

## EY-RU 310...316: Room operating unit, ecoUnit310...316

### How energy efficiency is improved

Individual setting of occupancy and absence as well as room setpoint correction, control of lights and window blinds for optimum energy usage in the room. Visualisation of the local energy consumption by means of multicolour LED indicator

### Features

- Part of the SAUTER EY-modulo 5 system family
- Room operating unit for eco500, 502, 504, 505
- Can be extended with EY-SU 306 push-button unit
- Operating unit to control and guarantee the highest possible room comfort
- Temperature measurement and setpoint adjustment
- Device insert with transparent front, fits into frame with 55 x 55 mm aperture
- Frame can be ordered as an accessory
- Room climate can be adapted individually
- Operating mode can be set for room occupancy and actuation of a 3-speed fan
- Control of window blinds, windows and lighting (ON/OFF/dim)
- Multicolour LED indicators for visualisation of local energy consumption
- Room operating unit with a wide range of functions, designs and colours



EY-RU316F001



EY-RU310F001

### Technical data

#### Power supply

Power supply	From automation station
Current consumption	≤ 25 mA ≤ 38 mA with 2 × EY-SU306

#### Ambient conditions

Operating temperature	0...45 °C
Storage and transport temperature	-25...70 °C
Admissible ambient humidity	10...85% rh, no condensation

#### Parameters

Sensors	Measuring range	0...40 °C
	Resolution	0.1 K
	Time constant	Approx. 7 minutes
Functionality	Setpoint correction	Variable
	Room occupancy (presence)	3 modes, LED indicator
	Fan speeds	5 functions, LED indicator
	Position LED	Switchable: green/red/OFF

#### Interfaces and communication

Connection to automation station	Activation	ecos 5, modu521
	Interface	RS-485
	Protocol	SLC
	Line	4-wire, twisted, shielded
	Cable length <sup>1)</sup>	≤ 100 m (30 m) with bus termination
	Connection terminals	Pluggable; for wire of 0.12...0.5 mm <sup>2</sup> (Ø 0.4...0.8 mm)

#### Construction

Fitting	Recessed/surface-mounted (see accessories)
Dimensions W x H x D	59.5 × 59.5 × 25 mm
Weight	0.1 kg
Housing	Pure white (similar to RAL 9010)
Labelling insert	Silver (similar to Pantone 877 C)

#### Standards and directives

Type of protection	IP30 (EN 60529)
--------------------	-----------------

<sup>1)</sup> Max. 30 m for industrial applications as per EN 61000-6-2



	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3

**Overview of types**

Type	Features	Buttons
EY-RU310F001	NTC sensor	-
EY-RU311F001	Operating unit, NTC sensor, dXs setpoint correction (rotary knob)	-
EY-RU314F001	Operating unit, NTC sensor, dXs setpoint correction (rotary knob), fan, occupancy	2
EY-RU316F001	Operating unit, NTC sensor, dXs setpoint correction (rotary knob), fan, occupancy, window blinds / light	4

**Accessories**

**Operating unit**

Type	Description
EY-SU306F001	Push-button unit, without frame

**Fitting**

Type	Description
0940240***	Frames, mounting plates and adaptors for third-party frames: see product data sheet PDS 94.056
0949360004	Plug-in connectors ecoUnit, 2-pin, "01/02", "03/04" (2 x 10 pcs.)
0949241301	Transparent cover for EY-RU 310 (10 pcs.)
0949241302	RAL 9010 white cover for EY-RU 310 (10 pcs.)

**Description of operation**

The ecoUnit 3 room operating units EY-RU 310...316 measure the room temperature and have a rotary knob for setpoint correction, buttons to select the presence mode and the fan speed and up to two freely allocatable buttons.

The room operating units belong to the ecos 5 product family and can be connected to a (room) automation station (RC/AS) of the EY-modulo 5 system family using the digital RS485 connection. The LED indicators can be controlled using the room controller.

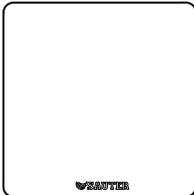
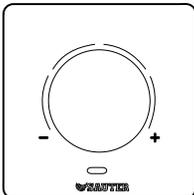
**Intended use**

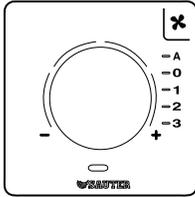
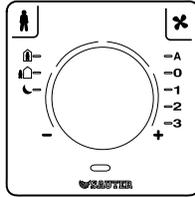
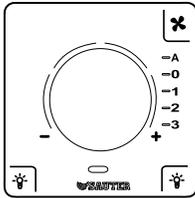
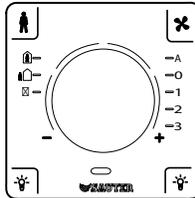
This product is only suitable for the purpose intended by the manufacturer, as described in the "Description of operation" section.

All related product regulations must also be adhered to. Changing or converting the product is not admissible.

**Front view and labelling inserts**

Depending on the type of device, different labelling inserts are included. The operating unit can be adapted to the spatial conditions.

Type	Labelling inserts included in the scope of delivery
EY-RU 310	 <small>B 12386</small>
EY-RU 311	 <small>B 12387</small>

Type	Labelling inserts included in the scope of delivery		
EY-RU 314	 B12398	 B12399	 B12400
EY-RU 316	 B12401	 B12402	 B12403

## Engineering notes

### Fitting

The EY-RU 310...316 room operating units are suitable for various fitting methods. Product data sheet PDS 94.055 shows the mounting options and the accessory material required.

The EY-SU 306 switching unit can be used to enhance the EY-RU 310...316 room operating devices with 6 additional button functions. EY-SU 306 is connected to EY-RU 310...316 with a 2-core connection and can only be used in conjunction with a basic unit (EY-RU). Two EY-SU 306 with the same button assignment/function can be connected in parallel.

Switching unit EY-SU 306 can be installed up to 30 m (total line length) away from the EY-RU.

### Connection to automation station

The room operating units are connected to the AS with a 4-wire shielded cable with twisted wire pairs. The max. admissible bus length depends on the cable type used and the correct termination with terminating resistors. Observe the correct polarity of all signals. The wire shield of the entire bus line must be connected continuously, and connected to the protective earth as directly as possible (max. 8 cm) at one location, for optimum resistance to interference.

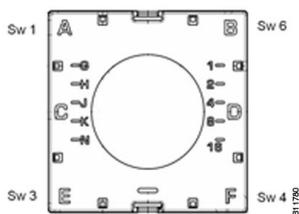
For Ethernet CAT-5 cables, as well as IYST-Y cables, a bus length of up to 100 m is possible, for applications in residential, business and commercial areas (interference resistance requirements as per EN61000-6-1). Applications in industrial areas (interference resistance requirements as per EN61000-6-2) allow a max. total bus cable length of 30 m.

In the case of RS485 interfaces, the bus wiring must follow line topology. Star, tree or branch topologies are not recommended. The devices do not have internal terminating resistors. Therefore, a terminating resistor of 120  $\Omega$  (0.25 W) must be connected at the start and end of the bus line, parallel to the D+/D- data lines.

### Addressing the operating units

A device address must be set on the communicative room operating units to ensure that they can be contacted by the automation station.

The housing cover of the ecoUnit is located under the transparent cover or the labelling insert. All operation and indication functions are clearly labelled on this surface.



Sw: Connection name in firmware module.

At least 2 buttons are available on all variants: Top left button (A), top right button (B). On devices EY-RU 310 and EY-RU 311, these two buttons or LEDs can only be used for addressing.

There are also 5 LEDs on the right-hand side (1, 2, 4, 8, 16) and 3 LEDs on the left-hand side (G, H, J).

### Addressing mode

The device address can be set without a time restriction after switching on if:

- a) no address has previously been assigned (ex works condition) or
- b) there is no communication with the AS, for example because addressing has been carried out incorrectly.

The addressing mode is signalled using the bi-colour position LED which is located under the potentiometer. The LED state during addressing mode overwrites the LED state requested by the user program of the AS.

#### The following applies:

Position LED	Status	Meaning
Red	Flashing	Device is not addressed
Red	Continuously ON	Device is in addressing mode (temporary)
Green	Flashing	Valid address is displayed (temporary, approx. 10 s)
Green, red	Continuously ON or OFF	Device in operation, see position LED

### Non-addressed device, set address

In ex works condition, the devices are not addressed. After powering up, the position LED flashes red.

If button (B) is pressed for over 5 seconds, the device switches to addressing mode, the position LED is lit continuously red and the LED (G) is lit green.

Address 0 is displayed. Pressing the button (B) again activates input mode.

The device address (1 to 4) can now be set. The addresses 0 and 5...15 are currently not supported by the automation stations.

Using button (B), the LEDs (1, 2, 4) are scanned upwards as per binary code, using button (A) they are scanned downwards again.

The following table shows the coding to set the device address:

Address	LED (1)	LED (2)	LED (4)
0	---	---	---
1	X		
2		X	
3	X	X	
4			X

Pressing and holding button (A) stores the setting and returns to the operating mode.

However, if no change is made for 5 seconds, the device returns to the operating mode without saving the settings that have been carried out.

### Changing addressed devices

The position LED is lit continuously green, red or OFF according to the AS user program.

If button (B) is pressed for over 5 seconds within the first minute after voltage is restored, the device switches to addressing mode and the set address is displayed. If button (B) is pressed again, the device switches to input mode.

Pressing and holding button (A) stores a new address and returns to operating mode.

However, if no change is made for 5 seconds, the device returns to the operating mode without saving the settings that have been carried out.

### Position LED

Starting with the index D devices, the state of the position LED for the types EY-RU 311...316 can be set using the user program of the AS: continuously green, red or off. For example, this function can be used to indicate optimal energy consumption in the room by the colour green. The colour red can be used in the same way in order to indicate energy consumption that is too high. This function is not available for devices up to and including index C.

### Connecting EY-RU 3 \*\* to the user program of the AS

How the automation station or the operating unit respond to the press of a button is programmed in the user program. The "room unit" module is available in the firmware for this purpose. This module is described in the "Firmware modules" documentation.

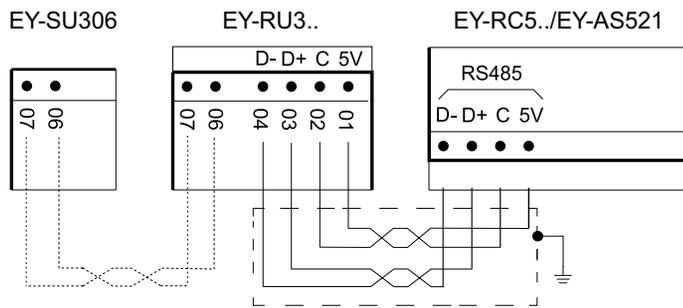
**Additional information**

Fitting instructions	P100001965
Declaration on materials and the environment	MD 94.051
Dimension drawing	
EY-RU310	M10487
EY-RU311...316	M10488
Connection diagram	A10523

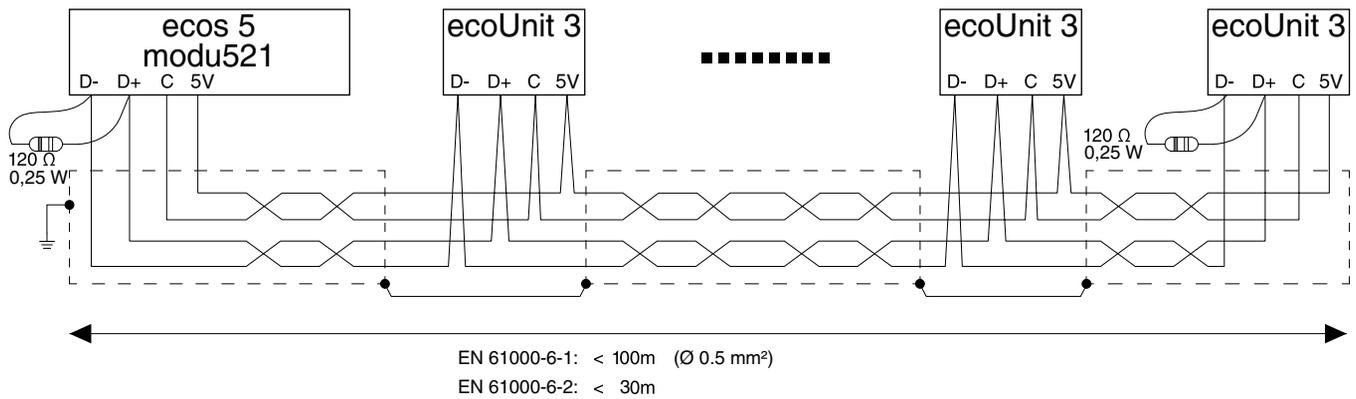
**Disposal**

When disposing of the product, observe the currently applicable local laws. More information on materials can be found in the Declaration on materials and the environment for this product.

**Connection diagram for EY-RC 500 (RS485), 502, 504, 505, EY-AS 521**

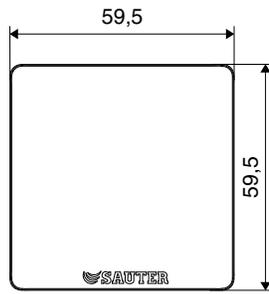


**RS-485 bus wiring**



For industrial applications, the entire bus length may be max. 30 m to fulfil the criteria for interference resistance as per EN-61000-6-2. For residential, business and commercial applications with requirements as per EN61000-6-1, the entire bus length may be up to 100 m.

**Dimension drawing**  
EY-RU 310



**EY-RU 311...316**

