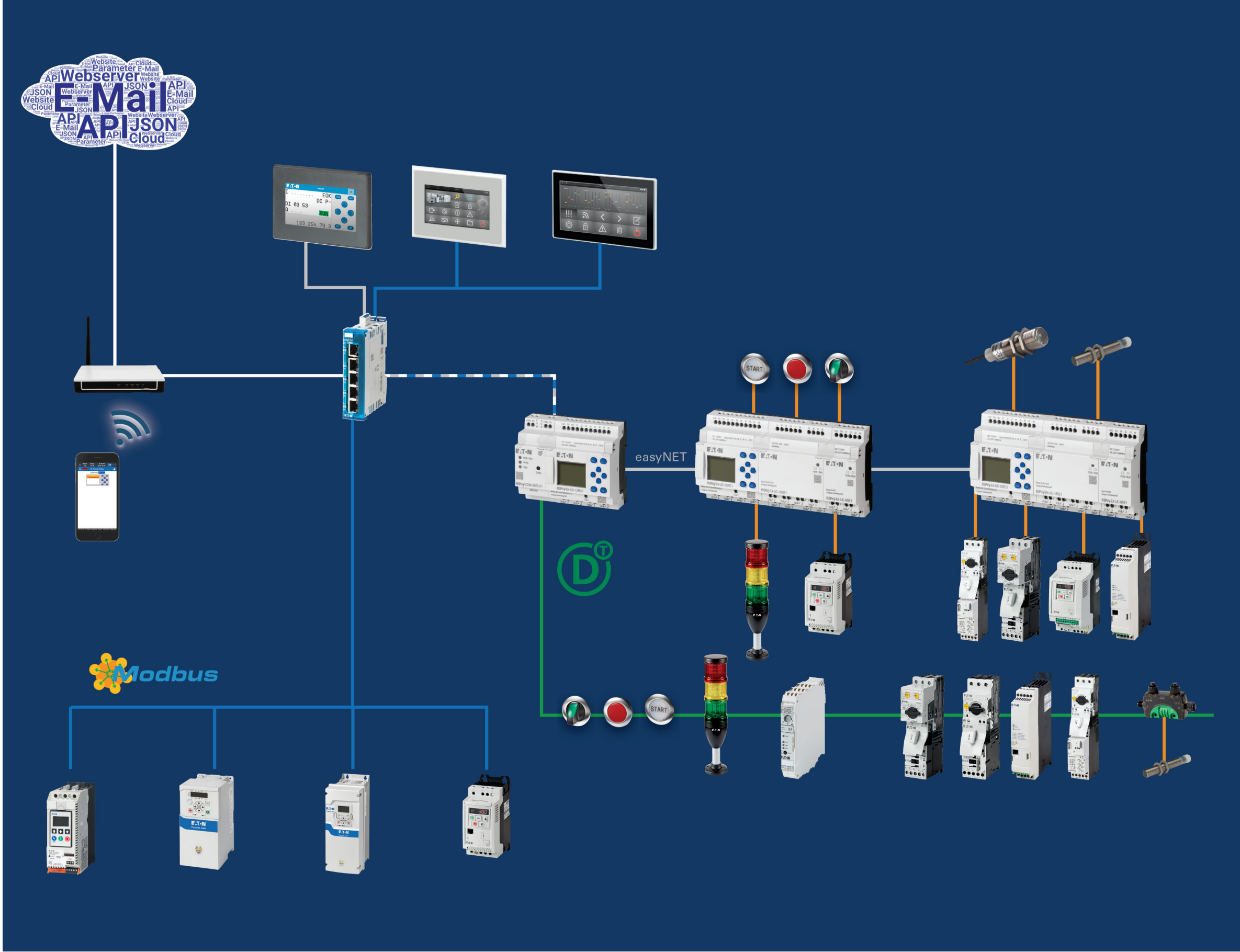
easyE4 system architecture

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

In this example of a system configuration, the easyE4 acts as the central control unit for the visualization and field level. As the easyE4 can also function as a Modbus TCP client and server, it can be integrated into Modbus TCP networks and can also be used to set up a Modbus TCP network. Via this standard protocol, the easyE4 can be connected to numerous Eaton products, such as the touch displays of the XV family, the DA1 variable frequency drive and the S811+ soft starter. Moreover, third-party components can also be connected.

Via the communication module, it is also possible to connect SmartWire-DT participants, such as pilot devices or motor starters, directly to the easyE4. The intelligent networking of the components at field level makes it possible to configure, monitor and control all devices in a SmartWire-DT communication system via the control relay.

The easyE4 uses its Ethernet interface for all communications, for instance between several control relays, with external displays, or with devices outside of the 'easy' environment. Connecting an individual device to the easyE4 does not require an Ethernet switch; a simple standard switch can be used to connect even multiple devices.



Flexible visualization

Texts and data can be easily displayed or changed using the easyE4 display. Alternatively, the convenient easy Remote Touch Display can also be used, which mirrors the content of the text display and is immediately ready for use without any 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 Modbus TCP.



Flexible handling

The integrated web server makes it possible to display application content both in internet browsers and on smartphones and tablets. In addition, the easyE4 can send emails and use the integrated JSON API to communicate with systems such as Node-Red or (home) automation systems, for example Alexa or Siri. This not only means that specific easyE4 data and parameters can be accessed in read and write mode, but also facilitates the creation of visualizations.



easyE4 solutions

Applications with maximum flexibility

The easyE4's web server functionality enables you to visualize your system and to 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 with all standard voice assistants. The possibilities are unlimited!



easyE4 in connection with API and Node-RED

Increasingly, the controllers of small- to medium-sized installations are no longer self-sufficient systems. Nowadays, they often feature at least one or even several interfaces to other systems. It is therefore becoming ever more important that these systems communicate with each other via interfaces that are not proprietary. This not only reduces the system integration costs but also significantly simplifies maintenance. As a result, more and more web development interfaces are being used, for instance API (application programming interface).



Application programming interface (API)

Based on a standardized infrastructure, namely the control relay's built-in Ethernet connection, API facilitates the exchange of so-called 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 which humans are also able to read. However, it is not always necessary for the easyE4 to be connected to the internet in order to take advantage of its numerous capabilities.

Node-RED
<https://nodered.org/>



Node-RED is a free programming environment for the Internet of Things. It was originally developed by IBM. Node-Red uses a simple web editor to link up different devices and systems and create so-called flows.

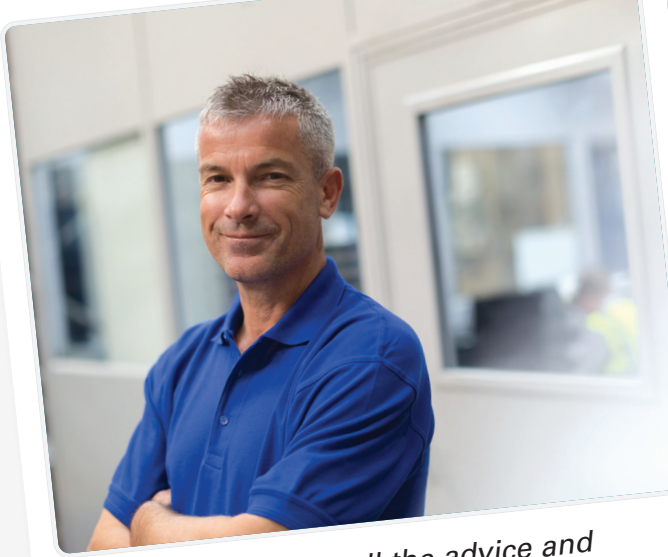
API
<https://www.eaton.com/easy-jsonapi>



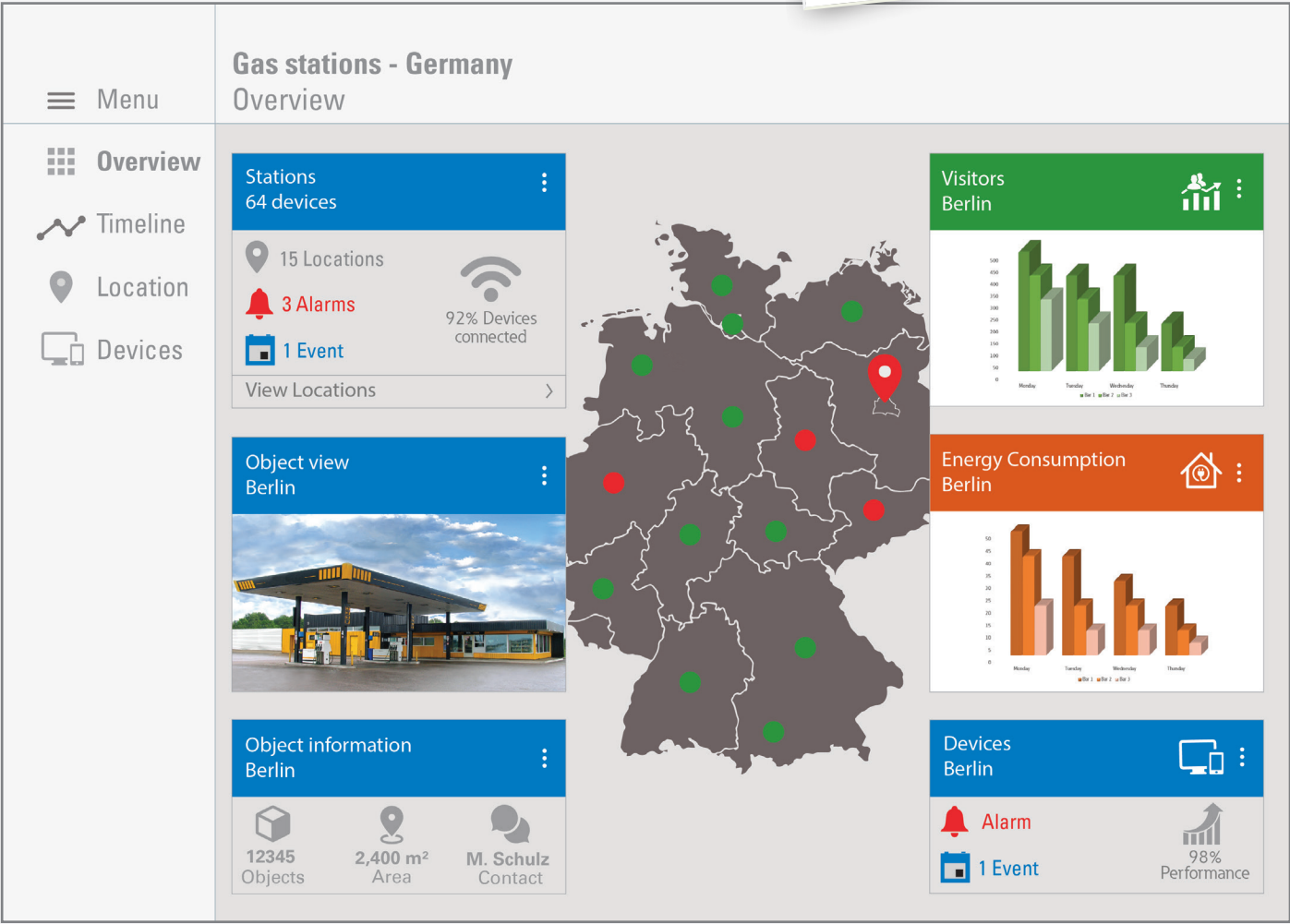
API, which stands for application programming interface, is a type of programming interface. Programming interfaces are frequently used in the development of smart home applications, web applications or IoT systems and are therefore integrated in many devices. The easyE4 also comes with an API, which 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 modules in the country
- Astronomical clock for sunrise and sunset times



"I'm getting all the advice and support I need to implement cutting-edge system solutions."

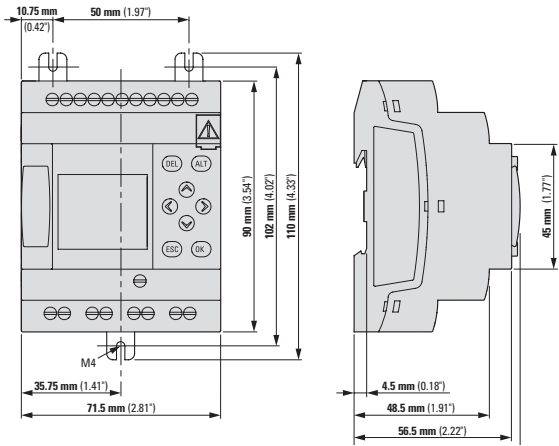


The easyE4 can not only be easily integrated into local websites, but can also exchange data and information with their web servers via the integrated API. This allows you to manage your own dashboard, which is also available offline.

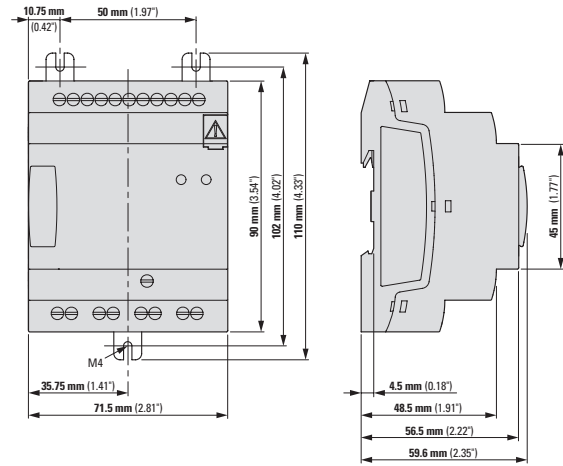
In combination with the API, this enables you to keep track of the status of all connected devices and thus of the entire system.

Dimensions

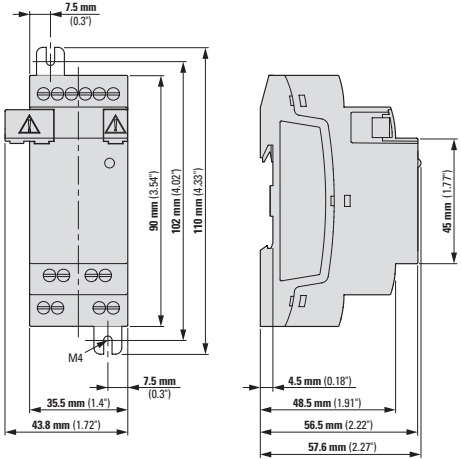
Base device with display



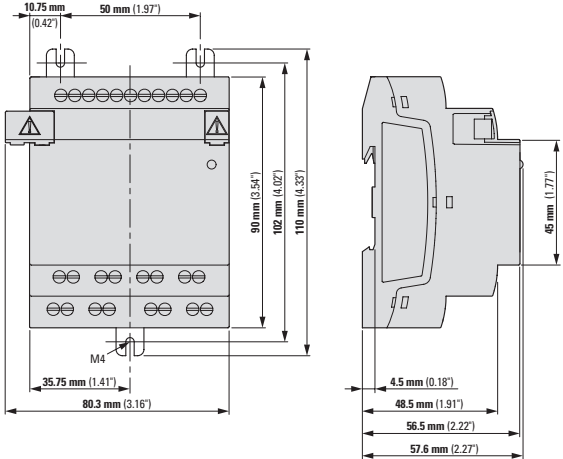
Base device without display



Narrow 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] or [°F], scaled, 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

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

Optional accessories

Description	Part no. Article no.
MicroSD memory card, 2 GB, with adapter	MEMORY-SDU-A1 191087
Switching power supply, 100-240VAC/24VDC/12VDC, 0.35A/0.02A, 1-phase, regulated	EASY200-POW 229424
Switching power supply, 100-240VAC/24VDC,1.25A, 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 the communication module 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

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 cable	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 cable	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 cable	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 cable	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 cable	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 cable	EASY-BOX-E4-ACX-SWD1 199512

For detailed information about our products, please visit [ecat.eaton.com](https://www.eaton.com)



The 4 HP and 6 HP hinged inspection windows also allow the easyE4 to be installed in the control-cabinet door or a Ci housing.

Order your starter set now!

easyE4 starter sets

EASY-BOX-E4-UC1

Article number: 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
- RJ45 patch cable
- easyE4 flyer

EASY-BOX-E4-DC1

Article number: 197228

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

EASY-BOX-E4-AC1

Article number: 197229

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



easyE4 starter sets with visualization device

RTD-BOX-E4-UC1

Article number: 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
- Software license for easySoft V7
- RJ45 patch cable
- easyE4 flyer

RTD-BOX-E4-DC1

Article number: 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
- Software license for easySoft V7
- RJ45 patch cable
- easyE4 flyer

XV100-BOX-E4-UC1

Article number: 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"
- Software license for easySoft V7
- Ethernet switch, 5-port
- RJ45 patch cable
- easyE4 flyer

XV100-BOX-E4-DC1

Article number: 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"
- Software license for easySoft V7
- Ethernet switch, 5-port
- RJ45 patch cable
- easyE4 flyer

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