

## Installation and Operating Instructions EnOcean RCM 255

### Universal 1-channel switching receiver

Art.no.: H5002-B255

The RCM255 is a RF receiver designed to switch various 120V electronic loads such as incandescent lamps, high-voltage halogen lamps, electronic ballast and inductive loads upon receipt of authenticated radio packets sent by EnOcean transmitters. An EnOcean transmitter can simultaneously control an unlimited number of receivers. Each transmitter has its own fixed 32-bit address. The RCM255 'LEARNS' the address of transmitters that are assigned to the receiver.

**Attention!!** This unit **may not be used** in connection with devices that directly or indirectly affect human health or safety or that could endanger humans, animals or material assets. Do not leave the packaging material lying around; plastic wrap/bags etc. can become a dangerous toy for children.

These operating instructions are part of the device and our warranty and must be provided to the user. The technical specifications of the devices may change without notice. In the event of a defect, you can send your EnOcean product along with a clear description of the problem (type of use, detected defect, etc.) to your dealer.

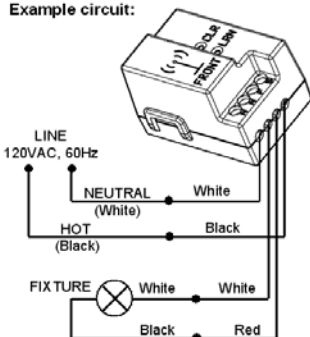
**Warning: Installation may only be done by professionals!** When connecting the receiver, shut off the power. Following rules have to be observed:

- o Follow applicable laws, standards and regulations and ensure the state of the art at the time of installation follow the operating instructions for the transmitters and receivers
- o Note that operating instructions can only provide general guidelines, and that they must be considered in the context of a specific system

#### INSTALLATION

- 1.) **WARNING:** To avoid fire, shock, or death: **TURN OFF POWER** at circuit breaker or fuse and test that power is off before wiring!
- 2.) For in-wall mounting an outlet box **must be used**. For best performance do not mount the receivers close to the floor or near to wall niches. Do not mount the receiver into a metal housing.
- 3.) Prepare wires: Pull off pre-cut insulation from RCM255 leads. Make sure that the wires are not frayed, cut if necessary removing 5/8" (1.6cm) of insulation from each wire.
- 4.) Connect wires per **EXAMPLE CIRCUIT** as follows: Both white wires are coupled internally (N). Screw wire nuts on clockwise making sure no bare conductors show below the wire connectors. Secure each connection with electrical tape.
- 5.) Installation may now be completed by carefully positioning all wires and stowing the receiver box. Restore power.

Example circuit:



#### Operating mode

Each RCM255 can operate as either a Push Button Switch receiver (by LEARNING EnOcean PTM Switches) or a Magnet Contact Receiver (by LEARNING EnOcean STM250 magnet contacts), but not a mix of devices. The RCM255 can LEARN either a maximum of 30 EnOcean PTM's or up to 2 EnOcean STM250's. The memory of the receiver is empty when delivered. By assigning the first transmitter the operating mode (push button switch or magnet contact) is defined. The operating mode can only be changed after deleting all learned transmitters with the CLR button.

- a) **Mode ROCKER SWITCH:** Each assigned transmitter can be used to change the switching state of the receiver. It is possible to switch ON (button I) with one switch and to switch OFF (button O) with another switch. When learning a radio switch with 2-rockers, only the rocker which has been pressed is learned by the receiver.
- b) **Mode WINDOW CONTACT:** If at least one of the assigned window contacts is open, the switching state of the receiver is ON. If both contacts are closed the state is OFF. The window contacts transmit a 'supervisory signal' approx. every 15min. If there has been no supervisory signal for more than 60 minutes, the RCM255 considers the contact closed. Potential reasons the supervisory signal is not received include: The energy store of the window contact is empty, make sure the solar cell receives sufficient light, the radio channel is disturbed by interference or obstructions, the window contact has been removed, or the contact is broken.

#### Programming

- 1.) For programming the RCM255 must be connected to power. The programming is retained when power is disconnected. To prevent LEARNING unintentional switches, when in Programming mode, the receiver sensitivity is reduced to approximately 5 meters from the switch.
- 2.) Operating the LRN or CLR pushbutton should be done by pushing a non-metallic insulated probe (e.g. plastic ballpoint pen) carefully through the small hole in the housing onto the pushbutton behind.
- 3.) Press and hold the LRN button approximately 0.3 seconds until Programming mode activates which is confirmed by 1 second cyclic switching of the output relays ("**Toggleing**"): A light connected to the power output will be switched on and off every second. In quiet environments the Toggleing of the relay can be heard.
- 4.) Transmitters can now be LEARNED: By pressing one of the rockers of a PTM radio switch or by pressing the learn button inside the back cover of the STM250 magnet contact, the transmitter is assigned to the switching receiver, and the relay stops Toggleing for about 4 seconds. The relay status confirms that the transmitter has been saved (contact remains on for 4seconds) or a previously learned transmitter is deleted (contact 4s off).

- 5.) As soon as the Toggleing of the relays resumes, additional transmitters can be LEARNED or deleted. If the RCM255's memory is full (30 EnOcean PTM 250 radio switches or 2 EnOcean STM 250 radio window contacts) the receiver terminates Programming mode and returns to operating mode during an attempt to enter another transmitter. In this case at least one ID has to be deleted before LEARNING a new transmitter.
- 6.) To exit Programming mode, re-press the LRN button, or after 30 seconds of no activity the receiver automatically exits Programming mode.

**Selective deleting:** A transmitter that has been LEARNED can be selectively deleted. The Programming mode is activated by pressing the LRN button. Then actuate the rocker or learn button of a previously learned transmitter, it is now UNLEARNED. Exit Programming mode by repressing the LRN button.

**Clear all:** If the CLR key is pressed and held for approx. 2 seconds the memory is deleted completely (condition upon delivery). Then the RCM255 receiver enters Programming mode which is signalled by the Toggleing output relays. Programming mode is left manually by pressing the LRN button.

#### TRANSMISSION RANGE

The signal strength of radio signals decreases with increasing distance between transmitter and receiver. With a line of sight the range in corridors is typically 30m, 100m in halls. The transmission range depends on the materials used in the building:

Material	typical range
Masonry	20m, through 3 walls max.
Reinforced concrete	10m, through 1 wall / ceiling max.
Wood walls / drywalls	30m, through 5 walls max.

The transmission range is reduced by:

- o Mounting transmitter or receiver in the vicinity of metal parts or materials containing metal. The minimum distance should be 10 cm
- o Mounting transmitter or receiver on or close to the floor
- o Moisture in materials
- o Devices transmitting RF signals such as computers, audio and video equipment, or electronic gear controls for lamps. A minimum distance of 0.5 meters should be kept

#### TROUBLESHOOTING

For a new or pre-existing system:

- o Check if the receiver is connected as specified
- o Verify that the fixture operates without the switch in-line
- o Delete all assigned transmitters in the receiver (press and hold the CLR button for 2 seconds), and reprogram the receiver

The receiver independently turns ON and OFF:

- o This can occur when an unintended transmitter is activated within the receiver range when a receiver was in Programming mode.
  - o Clear all transmitters in the receiver and reprogram the receiver
- The receiver does not receive a transmitter command:
- o Move the switch or magnet contact closer to the receiver. If the system works at closer distance, the transmitter was installed outside the reception range, or there was radio signal interference Repeaters are available, please contact your dealer.
  - o Mount the switch or magnet contact or the receiver at a better location
- Please note that 868 MHz band is used in the United States of America by trunk radios. In some locations close to trunking radio towers, decreased range may be noticed.

#### TECHNICAL DATA

Radio frequency	868.3 MHz
Power supply	120V~ / 60 Hz
Consumer connection data	Maximum 1000W resistive (Cos φ = 1.0), 400W Tungsten (incandescent lamp), 360W Ballast (fluorescent lamp)
Ambient temperature	-10° to +45°C
Storage temperature	-20° to +80°C
Certifications	FCC/IC, cCSAus
Degree of protection	For indoor use only, for permanently installed fixtures only

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. If this device is operated in compliance with the following requirements it can be operated without notification and free of charge in the area of the United States of America and in Canada.

Trade Name: RCM 255  
Model No: RCM 255  
FCC ID: SZV-RCM255  
IC: 5713A-RCM255



This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions:  
(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**Warning:** Changes or modifications made to this equipment not expressly approved by EnOcean may void the FCC authorization to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help