EY-RU 210...216: Room operating unit, ecoUnit210...216

EY-RU216F001

EY-RU210F001

How energy efficiency is improved

Individual setting of occupancy and absence as well as a room setpoint correction and control of lighting and window blinds for optimum energy usage in the room

Features

- Part of the SAUTER EY-modulo 2 system family
- EY-RU 216 can be extended using EY-SU 306 switching unit
- Room operating unit with a wide range of different functions, designs and colours
- Device insert with transparent front, fits into frame with 55 x 55 mm aperture
- Frame can be ordered as an accessory
- Indoor climate can be adapted individually
- The operating mode can be set for the room occupancy and the actuation of a 3-speed fan

Technical data

Power supply		
	Power supply	From ecos 2
Ambient conditions		
	Operating temperature	0...45 °C
	Storage and transport temperature	–25...70 °C
	Humidity	10...85% rh, no condensation
Parameters		
Sensors	Measuring range	0...40 °C
	Resolution	0.1 K
	Time constant in still air	Approx. 10 min
Functionality	Setpoint correction	Variable
	Room occupancy (presence)	3 modes, LED indicator
	Fan speeds	5 functions, LED indicator
	Position LED	Green
Interfaces and communication		
Connection to automation station	Activation	From ecos 2
	Line	3-wire, twisted, shielded
	Length	≤ 100 m
	Connection terminals	Pluggable for wire of 0.12...0.5 mm² (Ø 0.4...0.8 mm)
Construction		
	Fitting	Recessed/surface-mounted (see list of accessories)
	Housing	Pure white (RAL 9010)
	Plastic insert	Silver (similar to Pantone 877 C)
	Dimensions W x H x D	59.5 × 59.5 × 25 mm
	Weight	0.1 kg
Standards and directives		
	Type of protection	IP30 (EN 60529)
	Protection class	III (EN 60730-1)
	Environment class	3K3 (IEC 60721)
CE conformity according to	EMC Directive 2004/108/EC[1)]	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4

Overview of types

Type	Properties	Buttons
EY-RU210F001	NTC sensor	–
EY-RU211F001	Operating unit, NTC sensor, dXs setpoint correction (rotary knob)	–

1) *EN 61000-6-2: In order to meet the European standard, the power cable should not exceed 30 metres in length.*

Type	Properties	Buttons
EY-RU214F001	Operating unit, NTC sensor, dXs setpoint correction (rotary knob)	2
EY-RU216F001	Operating unit, NTC sensor, dXs setpoint correction (rotary knob)	4

Accessories

Operating unit

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

Fitting

Type	Description
0949241302	RAL 9010 white cover for EY-RU 310 (10 pcs.)
0949241301	Transparent cover for EY-RU 310 (10 pcs.)
0940240***	For frames, mounting plates and adaptors for third-party frames: see product data sheet PDS 94.055
0949360004	Plug-in connectors ecoUnit, 2-pin, "01/02", "03/04" (2 x 10 pcs.)

Description of operation

Operating unit to control and guarantee the highest possible room comfort. Recording the temperature and controlling rooms with different conditions using communicative EY-modulo 2 ecos unitary controllers

Intended use

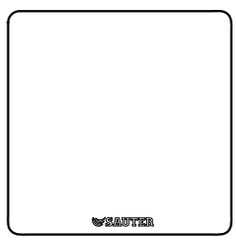
This product is only suitable for the purpose intended by the manufacturer, as described in the “Description of operation” section.
All related product regulations must also be adhered to. Changing or converting the product is not admissible.

Front view

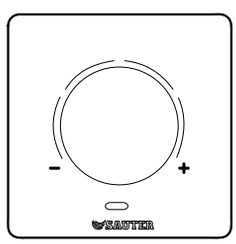
Depending on the type of device, different labelling inserts are included. The operating unit can be adapted to the spatial conditions.

Labelling inserts

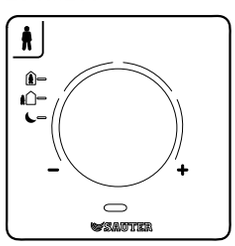
EY-RU210

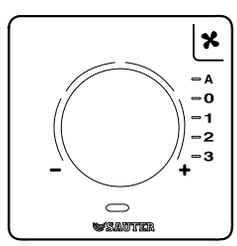


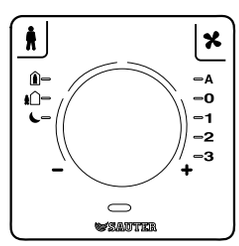
EY-RU211



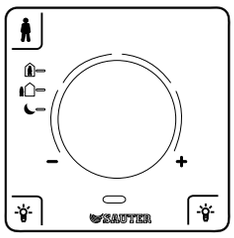
EY-RU214







EY-RU216



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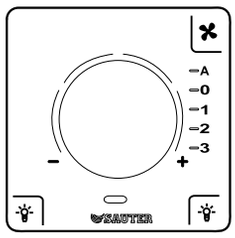

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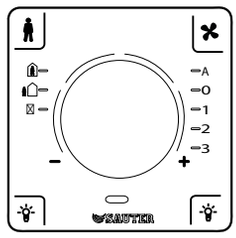


Engineering notes

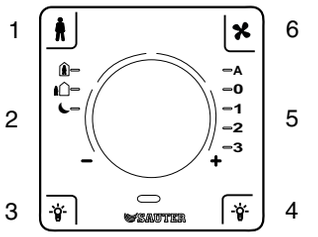
Fitting

The ecoUnit210...216 room operating units are suitable for various fitting methods. Product data sheet PDS 94.055 shows the fitting options and the accessory material required.
As the device insert is separate from the frame, there are many options for the fitting method and the frame selection. This flexibility allows you to choose by selecting the appropriate accessory.
The EY-SU 306 switching unit can be used to add 6 button functions to the EY-RU216 room operating unit. EY-SU 306 is connected to EY-RU 216 with a 2-core connection and can only be used in conjunction with a basic unit (EY-RU***). Switch unit EY-SU 306 can be installed up to 30 m (total cable length) away from the EY-RU***.

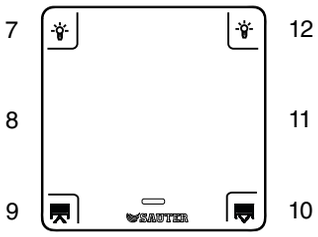
Addresses (MFA) of the ecoUnit 210…216 (with switching unit EY-SU 306)

The type of a room operating unit defines the number and type of the possible operating functions.
The following shows all the possible addresses (MFA) for the room operating unit.

EY-RU 216



EY-SU 306



	Button	Function	Address (MFA)
EY-RU 216	1	Occupancy mode	56
	2	Not present	-
	3	Freely allocatable	0/fc1 (bit24)
	4	Freely allocatable	0/fc2 (bit25)
	5	Not present	-
	6	Fan speed	57
	-	Temperature sensor	09
	-	Setpoint adjuster	10
	-	Occupancy LED	40
	-	Fan LED	41
EY-SU 306	7…12	Freely allocatable	08
	8	Freely allocatable	58
	11	Freely allocatable	59

The EY-SU 306 switching unit adds six button functions to the EY-RU 216 room operating unit. It must be connected directly to the EY-RU 216. The connection is made with a 2-core connecting cable (supplied with EY-SU 306).

Position LED

EY-RU 216 allows skylights to be connected. Depending on the project, it may be necessary that the light switch is easy to find, even when it is dark in the room.
In the EY-RU 216, if terminal 4 is wired to terminal 1, the position LED in the operating unit lights up permanently.

Actual value for temperature Xi (MFA 09)

The sensor is an NTC element with 10 kΩ at 25 °C and must be linearised in the ecos.
Note that the linearisation of this measuring address is type-dependent.

EY-RU 210 Linear correction	EY-RU 211…216 Linear correction
a = 0.14	a = 0.14
b = 1	b = 0

EY-SU 306 switching unit (only with EY-RU 216)

A pressed button is transferred to the EY-RC 216 via analogue signal (MFA08).

Value range for MFA 08 (linear correction a=77, b=35)	Pressed button (EY-SU 306)
90…109	Button 7
75…89	Button 8
110…125	Button 9
40…54	Button 10
20…39	Button 11
55…74	Button 12

The ecos user program evaluates which of the 6 buttons is pressed.
Additionally, the two middle buttons (8, 11) of the switching unit are assigned to MFA 58 (bit 31) and 59 (bit 31). These two MFAs are processed faster.
If two buttons are pressed simultaneously, the middle buttons have priority, e.g. if buttons 7 and button 8 are pressed, only button 8 is evaluated.

Setpoint correction dXs (MFA 10)

Due to the different ecos types and their different operating program versions, different linear correction factors (a, b) are required for individual setpoint correction ranges.

ecos201, 202, 205, 206 (index ≥ H) ecos200, 208, 209			ecos201, 202, 205, 206 (index ≤ G)	
Range	a	b	a	b
±1.0 K	0.22	-0.07	0.00348	-0.55
±1.5 K	0.325	-0.1	0.005	-0.7
±2.0 K	0.435	-0.135	0.00662	-0.952
±2.5 K	0.545	-0.17	0.008333	-1.22
±3.0 K	0.655	-0.2	0.010043	-1.487
±3.5 K	0.765	-0.24	0.011753	-1.754
±4.0 K	0.87	-0.28	0.013463	-2.001
±4.5 K	0.983	-0.31	0.015173	-2.248
±5.0 K	1.09	-0.35	0.016883	-2.495

Note:
The setpoint correction is automatically set to null when leaving the Comfort mode (occupancy = 0). It is generally necessary to enter a linear correction.

Indicator functions of the occupancy and fan LEDs

Fan speed LED (MFA41)
The following table shows the commands for MFA 41 to control the LED indicator for the fan speeds.
A CASE Engine template is available for activating speeds A-3-2-1-0 (circulation control).

Fan speed (LED indicator)	Command on digital output MFA 41
Auto	No command applied
0	Commands 1 + 2 + 3 + 4 simultaneously
1	Command 1
2	Command 2
3	Command 3
All LEDs off	Commands 1 + 2 + 3

ecoUnit21 has an active LED indicator for fan speed 0. If the “circulation control” stored in the ecos operating programme is used, fan speed 0 is not activated. Then A-3-2-1 applies.

Occupancy mode LED (MFA40)

The following table shows the commands for MFA 40 to control the LED indicator for the occupancy modes.

Occupancy modes (LED indicator)	Command on digital output MFA 40
Absent (building empty)	No command applied
Comfort (person in building)	Command 1
Night reduction mode (moon)	Command 2
All LEDs off	Command 1 + command 2

Replace room operating units type EYB 250…256 with ecoUnit210…246

For a replacement, the following changes are required in the ecos user program:

MFA	Designation	Activity
09	NTC sensor	Adjust linear correction a, b
10	Setpoint correction	Adjust linear correction a, b
41	Fan speed indication	If an active indicator is desired for speed 0 (LED), the program must be modified accordingly.

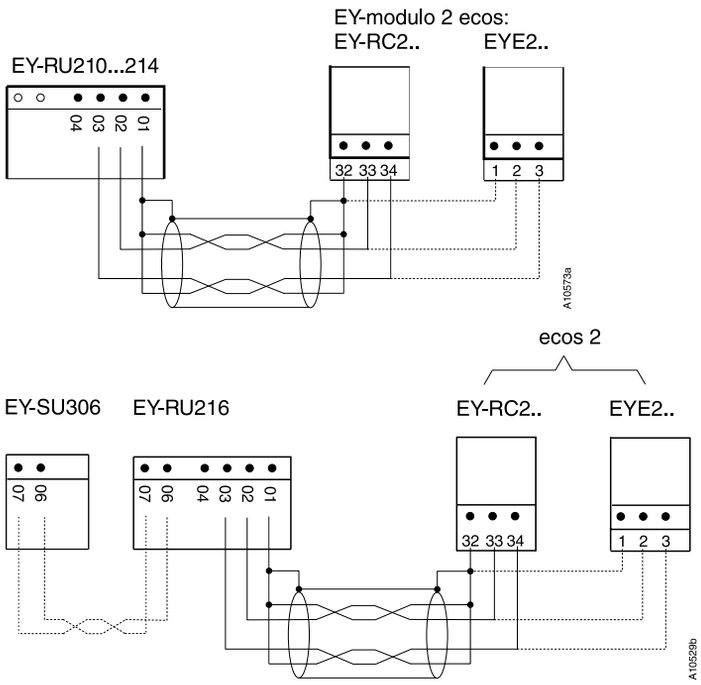
Additional information

Fitting instructions	P100002467
Declaration on materials and the environment	MD 94.175

Disposal

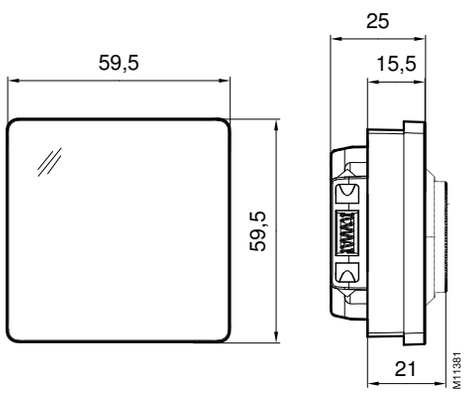
When disposing of the product, observe the currently applicable local laws.
More information on materials can be found in the Declaration on materials and the environment for this product.

Connection diagram



The resistance to interference of the transmission between the operating unit and the ecos is increased by using twisted connecting cables.

Dimension drawing



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