

EY-CM 581: Wireless interface, EnOcean, ecosCom581

How energy efficiency is improved

Integration of energy harvesting sensors and room operating units with the EnOcean wireless standard

Features

- Part of the SAUTER modulo system family
- Bidirectional wireless communication according to EnOcean (ISO/IEC 14543-3-10)
- Internal, optimised wireless antenna (no BNC antenna necessary)
- Integration of EnOcean devices: SAUTER ecoUnit110 room sensor and ecoUnit146 room operating unit and other EnOcean devices from third-party manufacturers
- Wide-range supply voltage for compatibility with ecos 5 and ecos311 room controllers and modulo 6 automation stations
- RS-485 interface for remote, optimum positioning of the wireless interface in the room
- Firmware update via SLC/RS-485
- Device insert with transparent front, fits into frame with 55 x 55 mm aperture
- Frame and white cover front can be ordered as accessories
- Frames and foils in many colours and designs possible



EY-CM581F081



Technical data

Power supply

Power supply	5...24 V DC $\pm 20\%$ ecos 5: +5 V, ecos311: +15 V/+5 V, modulo 6: +24 V
Current consumption	5 V: typ. 36 mA, 68 mA peak 15 V: typ. 14 mA, 24 mA peak 24 V: typ. 10 mA, 17 mA peak

Ambient conditions

Operating temperature	0...45 °C
Storage and transport temperature	-25...70 °C
Ambient humidity	5...85% rh, no condensation

Interfaces and communication

Wireless technology	EnOcean, TCM 300
Frequency	868 MHz band (868.3 MHz)
Protocol	EnOcean EEP (see EEP list)
Range	Up to 30 m, depending on building structure (planning recommendation: 10 m)

Connection to automation station

Interface	RS-485, 115.2 kbit/s
Protocol	SLC (SAUTER Local Communication)
Activation	ecos 5, ecos311, modulo 6
Line	4-wire twisted (shielding, RS-485: line end resistance recommended)
Line length	≤ 100 m

Construction

Weight	0.07 kg
Dimensions W x H x D	59.5 x 59.5 x 27.8 mm
Housing	Pure white (similar to RAL 9010)
Labelling insert	Silver (similar to Pantone 877 C)
Fitting	Recessed/surface-mounted (see accessories)

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 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1
	RED Directive 2014/53/EU	ETSI EN 300 220-2 (V3.1.1)
	RoHS Directive 2011/65/EU	EN 50581

Overview of types

Type	Description
EY-CM581F081	COM module EnOcean, SLC/RS-485, 5...24 V DC, 868 MHz

Accessories

Type	Description
0940240***	For frames, mounting plates and adapters for third-party frames, see product data sheet 94.055
0949241301	Transparent cover for EY-RU and EY-SU, 10 pcs.
0949241302	RAL 9010 white cover for EY-CM581, EY-RU and EY-SU (10 pcs.)
0949360004	Push-in terminal RU/SU (for wire), 2 × 10 pcs. 2-pin (01/02, 03/04)
0940360012	Screw terminal RU/SU (optional for braid), 2 × 10 pcs. 2-pin (01/02, 03/04)

Description of operation

The ecosCom581 wireless interface is used to integrate SAUTER ecoUnit 1 room operating units and other standard EnOcean devices into ecos 5 and ecos311 room controllers or modulo 6 automation stations.

The wireless interface provides four communication channels. An ecoUnit 1 room operating unit and up to 15 standard EnOcean devices can be assigned to each of these channels. The wireless interface supports bidirectional communication with EnOcean devices.

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.

Engineering and fitting notes

The wireless interface is suitable for various fitting methods. Product data sheet 94.055 shows the fitting options and available frames, as well as other accessories.

The use of third-party frames usually needs to be checked in advance. Frames made of metal or with metal coating can significantly reduce the wireless range.

System limitation:

The device is connected to the ecos 5 and ecos311 room controllers or the modulo 6 automation stations via the RS-485 interface (SLC protocol).

A maximum of two ecosCom581 can be connected to an SLC/RS-485 line. It must be ensured that the total current consumption of the connected devices does not exceed the maximum power of the supply voltage 5/15/24 V. In addition, the voltage drop across the supply cable (taking into account length and cross-section) must not be too great for the devices.

Example of mixed mode (wired/wireless):

$$1 \times \text{ecosCom581} (36 \text{ mA}) + 3 \times \text{ecoUnit355} (9 \text{ mA}) < \text{ecos504} (100\text{mA}@5\text{V})$$

SAUTER EnOcean devices may only be taught in on an ecosCom581 wireless interface.

More information about EnOcean wireless technology and the positioning of the wireless interface and the room operating units is available in the "Engineering using EnOcean wireless technology" manual.

Additional technical documents

Document/name	
Fitting instructions	P100018768
Quick reference (BA)	P100007832
Declaration on materials and the environment	MD 94.016
Product data sheet "Frame for device insert"	PDS 94.055
Product data sheet "Room operating unit, EnOcean, ecoUnit146"	PDS 94.013
Product data sheet "Room sensor, EnOcean, ecoUnit110"	PDS 94.012

Document/name	
Manual "Engineering with EnOcean wireless technology" (SAUTER EnOcean application notes)	7010084001, see SAUTER extranet
Compatibility list of third-party devices for ecos-EnOcean	D100119337
ROOM_UNIT function module	Online help for CASE Suite/Engine

Connection to controllers and automation stations

The wireless interface is connected to the SLC interface of the automation station or controller by means of a 4-core cable (RS-485 interface, SLC protocol). The unit must be disconnected from the electrical supply when the wireless interface is being connected to the station. Up to four ecoUnit146 room operating units for ecos 5 and modulo 6 or one ecoUnit146 for ecos311 can be assigned to a wireless interface. The room operating units send their information to the wireless interface. Mixed mode with SLC-based, wired devices (ecoUnit 3) is possible. Other SLC devices (ecoLink) can also be connected to the same SLC/RS-485 line, provided the controller or station supports this. Further information on the ecoUnit146 EnOcean room operating unit or the ecoUnit110 EnOcean room sensor can be found in product data sheets 94.013 and 94.012.

Address of the wireless interface

The wireless interface can be coded for up to 4 address ranges (RU profiles/SLC). Up to 16 EnOcean devices can be recorded in each address range. The EnOcean ID is saved in the wireless interface during the teach-in procedure.

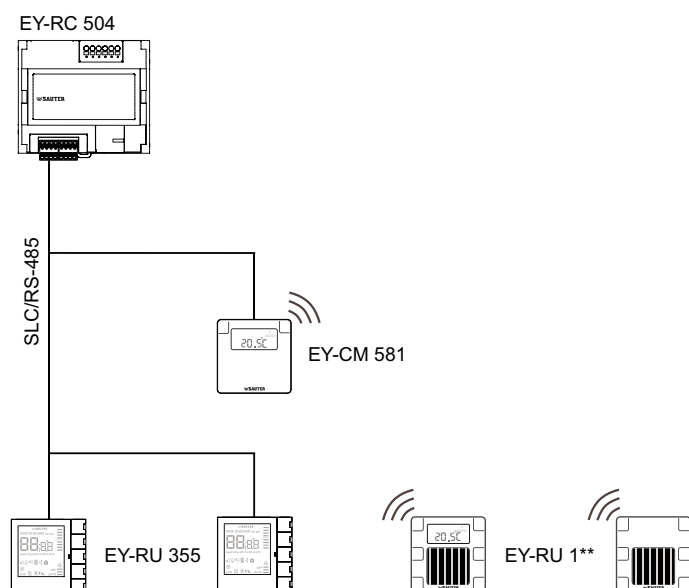
The wireless interface has device address 0 ex works. If two wireless interfaces are connected to the same SLC/RS-485 line, the device addresses must be different for firmware updates (0 and 1). How to set the device address is described in the quick reference for the ecosCom581.

Device functions

The wireless interface is both a transmitter and a receiver for EnOcean wireless signals. For the controller or automation station, the wireless interface behaves like a device with up to four room operating units (ecoUnit 3).

- In mixed mode (wired/wireless), each SLC channel address may only occur once.
- One channel corresponds to the data content of an ecoUnit 3 room operating unit (function module ROOM_UNIT).
- Up to 16 different transmitter types or profiles can be taught in on one channel (memory space for EnOcean address 0...F). The transmitter teach-in (assigning an EnOcean transmitter to the receiver or wireless interface) takes place on the relevant ecoUnit SLC channel.
- If a wireless telegram is received from a taught-in transmitter, the symbol ✱ flashes briefly and shows the corresponding taught-in profile on the LCD of the ecosCom581.

Application example



Information on usage

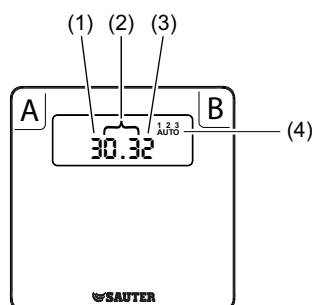
The wireless interface works in conjunction with the ecoUnit 1 devices in bidirectional mode. The ecoUnit 1 devices are taught in using the “Smart Acknowledge” method (SMART ACK, teach-in without repeater). The wireless interface supports various EnOcean devices, depending on the EEP profile. Teach-in procedures RPS, 1BS or 4BS (variant 1 or 2) are also supported.

The wireless interface also supports a reset of the setpoint correction on the ecoUnit14*. However, the reset setpoint correction is only synchronised with the wireless interface after the room operating units have been activated or “woken up”. Other EnOcean multi-sensors can be taught in parallel to the room operating unit. The multi-sensors will transmit the brightness even if the room operating unit is mapped higher.

Supported EnOcean Equipment Profiles (EEPs)

All supported EnOcean Equipment Profiles (EEPs) are listed in the quick reference. These EEPs are accordingly taught in as SAUTER profile no. and type no., and thus map to the ROOM_UNIT function module in the controller. EnOcean devices from other manufacturers can be listed informally in a SAUTER ecos-EnOcean compatibility list.

Display for teach-in/addressing



- (1) SAUTER profile no.
- (2) SAUTER type no.
- (3) Memory space (for EnOcean address)
- (4) Channel (1, 2, 3, AUTO = 4)

The SAUTER profile and type numbers and corresponding EEPs can be found in the quick reference.

Teaching in/addressing

Put the ecosCom581 wireless interface into learn mode, then manually cause the room operating unit (transmitter) to send a learning telegram.

If the wireless interface is not in learn mode, no room operating unit can be assigned. Any learning telegram that may have been sent has no effect.

Only if an EnOcean ID is assigned to a channel of the wireless interface is this channel addressable, i.e. it responds to a data request from the controller or station. This guarantees a mixed mode with a wired ecoUnit 3.

For information on activating the learn mode and teaching in room operating units (transmitters), see the quick reference.

Special features for communication

Communication monitoring

If the communication between ecosCom581 and ecoUnit 1 is interrupted, the message “Err2” appears on the display of the ecoUnit146. This error message disappears automatically after the communication is restored.

If the communication between the controller or automation station and ecosCom581 is interrupted, the message “Err2” appears on the display of the ecosCom581. In this case, there are no wireless telegrams to the ecoUnit 1. As a result, the error message is also shown on the display of the ecoUnit146.

Offline detection of individual transmitters/ecoUnits

The wireless interface (SLC slave) sends the various available values (temperature, brightness, etc.) to the cyclically querying controller (SLC master). If the EnOcean sensor does not respond to the corresponding value, this value is not sent to the controller either. The relevant valid flag of the output on the ROOM_UNIT firmware module is marked, i.e. a 1 for valid values and a 0 for invalid values. The time until a value is logged off is approx. 120 minutes.

Firmware update

The wireless interface (from hardware index B) has a boot loader with which firmware extensions and updates can be installed. Firmware updates are supported by ecos504/505 controllers and modulo 6 automation stations.

At least the following versions are required for the update function:

- ecos504/505 version 3.5
- modu680-AS version 1.2
- CASE Suite/Engine version 4.1

The exact procedure (firmware update and setting the device address) is described in the quick reference.

Compatibility with ecoMod580

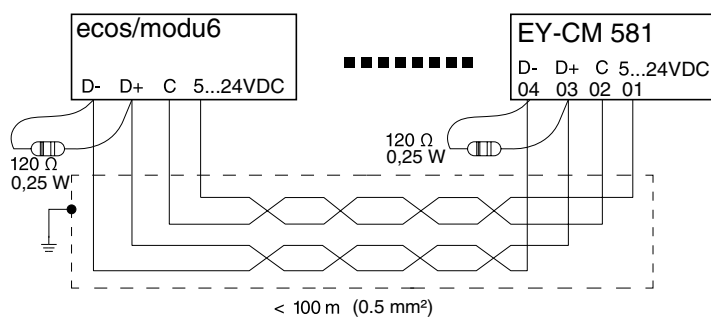
The ecosCom581 wireless interface has the same or a larger range of functions (e.g. EEPROMs, form factor, power supply), so that the device is suitable as a replacement and successor of the ecoMod580 (EY-EM580F001) wireless interface. When devices are replaced, taught in EnOcean devices must be manually taught in again.

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



Dimension drawing

