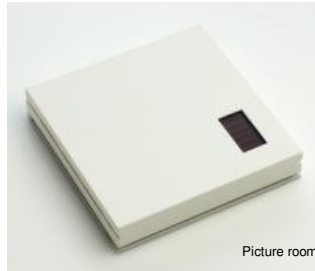




Designation	Color	Type	Order no.
Room temperature sensor	pure white	RTF101 rw	2103 153
	black	RTF101 sw	2103 150
Room temperature sensor with target value hand wheel	pure white	RTF102 rw	2104 153
	black	RTF102 sw	2104 150
Room temperature sensor with target value hand wheel and operation mode switch	pure white	RTF103 rw	2105 153
	black	RTF103 sw	2105 150



Picture room sensor RTF101

General Information

The Ratio® switch actuators/receivers are controlled via radio signal of the Ratio® radio transmitter. Every transmitter can control an unlimited number of actuators/receivers. The Ratio® radio transmitter have a fixed address and must be learned in for Ratio® switch actuators / receivers. With the Ratio® switch actuators various devices, e.g. light bulbs, blinds, gates, doors, control valves and others can be switched.

Product and function description

The battery free Ratio® radio room temperature sensor is a device for the wall installation of temperature and ventilation control systems in connection with UPT and REGH receivers or various gateways for connection to a master control system.

Whenever a measured value changes, or cyclically every 15 minutes, a radio telegram is sent according to EnOcean standard which is received and evaluated by all Ratio® radio receivers. The Ratio® radio room temperature sensor is installed on glass using glue, or on brickwork etc. using glue or screws.

Functions

The following commands can be sent with the Ratio® radio room temperature sensor:

- measure and send the actual value
- measure and send the target value
- measure and send the setting of the operation mode switch

The radio telegram sent is evaluated in the receiver unit.

Learning sensors into receivers

If you push the LRN button, which is visible when the top part of the casing is taken off, a special learning telegram is sent. All Ratio® radio receivers which are in the learning mode at that moment will learn the unique ID sent along with the telegram.

Technical data:

Transmission frequency 868.3 MHz, Bandwidth +/- 120KHz

Transmitting power 10 mW

Modulation processes ASK

Power supply via solar generator, buffering via capacitor, battery free

Measured values

- actual value: temperature: 0 .. 40°C; resolution 8 bit linear measuring accuracy: +/- 1K
- target value: adjustment +5 .. +30 °C; resolution 8 bit linear measuring accuracy: +/- 1K
- operation mode switch 4 positions

Operating elements

1 Learn button for sending a learning telegram

Mechanical data

- casing: plastic ABS
- dimensions WxHxD 80mm x 80mm x 16mm
- assembly: screws or glue with adhesive mat
- weight: approx. 70 g

Electrical safety

- protection type IP20
- protection class III (safety extra-low voltage, DIN EN 60730-1)

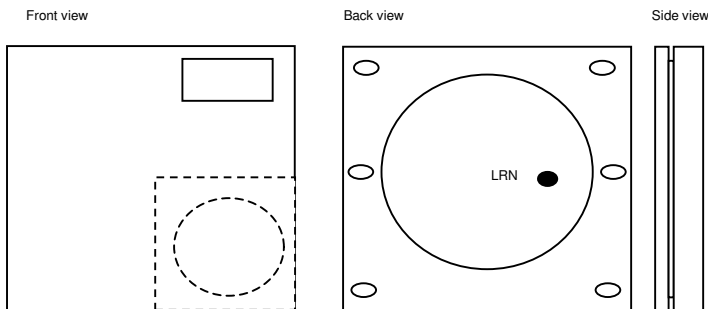
Environmental conditions

- ambient temperature during operation: -20...+ 45 °C
- operating temperature range: 0°C - +50°C
- storage temperature: -25...+ 70 °C
- rel. humidity (no condensation): 5...93%
- condensation not permitted

Approbations

CE according to EMC directives (residential and functional building)
 Comply with the R&TTE directives 1999/5/EC and corresponding EU regulations.

Position and function of the display and operating elements



Assembly

The Ratio® ratiion room temperature sensor is directly mounted on flat surfaces using adhesive agents or screws.

- attach central plate
- disengage radio sensor
- during assembly, make sure to observe the identical orientation

The central plate can be fixed with glue or screws so that it can be attached easily on glass or on walls. On structured surfaces one first has to create a plane surface to rule out the central plate will be deformed during mounting. Unevenness may cause malfunctions. This has to be taken into account especially for installations on rough surfaces. You also have to make sure that no dust particles get inside the radio transmitter.

Screws:

Please use only screws of adequate size. Remove central plate from radio transmitter and use it as a template to mark the boreholes. Drill dowel hole 5 mm, attach central plate and mount switch.

Glue:

The Ratio®-radio room temperature sensor can be glued onto a flat, smooth surface such as glass, painted walls, tiles, furniture, etc. using the enclosed double-sided mounting foil.

Disassembly:

Remove radio sensor by disengaging the latching hook at the top and bottom. Dismantle base plate.

Installation instructions

The Ratio® radio room temperature sensor should not be mounted on surfaces made off metal and not in the vicinity of metal surfaces. The position and the ranges depend on the materials used in a building. See the data sheet Range Planning under www.omnio.ch

Warning

- The device may only be installed and taken into operation by a licensed specialist electrician.
- The applicable safety and accident prevention regulations have to be observed.
- Do not open the device. A defective device has to be returned to the trader or the Omnio AG agency in charge.

Range between transmitter and receiver

The signal strength of the radio signals decreases with rising distance between transmitter and receiver. If there is any visual contact, the range is approx. 30m in corridors and 100m in halls. In buildings the range of the radio signal is dependent on the construction materials used:

Material	Typical range
Brickwork	20m, through max. 3 walls
Reinforced concrete	10m, through max. 1 wall / ceiling
Plaster boards / wood	30m, through max. 5 walls
Heat-insulating windows	5m, through max. 1 window

Limitation of the range of the radio signals due to:

- Assembly of the transmitters / receivers in the direct vicinity of materials with metal components or metal objects. A distance of at least 10cm should be observed.
- Assembly of the receivers on the floor (floor outlet) or close to the floor.
- Humidity in materials.
- Devices that also emit high-frequency signals, e.g. computers, audio and video systems or electronic ballast for illuminants. A minimum distance of 50cm should be observed.

Transmitter telegram structure

Byte	Symbol	Bedeutung	Wert
0	Sync_Byte 1	Synchronisation	A5h
1	Sync_Byte 0	Synchronisation	A5h
2	Header		
3	ORG	Sendertyp	07h
4	Data 3	● Schiebeshalter	
5	Data 2	● Sollwert	
6	Data 1	● Istwert	
7	Data 0	● Digitale Werte	
8	ID 3	Eindeutige Sendernummer	
9	ID 2	Dito.	
10	ID 1	Dito.	
11	ID 0	Dito.	
12	Status	Stausbyte	
13	Ckecksomme	Prüfsomme	

Einzelne Bitpositionen in Data 0:

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
				DI_3	DI_2	DI_1	DI_0
				Lernlaste	Codierung	Codierung	
				●	=1	=1	

Wertebeschreibung von Data3 bis Data 1

● Schiebeshalter	Automatik	190 < n
	Tag	165 < n < 190
	Nacht	145 < n < 165
	Frost	n < 145
● Sollwert (Drehwinkel)	0° (links) = 0, 180° = (rechts) = 255	
● Istwert	0°C = 255, 40°C = 0	
● Digitale Werte	Taste losgelassen = 1, Taste gedrückt = 0	

Legal requirements

The transmitters may not be used in connection with devices that are employed, directly or indirectly, for health- or life-saving purposes or if their operation may cause hazards to human beings, animals or property. Do not leave packaging material lying around carelessly. Plastic foils/bags, etc. may be hazardous toys for children.

These operating instructions are part of the device and part of our warranty terms. They have to be handed over to the customer. The technical specifications of the device may be changed without prior notice. The products may be sold and operated without a license and free of charge in the countries of the European Union, Switzerland, in Croatia and in Romania.

Old devices

Do not throw old devices into the domestic garbage can. The device contains electrical components that have to be disposed off as electronic waste. The case is made of reusable plastic material.

General information

For additional questions, please contact our technical support:

Phone +41 44 876 00 41

Fax: +41 44 876 05 29

Mail: support@omnio.ch

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Issue: September 2005

File: 2103_2104_2105_Manual_ea.doc